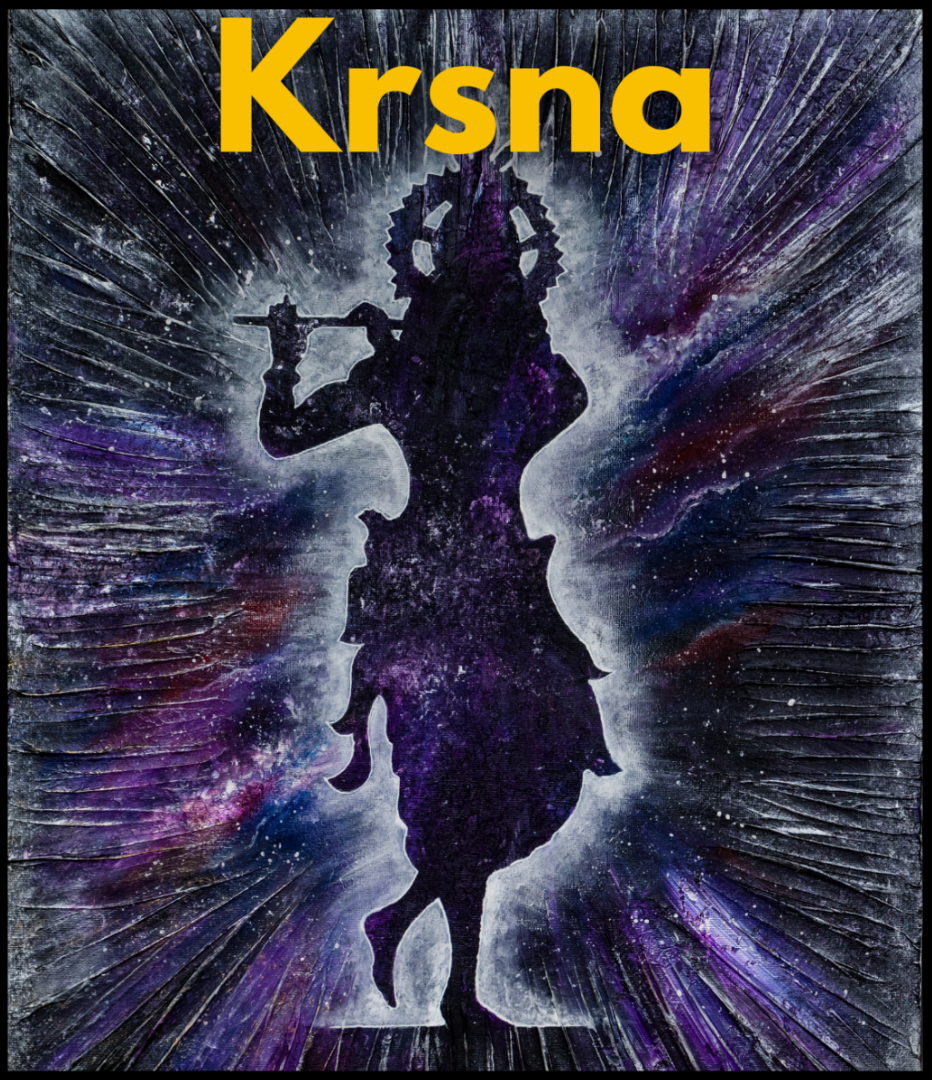
How to Have Better Health To Better Serve Krsna



A no-nonsense guide for losing weight, improving health and preventing disease

CAITANYA CHANDRA DAS

How to Have Better Health to Better Serve Krsna

Caitanya Chandra Dasa
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This is a free e-book, a humble offering to all the Vaishnavas in Srila Prabhupada's movement. It can be downloaded for free at: **https://thepathofbhakti.com/**

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Preface

Once, a senior lady asked: "Why do we have so many devotees with cancer nowadays? We are vegetarians, we are supposed to have a healthy diet and a healthy lifestyle, why so many of us are dying of disease?"

Actually, it's not only cancer. There are so many devotees suffering from all kinds of health problems. This not only causes a great deal of suffering but also makes it harder for one to advance in spiritual life. Our body is just like a vehicle we must properly use to go back to Godhead. If we misuse the vehicle and it breaks, we will be stuck on the way. While we study that we are not the body and so on, the fact is that most of us are still identified with the body. If the body is sick, we also accept that we are sick, which interferes with our devotional practice. While a pure devotee may be capable of executing his service perfectly even with a terminally diseased body, very few of us can make such a claim. For most of us, a diseased body causes not only great suffering but also stunts our spiritual progress.

Although we understand the importance of taking prasadam, we tend to follow the same dietary trends as the rest of the population. As the general society geared towards a diet of refined carbohydrates, sugar, refined oils, and industrialized products, we followed the trend. Srila Prabhupada alerted us to the importance of “simple living, high thinking,” to eat simply and cultivate our own food, but we have been very talented in avoiding this instruction.

The truth is, people, in general, are becoming more and more unhealthy, and we devotees are not much different. We suffer from obesity, diabetes, cancer, and other modern diseases, pretty much like everyone else. Gone are the times when we could claim to be healthier because we are vegetarians.

As a book distributor, I spent many years living in a small van, traveling every few days, taking cold showers, and having few facilities for cooking.

Over the years, this took a toll on my body, and to be able to continue doing my service I had to find ways to improve my health.

Understanding the problem is the first step to a solution, so I started to research, first in the Ayurveda, and then in the modern field. This research led me to identify several habits that are behind many of the health problems we face nowadays. I continued researching in this line and was able to find some surprising information, that although supported by numerous scientific studies (as well as backed by traditional wisdom) only now is becoming widespread.

When I started, I weighed 95 kilos (I'm just 172 cm high!) and would become tired after walking just a few kilometers. I was becoming like one of these Chinese statues of Buddha, which can be a little cute, depending on who you ask, but is not very healthy. By following these tips, I was able to lose 15 kilos in three months, and 23 by the end of the first year, and could easily maintain it afterward. The improvement in my general disposition was immense, I could do much more, and my mind became clear. It was as if I was living under a constant mental fog and carrying a sandbag over my shoulders, and gradually it was removed. I became lighter and happier.

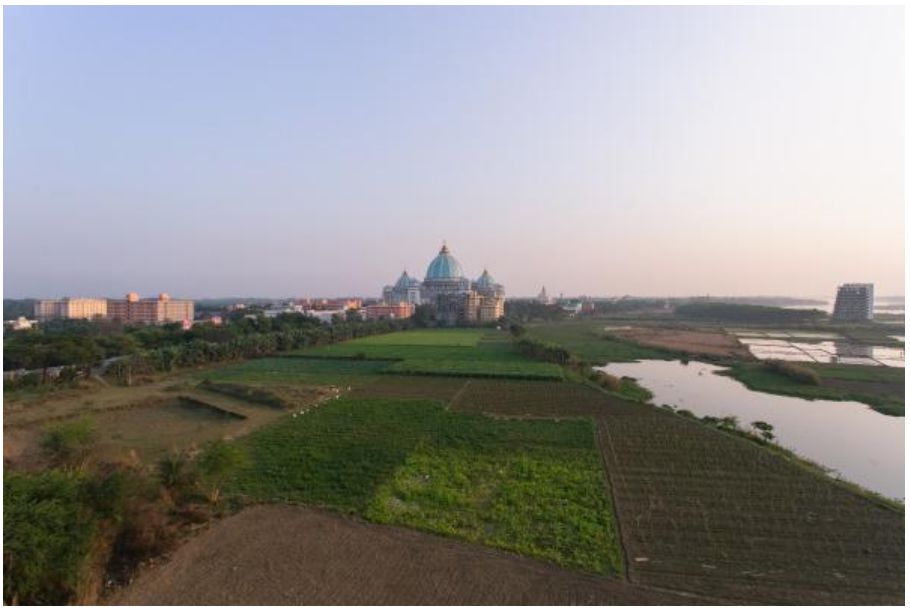
In the case of my wife, the change was even more dramatic. She was not overweight but was suffering from a mysterious debilitating disease (that later we discovered was fibromyalgia), that caused weakness and chronic pain. For three years her condition was deteriorating up to the point she barely had the energy to do basic house chores. We spent a lot of time and money going to different doctors, but none of them was able to help. The same tips that worked for me (combined with a few supplements that I comment on in chapter 5) improved her condition greatly, to the point she became a normal energetic person again.

Over time, I started sharing with others and gradually learned more through experience. That's what I try to share here. Nowadays so many of us struggle to lose weight, and most of us fear becoming diabetic or developing

cancer, as well as any debilitating health condition. It happens that it’s quite simple to maintain good health.

In our culture, we believe that knowledge should be shared. In ancient times, sages would open small ashrams or schools, and share their knowledge with anyone that would come to study with them. In this book, I share what I learned along the way, a knowledge that helped me to improve my health and of others around me. It’s a collection of no-nonsense tips, a series of do's and don'ts that anyone can follow and quickly see results in the form of more energy, weight loss, mental clarity, and even better athletic performance.

While I’m not a doctor and what I share here can’t be taken as medical advice, most of it is based on medical studies or was learned from medical practitioners. You can read and use the information I share here at your own discretion.



Acknowledgments

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My greatest appreciation to Srila Prabhupada, who brought this spiritual knowledge to us at a great personal sacrifice, completely changing our lives, and to my spiritual master to who I'm eternally indebted.

Chapter 1: Understanding Diet and Health

There are two essential factors for good health: we need to exercise, and we need to eat well, maintaining a proper diet. The exercise part is relatively simple: anything that makes one move, like walking, yoga, cycling, or even doing house chores will help. However, when we come to diet and eating habits, things become more complicated. There is so much contradictory advice around that one will have a hard time reaching any kind of conclusion.

I did a lot of research on this area in the past and reached some interesting conclusions, supported both by the Ayurveda and by modern studies. These are rules of thumb that you can use to maintain or regain your health and of your family.

Actually, having a proper diet is even more essential than exercise. If one can keep a healthy diet, he can prevent many different health problems, keep the immune system working properly, and increase the longevity of the body, without having to spend time and money on different treatments.

> *"In Kali-yuga, the duration of life is shortened not so much because of insufficient food but because of irregular habits. By keeping regular habits and eating simple food, any man can maintain his health. Overeating, over-sense gratification, overdependence on another's mercy, and artificial standards of living sap the very vitality of human energy. Therefore the duration of life is shortened." (SB 1.1.10 purport)*

Nowadays, most have very unhealthy diets. What we normally call a "sumptuous feast" is not always very nutritional. Quite the opposite: it usually contains a lot of refined carbohydrates, fried preparations, sweets, and so on, which may taste well but is very unbalanced nutritionally. Once there was a special feast in a temple, with many different preparations, but I noticed that actually, the main ingredients for all the different preparations

were basically the same: rice, white flour, oil, sugar, and potatoes, with a few preparations containing a little milk, paneer or fruits. The different preparations were basically just variations of the same ingredients, mixed with heaps of oil and sugar.

Most people nowadays have a diet based on white flour, rice, refined oils, sugar, potatoes, and meat. It started in the western countries but slowly became popular all over the world. As devotees, we, of course, skip the meat, but we tend to mimic most of the rest of the diet, not only eating a lot of refined, poorly nutritious, processed, sugar-coated, and deep-fried food but also overeating. This combination of refined food and overeating wreaks havoc in our bodies, causing all kinds of premature problems. As Srila Prabhupada points out, the secret is in eating healthy, wholesome foods, and at the same time be moderated:

> *"People in rich nations eat more, become fat, and then pay exorbitant prices to so-called yoga instructors in order to reduce. People try to reduce by all these artificial gymnastics; they do not understand that if they just eat vegetables or fruits and grains, they will never get fat. People get fat because they eat voraciously, because they eat meat. People who eat voraciously suffer from diabetes, overweight, heart attacks, etc., and those who eat insufficiently suffer from tuberculosis. Therefore moderation is required, and moderation in eating means that we eat only what is needed to keep body and soul together. If we eat more than we need or less, we will become diseased." (Path to Perfection, ch. 4)*

In his purport to SB 4.26.13, Srila Prabhupada emphasizes that we should have a simple and balanced diet. Too much rich foodstuffs, he points out, can make one fall down, making him attracted to gross sense gratification:

> *"Sattvika-ahara, foodstuffs in the mode of goodness, are described in the sastras as wheat, rice, vegetables, fruits, milk, sugar, and milk products. Simple food like rice, dal, capatis, vegetables, milk and sugar*

> *constitute a balanced diet, but sometimes it is found that an initiated person, in the name of prasada, eats very luxurious foodstuffs. Due to his past sinful life he becomes attracted by Cupid and eats good food voraciously. It is clearly visible that when a neophyte in Krsna consciousness eats too much, he falls down. Instead of being elevated to pure Krsna consciousness, he becomes attracted by Cupid."*

As explained in the Bhagavad-Gita (17.8), one of the symptoms of food in the mode of goodness is that it is wholesome: pure, nutritious, and health-giving. The effects of such foods are that they "*increase the duration of life, purify one's existence and give strength, health, happiness and satisfaction*". Most food that people eat nowadays is refined, with most of the nutrients taken away, which is a characteristic of food in the mode of passion. As the Lord points out, it "*causes distress, misery and disease.*"

A few years ago, when I started having health problems, first I tried different doctors as almost everyone does. However, in my case, this didn't help much. One thing I learned in this connection is that allopathic medicine is good for treating specific diseases but not very good about maintaining one's health. If we have a bacterial infection, a doctor can easily cure it with antibiotics. If we break a bone, the doctor can put it back in place and then immobilize it so it can heal, and so on. However, when one simply has a general decline in his health, without showing specific symptoms, frequently doctors can do little about it.

Allopathic medicine is good at interventions, but not so great at improving one's health. Ayurveda works under the opposite principle, helping one to improve his health and thus preventing disease. It's great when one can understand and properly follow it, the problem is that many ayurvedic doctors try to use it as a replacement for allopathic medicine, using ayurvedic medicines to try to cure specific diseases like in allopathic medicine, without however paying much attention to the underlying causes. There are still a few good Ayurvedic masters available in certain places, but unfortunately, the number of proper Ayurvedic practitioners is declining.

For the ones who live outside of India, the chances of meeting a qualified Ayurvedic doctor are not very great.

One solution I found that is available for everyone regardless of the place of living is to change one's diet, simply eating nutritious food at the right times. As the saying goes "Let food be thy medicine".

The human body is a very amazing machine in the sense that it can repair itself from most damage. The problem is that to be able to repair, the body needs spare parts: different types of vitamins, minerals, and other nutrients that are used to build and repair different tissues, produce different types of hormones, and other important assets. Without the necessary nutrients, the repairing processes are hampered and the body starts to break down, just like a car that doesn't receive proper maintenance. We then go to see a doctor, and expect that he will be able to magically solve all the problems with a pill.

To have a proper diet is essential to keep our health. If one can keep a healthy diet, he can prevent different health problems, keep the immune system working properly and increase his longevity, without having to spend time and money on different treatments.

How disease is cured

One interesting point about health is to understand how disease is cured and how damage to the body is healed. Let's imagine that someone broke a leg and went to the hospital to fix it. The doctor takes an X-ray to see how bad it is, does some manipulation to put the bone in its proper place, uses plaster to immobilize it, and sends the patient back home with the recommendation to rest and drink plenty of milk.

We can see that the doctor can't directly fix the bone. All he can do is create the necessary conditions so the body can heal itself, by immobilizing the leg

and giving it calcium and other nutrients, so the body has the necessary raw materials to heal. In any case, all the healing is done by the body. The doctor can just adjust the conditions so the body can heal itself. We can observe that in most other conditions.

The Ayurveda, as well as most other systems of traditional medicine are based exactly in restoring the equilibrium of the body, so it can heal itself. The most basic condition for this to happen is that the body has the proper raw materials and the proper conditions. That's precisely what our modern lifestyle negates.

Going back to the example of the broken leg. Let's say that instead of drinking milk and eating real food, our friend decides to eat a lot of french fries and take a supplement based on calcium carbonate. Calcium is needed in order for the body be able to fix a broken bone, however, to properly absorb and transport calcium, the body needs vitamin D, and to properly mobilize it, making it fix in the right place (in the broken bone, instead of forming plaques in the arteries, for example) it also needs vitamin K2. Finally, to use calcium, the body also needs magnesium.

We can see that in this case, apart from the calcium, at least three other nutrients are needed. If one or more are in short supply, the process will not work very efficiently.

Interestingly enough, full-fat milk has both calcium and magnesium, therefore a good amount of milk, combined with a good diet and sunlight would offer good raw materials for the healing of the bone. However, our friend decided to discard the advice and instead adopted a diet based on french fries, which hardly have any nutrients at all. To make matters worse, he decided to take calcium carbonate, a very low-quality supplement with low absorption. Without the proper building blocks, his body would have a hard time and the bone would take a long time to heal. At the same time, the poor diet would probably cause other problems. Without vitamin K2, for example, it's not such a good idea to take more calcium, since the calcium

may end up in the wrong places, causing plaques in the arteries or even cataract (which is accumulation of calcium in the retina).

From this we can detect two problems we frequently face nowadays: we fail to supply our bodies with the necessary nutrients, and try to cover for it with synthetic medicines or low-quality supplements.

This is especially true with industrialized products: there is not a single industrial process that increases the nutrition of the food we eat. Every time any grain, vegetable, nut or fruit is processed, part of the nutrients are lost. The more something is processed, the less nutrition is going to remain. As the original ingredients are stripped of their fiber content, dried, heated to high temperatures, combined with unhealthy ingredients, like sugar, refined vegetable oils, and so on, they become progressively unhealthier, to the point they start to actually become toxic.

For example, wheat in its original form is rich in B vitamins and a few minerals, such as iron and magnesium. When the wheat is converted into flour, most of the nutrients are lost (since the bran and the germ are discarded) and the little that is left is lost in the bleaching process (used to make the flour white). To try to fix it, the white flour is sometimes enriched with some synthetic B vitamins, iron and calcium. Although this helps to alleviate malnutrition on vulnerable populations, these synthetic nutrients are a far cry from what was originally there. They are cheap chemicals, with low bioavailability, that often do more harm than good.

Let's say that this white flour is now used to make biscuits. The white flour is then mixed with hydrogenated fat, sugar, and artificial flavorings, creating a final product that is even worse. To add insult to the injury, preservatives are often added to increase shelf-life.

We can see that the humble wheat ends up being converted into something that is quite bad for our health. The same is true for most other industrialized products. One of the secrets of a good diet is to avoid

processed products and instead focus on “real” food: vegetables, fruits, nuts, seeds, whole grains, legumes, different types of millets, milk products, herbs, and so on.

To function properly and repair wear and tear, our bodies need a lot of different nutrients. It’s actually not so easy to get all the nutrients we need from the food, especially nowadays, when most of the soil is depleted in minerals. Most people nowadays don’t get enough nutrients from what they eat. Although we can survive with much less than the ideal, many functions of the body will be impaired, and therefore one will not have the best health.

Apart from proteins and fats, there are 13 essential vitamins, 16 essential minerals, and a great number of other trace minerals. All these different nutrients are essential for certain functions of the body, just as much as different materials are essential for the operation of a construction company.

Let's imagine that a large construction company is hired to repair a dilapidated building and build a few new expansions. The manager supplies the workers with plenty of cement but forgets about other materials and components, such as steel bars, wood, pipes, wires, glasses, doors, paints, etc. Without such materials, how are the workers supposed to fix or build anything? Instead of being fixed, the building will just continue to degrade.

Similarly, when we don't get enough nutrients from our diet or we eat foods that are actually toxic, the body starts to just break down. It may start to show all kinds of strange symptoms that doctors are frequently not prepared to deal with. The doctor may then ask for a few tests, then for a few more, and a few more on top of them. Finally, not being able to find anything wrong, he may conclude that it must be a psychological issue and send the patient to a psychiatrist, who may end up prescribing drugs for schizophrenia! One could end with more problems than he started with.

Many start to feel tired or have different problems and end up having their condition classified as psychosomatic or as some mental disturbance, since the doctors can't find anything wrong with their bodies. We can observe in our society many cases of devotees who start to feel tired, or have different problems and end up being classified as "mental" since the doctors can't find anything wrong with their bodies. On top of the physical difficulties, they also have to deal with emotional trauma.

The reason most doctors are not able to help in such cases is that allopathic medicine is based on masking symptoms and not so much in investigating the underlying causes of the disease. Someone with fibromyalgia (a condition common in women, that causes weakness and pain) could end up being given antidepressants. This would make the person feel better for a time, but without treating the underlying causes, it would just make the condition worse in the long run.

In other situations, not being able to correctly identify the problem (since one may actually have multiple problems simultaneously and show a multitude of unrelated symptoms) a doctor may try to prescribe multiple medicines to address each of the symptoms separately, and a few more to counteract the side-effects of the first batch. The patient ends them with a bag of medicines and a progressively weaker health. Most of us know many such stories. This is one of the reasons many become interested in alternative medicine: even if it may not be able to help much, at least it doesn't involve so many dangerous drugs and don't have so many collateral effects.

Instead of falling into this circle, it's much more productive to start by fixing our diets, eating nutritional food, and offering the body the right conditions to heal. This is something that costs little and has no side effects. After following this regime for a few months, the majority of one's health problems will be solved automatically. He can then seek a doctor's help to treat any major problem that is left. Chances are that with the problems

narrowed down to just a few symptoms, the doctor may really be able to help.

The takeaway is that modern medicine is focused on medication, not on diet and proper eating habits. People become diseased because of their poor diets and hectic lifestyle and frequently doctors can do little to help them. To avoid this, one needs to understand how his own body works and fix his diet and habits. Without changes to our eating habits and lifestyle, we shouldn't expect that some magic pill will solve all our problems.

Three health issues that are the source of most other problems

Of all the different health problems we face nowadays, three are especially significant. In fact, most other health conditions are caused or accentuated by these three. By solving these three problems we become less susceptible to all kinds of diseases, from flu to cancer. Incidentally, all three of them are connected with our eating habits.

The first is a condition called insulin resistance. Insulin is an essential hormone for the body. It allows us to use glucose, which is the basic fuel for all the cells in the body. Inability to produce insulin is called type 1 diabetes, a condition where the body loses the ability to control the levels of glucose in the blood and of using it as a fuel, resulting in serious problems.

Every time we eat foods rich in carbohydrates, the digestive system breaks the starches in the food and dumps the resulting glucose in the bloodstream. As a response, the pancreas secretes insulin, which signals to all cells in the body that they should absorb this glucose and replenish their reserves. As the cells pick up the glucose, the levels in the blood normalize, at least until the next meal, when the process repeats itself. High levels of free glucose circulating in the blood are toxic (we can see how much this

can be a problem in the case of diabetic patients), therefore everything needs to work like a clock, so the glucose levels don't rise so much.

Eating carbohydrates is a normal process. Human beings have been eating grains, fruits, roots, and other foods rich in carbohydrates since the beginning of time. The problem is that our modern diets are too rich in refined carbohydrates and sugars (imagine yourself eating a cake, which is basically a combination of white flour, oil, and sugar). This type of refined carbohydrate is digested very quickly. The resulting glucose inundates the blood, provoking an equally strong insulin response. This creates a roller-coaster effect, where the glucose in the blood rises too fast, and then (due to the strong insulin response) drops too low. This makes one feel hungry, which makes him repeat the process, eating again after a few hours. As this repeats, the cells in the body stop responding to the insulin, forcing the pancreas to secrete higher and higher doses to get the same level of response from the cells. It’s just like if the cells would start to become deaf and the pancreas would be forced to scream higher and higher to get their attention.

This resistance from the part of the cells and the resulting higher levels of insulin leads to a condition called insulin resistance, in which the body tries to compensate for the resistance from the cells by pumping more insulin. One can then end up with levels of insulin up to four or five times higher than normal and still have high blood sugar, a combination that results in serious problems.

Insulin is such a dominant hormone that it will block other important hormones (such as growth hormone) resulting in a lot of abdominal fat and less muscle. Over time, this condition can lead to type 2 diabetes, a very debilitating disease.

The difference between type 1 diabetes and type 2 diabetes is that in the first the body is not capable of producing sufficient insulin, and in the second the insulin production is normal, but the cells stop responding to

normal levels of insulin, forcing the pancreas to produce much larger doses to compensate. In short, type 1 diabetes is caused by a lack of insulin, and type 2 diabetes by an excess of insulin due to the resistance of the cells.

It happens that most people who adopt a diet rich in refined carbohydrates end up developing insulin resistance to a higher or lesser degree. According to recent research (‘Insulin Resistance: Insulin Action and its Disturbances in Disease’ by Sudhesh Kumar and Stephen O'Rahilly), insulin resistance is the cause of most health problems, including:

- Metabolic syndrome
- High blood pressure
- High Cholesterol
- High Triglycerides
- Fatty liver
- Obesity
- Diabetes
- Inflammatory conditions (arthritis, tendonitis, autoimmune reactions, hormonal problems)
- Contributes to heart problems, dementia, problems in the eyes, etc.
- Lack of concentration, brain fog, weak memory

In other words, insulin resistance is actually a factor behind the development of most chronic diseases. Research from the TGHRI (Diabetes 2015 Jun; 64(6): 1886-1897) points out the existence of an important link between chronic inflammation, poor immune responses, and insulin resistance. It happens that insulin is an important hormone for the immune system. The T-cells (just like all other cells from the body) can become insulin resistant, and when this happens, they ignore the signals from the body when there is an infection. Insulin resistance almost always comes together with high blood sugar, which is another factor that suppresses the immune system. The combination of these two factors results in a sluggish immune system that undermines the capacity of the body to fight disease.

Insulin resistance is caused by a combination of a diet rich in refined carbohydrates and sugars and the habit of eating frequently. Unfortunately, most people nowadays have insulin resistance to a major or minor degree. If you crave sweets or carbohydrates and have difficulty concentrating, mood swings, or dizziness after a few hours without eating, you probably already have it to some extent.

Apart from the effects on the immune system, another of the major consequences of insulin resistance is weight gain, which may lead to obesity over time. One thing actually leads to the other. The main causes of insulin resistance are sugar and refined carbohydrates. Every time we eat foods like cakes, bread, biscuits, or sweets, the glucose in the blood rises quickly, forcing the body to respond by releasing a great deal of insulin. The insulin makes the glucose be quickly stored as fat in the cells (instead of being converted into energy), and thus lowers the blood sugar. The consequence of low blood sugar is that we feel hungry or dizzy again after a short time, tending to repeat the dose. Every time the cycle repeats, we gain a little bit of fat and we make the cells of our body more resistant to insulin. Over time, we start to accumulate more and more fat (which may lead to obesity), and the pancreas is forced to release more and more insulin to compensate for the resistance of the cells (leading to insulin resistance). As we can see, these two problems frequently walk together.

It's important to understand that obesity is not genetic, nor is it necessarily caused by a lack of willpower. Rather, it's caused by one’s eating habits. The same person that can gain weight very easily on a diet of refined carbohydrates and sugar, can lose weight equally quickly on a healthier diet. Some people gain weight easier than others, but any person can maintain an ideal weight under the correct diet.

One of the main pillars of a good diet is to reduce (or completely avoid) refined carbohydrates. Much of what I write here is dedicated to explaining

how to do that. Once this is done, problems like insulin resistance and obesity are also automatically treated.

Finally, we have the problem of inflammation. Actually, inflammation is a natural function of the body that increases the blood flow on damaged areas, facilitating the healing process. Inflammation is a problem when it becomes chronic.

Chronic inflammation is especially connected with painful conditions, like tendonitis, arthritis, etc. It can also aggravate circulatory problems in the arteries, heart, and brain, and even cause or contribute to the appearance of certain types of cancer. Just like insulin resistance, chronic inflammation can cause many different health problems. Many of these conditions are actually a combined result of both.

It happens that just as in the case of insulin resistance, the main cause of chronic inflammation is a bad diet: refined carbohydrates are also highly inflammatory. There is also another factor, which we are going to discuss in more detail a little later: refined vegetable oils (like sunflower, canola, corn, and soy oils). These oils are too rich in omega-6 fats, as well as other inflammatory substances. Their regular consumption is another important factor that leads to inflammation, especially considering that they are combined with refined carbohydrates in most of the snacks we eat on a daily basis.

When one is young, the body can take a lot of abuse. One may eat pancakes with soda for breakfast, a sandwich and fried potatoes at lunch, and pizza for dinner (with a few sweets and snacks in between), and still be able to function. However, as we get older, the body becomes much more sensitive. It comes to a point (for most people it is around their 40s) where we have to choose between cakes, soda, and milk shakes and our health. The ones who choose wisely may be able to remain active and healthy for 20, 30, or even 40 years more. Others often start to face serious health issues after a few more years. One may not necessarily die earlier because of a bad diet, but it

will greatly decrease his vitality and energy, causing all kinds of premature health problems that may be very difficult to treat. We fear invalidity, pain, and suffering in old age, and having a better diet is the surest measure we can take to avoid that.

Chapter 2: What to use and what to avoid

Almost everything in excess can become bad. For example, water is essential for life and therefore the general recommendation is to drink plenty of water. However, even water in excess can be harmful. In certain conditions (like serious dehydration), people can even die if they drink too much water!

Another example: selenium is an essential mineral that plays a critical role in metabolism and thyroid function, helping also to protect the body from oxidative stress damage. Lack of selenium can cause a multitude of problems, including even higher risk of cancer. However, too much selenium can also cause problems, such as hair loss, nail brittleness, nausea, diarrhea, skin rashes, fatigue, irritability, and so on. Similarly, many other nutrients can become toxic if the dose is too high. Thus we can understand that a balance is necessary.

Under normal conditions, it’s practically impossible for a person to get dangerously high doses of selenium from food. Theoretically, a person that would eat a huge quantity of Brazilian nuts every day, for a long period, could get a dangerous dose of it, but normally this would not happen, since a person would lose the appetite for the nuts as soon as the body would start getting too much of it. However, if someone would start taking selenium in a concentrated form, it would not be difficult to get a dangerous dose.

Similarly, many nutrients that are useful actually become dangerous when consumed in a concentrated or adulterated form. Table sugar, for example, is nothing more than the combination of glucose and fructose, two types of sugars that are naturally found in fruits. Glucose is the main source of fuel for the brain (it’s actually impossible to live without glucose: even if one doesn't eat any, the body will synthesize glucose from fat and protein) and fructose that is used by the liver to produce fat that can be used in times of

scarcity. People have been eating fruits (and thus this combination of glucose and fructose) since the beginning of time and they were healthy. When however people start to eat the same in the form of sugar, which is the isolated, concentrated form, they start having problems.

Let's start with a few things that should be avoided, and what can we use in their place:

The problem with refined vegetable oils

In the 19th century, the US had a serious ecological crisis: after extracting the fibers, cotton planters were throwing the seeds in the rivers, creating pollution. As a response, the government passed a law prohibiting the practice. This became a problem for the planters, as the cotton seeds started to accumulate in their properties. For every 100 kilos of cotton fiber that one can get from the plants, there are 162 kilos of cotton seeds, so we can just imagine the huge piles of cotton seeds sitting in the farms.

Some intelligent man developed a technique to extract oil from the seeds, using chemical solvents. This oil was not considered edible, therefore it was sold as lamp oil. Since this oil was essentially made out of garbage, it was cheap to produce and therefore his company was able to make a good profit.

Later, cheaper kerosene oil made from petroleum pushed him out of business. He had then one of these crazy ideas: Maybe instead of selling his oil as lamp oil, he could make people eat it! After perfecting the production of the cottonseed oil, and adding a hydrogenating process, he came up with something that could be used in place of butter or lard. This led to the creation of a product called Crisco, that made millions of dollars to the people involved.

Similarly, other refined vegetable oils originally appeared as ways to use the waste from other production lines. Corn oil is made out of the germ that is left after the milling. The germ is mashed, mixed with a petroleum solvent (that binds to the oil), and then separated from the solvent using an industrial process that involves bleaching and other operations. Similarly, rice oil is made out of the germ of the rice, which is discarded after the polishing process used to make white rice. In fact, most of the refined vegetable oils in the market are made out of refuse. They appeared not out of a desire for something healthy, but simply out of the desire for profit, turning rejects that could be got cheaply into something that could be sold for more.

Traditionally, the only oils used by humans were ghee (in the case of civilized societies), animal fat (in the uncivilized ones), and cold-pressed oils. Ghee has a lot of medicinal properties, but it is also very rich in saturated fats, therefore too much ghee can easily cause indigestion. Because it's difficult to digest and expensive, people would use it in small quantities. Cold-pressed oils were also expensive, therefore also not used on a very large scale.

This changed dramatically when cheap refined oils, made from sunflower seeds, corn, soy, rice, cottonseed, etc. became available in mass. At first, these oils were marketed as healthier alternatives to butter, but gradually more and more evidence started to point that they are actually very detrimental to our health, just like margarine was for a long time marketed as a healthy product, until the evidence of it's dangerous effects later became clear.

As mentioned, these cheap refined vegetable oils are obtained through the use of chemical solvents like hexane, which comes from petrol and is toxic. These solvents allow factories to extract almost all the oil from the seeds and grains (different from cold pressing, which extracts only a percentage), making the final product very cheap. The problem is that the final result is

very unhealthy, heavily processed, devoid of useful nutrients, and containing residues of the chemicals used to extract and process them.

Even if we forget about the solvents (or find some brand that produces cold-pressed oil), most oils made from grains and seeds still have another problem: they all have too much omega-6.

One very important point when we speak about health is the balance of omega-3 and omega-6 fats. Both omega-3 and omega-6 are types of polyunsaturated fats that, in small amounts, are essential for different functions of the body. The problem starts when one gets too much of it. Omega-3 is beneficial, but too much omega-6 is dangerous because it provokes inflammation and interferes with the normal operation of the cells. Inflammation causes pain, lack of energy, mood swings, and so on. Basically, it saps our energy and makes us feel uncomfortable. Chronic inflammation is also behind many serious diseases, including arthritis, atherosclerosis, and even some types of cancer.

Ideally, the proportion of omega-6 to omega-3 should never be superior to 4:1 (four parts of omega-6 for each part of omega-3) since they compete with each other in many bodily functions (the more omega-6 one eats, the more omega-3 he will need to compensate). The tricky part is that most lacto-vegetarian sources are imbalanced, containing a lot of omega-6 and little omega-3. Some sources, like walnuts, milk, and butter, offer more or less balanced amounts, but practically, only chia seeds, flaxseeds, and chlorella have more omega-3 than omega-6. For a vegetarian, the best is to reduce the intake of polyunsaturated fats in general, so we can keep the imbalance small.

Butter has only a small amount of polyunsaturated fats. Olive oil and mustard oil are moderated, just like most grains and seeds in their natural form. The biggest villains are the above-mentioned refined vegetable oils, which include just one constituent of the grains and seeds in a concentrated and adulterated form. They have a very detrimental effect on our health.

Sunflower oil, for example, is almost 70% omega-6, with little saturated fat and almost zero omega-3. Even refined oils that offer a little more balanced amounts (like canola oil) are not effective in balancing it, because the omega-3 becomes oxidized during the refining process, and thus loses its properties, becoming just another detrimental type of fat.

Even relatively small amounts of vegetable oils in our diet are going to create a disbalance in the omega-3 to omega-6 ratio, and large amounts can create serious problems. When we take into account how much of our diet is based on these oils, we start to see the magnitude of the problem.

Not only are they prejudicial, but because these oils are light and easy to digest, we tend to eat a lot. One can eat a tray full of samosas fried in sunflower oil and live to eat another day, leaving his body to somehow deal with all this omega-6 fat.

Another problem with refined vegetable oils is that they become toxic when heated to high temperatures. It comes from the polyunsaturated fats present in them. These unstable fats produce hazardous compounds when heated to high temperatures, therefore they are not suitable for frying or for baking in high temperatures. For these uses, saturated fats like ghee or coconut oil are more recommended, because saturated fat is much more resistant to high temperatures, maintaining its molecular structure. Still, fried food is not going to be very healthy, even if fried in coconut oil, but it's much better than food fried in refined vegetable oil.

In general, oils rich in saturated fats (like ghee and coconut oil, as well as butter) are neutral, serving as a source of energy and some nutrients without harming our health. They are the types of fat recommended for most uses. A second option is cold-pressed oils, like olive oil, sesame seed oil, mustard seed oil, flaxseed oil, and palm oil. As long as they are cold-pressed, these oils preserve the nutrients and are not chemically processed. The main problem is that cold-pressed oils (especially olive oil) are expensive and thus frequently adulterated with cheaper refined

vegetable oils (usually canola or soy oil). If you go this route, it's important to check if the oil you are buying is pure.

Here is a shortlist of some healthy oils that one can consider using:

Ghee: Very rarely go rancid, can be used for frying, rich in vitamin A, D, E, and K2, of which many of us are critically deficient. Also has a good amount of omega-3 in the active form (DHA), being (alongside other milk products) practically the only source of this essential fat for vegetarians. Although the body can produce some DHA from the ALA found in vegetable sources, this conversion is inefficient and many factors can suppress it.
The advantage of ghee over butter is that it has a much higher smoke point, and thus can be used for cooking or baking (or even frying). Due to the purifying process, ghee doesn't contain significant amounts of lactose or casein, therefore it can be used by people with intolerance to milk.

Coconut oil (cold-pressed): Similar to ghee in terms of fat composition, but lacks most of the vitamins and the omega-3. On the other hand, it’s rich in lauric acid, which has antibacterial properties. It’s another very healthy oil.

Extra-virgin olive oil: Olive oil is another good quality oil that has positive properties. The problem is that one has to do his research to avoid adulterated products. Recent research showed that more than 70% of the olive oil sold in the US is adulterated. In third-world countries, the percentage can be even higher. Adulterated olive oil is frequently just a blend of refined sunflower and canola oil, with a small percentage of olive oil and chemicals to imitate the taste and color. There may be also adulteration with inedible oils (like lamp oil made from rotten olives picked from the ground, a rancid oil that is then washed with solvents to suppress the bad smell). Real olive oil is expensive. Every time you see a bargain, there is every reason to be

suspicious. Extra-virgin olive oil should also not be heated to high temperatures, it's a type of oil to put on top of food at the time of serving, not to fry or cook with.

Palm oil (cold-pressed): Just like coconut oil, cold-pressed palm oil is rich in saturated fat. It's not particularly good, but it's still a stable, natural oil that can be used in small amounts. However, not all palm oil in the market is of good quality.

Mustard oil (cold-pressed): Common in India, mustard oil can also be used in small amounts. However, it can be dangerous if we eat too much of it due to the high content of erucic acid.

Linseed oil: Has the highest concentration of ALA (vegetal omega-3) amongst all types of oil, it's a very important supplement. This oil goes rancid extremely quickly in contact with air, therefore it should be used only in cold preparations, just like olive oil. Once the bottle is opened it should be conserved in the freezer.

Sesame seed oil (cold-pressed): Cold-pressed sesame seed oil is another oil that may be used. The problem with cold-pressed sesame seed oil is that it can go rancid in a period of a few months, therefore it needs to be bought fresh and kept in the fridge. This oil is also not suitable for frying and has a high content of omega 6, therefore should be used in moderation.

Here is a shortlist of oils that should be avoided:

Hydrogenated fats (trans fats): Nowadays the danger of trans fats is well known, to the point their use is now restricted in most of the world. However, they are still used to different degrees in industrialized food. Although the manufacturers are forced to state the amount of trans fats in their products, there is a trick they frequently use to mask it: make the portion size so small that the

amount of trans fats equals to less than one gram per portion, and then round it to zero. If you can, it's better to stop consuming all types of industrialized food or keep it to a minimum, this way one can have a happier and longer life.

Refined vegetable oils: All the above-mentioned oils, industrially extracted from grains and seeds using chemical solvents, like soy, corn, rice, cottonseed, canola, and sunflower oils.

Refined olive oil (olive pomace oil): After passing through the cold pressing process, the rest of the oil in the olives is extracted using chemical solvents and heat, in a refining process very similar to the one used on cheap vegetable oils, and should be avoided for the same reasons. This type of oil can be sold under different names, like "pomace olive oil" or "extra-light olive oil". This is a clear oil, that lacks the strong smell and taste present in the extra-virgin olive oil.

Rancid oils: Oils generally don't spoil, but they can go rancid. Oils go rancid through a chemical reaction that causes the fat molecules in the oil to break down. This is a process that happens naturally (even refined vegetable oils have a shelf-life of about one year) and the process is accelerated by exposure to air, light, and heat. That's the main reason why most oils from vegetable sources should not be used for frying: the high temperatures, combined with the contact with the air make the oils quickly go rancid. Rancid oils are very detrimental to one's health. They are known to be pro-inflammatory and cause free radical damage to the cells.
Ghee and coconut oil rarely go rancid, but most other oils do. Cold-pressed oils, like mustard oil, and especially flaxseed oil can go rancid in a period of a few months even if just sitting in the bottle. These types of oil should be bought fresh and stored in the fridge or freezer.

The problem with sugar

Few are going to disagree that sugar is bad for our health. Apart from being high-glycemic and favoring weight gain, another problem with sugar is that the body needs a lot of different minerals and other nutrients to metabolize it (it's quite a complex process executed by the liver). Natural sources of sugar, like sugarcane and dates, are also rich in minerals, as well as fibers, therefore the body gets what it needs. When the sugar is refined, such nutrients are lost, and the body has to sacrifice its own stock of nutrients to metabolize the sugar, which leads to deficiencies. In other words, nature created fruits and vegetables rich in sugar as a package that contains what the body needs to metabolize it. The problems start when we dismantle the package and take only the sugar.

If we eat a little bit of sugar in some preparation rich in nutrients (like when we take a small piece of milk sweet after a meal, for example), it's probably not going to do any harm, but if we consistently exaggerate in foods that have a lot of sugar and little nutrients, we may face serious problems later.

The worst possible way to consume sugar is when you take something very rich in sugar by itself, as a snack or drink, and not as part of a meal. For example, many have the habit of drinking soda, coke, or other soft drinks. Soda is basically just a combination of sugar and citric acid. A 600 ml bottle has about 60 grams of sugar, which is already far more than we are supposed to consume in a day. Someone that got the habit of drinking it when he feels thirsty, can end up ingesting more than 100 grams of sugar per day just from the sodas!

Sugar can very easily cause weight gain. Most of the obesity we see all over the world is because of the increase in the consumption of sugar. Why does sugar cause more weight grain than a plate of rice and beams, for example? The answer is in the composition.

Table sugar is composed of a combination of fructose and glucose. Although considered a type of sugar, fructose is metabolized by the body in a quite distinct way. No cell in the body can use fructose directly, therefore it needs to be converted into glycogen or into fat by the liver. This is quite a long and complicated process.

The first problem is that in order to convert fructose, the liver has to execute a complicated process that involves the use of minerals like magnesium and zinc. Sugar contains only trace amounts of such minerals, therefore the body has to use its own minerals in the process, causing deficiencies. Minerals are one of the biggest deficiencies in modern diets because commercial agriculture depletes the soils. To eat foods that deplete minerals that are already in short supply in the body is not a good idea.

The second problem is that the liver can store only a very small amount of energy as glycogen, about 300 to 400 calories in total. In practice, it is much less, since (unless one is fasting for several days) the storage will be always partially full. Most of the time the liver will not have space for more than 100 or 200 calories. All the fructose that exceeds this amount is going to be stored as abdominal fat (which is the most dangerous type of fat, stored in the belly, around the vital organs). Not only does too much fructose causes accumulation of abdominal fat, but it also may lead to fat liver, and even non-alcoholic cirrhosis, a dangerous condition.

When one eats a small quantity of fructose, like in a fruit, for example, this is not a problem, since the body would just use it to replenish its reserves of glycogen or store it as a very small amount of fat that would just be used later. Sugar, however, is usually eaten in much bigger portions, resulting in the accumulation of visceral fat.

The third problem is the associated glucose. Sugar contains glucose in its refined form, therefore the absorption is extraordinarily fast. When one drinks a bottle of soda, the glucose is very quickly absorbed and injected into the bloodstream. This forces the body to release a huge amount of

insulin so it can be absorbed by the cells. Insulin increases hunger, and at the same time blocks the burning of fat. These two factors in combination assure that whatever you eat alongside the sugar will be stored as yet more fat. Over time, the fat accumulates and one becomes obese. Most cases of obesity are associated with excess sugar.

There is also a fourth factor, which is perhaps even worse: high glucose in the bloodstream is highly oxidative. In other words, it basically rusts our body from the inside. Not only does it cause premature aging, but it also attacks our veins and arteries. We can see practically that people with diabetes usually have serious problems related to the vascular system, which results in damage to the kidneys, and eyes, circulatory problems in the hands and feet, etc., problems that are directly caused by high levels of glucose in the blood, a serious problem for diabetics. A non-diabetic person will not face such serious problems because the body can respond to the increase in the glucose levels by releasing more insulin. Still, the glucose can cause a lot of damage, especially to the arteries, which over time result in clogs. Many think that clogs in the arteries are caused by cholesterol, but actually, the cholesterol is a response from the body to the damage caused by the glucose, just like firefighters are a response to a fire and not the cause of it.

The antidote for the oxidative damage caused by glucose is antioxidants, which are found in fruits and vegetables. Therefore, to reduce the damage caused by the glucose, we need to act on two fronts:

a) By making it be absorbed by the body slowly, which means to consume foods with a lower GI, where the starches and sugars are combined with fibers and other nutrients.
b) By eating plenty of antioxidants, which implies a diet rich in vegetables and fruits.

By doing these two things in combination, the damage is contained and the glucose can feed our cells instead of poisoning our body.

We can see that sugar is both high-glycemic (being absorbed very quickly) and completely devoid of antioxidants. This combination makes it very damaging to the body. It’s better to limit our consumption of sugar to natural sources, like fruits. Different from table sugar (which is the concentrated, isolated form) fruits are a package that includes fibers, vitamins, minerals, and a good amount of the all-important antioxidants. Two observations about fruits: it is always much better to eat fruits whole, instead of making juices (which takes out the important fibers), and although fruits are generally healthy, they can still have adverse effects if we eat too much of them.

If you are going to take juices, another alert is that the only acceptable fruit juices are the ones you make at home. Industrial fruit juices are stripped from all the fibers and most of the nutrients are destroyed by the pasteurization process and contact with the air. In fact, orange juice loses its taste and color completely during the processing, becoming a white liquid that has to be mixed with citric acid (which is actually produced from black mold) and other flavoring and coloring agents so it can again look and taste like orange juice. Industrial fruit juice is not much better than soda or coke. If you don't drink soda, you are also not going to want to drink it.

Apart from fruits, there is also the option of using honey (provided you can get “real” honey, not the processed, adulterated type that is sold nowadays under many brands). Chemically, honey may be similar to sugar, but the way it acts in the body is very different. Many recent studies point out that honey has a positive effect on the body and traditional Ayurvedic medicine recommends it as a means to preserve health and increase longevity. Different from white sugar, honey contains significant quantities of antioxidants, enzymes, and minerals, as well as an antibacterial agent that acts against microbes and germs, preventing different diseases (if you put honey in an open wound and cover it with a bandage, it will cure much faster, for example).

If you are a vegan and don't eat honey, two other options are molasses and dates. Molasses are the “good” part of the sugar cane, which is left after the white sugar is extracted. Molasses concentrate practically all the minerals and most of the vitamins of the original sugar cane. The problem is that molasses have a strong taste that many don’t appreciate, therefore many brands mix table sugar on it, selling a concoction that often contains very little molasses. The same applies to brown sugar, which is almost always a combination of white sugar and a small proportion of molasses. If you want to try, you should do your research first. Real molasses is very dark, has a strong taste, and is only mildly sweet. It's usually sold as "blackstrap molasses".

Another good option is dates. They are so sweet that can also be used as a natural sweetener in many circumstances. However, just as honey, they contain several important nutrients, which (in the right quantities) make them beneficial for our health. By using small quantities of honey, dates, or molasses instead of sugar, we are taking out something that is harmful to our health and adding something that (in moderate amounts) can actually be beneficial.

Not only is sugar unhealthy, but it is highly addictive, messing up with the chemistry of our brains. Every time we eat sugar, opioids, and dopamine are released. Dopamine is a neurotransmitter, a key part of the reward circuit of the brain. Every time we eat sugar, dopamine is released and we experience pleasure, which in turn leads us to want to re-experience it. Research shows that sugar can be as addictive as drugs like cocaine, leading to cravings and compulsive behavior. We can practically see that many become addicted to oreos, milkshakes, soda, and so on, and for most it’s very difficult to stop.

Human beings are accustomed to consuming sugar in the form of fruits and honey since antiquity. The point is that, as explained, the sugar in fruits is not concentrated like white sugar, and therefore the effects are mild. Although many people like to eat fruits, we don’t see people addicted to apples or oranges, for example. Fruits are natural foods, while white sugar

is actually a chemical substance. In this case, the problem is not so much in the substance, but in eating it in a concentrated form.

The addictive nature of sugar started to be debated in the 1970s, with the publishing of the book "*Pure white and deadly*" by John Yudkin. From there, more and more evidence piled up. Fortunately, unlike heavier drugs, consumption of sugar doesn't result in permanent changes in the function of the brain. Just as it's easy to become addicted to sugar, it's also not so difficult to break one's addiction. As soon as one stops completely with white sugar and changes to a diet rich in nutritive food (vegetables, beans, nuts, low-glycemic carbohydrates, milk, and butter, etc), the cravings for sugar diminish or even completely disappear in a span of a few weeks. One just needs to have the willpower to go through this withdrawal period.

The problem with wheat flour

Wheat has been a staple food in many societies for millennia. People were used to eating a lot of wheat in the form of bread, biscuits, pasta, etc. Some populations, like in many states of north India, had diets based on wheat (in the form of chapatis and rotis) and not much more. Still, until the 1950s people were relatively healthy, with few cases of diabetes, gluten intolerance, and cancer. This changed since then.

The fact is that the wheat we eat changed radically in the last century. The first modification was an aggressive process of selection and hybridization of the wheat seeds. The plants became much shorter and the grains much bigger. While this resulted in great productivity gains (leading to the so-called green revolution), the resulting grains became very different from what people were eating in the previous centuries. The wheat became very rich in simple starches and the gluten content skyrocketed. At the same time, the content of vitamins and minerals became much lower.

The second change was the way the grains are milled. Traditionally, the wheat would be ground whole in stone mills. The resulting flour would be relatively rough, with much bigger particles than we see in wheat flour today. This would bring two advantages: a) The flour would preserve all the nutrients of the grains, since it would include the bran and fibers, and b) the flour would be relatively low glycemic. Combined with the much higher nutritional content of these ancient varieties of wheat, the final product would be relatively nutritious.

During the last century, the milling of wheat was progressively changed to roller mills, a modern process that results in very fine flour, that is very high glycemic. To make matters worse, the grains are stripped from the germ and the aleurone cell layer, resulting in the loss of fibers, essential amino acids, and most of the vitamins. To add insult to injury, the product passes through a bleaching process (that increases the shelf life and makes the flour white) that destroys much of the little vitamins that are left. The result is a very fine white powder that has a GI higher than white sugar and is devoid of practically any nutrition. Just like white sugar, the white flour we get from the supermarket is more like a chemical product than food.

As discussed before, foods with a high GI make blood glucose rise very quickly. In the case of wheat flour, this is combined with a high glycemic load (not only the glucose rises fast, but stays high for a long time). This forces the body to release a high dose of insulin, which in turn makes it store all this energy as visceral fat. Not only this makes us gain weight but leads to the accumulation of the most dangerous type of fat. Over time, this is also a strong risk factor for the development of insulin resistance and even type 2 diabetes.

To make matters worse (nothing is so bad that can’t become worse), there was the introduction of transgenic wheat by Monsanto. The whole purpose of the genetic modification was to make the plants more resistant to the pesticide Roundup. Due to this resistance, farmers can use much higher doses of the pesticide, making the crops much less susceptible to pests,

increasing the production. Not only that, but it became popular among the farmers to drench the plants in pesticide close to the harvest, an operation to dry out the plants, making the harvest easier. The result is that the final product is heavily contaminated with glyphosate, which can cause several problems.

Not only glyphosate is a well-known cancerogenic, but it also interferes with the operation of the intestinal barrier, exacerbating the problems caused by the excess of gluten in the grains. Did you notice that nowadays more and more people have become gluten-intolerant? What was a relatively rare occurrence in the previous centuries became almost like a pandemic. It’s not clear if the intolerance is caused by the higher gluten content, by the glyphosate, or by the combination of both, but the fact is that there are negative consequences even for people that are not gluten intolerant. One of the most serious is the increase in the permeability of the intestinal barrier, allowing the passage of bacteria and toxins, which in turn triggers inflammation and other dangerous immunologic responses.

The result is that wheat flour has become one of the most unhealthy foods one can eat. The problem is that because it's so rich in simple starches and so high glycemic, it acts in the rewarding centers of the brain, making it addictive, especially when combined with sugar and oil. Once one is hooked, it's difficult to stop, especially nowadays, when wheat flour is used in practically everything.

At the beginning of my research, I was thinking that sugar was the main problem in the modern diet. I was surprised to discover that wheat flour is at least as bad as sugar, if not worse! The fact that it is usually combined with sugar and refined vegetable oil in many preparations doesn't help either. It’s difficult to talk about a healthy diet without first removing, or at least reducing the use of these three ingredients.

The first option most would consider is whole-grain wheat flour. Compared with white flour, it is indeed better, with more fiber and vitamins. However,

it is also very high glycemic, and still has the same problem with gluten and glyphosate, therefore it also can’t be recommended.

It’s possible to go back in time with einkorn wheat, a variety that is very close to the wheat people used to eat in ancient times. Compared to modern wheat, it is very low on gluten and much higher in nutrition. The problem is that it is a specialized product that is expensive and hard to find. Much more affordable options would be organic barley and rye, two options that are also similar to the ancient wheat but are much more affordable.

If you can buy a grinder and make your own flour at home from organic barley or rye, you will have a healthier substitute for wheat flour that can be used to make flatbreads, pancakes, pies, or even some types of cakes.

From a health perspective, a rough or coarse flour is much better than a very fine powder. What makes the commercial wheat flour so high glycemic is exactly the fact that the fine particles are very quickly digested in the intestines, while bigger granules are absorbed more slowly.

Apart from grains, there are a few other healthy options to use as substitutes for wheat flour. Two particularly good options are coconut flour and almond flour. Coconut flour is a byproduct of the production of coconut milk. It's basically the fiber that is left after the milk is removed. It's not particularly nutritious, but still has a good deal of protein, some healthy fats, and a good supply of iron. The main advantage however is that it's very low glycemic, relatively low cost and it can be combined with other flours. Coconut flour has a different taste and consistency than wheat flour, however is possible to achieve good results by mixing it with other flours.

Almond flour is nothing more than powdered almonds. It's very tasty and very nutritious, rich in healthy fats and proteins. Due to the low carbohydrate content, it's still very low glycemic, despite being a fine powder. As strange as it may sound, it can directly replace wheat flour in

many recipes: you can use it to make cookies or even some types of bread. The only problem is that it is very expensive.

There are also many other types of flour from different seeds and millets. Nowadays it’s possible to buy buckwheat flour, ragi flour, amaranth flour, besan (chickpea flour), and so on most parts of the world. They have different tastes and properties but are also healthier options that can be used in many recipes.

Another option to consider is rolled oats, which can be mixed with other flours in many recipes. Oats are rich in fibers and thus low glycemic, which makes it a good addition to most recipes, adding fibers and reducing the GI. It can be used to make cookies, cakes, pancakes, and so on.

One observation about oats is that despite the hype, oats are a mixed bag in terms of nutrition. They can be good, depending on what you compare to, but they are not the nutrition powerhouse that some want you to believe. Oats look nutritious on paper, but they are also rich in the protein avenin, an antinutrient that prevents the body from absorbing most of it. The fact that the grains are processed also doesn't help. They are not bad, but not so good either. You should see oats more like comfort food than as something that can really improve your health. The main point is to avoid instant oats and specially flavored oatmeal (that contains sugar and other additives). The general rule is that the more processed a food is, the less nutritious and the higher glycemic it becomes: steel-cut and rolled oats are ok, but instant oats are not such a good idea.

Rice: good or bad?

In the previous parts, we saw the problems with sugar and wheat flour, both of which can be quite bad for our health when consumed in excess. What about rice?

Rice is much better than white flour, but it also demands some consideration. The first point about rice is that not all rice is the same. There are two basic types of rice: long-grain rice (like the basmati and jasmine types) and short-grain rice (which is cheaper and more common). Long grains are rich in resistant starch and therefore have a much lower GI. They can be easily recognized by the fact they remain firm and separate after cooking.

Short-grain types of rice, on the other hand, are rich in simple starch, and therefore are digested very quickly. They have a very high GI and therefore are not so recommendable, since they make the insulin spike. This type can be classified amongst other types of refined carbohydrates. It can be easily recognized because the rice sticks together in clumps when cooked.

Basmati rice is one of the best types of rice, since not only does it have a lower GI (at least compared to other types of rice) but also has a better vitamin and mineral content. That explains why it is considered top-quality rice.

Brown rice is better than white rice in most respects since the GI is a little lower and it has more nutrients. However, there is a problem. Most rice nowadays is cultivated in soil contaminated by arsenic, and because the rice is cultivated on flooded paddies, a strong concentration is found in the grains, especially in the bran and germ. In the case of white rice, both the bran and germ are discarded, and therefore the arsenic concentration is drastically reduced. Whole grain rice, on the other hand, contains everything, and therefore often the arsenic concentrations are often well beyond the safe limits. It’s not something that will kill you or make you sick instantly, but it may have some long-term effects if eaten regularly, since the arsenic accumulates in the body. Because of this, regular consumption of brown rice can’t be recommended.

Another option is parboiled rice (or converted rice), the “Uncle Ben's“ rice, the type that doesn't clump together when cooked. This type of rice goes

through a vapor treatment that converts the simple starches in the short-grain rice into resistant starch, also transferring more of the nutrients from the husk to the grain. The problem with parboiled rice is that it goes through a heating process, which can be considered a type of cooking. Because of this, many devotees may prefer to avoid it. If we consider only the health perspective, however, it is a better option to regular short-grain rice when we don't have basmati or another type of long-grain available. You can do your own research and decide what type to eat based on the time, place, and circumstance.

In any case, the rice should be always combined with other ingredients. A good combination is rice and legumes (like beans, lentils, chickpeas, or even peanuts). Most legumes are very low glycemic and they form a complete protein when combined with rice. To eat rice and beans, or rice and chickpeas, for example, is far better than eating rice alone. We can see that most populations of the world were following this over the centuries. The way we combine different foods is important since certain combinations balance the pros and cons of different options. The basic rule is that our food should be a package of different ingredients.

Two alternatives to consider are pearled barley and steel-cut oats. Both are inexpensive, low glycemic, and more nutritious than rice. Cooked pearled barley, for example, has a GI of just 35, and cooked steel-cut oats are even lower, at just 30. The taste is different and they take a little longer to cook, but from a health perspective, the change will bring a lot of benefits. Just as rice, they also form a complete protein when combined with legumes.

Other options are millets, like jowar, amaranth, foxtail, bajra, ragui, little millet, and so on. They are of course very different from rice, but they are also low-glycemic and extremely nutritious (much more than oats). You will probably not be able to adapt to eating only millets, but you can try to cook a mixture of half rice and half millets for example, which will already make your meal much healthier.

Buckwheat and quinoa are two other good alternatives. Both combine a good mix of nutrients and offer complete protein, combining all essential amino acids. They have a GI of, respectively, 51 and 53, higher than the other options I mentioned, but still lower than rice.

One tip in regards to buckwheat is that it doesn't have to be cooked. You just have to soak it in warm water for four to six hours to have perfectly soft buckwheat, ready to serve. I usually soak it overnight in three parts of water, and then add some hot water, salt, a little butter, and spices before serving. Soaked buckwheat has a GI of around 30, much less than cooked buckwheat, and even less than rice. Considering it has complete protein and a good amount of nutrients, it's probably the best rice substitute of all.

Pearled barley can also be soaked in water overnight and eaten raw with milk or yogurt, or even with cut fruits, as a kind of breakfast cereal. When eaten raw, soaked pearled barley has a GI of just 22, the lowest GI of all grains (much lower than even rolled oats). If you like to eat cereals in the morning, this is the healthiest option around: very low glycemic, packed with nutrients, and also inexpensive. Apart from barley, soaked rolled oats are another option. They are not so nutritious, but they are still an acceptable option. We can't always label ingredients as "good" or "bad", because it always depends on what we compare them to. Rolled oats are less nutritious than amaranth or barley, but they are better than wheat for example.

Commercial cereals, like Corn Flakes and Cheerios, are the precise opposite: very high glycemic, made out of GMO ingredients, and devoid of nutrients (apart from the added synthetic vitamins). They are just another band of industrialized products that should be strictly avoided.

Why fried food isn't such a good idea

To eat food fried on refined vegetable oil is not a very wise idea. One reason is that we end up eating a lot of refined vegetable oil, which will produce inflammation and other problems. On top of that, there are the toxic compounds produced when the oil is heated to high temperatures.

Different from ghee and coconut oil, refined vegetable oils are rich in polyunsaturated fatty acids. Research shows that these unstable fats produce aldehydes (chemicals that are highly cancerogenic) as well as trans fats and other dangerous compounds when heated to high temperatures (*Health effects of oxidized heated oils, Foodservice Research International 13(1):41 - 55 · June 2006*). A simple portion of french fries prepared on refined vegetable oil can contain up to 100 times the safe daily limit of aldehydes set by the World Health Organisation.

Fried preparations made in coconut oil or ghee are much better: not only are these fats not detrimental for the body, but it's very satiating due to the high concentration of saturated fat. This makes it a kind of self-limiting food, since one will naturally feel full and stop eating. It's more difficult to overeat.

Although foods fried in ghee or coconut oil are better, there are still reasons to be careful. The first problem is that most of the time we fry something made out of white flour. Or the white flour is the main ingredient, or it's close to it. To make matters worse, we frequently also add sugar. It’s exactly this combination of refined carbohydrates and fat that makes these preparations so palatable. The main problem with this combination is that it's very fattening. And we are not just talking about the calories, but the way the body metabolizes the fat when it's consumed in combination with refined carbohydrates.

Normally, when we eat fat the body burns it for energy. There is a limit on how much fat the body can process at a time, therefore one feels full quickly, and thus stops eating. Ironically, eating fat does not usually make one fatty. However, when fat is ingested in combination with refined

carbohydrates, the spike in insulin caused by the carbs makes the body store the fat (as well as most of the carbohydrates), instead of burning it. Although fat reduces the GI of the food, still the presence of refined carbs will trigger the release of insulin, leading to the accumulation of fat.

Another problem is that when starches are combined with fat and heated to high temperatures (imagine a puri, for example), they form stick molecules that are difficult for our body to absorb. It ends-up clogging the arteries, which is not good for the heart. Most people have the impression that saturated fat causes heart disease, but recent studies show that it is not exactly the fat, but the combination of fat and refined carbohydrates. One who eats too much refined carbs will end up overweight, with insulin resistance and eventually with type 2 diabetes. One who eats too much refined carbs in combination with a lot of saturated fat may be better in terms of insulin resistance and diabetes (since the fat blunts the insulin spikes caused by the carbs and sugar), but on the other hand he may end up obese and with heart problems, especially if he indulges in unhealthy fats.

Healthy fats in themselves are not bad. The problem is this combination of fat and refined carbs. You don't need to take fat away from your food. The answer is to combine it with vegetables and low-glycemic foods, instead of sugar and refined carbs (one can make some sauteed vegetables on ghee and add some nuts, or make cookies using coconut oil, rolled oats and dates, for example). Naturally, another point is to avoid using refined vegetable oils.

An occasional fried samosa will not kill you, the problem is if we make fried preparations a staple in our diet, like it’s unfortunately common in many of our communities. Fried preparations should always be made in ghee and reserved for the deities and to festivals and other special occasions. It's ok to eat one or two samosas fried in ghee on festivals, the point is just to not make it a daily habit. If there is no money to buy ghee, it's much more

intelligent to avoid the idea altogether and make some simpler, non-fried preparations.

Soy: good or bad?

In recent decades the production of soybeans increased at a very accelerated pace. Most of it is used to feed livestock, but there is also a strong push to human consumption from the food industry. Soy is being marketed as a healthy protein, soy milk is being promoted as a healthier alternative to cow's milk, and so on.

The business of the food industry is based on converting the cheapest ingredients in products that people will buy. Alongside wheat flour, sugar, corn, and refined vegetable oils, soy is one of the cheapest options, therefore it is not difficult to understand the great interest behind it. Economic interest also influences science, since the industry sponsors the research done by the scientists. As soon as the industry is interested in marketing a particular ingredient, money pours down into researchers that can produce studies that make it look good in the eyes of the public and can convince the regulatory agencies. This was the same strategy used in the past to demonize butter and promote hydrogenated fat, to sustain that sugar is not dangerous, and so on. Even the tobacco industry used it to try to sustain that smoking was not a health hazard.

Although people in Japan were cultivating soy for millennia, they were consuming it almost exclusively in the form of fermented products. They would not eat the grains directly unless in case of a great famine. We tend to think that people from the past were stupid, but actually most of the time they were extremely ingenious in observing cause and effect and thus finding the best solutions for their problems. If people were doing something for centuries, there was probably a good reason for it.

In the case of soy, the main problem resides in the isoflavones, compounds that mimic the function of the hormone estrogen in the body. In women, they contribute to weight gain and some types of cancer, but the effects are much more expressive on men, causing a reduction in testosterone levels, which in turn can cause all kinds of problems, including persistent fatigue and apathy, brain fog, loss of muscular mass, weight gain, depression, sleep disturbances, enlarged prostate, infertility and so on. If you are a man, especially over 40, soy products are definitely something to avoid. By consuming too much soy, a man can completely mess up with his body, up to the point of (literally) starting to develop breasts. The dangers outweigh any potential benefit.

Even if we would disregard the potential hormonal problems, soy is too rich in anti-nutrients, like phytates and saponins. They bind with other nutrients, preventing our body from absorbing them. Most of the soy cultivated nowadays is also genetically modified, which implies an increased risk of allergies and the massive use of glyphosate, which comes with its own risks.

Fermented soy products, like miso and tempeh, are better since the fermentation process breaks down the isoflavones and anti-nutrients. From a health perspective, the consumption of small amounts of fermented organic soy products can be actually beneficial. People in Japan discovered this long ago, that's why they were consuming soy mainly in this way. An important observation however is that tofu is not fermented, therefore it’s better to avoid it, just like other unfermented soy products. Much of the tofu sold nowadays is not even made out of soy grains, but from soy flour, which is already a processed product.

What is the best diet for longevity? (an alert about high glycemic foods)

The human body can adapt to many different types of diets. Over the centuries, populations would establish themselves in different environments and do their best to survive. In many cases, the diet would not be an option: they would just eat what was available. Nowadays, however, we have an abundance of food and we are in the unique position of being able to choose what we eat, thus intelligence and a good deal of common sense became a necessity.

There were examples of groups living on extreme diets in the past. The Innuit, for example, lived in arctic regions and based their diet on meat (especially fish) and very little else. They would still be healthy (cases of diabetes, hypertension, cancer, and other chronic diseases would be rare), but their life expectancy was low, around 70 years. Something similar could be observed in the Massai tribes in Africa: they would also have a diet based on meat, and would also live only up to 70 years.

In Japan, people would eat predominantly whole-grain rice and vegetables, supplemented by a few fermented soy products, beans, and sometimes fish. They were also healthy, and their life expectancy was higher, around 90 years. The exception was the island of Okinawa: their diet was similar to the rest of Japan, however, due to the particularities of the terrain, they were not able to cultivate rice, therefore their staple was sweet potatoes. It was also a poor region, therefore people would sometimes go hungry for several days (in other words, they would be forced to fast regularly). Despite the harsh conditions, people in Okinawa had the highest life expectancy in all of Japan (and one of the highest in the world): they would live up to 110 years!

There is also much information about the blue zone populations: groups across the world that had surprisingly high life expectancies. These groups have something in common: they all have simple diets, based on vegetables, fruits, legumes and pulses, whole grains, milk products, fruits, and herbs. Many of them would eat fish, but they would rarely eat red meat.

From these examples, we can draw a few conclusions:

a) A diet based on meat is not such a good idea for longevity. Groups that had a more varied diet, rich in vegetables, would live much longer.

b) Even without modern medicine, many of these ancient populations would frequently live past their 90 years, and diseases like cancer were practically unknown to them. From this, we can see that a diet based on refined carbohydrates, sugar, and refined vegetable oils like most people have nowadays is the worst possible option. Even the Massai, with their diet of almost exclusively red meat, would still live better than most of us! Ironically, a vegetarian can end up with a worse diet than a meat-eater if he makes the wrong food choices. Unfortunately, that’s the case for many of us.

c) Although a diet based on grains (like the Japanese) is better than a diet based on meat, when grains like rice are replaced by low-glycemic options, like the sweet potatoes of the Okinawans, people's life expectancy grows considerably.

We can convert these three conclusions into three important pieces of information for improving our health and longevity based on the diet:

1- To have a simple diet, based on natural foods, avoiding anything that is industrialized or processed.

2- To eat plenty of vegetables and fruits, making it the basis of our diet.

3- To avoid refined carbohydrates (like wheat flour), eating instead tubers like sweet potatoes, low glycemic whole grains, beans, and pulses.

Although wheat flour and sugar are the main offenders, there are other types of refined carbohydrates that are bad for our health for the same reason: they are basically empty calories; carbohydrates in a form that is very easy to digest, devoid of other useful nutrients.

It's important to spend some time checking the nutrition facts of different ingredients that we use. Two pieces of information are important: how nutritious it is (based on the amount of vitamins, minerals, antioxidants, protein, and healthy fats) and how high is the glycemic index (GI).

The GI indicates how much a certain food will elevate one's blood glucose when consumed. This is important because high glycemic foods provoke a strong insulin response. Although high insulin is better than high glucose, it also causes numerous problems in the long run.

Low GI foods, also called slow carbs, are absorbed slowly due to the presence of fibers and other nutrients. They offer energy, but in a sustainable way, without the highs and lows caused by high-glycemic foods.

Boiled white rice, for example, has a GI of 73, while cooked chickpeas have a GI of 28 (pure glucose has an index of 100). Most vegetables, as well as nuts, legumes, and even certain grains, like barley and steel-cut oats, have a low GI. Others, like corn and wheat, have a much higher GI and should be used with more caution.

The best foods are the ones that combine a good amount of nutrients with a low GI. Pearled barley, for example, is much better than rice. Oats are better than wheat and so on. Another point is that whole grains are almost always better than processed grains, since the more a grain is processed, the more the nutrients are lost. Steel-cut oats, for example, have more nutrients and a much lower GI than instant oats. Whole wheat grains are completely different from white flour and so on.

Just like in the case of fruits, grains are made as a package that combines carbohydrates with protein, fats, fibers, and different vitamins and minerals. This combination not only makes them rich nutritionally but also causes the starches to be digested slowly, creating a stable release of energy and avoiding spikes of insulin. If one eats refined carbohydrates (bread, cakes, biscuits, etc.) too frequently, the constant release of insulin can lead to insulin resistance, which (as previously mentioned) is linked to a long list of diseases, including high blood pressure, high cholesterol, high triglycerides, fatty liver, obesity, diabetes, inflammatory conditions, cognitive decline (lack of concentration, brain fog, bad memory), etc. Recent studies show that most chronic diseases are caused or aggravated by an excess of insulin.

Excess of refined carbs can cause another serious problem: diabetes. We can see that the number of cases of type 2 diabetes has been growing exponentially in the last few decades, following the increase in the consumption of refined carbs. We tend to see type 2 diabetes as a relatively benign disease that can be controlled through the use of insulin. However, the truth is that even when correctly medicated, diabetes causes serious complications and (apart from all costs and inconveniences) can cause a reduction of 10 years or more in one's lifespan. Conversely, a diet rich in vegetables and low-glycemic foods can not only avoid but even help to control existing cases of diabetes, allowing one to use less insulin and avoid the most serious complications. In some cases, the diabetes may even be reversed.

Another problem with the consumption of refined carbs is caries and other dental problems. Sugar and refined carbs attack our teeth on two fronts: one is by lowering the PH in the mouth and feeding the bacteria that attack our teeth, as we all know. The second is by causing a deficiency of calcium and other minerals, which in turn forces the body to take minerals out of the bones and teeth, weakening them. Sugar especially is one of the leading causes of osteoporosis, and other types of refined carbs can also contribute to it.

Instead of using white flour, one can, for example, make bread using barley flour, mixed with different seeds, nuts, and grains (adding flax seeds, sesame seeds, poppy seeds, sunflower seeds, rolled oats, etc), as well as ingredients rich in fibers (like the fibers left from making vegetable juices, coconut flour, etc.) In this way, we create a package, adding fibers, protein, fat, and other nutrients.

Tubers, like sweet potatoes, yams, and cassava roots are good sources of low-glycemic carbohydrates when cooked (they are not such good options when baked or fried, however, since the GI becomes dramatically higher). You can keep in mind the example of the Okinawans, who were able to dramatically increase their lifespan just by replacing rice with boiled sweet potatoes.

Just like fibers, healthy fats make the absorption of the starches slower, helping to prevent spikes of insulin. There is no need to deliberately make the food devoid of fat. The body needs fat to function properly, it should be part of the package. The main point is to eat healthy fats (like ghee, butter, nuts, olive oil, avocados, coconuts, and coconut oil, etc.), instead of refined vegetable oils, eating in moderation, and avoiding combinations of refined carbs and fats (especially fried) as mentioned previously.

If eating cakes and other foods made with white flour is unavoidable (like in social events), the best way to contain the damage is to combine it with other dishes rich in fiber and other nutrients (eating the cake after eating a plate of salad, for example). This way we also create a package and the damage is contained. The most dangerous situation is when we eat a lot of refined carbohydrates and sweets alone, like if we eat a lot of bread and cakes in a single sitting. If one overdoses it, the best is to fast or eat only fruits and vegetables on the next day, giving the body time to repair the damage.

When we read the Caitanya Caritamrta, we find descriptions of devotees taking very rich prasadam preparations, like fried rice cakes, sweet rice,

fried puris in condensed milk, etc. The point we forget to notice is that they would generally fast during the whole day, performing kirtana and other physically demanding activities, usually taking prasadam only once a day. Sometimes they would perform kirtana for several days straight and forget to eat, other times they would eat only mangos, etc. One may exaggerate a little bit sometimes if he follows the principle of “fasting and feasting”, but if one just feasts constantly, the body will become quickly overwhelmed and health problems will appear.

Why are vegetables and fruits so important?

Nowadays, many have diets predominantly based on grains and potatoes, with little vegetables and fruits. In some countries, it is common for people on a budget to never buy fresh fruits and vegetables, since canned options are often cheaper, although unhealthier. As devotees we are often not much different from the general population: we eat little vegetables on the sabji (usually most potatoes), but not much more than that.

This lack of vegetables and fruits in the diet can also weaken our health and contribute to many problems. The truth is that vegetables and fruits should be the main component of our diets, since the body simply can’t operate in an efficient way without a good quantity of it, due to the thousands of useful compounds they include. Although there is a general idea that our ancestors were eating mainly meat over the millennia, evidence shows that this is actually a myth. Human beings have been living on a diet rich in vegetables (be it due to agriculture, or to gathering) for millennia. Although meat was also present in most diets, the base in most cases were different types of vegetables, fruits, nuts, and roots. The human body is well adapted to the different compounds present on varieties of such ingredients and many important functions are compromised when they’re absent. They contain antioxidants, phytonutrients, vitamins, minerals, and other essential nutrients. A general rule is that we should eat one to two kilos of vegetables and fruits per day (it can be even more than that if good quality vegetables

are available). Vegetables are generally better than fruits because fruits contain too much sugar. Fruits are also good but as a compliment. Vegetables should be the main focus.

Recent studies show that the amount of vegetables one eats is the main indicator of one's overall health. This is not difficult to understand based on the crucial importance of different vitamins, minerals, antioxidants, and phytonutrients for the operation of the body. Grains also contain some vitamins and minerals, the problem is that grains are very caloric, and thus you can't consume a sufficient quantity of grains to satisfy your daily needs for such nutrients. One would need to eat 1.25 kg of whole grain rice to meet his daily needs of zinc, for example, without even speaking about the other nutrients. Vegetables and fruits, on the other hand, can be consumed in much more generous portions, and the secret to getting enough nutrients is exactly in the quantity.

With sufficient nutrients from vegetables and fruits, the body is going to operate in a very optimal way, which will be a protective factor against most sources of damage. As long as one eats a good amount of vegetables and fruits, he can do a lactovegetarian diet, a slow carb diet, a vegan diet, or even a ketogenic diet, and in the three cases, he will be healthy. However, as soon as the vegetables are taken out, practically any diet will have negative effects.

We generally tend to associate expensive foods with health, but it is not necessarily like this. Vegetables and fruits that are cheap and easily available, like beets, carrots, and cabbage are amongst the best options, and combined with other healthy ingredients they can more than fulfill our nutritional needs without the need of spending much.

Carrots and beets are inexpensive but very nutritious. They can both be cooked in the sabji or other preparations, or just be eaten raw. Ginger is always good, regardless of the combination. You can add it to salads, cooked dishes, hot milk, teas, or (if you like strong emotions) even just take

it raw. Another important aid is lemon: if you can take daily the juice of a few lemons, you will rarely get sick. Nuts are also a good complement, being rich in several nutrients, but they should be eaten in moderation because most also contain too much omega-6.

It may not look so, but many vegetables are actually quite difficult for the body to digest, therefore raw vegetables are not always a good idea. The cooking may slightly reduce the nutritional value (compared to raw vegetables), but it makes it much easier for us to eat and digest them. One can compensate for the slight loss of nutrients by just eating a little more.

If one has difficulty eating a sufficient volume of vegetables, one option is to get a juicer. This way, it's possible to get the nutrients without the bulk. Two kilos of vegetables usually become around one liter of juice. When doing juices, one should check which vegetables to use. Some vegetables (especially certain leaves, like spinach) are too rich in oxalates, which in high doses can cause problems in the kidneys, therefore these are better cooked.

There are two types of juicers: centrifugal and masticating types. The centrifugal juicers are cheaper, but they are much less efficient, and therefore a lot of juice is left in the pulp. Masticating juicers end up being better in the long run, since they extract more juice and therefore you need fewer vegetables to get the same amount of juice. The upfront price is higuer, but over time you will actually spend less.

It's important to, as far as possible, get good quality vegetables. Organic vegetables are naturally much better, but there is a catch: the modern definition of "organic" is not what we would normally think. Farmers are still allowed to use a long list of chemicals and pesticides, it's just that the list is smaller. Also, organic certification does not say anything about the quality of the soil used to cultivate the vegetables. The soil is important because soil that is poor in nutrients will result in plants that are also lower in nutrients (especially minerals). Nowadays most people lack a sufficient amount of minerals and trace minerals in their diets and that's exactly because the

soils have become so exhausted due to commercial agriculture that the vegetables and grains don't have the same nutrition as in the past. It's better to, as far as possible, buy vegetables from local farmers instead of the big supermarkets: the nutritional quality of the vegetables is usually much better. Even better is if you can cultivate your own vegetables using some piece of land that was previously vacant.

Another important consideration about vegetables is that one needs to have the right gut bacteria to be able to digest them. Vegetables are rich in soluble fibers and various other compounds that the gut bacteria need to break down before the body is capable of using them. If one is eating junk food for too long, he may develop a gut flora that is rich in bacteria that feed on sugars and simple starches and poor in good gut bacteria that feed on fibers. If that's the case, when he starts with vegetables, he may have bloating, gas, and other symptoms related to the fact that the body is not able to digest it properly.

There is also the question of digestive enzymes: the body uses different types of enzymes to digest carbs, protein, and fibers, as well as a multitude of specific foods. It is a quite complicated and sensitive process. The enzymes are produced according to the demand, therefore when vegetables are not consumed regularly, the gut becomes slow in producing the enzymes necessary to digest them.

The solution in both cases is to start with fruits and vegetables that one is used to eating and increase the variety and quantity slowly. To cook the vegetables longer will also help to make them more digestible. Taking yogurt or some other probiotic may also help to rebuild the gut bacteria faster.

Concluding, spices and herbs are also important since they contain a lot of very useful compounds. Certain spices, like turmeric, can even help to prevent cancer due to the elevated amount of antioxidants they contain. An important point about spices, however, is their quality. Many of the powdered spices we buy in the market are adulterated, mixed with

cornstarch or other less benign contaminants, up to things like sawdust, corants, and chemicals. Such spices can do more harm than good. It's better to buy spices in whole form, or at least powdered spices from reliable sources.

Carbohydrates, resistant starches, and soluble fibers

One important piece of information to consider when researching different types of food is both the GI and the GL. Both are information that can be easily found on the Internet. GI (glycemic index) means how fast the blood glucose can rise after eating, and the GL (glycemic load) is based on the total amount of carbs in the food, which determines how long the spike will be. The more refined a food is and the longer it is cooked the highest will be the GI.

The GI is a scale that goes from 0 to 100. Zero would mean that the food doesn't raise the blood sugar at all (the list includes basically only water) and 100 means that the food raises the blood glucose as much as pure glucose (which is the theoretical maximum). Foods with a low GI (less than 55) raise the glucose gently, while foods with a high GI (above 70) cause violent spikes of glucose and insulin that can be harmful.

Foods with high GI cause huge spikes of insulin, leading to weight gain, binge eating, and so on. If consumed regularly they increase the risk of diabetes and other diseases. Whole grains, for example, have a much lower GI than refined grains, and refined grains, in turn, have a much lower GI than flours and starches. Foods that are low on carbs also tend to have a lower GI (legumes have a much lower GI than grains, for example) and fibrous vegetables like kale and cauliflower as well as most other vegetables and greens have a very low GI. This is another reason why we should eat more vegetables and less grains.

Another point is that not all carbs are created equal. Once I was checking the nutrition facts of chia seeds and noticed something very strange: although 100 grams of chia seeds have 41.2 grams of carbohydrates, its GI is just 1 (one!) with a glycemic load of also one. This is much lower than even lettuce, which has a GI of 15, or kale (which has a GI of 4).

At first, I thought it must be a mistake, but after checking other sources I saw it was actually correct information. How can this be? The answer, I found out, resides in the difference between starches (and other types of carbs) and soluble fibers. Although counted as carbohydrates in the nutrition tables, soluble fibers are a completely different animal.

Different from insoluble fibers (like the ones present in wheat bran and in the skin of fruits and vegetables, for example) that are just a type of bulk that is not absorbed by the body at all, soluble fibers do get digested and converted into energy, generating about two calories per gram.

However, instead of being converted into glucose, like in the case of simple starches, soluble fibers are complex starches that our bodies can't directly digest: they can only be digested by the bacteria living in the gut. They slowly convert the soluble fibers into short-chain fatty acids, a very healthy compound that reduces the risk of inflammatory diseases, type 2 diabetes, obesity, heart disease, and other conditions. Not only that, but it can be very easily absorbed by the body and converted into energy. In other words, the soluble fibers feed the good bacteria in the gut (that's why they are also called prebiotics), and they reciprocate by giving us a lot of different health benefits and also a stable supply of energy in the form of these fatty acids.

Due to this particularity, soluble fibers don't raise blood sugar and don't provoke the release of insulin at all. Quite the opposite: they make the absorption of sugars and starches much slower, and therefore contribute to reducing the GI and GL of other foods that you may eat alongside it.

Of the 42.6 grams of carbs present in 100 grams of chia seeds, 34.4 are soluble fibers. Therefore, although it also has 8.2 grams of other carbs, the presence of the fiber makes the absorption so slow that it doesn't raise blood sugar at all.

One of the secrets of good health is to minimize the ingestion of foods rich in simple carbs (like rice, wheat, corn, etc.) and to increase the ingestion of foods rich in soluble fibers, like most vegetables, berries, nuts, barley, oats, lentils, avocados, etc. and to always combine high glycemic foods (like rice or potatoes, for example) with ingredients that are rich in soluble fibers, creating a package.

It's difficult to overstate the importance of good gut bacteria for our health. Not only do they help with the digestion process and protect us from the proliferation of bad gut bacteria, but they produce a good chunk of the vitamins and other important nutrients that the body needs.

In the Ayurveda it is mentioned how vitamins are created by the fire of digestion. It may seem absurd at first, but it's actually scientifically correct. The digestion process in fact produces vitamins and other compounds that are not originally present in the original food, and the reason this happens is because of good gut bacteria.

One who has his population of good bacteria destroyed due to a bad diet or the use of antibiotics can have all kinds of problems, not only related to digestion. An imbalance in the gut bacteria can affect even our mood, ability to focus, and productivity. That's yet another reason why soluble fibers are so important.

Finally, there are the resistant starches, that can be considered a third type of fiber. The main characteristic of this type of starch is that it’s resistant to digestion. As a result, it’s digested slowly, also not contributing much to raising the blood sugar. Resistant starches are found in legumes, certain grains (like barley and oats), seeds, roots, etc.

The problem with resistant starches is that they can be easily converted into simple starches if they are heated for long enough. The higher the temperature, and the longer the cooking, the more they break down, resulting in a progressively higher GI and GL.

Potatoes, for example, are normally accepted as a starchy food. However, raw potatoes are actually very rich in resistant starches. If one would eat raw potatoes (this is not recommended, due to the antinutrients, but just for the sake of example), it would not raise the blood sugar at all, almost like chia seeds. When potatoes are boiled, the GI rises to 59 (or 78 if mashed), but if they are baked, it rises to 85! Cooked sweet potatoes have a GI of 44 (lower than white potatoes) but when baked their GI skyrockets to 94, almost as high as pure glucose.

From this, we can see that not just the individual ingredients, but also the way they are combined and prepared, should be taken into consideration. In general, the more the food is cooked and crushed into small particles, the higher their GI becomes. That's why, as far as possible, we should try to take grains and tubers as close to their natural state as possible, cooking for a shorter time, and prefer whole grains instead of polished or refined options.

How to cook when we don’t have time to cook

One of the most fundamental changes we need to do in order to be able to maintain a healthy diet is to start to cook what we eat. As long as we are eating outside, we are going to be eating what everyone else eats, and in most cases, it will not be very healthy.

People in previous generations would understand the importance of home food for one's health, and therefore the mother or grandmother would spend hours every day cooking for the whole family. This cooking was an expression of love and care that would maintain the family healthy and

united. Even if it’s just a couple or two friends living together, they can take turns in cooking. Even if someone is alone, it's still possible to cook simple dishes without spending much time.

This point about cooking at home is so important that it's difficult to stress it enough. Each one of us needs to take time to solve this problem, otherwise, it becomes practically impossible to maintain good health. Beg, borrow or steal, but find a way to cook at home and eat fresh food every day. Therefore, one very important asset is learning how to cook simple meals quickly.

The best example of something one can cook with very little time is kichiri. In India, kichiri is called “the sadhu’s meal”, because it offers a full meal, in an easy-to-make and easy-to-digest package. Not only can it be cooked quickly with just one pan, but there is also no hard and fast recipe: you can make it by combining different types of grains, dhal, spices, and vegetables, according to which ingredients are available.

This is a basic recipe of kichiri:

150 grams of parboiled or basmati rice
100 grams of split peas or lentils
Half a kilo of different vegetables, peeled and cut
50 grams of ghee, butter or coconut oil
750 ml of water
One teaspoon of turmeric (optional)
Half a teaspoon of cumin powder (optional)
Other spices you like
Salt to taste

Mix everything in a pan and cook for 30 minutes. Leave it to cool down a little before eating.

To make kichiri can take as little as five minutes of your time: you just need to put the grains in the pan, wash them quickly, add vegetables, salt, spices, and ghee, add water, and put it to cook. While it cooks, you can do other things. The kichiri can then be combined with fruits, nuts, milk products, or other ingredients that are available to make a satisfying meal. Similarly, other simple dishes can also be done very fast if you learn the art. If one learns how to cook simple meals quickly, he can keep a healthy diet wherever he is, without being dependent on others.

A tip if you have a full-time job is that it is possible to make a “delivery” version of the same recipe using some hermetic sealed thermal container. Just cook it normally in the pan for 10 minutes and put the half-cooked stew in the thermo before leaving for work. It will finish cooking by itself and it will be ready (and still warm) by lunchtime.

A very healthy option is to use pearled barley or steel-cut oats instead of rice. Different types of millets can also be added to make it even more nutritious. Another option is to just cook some vegetables with ghee and turmeric and combine it with nuts, cheese, olives, and other ingredients that are available. Just as with the kichiri, you can make a delivery version using the thermo.

Another option is to use buckwheat. Buckwheat is a very healthy type of seed that offers a complete protein and is rich in nutrients. Even better is the fact that it doesn’t have to be cooked: If you leave some buckwheat on hot water inside the thermo, it will be ready to eat in a few hours. You can mix buckwheat with spices, salt, and ghee inside the thermo and pour hot water before leaving to work, and it will be ready to eat by lunchtime.

Salads are also a good option that you can prepare in the morning and eat at launch time. We tend to imagine salads as something very light and low on calories, that is not going to satisfy one’s hunger, but it depends on the ingredients used. A salad can be very satisfying if you add a good amount of

protein and fats (in the form of beans, nuts, cheese, and olive oil, for example).

Another advantage of being able to cook quickly is that we can cultivate the habit of cooking only the quantity that we are going to eat and cook again in the next meal, instead of storing cooked food and eating the same thing over and over again. Cooked dishes tend to quickly lose their nutrients, therefore eating something that was cooked several hours ago can be unhealthy.

Cooking our meals ourselves works better in combination with intermittent fasting, something we will discuss in detail in the next chapter. To cook two or three meals every day takes too much time, it's just impractical for most people. That's one of the main reasons people start eating industrialized food: they want to eat three times a day, but don't have time to cook.

If instead one goes for two meals, one light and another more substantial, things become much more manageable. The light meal can then be a combination of ingredients that are easily available, without the need for much preparation, like milk, fruits, nuts, and soaked grains. In my case, for example, I frequently eat some soaked grains (usually pearled barley or rolled oats), with ginger and fruits. With this arrangement, one just needs to cook one time, for the main meal.

Actually, eating simple food is better for our health than a sophisticated diet. The main point is to use nutritious ingredients, like vegetables and fruits, healthy fats, milk products, whole grains, nuts, and herbs. Anything that has a barcode printed on it is usually not such a good idea.

How to make healthy oil at home

In India, ghee (and oils in general) are associated with eating pleasure. People like to eat, and most of palatable preparations use a lot of ghee or

other types of oils. Thousands of years ago, Carvaka Muni was already advocating that a person should get a sufficient stock of ghee (beg, borrow, or steal), so he could enjoy his senses. In the West the scenario is not very different: most palatable food uses a lot of oil.

In general, overconsumption of any type of oil can cause adverse effects. Chemically extracted vegetable oils are the worst, but even ghee can cause some bad repercussions if consumed in excess. On top of that, the combination of oils and refined carbs should be avoided, since this is the most harmful combination in terms of obesity and cardiovascular disease. One can eat a moderate (or even a little bit exaggerated) quantity of ghee every day and still be healthy, but only if this ghee is consumed in combination with vegetables and other low-glycemic foods. If the same ghee is used to make puris, hallava, and other high-glycemic foods, it can be harmful even in moderate quantities. We can see that people in traditional societies would indulge in such food only at festivals and other special occasions. Even our grandmothers knew that one should not eat sweets and fried foods every day. It's not a big problem to indulge in hallava and puris sometimes, but if it becomes a daily occurrence, then it can quickly become a problem. Deities can eat opulent food every day, but we are not deities.

Another problem is that nowadays it is very difficult to get pure fat of any kind because most products in the market are adulterated with cheap vegetable oils with the goal of increasing profits.

As previously mentioned, most of the olive oil in the market is mixed with soy or canola oil. Many brands sell a mixture of soy and canola oil, with just a little bit of olive oil (accompanied by chemicals) to mask the taste. The reason is just economics: Pure olive oil is a very expensive product and people want cheap products in the aisles of the supermarket. People who can find creative ways to make counterfeit olive oil that can cheat the government tests can make a lot of money.

However, adulteration is not limited to olive oil. Most of the butter in the market nowadays is adulterated with vegetable oils. Sometimes palm oil is used (if one is lucky) other times some unknown blend of different oils may find its way into your plate through the apparent innocent butter. Sometimes the adulteration is relatively easy to spot (the vegetable oil starts to separate when the butter is melted and allowed to sit, like when we make ghee) but on others, the adulteration may be harder to notice. There are even cases of butter being mixed with pig fat (!!), an adulteration much harder to discover, since the two types of fat are similar in terms of chemical properties. Even perfectly honest, well-intentioned devotees often end-up selling adulterated ghee because they inadvertently make their products with such adulterated butter.

Nowadays there is a huge industry of “dairy fat substitutes”, which is becoming a serious concern for the ones interested in maintaining good health. This loft term refers to blends of vegetable oils that can be used in milk products in place of milk fat. As one can imagine, these are very unhealthy, heavily processed compounds often made from hydrogenated fats. If you are not eating margarine, you will not want to eat these also.

The problem is that the industry fell in love with them because they are so cheap, and thus offer the possibility of greater profits. One can now produce all kinds of milk products using a combination of powder milk, soy protein, dairy fat substitute, and different additives: cheese, yogurt, sour cream, butter, the sky is the limit. According to an expose from the website Fontanka published a few years ago, 80% of all cheese sold in Russia was adulterated. The situation is not much better in India and other places.

Theoretically, manufacturers in the US and Europe are forced to specify on the label when they use such ingredients in their products, so the first stop is to check what is on the label. You will be amazed to find how few brands actually sell real products. However, even in first-world countries, it's common for unscrupulous manufacturers to slip adulterants into their

products. In third-world countries, where the control is lax, the situation is scary. The problem is obviously worse with cheaper products.

The best one can do, in my humble opinion, is to find one particular brand that is honest (ask people, research on the internet, visit their plant, etc.) that you can be sure is trustworthy and stuck with the products of this particular brand. Make your own ghee from the butter of trusted sources, and pay what is necessary. If you don't have money, then consume less. If you can find some honest small producers that's even better. Otherwise, be prepared to consume soy protein and hydrogenated fat instead of milk products.

Similarly, many cold-pressed oils in the market are mixed with canola oil to increase profits (just like in the case of olive oil), and coconut oil is frequently mixed with coconut fat (a cheaper type of oil that doesn't have the same properties), and so on. If you want to have healthy oils the only sure way is to buy from some trusted person who is producing the oil himself or to make your own.

Oil pressing machines can be quite expensive, but there is an affordable option from Piteba, a small company from the Netherlands that sells a simple, reliable manual oil pressing machine for just 80 Euros (just google for “Piteba oil expeller”). With a little bit of experience, you can start making oils from different types of nuts and seeds with relative ease. One can get about half a litter from one kilo of walnuts, or about one-third from a kilo of linseeds. Making cold-pressed oil however demands a little bit of dedication, since there are many small details involved.

On the other extreme, it’s also possible to ditch the oils completely and go for an oil-free diet. At first, a diet without samosas or puris may look scary, but many actually do it quite successfully. Fats are essential for the body, but one can get all the fats he needs from natural sources, like milk, nuts, seeds, and fruits like avocados and coconut. A bottle of olive oil doesn't contain anything you can’t find in olives, and a glass of coconut oil doesn't

contain anything you can't find in a coconut. Even the healthy fats we find in ghee are also present in milk. By just eating a natural and assorted quantity of such natural ingredients, one can live quite a healthy life, without having to be concerned about adulterated oils.

When we were living in Russia, for example, we were getting fresh, raw milk from a group of pious people who had a few cows. Their milk was quite expensive compared with milk from the supermarket, but they were treating the cows well and not sending them to the slaughterhouse when they stopped giving milk. From this raw milk I was making cream (which is quite easy to obtain, since it floats on top when the milk is left to sit for a few hours in the fridge) and from this cream, I was making sour cream and butter, and from the butter, I would make ghee. In this way, we didn't have the need for buying any oil from outside. From the skimmed milk that is left, I was making yogurt, paneer, and other products. The best thing about milk is that it can be used to make different products and in the end, nothing is lost.

Raw food?

Our intelligence tends to work like a pendulum. We want to go from a platform of decadent indulgence to the opposite extreme and then all the way back. This is also true when we speak about diet. Many times when we understand that our diets are not good, we want to go to the opposite extreme, trying to find the healthiest possible diet, even if it is very difficult to maintain.

One popular question about diet is raw food. In theory, raw food may seem to be the best possible diet, since by eating everything raw, we get all the nutrients, enzymes and so on, but actually the question is not so simple.

Many foods are very difficult to eat raw (imagine a cabbage, for example) and some include anti-nutrients, or even mildly toxic compounds, which can

cause indigestion or reduction in the absorption of nutrients if we don't first break them down by cooking. Spinach, for example, is very rich in oxalates, which can cause kidney stones or (in extreme cases) even intoxication. Theoretically, by eating 4 kilos of raw spinach one could ingest a fatal dose. However, when the spinach is cooked, most of the oxalates are dissolved and it becomes perfectly healthy to eat. Similarly, most beans need to be cooked to destroy toxins present in them. Eating raw beans can cause serious problems.

We can see that it is not a black-and-white issue. Some vegetables and even a few grains are better when eaten raw (imagine lettuce, for example), but others become easier to eat, or even more nutritious when cooked. Thus, to simply rejecting the use of fire with religious fervor is not such a good idea. Better to try to understand the pros and cons in each case.

The way many try to do raw diets nowadays, eating only fruits, and vegetables (excluding grains and milk products) can actually be detrimental to their health. Raw diets based on fruits and vegetables are very high in vitamins and other micronutrients, the problem is that fruits and most vegetables are very low in protein and especially on essential amino acids. Many raw food eaters end up getting health problems related to a lack of essential amino acids and essential fats after a year or two and that’s not a coincidence.

It’s possible to avoid eating cooked foods (and the trouble of cooking) by having a diet based on milk products, vegetables, fruits, seeds, soaked grains, and nuts. Milk has all the amino acids and most vitamins and minerals that the body needs, therefore by drinking a good quantity of milk, combined with fruits, vegetables, seeds, and nuts we still provide the body with the necessary nutrients. A raw vegan diet is also possible (since it’s possible to get the amino acids and other nutrients from nuts, seeds, and other sources), it just demands a little more thinking. To follow it, one needs to take the time to study a little about nutrition and be wise enough to listen

to the signals of his body. Raw food diets based on religious fervor instead of careful research and observation can be quite dangerous.

How to stop snacking between meals?

One of the problems many of us face nowadays is binge eating. For many, it's difficult to not snack many times during the day, and most of the time we snack unhealthy food, which in turn leads to weight gain and other problems.

The central mistake is that when we feel the need to eat something in between meals, we immediately think of something rich in carbohydrates, like biscuits, cakes, bread, samosas, etc. The problem is that such snacks are highly glycemic (they make the body inject a great deal of insulin in the bloodstream) and insulin is actually a hormone that makes us feel hungry. The discharge of insulin prepares the body to eat more. If we eat just a small snack we just feel tired later because the insulin lowers the blood sugar. Carbohydrates have their function in the diet, but it's better to consume carbs as part of a large meal, one or two times per day, when the body can go full circle, going through the different circles involved in digesting the food, releasing, and using the energy contained in it.

Most are going to agree that eating just two or three meals without snacks is better for health, our grandmothers were teaching us that. But what to do if one feels the need to eat something in the middle? Actually, there are a few good options. One option is to drink chia water. It's very easy to make: Take one liter of some herbal tea (any tea you like but without sugar) and add two tablespoons of chia seeds. Shake well and let it sit for a few hours. The chia seeds absorb the water and become a kind of gel that takes away hunger without provoking an insulin response at all. You can keep this chia water in the fridge and drink a cup or two every time you feel the need to eat something.

You can also eat raw vegetables, like carrot sticks, make a salad with tomatoes and cabbage, and so on. Raw vegetables provoke practically no insulin response and have few calories.

Another option is to make a broth from vegetables. Get a big pan, cut some cabbage, beetroot, cauliflower, tomatoes, eggplant, or other non-starchy vegetables you have around, add lots of water, and make a soup, adding salt and any spices you want, but without oil. Let it cook for half an hour and strain the liquid, leaving the solids aside. This broth is very rich in nutrients, but with very few calories. Again, you can keep it in the fridge and drink a cup or two every time you feel hungry. The nutrients are going to satiate hunger without the need to eat something heavier.

A third option is to make butter tea. This is a type of tea largely consumed in Tibet, where you take some regular tea (any herbal tea, lemon tea, or any other type of tea you like, without sugar) and add one spoonful of butter. Mix well so the butter can dissolve and drink. It may taste a little strange the first time, but it gets better. The idea is that butter has a lot of good fat, but no carbs. In this way, butter has a lot of energy and is very satiating, but it doesn't provoke a huge insulin response in the body like a few biscuits would do. In this way, we eat something and feel satisfied, but without the downsides of creating an insulin response in the body outside of the time of a meal. The result is that we feel satisfied and have energy, without feeling sleepy and lethargic afterward, and without the need of snacking more later. The main point is that it should be just tea and butter. If you put sugar or even milk there is going to be an insulin response and the result will not be so positive.

Chapter 3: Activating the natural healing mechanisms of the body

In 2016, a Japanese researcher named Yoshinori Ohsumi won a Nobel prize due to his research about a mechanism that makes the body recycle damaged tissues and parts of the cells, allowing it to regenerate on a cellular level. This process, called autophagy, quickly attracted the interest of many, leading to much research, which started to revolutionize medical understanding of the human body.

Great thinkers of the past have mentioned the benefits of fasting. However, during the last few decades, doctors have been categorically dismissing and discarding this knowledge, maintaining the view that health doesn't have anything to do with what we eat, that fasting is useless, and that disease can be treated only with commercial drugs. These new discoveries proved these assumptions incorrect and led to a much better comprehension of how the human body works and how one can not only conserve but also restore his health.

This process culminated with the publication of a review study from the New England Journal of Medicine in 2019 (Effects of Intermittent Fasting on Health, Aging, and Disease) that summarized all the research-proven benefits of fasting and intermittent fasting in promoting autophagy. This review by a prestigious publication allowed it to be used in hospitals, clinics, and as part of public health care initiatives. Although many doctors remain attached to the old ways, a growing number of medical practitioners started to prescribe healthy eating, intermittent fasting, low-carbohydrate diets, etc. as part of the treatment of their patients, and many good results are coming out of that. The best part is that this is a treatment that is largely free and can be practiced by practically anyone.

In short, autophagy is a recycling and regenerative mechanism, one of the greatest secrets of good health and longevity. Each cell inside our bodies is like a complex machine made of a multitude of different components. As the cells operate, certain components wear out and eventually become damaged, just like a car that is used for a long time without proper maintenance. As damage accumulates, the cells become progressively less efficient, and the body as a whole becomes impaired. As the years pass, cells become swollen, inflamed, and eventually die. As such damage accumulates all over the body, our health starts to decline and we feel sluggish and sick, even though we may not have any specific disease. Apart from damage to the cells, debris accumulates all over the body, which doesn't help either.

When the body enters into a process of autophagy, different damaged components of the cells are recycled, and the proteins are used as building blocks for the construction of new components. Diseased cells are eliminated and later replaced by new, healthy cells. Different debris and microorganisms (like viruses, bacteria, and other pathogens) living in the conjunctive tissue between the cells are destroyed by the immune system and so on. The body enters into a cleaning and detox protocol, where everything that is not part of the body, that is damaged, or is not needed for normal operations is recycled. The consequence is healthier cells that can operate more efficiently. As the same happens all over the body, the results can be impressive.

All the hardware is already installed in our own bodies, we just need to learn how to activate it. As mentioned by Hippocrates: "*Everyone has a doctor in him or her; we just have to help it in its work. The natural healing force within each one of us is the greatest force in getting well.*"

A few benefits of the process of autophagy are:

a) Restores and regulates the function of the mitochondria inside the cells. The mitochondria are the powerhouses of the cells, responsible

for the production of energy. Oxidative stress damages the mitochondria, generating fatigue and a lack of energy. The mitochondria are amongst the first components of the cells regenerated by the process, which can lead to surprising results.

b) During the process of autophagy, toxins, and pathogens are removed from the cells, and damaged components are repaired or replaced, which makes the existing cells work in a more efficient way. Since the body is the sum of all the cells, healthier cells result in a healthier body.

c) Promotes the selective elimination of old or damaged cells that are later replaced by new cells. Over time, this creates a profound rejuvenating effect in the body.

d) The same mechanism that replaces other cells works also in the immune system, replacing old or damaged immune cells with new cells, rejuvenating the immune system and making it more effective. In most people, a great part of the immune cells are actually in an inoperative state, too damaged to be of any use in the case of an infection. It's like an army where half of the soldiers are sick. If there are 20.000 soldiers, but half are sick, it means that only 10.000 are going to be able to fight in case of an attack. If all the sick soldiers are replaced by healthy soldiers the army would become twice as effective. According to research done by Dr. Valter Longo, a 4-day water fast is capable of resetting the immune system, stimulating the body to recycle old and ineffective immune cells, and replacing them with new healthy cells after the fast is over.

e) Autophagy restores and protects the nervous system, which is a strong preventive and protective factor against Alzheimer's, dementia, and other similar conditions.

f) Autophagy stimulates the growth of new brain cells (a process called neurogenesis) as well as nerve tissues. As we know, in normal conditions no new neurons grow in the brain of adults, we can just preserve what we have. Recent research (doi.org/10.1038/jcbfm.2014.36) however, contests this information, proving that new brain cells can grow under certain circumstances, helping to fix damage to the brain. These conditions are not ordinarily present but are created by the process of autophagy.

g) In the same way it creates the environment for the growth of new brain cells, autophagy is capable of activating stem cells and repairing damage to different tissues around the body. Many lesions that are not normally healable can be spontaneously cured when autophagy is induced.

h) Autophagy can dramatically improve heart health, by creating the conditions for the cleaning of plaque deposited in blood vessels, reducing risk factors such as bad cholesterol, high blood sugar, etc., and even facilitating the growth of new cells, repairing existent damage to the tissues of the heart.

i) Although usually not sufficient to completely destroy a cancer tumor, autophagy creates an environment that is hostile to cancer cells. This not only reduces the risk of one getting cancer but also helps to slow down the growth of existing cancers, giving one more time to seek treatment. Not only do cancer cells have a harder time getting enough nutrients to grow, but they also start being attacked by the immune system in a more active way. Autophagy can also reduce the size of benign tumors.

Feasting and fasting

As we saw, autophagy offers a myriad of important benefits. In fact, young persons have a high level of autophagy, which allows the body to repair itself in a very efficient way. The body of an 18-year-old can surely tolerate much more abuse than the body of a 50-year-old, and that's exactly because the process of autophagy is more active and is capable of fighting the damage. As we become older, the capacity of the body to use autophagy to repair itself declines, and this is one of the main factors that contribute to aging.

To make matters worse, our modern lifestyle represses this repair system, causing many of our health problems. The question is, how can we revert the trend and start activating it, so we can enjoy the benefits? This is actually the focus of much of the research that has been done in the past years since the discoveries of Yoshinori Ohsumi. By following the appropriate process, one can elevate the levels of autophagy in the body to levels similar to a young person, something that can have a profound rejuvenating effect.

The main factor in activating autophagy is eating restriction. In other words, autophagy is activated when we fast or severely restrict our eating. As long as one is eating five or six times per day, the presence of insulin is going to suppress autophagy, as well as many of the other healing mechanisms of the body.

We can see practically that our bodies are very efficient in terms of self-preservation. We could even say that the human body is very wise. When one has a bacterial infection, for example, one loses his appetite. It happens that bacteria need different nutrients to survive and reproduce, and by stopping eating, the amount of nutrients in the blood decreases drastically. The infection thus slows down, giving an opportunity to the immune system to control it. At the same time, we feel weak or lethargic when sick, which makes us stop our normal activities and take rest, which is precisely what the body needs at this moment.

In ancient societies, people would have to go through hard periods regularly, during the winter, due to failed crops, due to religious observances, and so on. In other words, they would have to fast or severely restrict their food intake regularly, sometimes for extended periods of time. It makes sense that the body would use these periods for healing. This mechanism was well-known to many physicians, philosophers, and thinkers of antiquity, who developed their conclusions based on testing and observation. Plutarch, for example, used to say: "*Instead of using medicine, rather fast a day*."

Just as eating properly is essential, fasting is an important factor for good health. When we are eating, the body focuses on digesting the food and storing the nutrients, and when we fast, the body uses the reserves to repair itself. Just as we can't be healthy without eating, we also can't be perfectly healthy without fasting. The secret of good health is to properly switch between these two: fasting and feasting.

When one speaks about fasting, images of starved prisoners from WW2, or malnourished children from Africa may come to mind. Most people are afraid of fasting, seeing it as some impossible feat. However, organically speaking, to fast is perfectly normal. Our bodies have all the necessary mechanisms to deal with it. If it was not for this, most of us would not be here today: all our ancestors would have died during famines long ago.

A healthy person can fast for weeks before entering into starvation. In fact, the world record for fasting is held by Angus Barbieri, who in 1965 fasted for 382 days (!!) under medical supervision, taking just water and vitamins. He weighed 207 kilos before the fast and completed it with just 82 kilos. Incredibly, he preserved most of his muscle mass. Although this is an exceptional case (done by a person more than 120 kg over his ideal weight and under strict medical supervision), it makes the point that we can go a lot longer without food than we usually think.

Such long periods of fasting are possible because the body has systems for burning fat and non-essential cells and preserving muscle, essential organs, and nutrients.

All of us know about the daily requirements of different vitamins, minerals, and other nutrients. Some nutrients can be stored by the body (like vitamin D, calcium, iron, etc.) while others need to be taken every day (like vitamin C, zinc, etc.). When we are fasting, we don't get any potassium, for example, so how can one survive? The first point is that most of the daily requirements of nutrients are due to the necessity of maintaining a balance in the body. When we don't eat anything (or just supplement a few essential nutrients), it is actually easier for the body to maintain the balance and just keep recycling the nutrients it already has.

A second point is that much of the nutrients the body needs are actually necessary for all the chemical reactions used to digest food. When we don't eat, the body needs far fewer nutrients to keep its functions. Finally, we also have the process of autophagy which is capable of reclaiming nutrients from the digestion of debris and damaged components of the cells.

The combination of a smaller demand for nutrients and the recycling of used compounds and damaged parts of the cells allows the body to go a long way without food. It can go on for a few days (usually five days, but it can be more or less, depending on the person), until the body starts lacking electrolytes and B vitamins, gradually followed by other nutrients. It’s not that one can’t water fast for more than five days, but it should be done with caution and preferentially under medical supervision.

Many people confuse fasting with starvation, although these are two completely different things. To fast means to make the body use its reserves of fat, while starvation starts when the body exhausts all reserves and starts to use proteins from the muscles and organs. Starvation is a dangerous condition, while fasting is healthy.

An average lean person has about 20% of fat in his body. In a 75 kg male, for example, this equals 15 kg of fat. An average person will lose about 225 grams of fat per day during a fast (one may lose much more weight in the first days, but it will be mainly water), therefore one would have to fast for more than a month to start getting close to exhausting his body's fat reserves! A short fast, of one, two, or three days, will barely scratch it.

In ancient societies, people used to fast regularly. Apart from periods of scarcity, where people would be forced to fast due to a simple lack of food, there were regular religious fastings, they would fast as a way to cure disease or to get divine inspiration in times of need, and so on.

Modern life brought two things that were not available in ancient societies: the supermarket and the refrigerator. Not only do we now have a stable supply of food, where we can just go and buy more anytime we need, but also a convenient way of storing it at home. Not only that but the abundance of ready-to-eat industrial food guarantees that we have always something at hand. As a result, fasting became a distant memory. Many people live and die without having fasted for a single day during their lifetime.

This is exacerbated by the fact we started eating more frequently. While in most ancient societies people would have only one or two meals per day, we normally have three meals, plus two or three snacks. In total, many people eat six times per day (or even more) and many never stay more than eight hours without eating. From the viewpoint of the body, their lives are a constant feast.

When we start to eat six times per day and lead a sedentary life, we actually end up with more health problems, because we are going against the body’s design. Just like one needs to do some type of exercise to remain healthy, regular fasts are also essential for good health.

Apart from autophagy, there are many essential functions that the body can only perform when one is fasting. Therefore, to preserve our health we need to alternate periods when we eat well (with nutritious and wholesome food) and periods when we fast. We can see that many ancient cultures have religious or ritualist fastings a few times per year (as Vaishnavas we are supposed to fast two times per month on Ekadasis, for example). In most cases, it is not only for spiritual reasons: there is an important health aspect as well.

Intermittent fasting

As mentioned, good health depends on two things: providing the body with the necessary nutrients and providing it with the right conditions so these nutrients can be used for healing. One side is what to eat, the other side is when to eat.

Apart from eating incorrectly, another problem is that we eat too frequently. The human body has two modes of operation which are regulated by insulin. When we eat, there is a discharge of insulin that signals to the different cells of the body that it is feast time. The body enters a storage mode, where the food is digested and the nutrients stored. As the insulin fades away, the body enters in a repair mode, where toxins are eliminated, cells and tissues are repaired, and so on. To maintain good health, we need to properly alternate between these two states.

In other words, the human body is made to feast and fast. We are supposed to combine periods when we eat well, supplying our nutritional needs, and periods when we don't eat, allowing the body to repair. Most of the repairing processes in the body start 12 hours from the last meal, therefore one should, at the very least, have an interval of 12 hours between dinner and breakfast the next day.

That was actually what most people used to do a few decades ago. They would take breakfast at 7 or 8 a.m., have lunch at noon, and some dinner in the evening. People would eat three meals a day, with an interval of around 13 or 14 hours between dinner and breakfast in the next day. Two important differences we can notice: people at those times were usually slimmer than nowadays, and they would be healthier than people nowadays. When we eat too much and too frequently, we actually harm our bodies.

The first step is exactly to do like in the old times: stop snacking and have only three meals a day at specified times. You can start with a period of 12 hours between dinner and the next breakfast and try to increase from there, having dinner a little bit earlier and having breakfast a little later. The goal in this phase is not to eat less, but simply to start eating in a regular fashion, breaking with the habit of snacking. When it's time to eat, you eat, and when it's not time to eat, you don't eat.

The intermittent fasting system consists in simply maintaining an interval between the last meal of the day and the first meal of the next, providing the body with the necessary nutrients when we eat, but also giving it a time without eating, when the body can heal and rebuild.

The process of intermittent fasting is not about eating less or eating more, but simply about adjusting when to eat. Theoretically, intermittent fasting can be practiced even by someone who is eating junk food, however, the real benefits appear when it's combined with a healthy diet, as described previously.

The modern idea that we need to have three meals a day with snacks in between is actually not very scientific, and it is actually harmful to our health. It's bad in two senses: first because it's actually difficult to eat in such small portions (especially if one is eating refined carbohydrates) and second because even if one has the mental control to do so, still this frequent eating will not be good.

Historically, most societies would eat one big meal, plus one or two small, simple meals (like in the case of the Romans). They would also fast regularly due to religious observances. This idea of eating frequently is actually a modern idea, pushed by the food industry. Even the idea that "*breakfast is the most important meal of the day*" started from a marketing campaign from Kellogg's company to increase the sales of their breakfast cereal. It's not based on the idea of making people healthier, but simply to sell more products.

The 16:8 system

As one becomes used to eating at regular times and not eating for certain intervals, it's possible to potentialize the benefits by increasing the fasting period. One can have, for example, a light breakfast at 9 a.m., lunch at noon, and dinner at 5 p.m. In this case, he would have an eating window of 8 hours and a total of 16 hours of fasting every day. This is a moderate style of intermittent fasting, called **16:8**. We can see that this is not such a huge change from what we may be doing now, but the results can be really impressive.

The times of the meals can be adjusted according to your routine, the important part is the total interval between the first and last meal. If you wake up late, you can take dinner at noon, some lunch at 5 p.m. and dinner at 8 p.m, for example. It works the same.

Intermittent fasting offers a wide range of benefits. It reduces inflammation (helping with all kinds of painful conditions), increases the release of growth hormone (that promotes fat loss, the building of muscle, and repair of tissues), improves testosterone levels in men (which results in important health benefits), promotes fat burning and weight loss, rebuilds the immune system, protects against most types of cancer, and so on. If someone would

create a medicine that would offer all these benefits simultaneously, he could charge a lot of money for it, but intermittent fasting is free.

A common argument against staying such long periods without eating is that it could lead to muscle loss. However, actually, the opposite happens. One can lose muscle when he eats too frequently, because the insulin blocks the burning of fat, forcing the body to burn muscle to produce energy. In natural conditions, the body will always first burn the glucose of the food and then start burning fat. It will start to burn muscle at a significant rate only after weeks of fasting when the reserves of fat in the body start to run out. It's a concept similar to someone living in a forest house during a harsh winter: he will not start burning his furniture until he exhausts his supply of firewood.

Intermittent fasting consists in having relatively large meals, combined with relatively long fasting periods. This makes the body work in a completely different way, using glucose from the food in the first few hours after the meals (when the insulin is high), and then switching to fat-burning as the insulin runs out. This results in the loss of fat and the preservation of muscle.

18:6 and 20:4

After one becomes used to the 16:8 system, he or she can try the **18:6** system, which consists in eating for 6 hours and fasting for 18 hours. This system is more suitable for the ones that can skip dinner or breakfast, focusing on two meals. One could have breakfast at 8 a.m. and lunch before 2 p.m., skipping dinner or, alternatively, skipping breakfast, having lunch at noon and some light dinner before 6 p.m., for example. Any combination inside this period of 6 hours work.

Some people will do better by taking breakfast and skipping dinner, and others will do better by skipping breakfast and taking dinner. You can test

both ideas and see what is suitable for you. The two rules in the 18:6 system are simply to keep this interval of 18 hours and avoid taking a large meal too late in the evening. Eating too much right before bed time will reduce the quality of the sleep and promote fat accumulation, which is not our goal.

If one wants to go still further, he can contract the interval between his two meals, leaving an interval of only 4 hours. One could thus have breakfast at 9 a.m. and dinner before 1 p.m., or lunch at 2 p.m. and dinner before 6 p.m., for example, stopping his eating there.

This is the **20:4** system, which results in further benefits over the 18:6. Naturally, this system is also much more difficult to maintain. In general, it's better to go slowly, starting with three meals a day, then 16:8 and then 18:6, before trying the 20:4.

The million dollar secret for doing intermittent fasting is to reduce or eliminate the refined carbohydrates from our diet, and focus on vegetables, whole grains (in moderation), healthy fats, fruits and low-glycemic foods, as described previously. As one does that, he will not only switch to a much more nutritious diet, but without the peaks of insulin, he will not feel very hungry. After a few months of adaptation, there will be hunger only at the times of the meals. Not only that, but he is going to have much more energy. The problem is just the adaptation period.

Another point about intermittent fasting is that you don't necessarily have to do it every single day. It's perfectly fine to take a day off and just eat three meals sometimes. The effects of intermittent fasting are cumulative: even if you don't do it every day, still you get the benefit for the days you do.

Nowadays many elite athletes do intermittent fasting for better results in their training. Similarly, many highly paid professionals do it as a way to improve their cognitive power and disposition. Intermittent fasting is also a

good option for people that have a hectic schedule because it reduces the time one needs to dedicate to prepare and take his meals. One may not have six hours per day to cook and eat three times, but he may be able to spare one hour per day to prepare a single nutritious meal.

HGH and testosterone

Two other important benefits of intermittent fasting are the elevation of the levels of human growth hormone (in both sexes) and testosterone (in men). Let's quickly examine these two factors before moving to the next topic.

Human growth hormone, or HGH, is used in an injectable form by bodybuilders to grow muscles and tone their bodies, but apart from such illegal and harmful uses, HGH has a very important function in our organism, being responsible for the growth and multiplication of cells. It directly influences the multiplication of cells in the immune system, muscles, bones, skin, and even hair and nails.

In our early years, the levels of HGH are very high, and this is responsible for our body growing. As we enter adulthood, the levels fall drastically. As we become old, the levels become increasingly low and as a result our capacity of growing or maintaining muscle, bones, or even immune cells is impaired. One becomes lethargic, starts to lose muscle and bone mass, and becomes more prone to gain weight.

According to a study published in 1992 by The Journal of Clinical Endocrinology and Metabolism (pubmed.ncbi.nlm.nih.gov/1548337/), regular fasts are capable of dramatically increasing the human growth hormone levels, which work as an antidote for these undesirable symptoms. For older persons, this helps enormously to counteract many of the effects of advanced age, and in younger individuals, it promotes a general improvement in health, mood, and physical endurance. It also helps one to gain muscle, accentuating the effects of any type of exercise. In other

words, fasting works as a free and natural type of hormonal therapy that doesn't have any collateral effects.

HGH also acts on the fat cells, making them release the stored energy. This energy becomes available for the brain, muscles, and other cells in the body, improving one's thinking capacity, concentration, mood, and even athletic performance. The increase in human growth hormone as a result of regular fasts can provoke some dramatic changes in these areas.

Intermittent fasting also elevates the levels of testosterone in men. This is especially important nowadays, because of all the sources of estrogen that men are exposed to. Estrogen is present in drinking water, plastics, and all kinds of chemical products used in the manufacture of products we use on a daily basis. Even someone that avoids soy products will still get a lot of estrogen from these other sources. Elevated levels of estrogen suppress testosterone, which has very detrimental effects on a man's health. Intermittent fasting is capable of dramatically elevating testosterone levels, which in turn nullifies many of the bad effects of exposure to estrogen in men.

Naturally, the increase in testosterone affects only men. Women have other health benefits, including reduced body fat, decreased risk of heart disease and diabetes, preservation of muscle mass, improvement of psychological well-being, reduction in menstrual pain, and so on.

One time per day?

Since most of the benefits of intermittent fasting, including autophagy, increase in the levels of growth hormone, cellular regeneration, detox and so on start only after 12 hours of fasting, why not try to reduce the eating window and thus maximize the benefits of the daily fast? What if someone would have a very short eating window of, let's say, two hours, and would

fast the other 22? Should he not get more benefits than someone doing 16:8 or 18:6?

Actually, this is a very common idea, and many people indeed follow it. It's called **OMAD** (one meal a day) and indeed it potentialize the benefits of intermittent fasting. There are different versions of it, like the warrior diet, but they are all based on the same principle: eat healthy foods, eat less, and eat in a narrow time window.

This is also the diet traditionally followed by renunciants in our line. As described in the Jaiva Dharma and other works of our acaryas, renunciants would practice their sadhana in the morning, go to beg from the grihasthas at lunchtime, and eat only once at some point in the afternoon. This would allow them to keep good health (despite their austere living conditions), help them control their senses, increase their mental clarity, and help to situate themselves in the mode of goodness. According to different accounts, even Srila Prabhupada was following this system when he was living alone in Vrindavana, before coming to the west. As he mentions:

> *“Generally those engaged in spiritual advancement take food only once, either in the afternoon or in the evening. If one takes food only once, naturally he does not become fat.” (SB 7.13.18)*
>
> *"Regarding the temple management, one man can be left behind, while the others go out, to take care of the Deity. And, you can come home at night and take prasadam sumptuously. Once eating sumptuously is enough to maintain body and soul together. In the daytime you may not take, and at night you can take. As a matter of fact, a devotee may take only once in a day either in the day or night, and whenever you eat, you must first offer. But I do not mean you should neglect temple life. Do not misunderstand this. But, one man can remain, and so far the other devotees are concerned, they can eat once in the day or night, after having kirtana, then six hours of sound*

> *sleep, and this will maintain their health properly." (Srila Prabhupada, letter to Sri Govinda Prabhu, 06 December, 1974)*

From a health perspective, OMAD doesn't necessarily mean to strictly have just one meal, but simply to eat in a time frame of two hours. One can eat one time at noon and eat a little more a little before 2 p.m., for example. The idea of starting with something light (and easy to digest) and taking the main meal shortly afterward works well with this system. That's what I do most of the time, starting with some fruits and after a short break going for the main course.

The best time to eat fruits is exactly when you are breaking the fast, since that’s the time when the glycogen reserves are low, making sure that the sugars present in the fruits are going to be used to replenish the glycogen reserves, and not to be stored as fat. Being light, the fruits sit well in an empty stomach, and because they are digested fast, they quickly leave space for the main course. If you are at all going to eat fruits when doing OMAD, that’s the best time.

Another point of consideration is what to eat. Most people that follow the OMAD system tend to adopt a diet with more healthy fats and less carbohydrates. One reason is that fats are more satisfying than grains and other foods rich in carbohydrates, and they keep one full for longer. The other reason is that fats are much more caloric, therefore one can get the necessary calories without having to eat too big of a quantity of food (this also helps to leave space for vegetables and fruits). As we examined, there is no problem in eating more fats, as long as one eats healthy fats (butter, ghee, coconut oil, olive oil, nuts, avocados, cheese, etc.), and avoids refined vegetable oils.

My personal recommendation is to also include a good deal of beans and legumes, according to what you can digest. They are very nutritive, low GI, low on calories (compared to nuts and fats), and very filling. Chickpeas are especially nutritious and go well with most dishes. One of my favorites is

roasted chickpeas. This is a simple recipe that is very easy to make and can be stored for several days in the fridge. You can make a good quantity of it and eat it for several days.

The recipe is easy: leave 1/2 kg of raw chickpeas soaking in water overnight. The next day, throw the water and put the chickpeas on a tray. Bake at medium temperature for 10 minutes (to dry it), add one or two spoons of coconut oil, ghee, or any other health oil, mix well, and bake for 20 to 30 minutes more at high temperature. Mix again in the middle so it roasts evenly. At the end, add salt and other spices you may like. The chickpeas become crunchy, a very nutritious and satisfying addition to any meal.

Many like the OMAD system because of the convenience, and because it makes it easier to follow a healthy diet when one has a hectic lifestyle. To eat two or three meals per day takes a lot of time, not only to cook, but also to eat and clean. By changing to just one meal, it’s easier for one to find time to cook a proper meal and eat peacefully. Another advantage of eating just one time is that one doesn't have to control how much he eats, since the possibility of becoming fat when eating just one time per day is very remote. He can just enjoy his meals and eat until satisfied, without fear.

If you want to try, the secret is to be gradual. Start by fixing your eating habits and eating healthy food, up to the point where you can start following the 16:8 system. After a few months, when the body starts to get used to it, you may start to gradually reduce the eating window until you reach the desired schedule.

One observation is that women are more sensitive to fasting than men. Most men can feel very well doing 20:4 or even OMAD, but ladies should be more careful with these more rigorous modalities of intermittent fasting. Women have more of the hormone kisspeptin, which makes them more sensitive to fasting. Although women can benefit from intermittent fasting as much as men, a regimen that is too rigorous (especially if combined with caloric restriction) can throw off their hormones and mess with their cycle.

Due to that, it is more recommended that ladies restrict themselves to the 16:8 or 18:6 systems, avoiding 20:4 or OMAD, which may be too rigorous for their bodies. These more rigorous systems are more recommended for men.

Concluding, there is the issue of the best time for the daily meal when one is doing OMAD. The ideal time, according to my research and my personal experience is in the mid-afternoon, anytime between 1 p.m. and 4 p.m. That's a time when the body is prepared to digest a good amount of food, and the time that we are used to having lunch. Eating at this time, one can still attend many professional and social events that require one to eat, there is sufficient time to digest the food before bedtime, and even if on some days he needs to eat again later in the day due to hunger or social pressure, it's not a big deal, since he will still eat at an interval of 6 or 8 hours. In short, this system consists in skipping breakfast, having a satisfactory lunch a little later than usual, and skipping dinner.

Many prefer to have the main meal in the late afternoon, at 6 p.m., 7 p.m., or even 8 p.m. This time is not ideal from the perspective of digestion, but it can also work in the case of persons that go to sleep late. However, this is less effective from the perspective of weight loss and insulin control, since this is the time we tend to just sit on the couch and don't move much. If one eats a big meal in the mid-afternoon and continues to move and do his normal activities after that, part of the glucose from the meal is going to be used by the muscles, and therefore the impact on the blood glucose levels is going to be less severe and a lower percentage of the glucose is going to be stored in the form of fat. If one eats the same meal in the late afternoon and just sits on the couch, however, both the rise in the blood glucose levels (and the consequent insulin response) and the amount of fat stored are going to be higher. This can be minimized however if one adjusts by reducing the intake of carbohydrates, eating instead more fiber (especially in the form of cruciferous vegetables) and healthy fats. The main observation is that one should not have his main meal right before bedtime: it should be at the very least three hours, and ideally six hours before.

The third possibility is to have the meal in the morning, something that I did for a long time due to my particular routine. It's more challenging in the sense that you need to have self-control to not eat for the whole day, and that it's difficult to eat a big meal early in the morning. However, it also has an advantage: if you do it correctly there is a chance of getting better sleep (after the body gets used to it at least), since by the time you go to sleep the body will be already in a fasted state, with very low levels of insulin. It happens that insulin makes it harder to fall asleep and to reach deeper levels of sleep. With low insulin, the chances of having a good night of sleep are higher. My experience, however, is that it only works if you have your meal early in the morning (before 9 a.m.), and eat meals very low on carbohydrates and high on vegetables and fat. If one eats a meal high in carbs at this time (even slow carbs), he will be ravenously hungry by late afternoon. If he eats later in the morning, the body may not have time to enter a fasted state by the time he goes to bed, and he may have difficulty sleeping. In general, eating in the morning can be considered a "pro" version of OMAD: it has some strong advantages, but it's difficult to get it right.

Water fasting as a healing aid

Intermittent fasting offers some impressive health benefits, countering insulin resistance, helping to lose weight, and improving many different types of conditions, favoring health and longevity. The combination of intermittent fasting and a nutritive diet, free of refined carbohydrates is also capable of promoting a certain level of autophagy, allowing the body to do a little bit of cleanup every day, bringing thus noticeable improvement to one's health. People start to notice improvements in digestion, a general increase in energy, and clearer skin after just one or two weeks - and that's just the beginning.

Intermittent fasting is especially important especially for the ones that have insulin resistance or obesity, since the higher level of insulin suppresses autophagy more than in healthy individuals, which contributes to their declining health. As mentioned, insulin resistance is behind most chronic diseases (from tiredness to diabetes, contributing even to cancer). As shown in the works of Dr. Jason Fung, intermittent fasting is also capable of reverting many cases of type 2 diabetes, metabolic syndrome, obesity, and even helps to reduce the growth rates of most types of cancer.

However, intermittent fasting by itself is not sufficient to put the body in the deep stages of autophagy, which are desirable for the healing of serious conditions. Longer fastings result in much higher levels of autophagy, and can thus offer benefits that can go well beyond what one can attain with daily short fasts. The best is thus to combine both techniques, combining intermittent fasting with sporadic water-only fasting.

A study from 2010 (ncbi.nlm.nih.gov/pmc/articles/PMC3106288/) show that fasts of 48 hours or more are capable of dramatically increasing the number of autophagosomes inside the cells (an indication of autophagy), which has effects that go well beyond the duration of the fast. In other words, by doing short fasts of two, three or four days, one can considerably increase the levels of autophagy in the cells even during the time he is not fasting.

One thing we can keep in mind in connection to that is that the scriptures very strongly recommend that one fasts two times per month during Ekadasis. The way we are recommended to do it is to eat a meal on the day before at around midday, then fast completely on the Ekadasi day, break the fast with something very light at the appropriate time of the following day (Dwadasi) and them take the main meal at around noon. As we can see, this advice from the scriptures result in a fast of 48 hours, wich is very in line wich what modern science is rediscovering.

As mentioned, there are a multitude of repair processes in the body that start only twelve hours after the last meal. These processes intensify after

18 hours and reach a peak after 48 hours when the body enters a state of deep autophagy, where the rate of repair in damaged tissues increases dramatically, existing cells are repaired, new neurons grow in the brain, accumulated toxins are thrown out, defective immune and blood cells are reabsorbed (and later replaced), and different alien organisms living inside the body are attacked and digested. Even eventual cancer cells have a hard time, since not only are they being deprived of their main source of nutrition (glucose), but are also attacked by the body that wants to use them for energy.

The Ayurveda explains that all disease comes from the accumulation of Ama, a heavy, sticky, toxic waste that accumulates in our digestive tract and can eventually overflow into our channels and tissues. Ama is a byproduct of bad digestion, generated especially when one frequently eats again before the previous meal is properly digested. Fasting is, according to Ayurveda, a very effective way to reduce Ama, therefore we have yet another situation where traditional wisdom and modern science agree.

Fasting also gives mental and spiritual benefits, calming the mind and helping one to connect with the divine. It’s not a coincidence that great philosophers in the past used to fast regularly, and there are many instances of holy persons fasting to achieve divine inspiration. Fasting is very useful for one that practices meditation and desires to increase his concentration levels, or for practitioners of any spiritual process.

Once one can develop sufficient mental control to regulate his eating, learning to fast when necessary without becoming anxious, he becomes also capable of controlling his mind and senses in other areas, which makes his meditation or spiritual practice much easier.

It's not a coincidence that different religious books prescribe a number of days for fasting. Both the Old and New Testament, as well as the Vedas and the Koran, prescribe fastings on a number of days. Christ was teaching it, Buddha was teaching it. The Muslims even follow a type of intermittent

fasting for 30 days in a row during the Ramadan every year (when they eat only after sunset).

The main point about fasting is to use common sense. If one decides to fast the whole day and eat twenty pieces of pizza at night, or to fast one day and eat double in the next, this will do much more harm than good. When breaking the fast, and in the subsequent days, our meals should be healthy. If one eats healthy food, it will be difficult to overeat, and the result will be positive.

As time passes, the tendency is that we start to slowly gain weight. This extra weight, in turn, makes us feel tired and lazy, and this is not considered very favorable for our physical, mental, or spiritual health. Fasting allows one to break the cycle, resetting his cravings and bad dietary habits, thus having a fresh start. One that was addicted to Oreos and ice cream before, may be perfectly satisfied with a bowl of steamed vegetables and a few nuts after a fast.

There is a physiological mechanism that makes fasting difficult for one who is not used to it. Our bodies can work on two types of fuel: carbohydrates and fats. Once the body becomes accustomed to receiving food at short regular intervals, it gets used to burning only carbohydrates and becomes sluggish at burning fat. Therefore, the day we don’t eat, we feel hungry and weak. Once we can successfully fast for a few times, the body becomes better at burning fat from our bellies, and we don’t have so much discomfort when fasting.

Normally, we think that we need to eat more on the resting days to regain energy but, most of the time, what the body really needs is a break from the hard work of digesting all the food we eat. To digest food takes a lot of energy. Actually, the days when we don’t eat are a rest for the body, since without the need for spending energy for digesting food, the body becomes free to take out the toxins and recover. The extra energy is used for healing.

It’s important to drink water when fasting. Not only does this help the body with its cleansing process, but it avoids many of the unpleasant effects of occasional fasting. Normally, our bodies need from two to three liters of liquids daily. We generally don’t need to drink so much because we get a lot of water from the food. When we are fasting, however, we really need to get it all in the form of water. It's also important to be careful when breaking the fast, as we are going to discuss later.

If water fasting is too difficult, there is the option to start with partial fastings, taking only steamed vegetables, only salads, or only vegetable juices, and from there see where to go based on the responses of the body. As in many other things in life, it’s much better to do things slowly, in a way that is sustainable, than to try to do things in abrupt ways.

For someone who has never fasted, a fast may sound scary, but if one gets used to it, fasting becomes relatively easy. The body gets used to burning fat for energy, therefore when the time for a fast comes, it is well-prepared. Fasting is only difficult the first few times.

Naturally, fasting is recommended only for ones in a healthy condition. If someone is diseased or in any kind of debilitating condition, he should first deal with the immediate problem before attempting to fast. In general, fasting is not recommended for:

a) Pregnant women or mothers that are breastfeeding.
b) Young children and teenagers.
c) People that are underweight or have type 1 diabetes (for type 2 diabetes, check the work of Dr. Jason Fung).
d) Individuals that are going through periods of heavy stress due to external demands or obligations.
e) People with a history of eating disorders (fasting can make their condition worse).

There are also certain types of bodies that may be less favorable for fastings. According to the Ayurveda, one who has a vata constitution will have much more difficulties (and probably less physical benefits) than someone who has a kapha constitution, for example (usually, this type is energetic and skinny, therefore the body has fewer reserves), as well as cases of persons with certain health conditions. It’s normal to feel hungry, but if one becomes too weak, it’s more prudent to start with a partial fasting and slowly progress from there.

Fasting and hunger

When we speak about fasting, one important subject to understand is hunger. We usually have the impression that if skipping just one meal is hard, fasting for two or three days can be exponentially more difficult, but actually that’s not how hunger works.

Hunger is regulated by a hormone called ghrelin. Studies show that the body releases ghrelin at the time one is used to eating according to an internal clock. If one has the habit of eating at 8 a.m., noon and 5 p.m., for example, he will feel hungry precisely at these times. However, the action of the hormone is not linear. One will feel hungry at 8 a.m., but if he doesn't eat, the hunger will pass after one hour or two, and will come back only at noon, the time for the next meal. If he doesn't eat again, the hunger will eventually go away, until the time of the next meal, and so on. On the second day, he will again feel hungry at 8 a.m., but this time it will be less severe than on the first day. The hunger will be less intense on the third day and even less on the fourth day. In other words, hunger will be present, but it will come and go, it will not just increase indefinitely.

When fasting, you can expect that the first two days are going to be the most difficult. This is the phase of the fasting where the body is transitioning from an anabolic state (where it is "building up", using nutrients from the food) to a catabolic state (where it is breaking down fat and using other

reserves). During these first two days it's normal to feel all the symptoms of a fast, including hunger pangs, tricks from the mind or even headaches. The mind may start telling you that you are starving, but actually in this state the body is not even close to that.

In the first two days, the body is not even burning much fat, it is still using the glycogen reserves in the liver and muscles. In the third day (typically) it finally switches to fat burning, the digestive system switches off and the hunger pangs diminish or almost completely disappear. From this point, the fast becomes relatively easy. There is going to be some discomfort, but nothing like ravenous hunger. In general, after the first two or three days one will feel happy and relaxed, and his problems and challenges will start to look smaller. In this state, sleep tends to be better and we wake-up feeling energized. However, it is a different type of energy that can go away fast if we start doing physical activities. The mental clarity is very conducive to spiritual or intellectual activities (it's not by chance that sages and great thinkers from the past used to fast when they had to make difficult decisions, or were seeking divine inspiration). One can read, listen to classes, write, or do some other creative work.

As soon as the body enters a fasting state, one can continue fasting for several days without much hunger. There may be a desire to eat (which is a different thing), but not much physical hunger. Once one passes the third day, there is not so much difference in fasting for 4 days or 7 days, for example. This can continue until the body starts to exhaust its reserves (which will vary depending on the person). At this point, the hunger will come back in force, indicating that it is time to end the fast.

Similarly, when we do intermittent fasting, we may feel hungry during the times we previously used to eat for the first few days, but eventually the body will adjust its eating windows to the new schedule, and hunger will come at these new times.

Before I started doing intermittent fasting, I used to eat in the morning and in the late evening, and naturally I would feel hungry at these times (especially in the evening). When I started my regime of intermittent fasting (due to lack of experience I started by doing OMAD in the mornings, which is actually the hardest option) I continued to feel hungry in the evenings for a few days, but gradually I started to feel less and less hungry in the evening, up to the point that I would not feel hungry at all. In exchange, I started to feel very hungry in the mornings, at the usual time of the meal. As I mentioned previously, I had to pass through a period of adaptation, but the general idea is that the body can easily adapt to a new eating schedule, we just need a little bit of patience.

One important technique to make water fasts easier, especially for someone that is not used to it, is to take a little bit of salt. It happens that sodium is an essential electrolyte, essential for the function of the heart and cell-to-cell communication. The levels of salt in the organism are strongly connected with the insulin levels, since insulin makes the body retain sodium. When we fast, the insulin levels in the body decrease, liberating the retained sodium that is thus eliminated through the urine. The body responds to this loss of sodium by releasing insulin (to try to hold what is left) and, as we learned, insulin makes the blood glucose go down, making one dizzy and hungry.

This is a mechanism that can make fasting exceptionally difficult in the first times one tries. However, by eating a small quantity of salt (one or two grams per day, on the first few days) we can replenish the sodium reserves, compensating for the loss due to the lower levels of insulin. This avoids the release of insulin, making the fast much easier. You can just put in your hand and lick it little by little, or you can dissolve in a liter of water and drink during the day.

If even with the salt a water fast is too difficult for you, there is still a third option. According to research by Dr. Valter Longo (cell.com/cell-stem-cell/fulltext/S1934-5909(14)00151-9) it is still possible to

get most benefits of a water fasting if one eats less than 200 calories per day. It will not work if one eats a bar of chocolate, but by eating very low-glycemic foods, one can stay under the 200 calories and in this way still get most of the benefits of a water fast, but at the same time manage to eat something and replenish some nutrients. One can make a light broth with vegetables, salt, and spices, can make a light salad (lettuce, raw carrots, tomatoes, and cucumbers, for example), can drink chia water (put one spoonful of chia seeds in a liter of water and wait for one hour), etc. If you have a juicer, you can even drink some juice made of vegetables (fruit juices however are a no-no, since they can easily provoke a strong insulin response).

In fact, some clinics that conduct supervised fasting usually have protocols that include ministering supplements of electrolytes and a few essential vitamins, or giving the patients small amounts of low-calorie but high-nutritious foods (like vegetable broths) that can replenish essential nutrients without stopping the burning of fat and autophagy. In this way, they create a situation where the patients can fast, but without serious depletion of nutrients, which reduces the risks of fasting for longer periods.

Concluding, another point about hunger and appetite is how nutritive is the food we eat. We can understand this practically. Let’s say a person is used to eating rice, beans, and vegetables for lunch, in a total of about 1200 calories. This is the amount he is used to eating every day, and by eating this much he feels satisfied until dinner time. If one day he would eat the same amount of calories in the form biscuits and soda, he would not feel satisfied. He would have to eat much more to feel that he has eaten enough, and still it’s probable that he would feel hungry again much before dinner time.

The body is very sensitive to the nutrients we eat. In fact, the body doesn't have any mechanism to count how many calories there are in the food we eat, but it is capable of estimating how much of different nutrients are ingested. For example, if one eats buckwheat, he will feel satisfied much

sooner than if he eats only white rice, because buckwheat has a good amount of nutrients and complete protein, while white rice is basically only starch. When we eat food that is not nutritious, the body gives us signals to eat more. Appetite is thus much more connected with the amount of nutrients in the food than with the amount of calories.

When we become critically deficient in certain nutrients, the body responds by creating a strong impulse to eat more, which manifests itself in the form of cravings. When one is deficient in magnesium, for example, he can have a strong impetus to eat sweets, which is the way the body tells him to eat more fruits. The problem is that frequently we don't understand the signals from the body and just eat more junk food, which exacerbates our deficiencies, creating a vicious circle.

As one improves his diet, going from junk food to a nutritious diet rich in vegetables and other nutrient-dense food, he will notice that his cravings are going to diminish and eventually disappear completely. Not only that, but by eating nutritious food he will feel satisfied after eating much less calories, creating a balance. The normal tendency is that a person starts to lose weight without much effort, and this continues until he reaches his ideal weight, a point where the weight stabilizes.

Fasting is not a panacea

Fasting acts as a mild stressing factor to the body, much like exercise. It creates challenges to the body that activate different processes that make the body stronger afterward. However, fasting should not be seen as a miraculous cure for all diseases, nor as something that is good in all situations. If one is in a healthy state, fasting will offer a range of benefits, as previously discussed, making the body and the immune system stronger. However, if one is in a debilitated condition, fasting may not be a good idea. For example, if one is stressed from work, suffering from a deficiency of nutrients caused by a bad diet, and with a weakened immune system,

adding a fast to the equation will just make his body suffer more. In such cases, it’s better to first try to treat the underlying problems (taking a vacation from work and improving one’s diet, for example) and then, when one is in a normalized condition, try to fast.

To fast in the right measure will make the body much stronger, but too much fasting can debilitate the body. As the saying goes, too much of a good thing is a bad thing, and this certainly applies to fasting. For most persons, the optimal combination will be a combination of some form of intermittent fasting (16:8, 18:6, or whatever is comfortable) with regular short water fasts of one, two, three, or at most four days. The most adventurous can try longer fastings, but these shorter fasts offer all the important benefits in a much safer way.

In general, any fast of more than five days should preferentially be done with medical supervision, and all types of fasting must be combined with a nutritious diet on the days you are not fasting, so the body can replenish the lost nutrients. If you start to feel unexpectedly unwell at some point, it’s prudent to go to see a doctor.

Another question is if one should try to fast when he is sick. This is an old controversy: many of the old thinkers recommended fasting as a cure for all diseases, and many doctors in the field of alternative medicine follow this opinion. However, most allopathic doctors are vehemently against it, and ayurvedic doctors are mostly in the middle.

Fasting is capable of strengthening the immune system due to the process of autophagy and other factors we have been discussing. Therefore, it is a fact that fasting can be used in combination with a good diet as a precaution to strengthen one's immune system so it may be at its peak when an infection comes. However, to fast when one is already sick is a more complicated matter.

Fasting can help greatly in certain conditions, especially when one has a bacteriological infection. As mentioned, fasting deprives the bacteria of the nutrients they need to proliferate, making their reproduction much slower and thus greatly helping the immune system to cope. We can see that one of the symptoms of bacterial infections is a lack of appetite, which is the body telling us that it is the right thing to do. To eat during a bacterial infection means, most of the time, to just feed the disease. Our bodies can survive for several days without food, but the bacteria can't, therefore they starve much sooner than we do.

However, in viral infections the situation is different. Viruses are not exactly alive and therefore they are not affected by lack of nutrients as bacteria. As long as the other cells of the body are alive and operational, the virus will also continue to replicate and do its damage. The only real defense we have against viruses is our own immune system: in most cases, a viral infection is only controlled when the immune system develops and produces a sufficient quantity of antibodies against the virus. Just as antibiotics and most other medicines are ineffective against viral infections, fasting is also not going to be of much help.

According to a study from Yale University (ncbi.nlm.nih.gov/pubmed/27610573) fasting during viral infections can actually do more harm than good, depriving the body of nutrients that the cells and the immune system need to fight the virus. Thus, in a viral infection, the best measure would be to have light and nutritious meals, without trying to artificially restrict eating.

Naturally, apart from viral and bacterial infections, there are several other conditions that can make us feel sick. For example, one can feel under the weather because of inflammation, or because of some chronic pain. Fasting is very effective in reducing inflammation and pain in general, therefore it can also be helpful in such situations. There is also the possibility of using a ketogenic diet (a diet that mimics fasting by restricting the intake of carbohydrates and protein) as a treatment for chronic pain. Fasts can also

help to improve allergies, which is not a surprise, since allergies are caused by the immune system, and fasting has a profound impact on it.

There are also many conditions that can be caused by reactions to particular foods. Even something you have been eating for your whole life can later start to cause you trouble because of changes in the gut microbiome or other events. Many people become intolerant to lactose (and consequently to milk and most milk products) as they become older, others become intolerant to gluten or to certain grains or vegetables, some people develop allergies to certain foods, and so on. One can suddenly start to feel sick because of certain foods, and of course, a fast would also help in such conditions, since a fast is the ultimate exclusion diet. In such cases, a fast can help you to understand that your condition is a reaction from the body to certain foods, and in some cases, it can help to treat it, by healing the digestive system.

The conclusion is that fasting can help with many health conditions, but not all of them. A fast (especially long fasts lasting more than two or three days) is not advisable in a viral infection, and can be dangerous if the body is already in a debilitated state, just like heavy exercise is not advisable when one is sick.

How to start?

Before starting to think about fasting, the first step is to fix our diet, increasing the amount of vegetables and fruits, reducing or eliminating sugar, replacing refined carbohydrates with whole grains and legumes, replacing refined vegetable oils with butter and other healthy fats, adding high-quality foods, such as nuts, nutritious seeds and so on.

Many people try to go directly from a diet of sugar and refined carbohydrates to a multi-day fast, which is not advisable. Not only is it very difficult to do (one will feel very hungry and have other symptoms like

lethargy, headaches, etc.) but it is also not very healthy, because the body will be forced to start the fast from an already debilitated state. By first changing one's habits and following a nutritious diet for a few weeks, one will reduce his insulin resistance and allow the body to build up reserves, which will allow him to fast in a much easier and healthier way.

A second point is to not try to start with a long fast. It's much better to go gradually, allowing the body to adapt, starting with a single-day fast, eating normally for one week, then trying a two-day fast, and so on. In the meantime, one can try a regimen of intermittent fasting, starting with 12 hours of eating and 12 hours of fasting, and then progressing to 16:8 or 18:6. Intermittent fasting is actually the main aspect of this protocol, since it's what you can do every day, it is what gives you most of the benefit. Longer fasts are also important, but they should be seen more like a secondary measure. When one becomes experienced in doing intermittent fasting, longer fasts are going to become surprisingly easy, since the body will be adapted to burn fat, and thus no abrupt change will be needed.

During the fast, it's important to sleep well and drink plenty of water. Don't be afraid of taking a little bit of salt if needed, it will not break the fast and can be really helpful. Also don't try to do heavy exercises, better to just walk and do other light activities. Many are afraid to fast, thinking that they are not going to be able to sleep at night, but actually, the opposite happens. When we fast the levels of insulin go down and this makes it easier for the body to enter into deep and restorative sleep. One may have problems sleeping the first time, if the body is struggling with the fast, but as soon as the body is prepared, he will actually have better sleep. Generally one will start having problems to sleep only after fasting for many days, if he fasts to the point that the body starts to enter into starvation (which is not a stage we want to reach). As long as the fast lasts for just a few days, or up to a week, the sleep should actually improve, and one will be well-rested with fewer hours of sleep.

How to break the fast?

After going on for several days without eating, our instinct when we finally break the fast is to eat everything and anything, probably some kind of survival mechanism, where the mind thinks the body is starving and tells us to take the chance and eat the most as possible.

However, it’s crucial to check this impulse. Different from a short fast (like we do when practicing intermittent fasting) that just lasts for a few hours and doesn't demand special precautions, a multi-day fast requires one to be very careful.

After a few days of fasting, the body will be working in a very different way, in a profound state of healing. In this state, the body is just not prepared to receive a big quantity of food. If one starts to eat too much and too fast, he can have serious problems. Just as it is necessary to have the self-control to do a fast, one must have the self-control to break it in the proper way. It’s necessary to start with something very light and then progress very gradually to heavier foods. High glycemic foods, like bread, pasta, rice, or even bananas must be strictly avoided in this period.

The first problem is that, as we fast, the levels of electrolytes like magnesium, potassium, and phosphate decline, as the body gradually uses its reserves. As the decline is gradual, the body can adapt to it. Normally, the lack of electrolytes only starts to become a serious problem in the second week of fasting.

However, if one eats a bowl of pasta to break his fast, the insulin response will make the cells instantly start to absorb these already depleted electrolytes from the bloodstream (since they need it to burn the glucose and produce energy), and the levels can drop to dangerously low levels, creating symptoms like fluid retention (edema), muscular fatigue and mental confusion. In the most serious cases, it can even provoke heart problems, it’s not something to joke about.

This is called refeeding syndrome, a phenomenon that became prominent in the second world war, when starved prisoners from concentration camps would quickly die after starting eating again. The longer one fasts, the more he needs to be careful. Short fasts are relatively safe (since the levels of electrolytes are not going to decrease so much), but when fasting for five days or more, one needs to be very careful to avoid negative consequences. That's why long fasts of five days or more should be preferably done with medical supervision. A physician can do tests to check periodically your levels of electrolytes and other essential nutrients and supplement it if necessary.

Another problem is that with a long fast, the intestines become low on digestive enzymes, and similarly the stomach gradually loses its strong acidity. If one eats something heavy too quickly, he may have digestive problems.

I recommend that you start with a little bit of lemon juice with some salt. Apart from having some vitamins and electrolytes, the lemon is going to increase the acidity in the stomach and stimulates the secretion of digestive enzymes in the intestines, helping the digestive system to come back in order. After one hour, you can take a small quantity of yogurt, or some other probiotic. This will help to repopulate the intestines with good bacteria.

After another hour, you can start your refeeding process with something liquid, low on carbs but with a good amount of vitamins and other nutrients. A very good option is to make a vegetable broth, cooking a quantity of vegetables with water, salt and a little bit of some healthy fat and then start by taking just the liquid without the vegetables. After a few hours, you can start eating the cooked vegetables that were left and go slowly from there. In general, one should consider the first two days after the fast as part of the fast, eating frugally. The longer the fast, the more one needs to be careful with the refeeding.

A rule of thumb is to eat about 50% of the calories one would normally eat in the first two or three days, and avoid carbs, focusing on vegetables (except potatoes and other starchy options), healthy fats (in moderation) as well as avocados, a few nuts, etc. You should focus on ingredients that you are well accustomed to, avoiding new additions that may upset your digestive system.

A great advantage of avoiding carbs in the first days is that we can keep the body burning ketones and thus prolong the effects of the fast. One can thus fast for four days, avoid carbs for the next three days and thus have a great part of the benefits of a seven day fast, without having to really fast for so long. After that, one can reintroduce carbs gradually, being careful not to overdose, since the intestines will need some time to raise the levels of the enzymes used to digest carbs.

How to make fasting easier?

The main principle when we speak about fast is that the human body can work by burning two types of fuel: glucose and fat. Apart from sweets, bread and biscuits, we get glucose from grains, starches, roots, and to a smaller degree also from fruits. The body is happy to work by burning glucose, the problem is that since it can store only a very small quantity of it, we need to eat frequently. If one usually eats three times a day (or more), without a long interval between the last and first meal, it means that his body is mainly running on glucose.

The second type of fuel is fat that we get from food and also from our bellies. The fat that the body stores is meant to be used as an energy fuel when we fast, just like a generator that is meant to be used when the lights go out. The problem is that if we never fast, this emergency system is never used and the body becomes very sluggish in activating it. The result is that when we don't eat, we become weak, in a bad mood, etc. The body simply

doesn't know what to do and we suffer if we try to fast. The solution is to practice, just like exercise. The first time is going to be difficult but the progress can be surprisingly quick.

The first step is to improve the quality of our meals, increasing the quality of our food, and especially the amount of vegetables that we eat. Try to eat more salads, steamed vegetables, nuts, legumes, milk products, and healthy fats and at the same time eat less carbohydrates (especially starches and grains).

The second step is to start a regimen of intermittent fasting, as previously explained. It's not about eating less: you can eat exactly the same, the process consists in simply shifting the time of the meals. This works as a training, forcing the body to adapt to use fat. Not only this will bring great health benefits, but will make fasting much easier.

After a few months practicing the first two steps, your body will be ready to start fasting for longer periods. You will notice that a water fast will become surprisingly easier. At some point, you may actually feel more energetic on the fasting days (when we fast frequently, the body starts to break the fat into ketones, which is a very efficient type of fuel).

On the day before the fast (or at least in the last meal before) try to eat vegetables and foods rich in fats (nuts, olives, cheese, some butter or cream, avocados, coconuts, etc.) instead of grains and other options rich in carbohydrates. This will stimulate the body to start burning fat, making the fast much easier. Don't carb-load. If you have a big meal rich in high glycemic carbs, you will have a ravenous hunger the next morning, and it will be very difficult to fast.

Regular fasts ramp up the process of autophagy, helping the body to clean itself and become more efficient. This can do miracles for your energy levels, resulting in a stable influx of physical and mental energy without the need for coffee or other stimulants.

Chapter 4: How to lose weight in a sustainable way

Many of us nowadays are a few (or many!) kilos above our ideal weight. As the years pass, we tend to progressively gain weight, up to the point that we can barely recognize ourselves in the mirror.

We hear that being overweight can cause so many health problems apart from making us tired, lethargic, and so on. Just the fact of having to carry all the extra weight is a big problem in itself. Imagine if you had to carry one of these big 20-liter water bottles all the time on your back or over your head, walking, running, going upstairs, etc. Surely your daily activities would be a struggle. If one is 20 kilos overweight it means that he is basically living like that.

There is also evidence that being overweight is bad for our spiritual advancement. Srila Prabhupada comments how Srila Bhaktisiddhanta Sarasvati would severely chastise his overweight disciples, equating weight gain with a lack of advancement in spiritual life. At the very least, being overweight makes us lethargic, which means an increase in the influence of the mode of ignorance.

However, to lose weight is much harder than it may seem. There are many diets around and most of them have something in common: they don't work. One doesn't lose weight at all, or he loses weight at first, but later regains all the weight back with interest.

Actually, losing weight can be surprisingly easy, as long as you know the secret. An essential aspect to understand in this connection is the mechanism our bodies use to store fat and burn it. It's actually quite simple.

Every time we eat carbohydrates, the body produces insulin as part of the digestion process. The insulin signals to all cells in the body that it's feast

time: that they should absorb and store the glucose that is being put in the blood circulation as quickly as possible. Although glucose is the basic fuel of the body, it is also toxic in high concentrations, therefore it can't stay in the blood for long.

In this way, all the cells in the muscles, brain, and other organs and tissues are flooded with glucose, and we have energy for our daily activities. We feel satisfied. However, there is a problem: the fat cells also absorb glucose and they store it in the form of more fat. It also happens that insulin will block the fat cells from releasing the stored energy for a period of six hours or more. Chances are that before this time expires, one is going to have another meal.

That's why most diets don't work: they focus on many small meals distributed during the day. This causes the insulin to remain active all the time, which in turn blocks the burning of fat in the body. One feels that he is starving, he suffers like hell, and still, he doesn't lose much weight. What is worse is that because the body is forced to work in a situation where it doesn't get enough energy from the food and at the same time can't tap on the fuel stored in the fat cells, it is forced to reduce the metabolism, starting to use less energy. Instead of burning, let's say, 2400 calories per day, the body may start burning 2000, 1600, or even less. As a result, when a person gives up the diet and starts to eat normally, he becomes inclined to gain much more weight than was lost. In other words: the more one insists on the diet, the more fatty he or she may become in the end. There are cases of persons that, after a succession of failed diets, have their metabolism falling to such low levels that they keep gaining weight even on a diet of 1200 calories per day.

However, there is a surprisingly easy solution for this problem: the process of intermittent fasting we have been discussing.

The longer periods without food allow the insulin to run its course, enabling the fat cells to release their stored energy. The body will then get all the

energy it needs from the fat cells, and it will start to lose weight without having to reduce the metabolism. After passing a period of adaptation in the first weeks, one will not feel very hungry, because the body will adapt to the new eating schedule. That's the big secret.

Naturally, if one starts to skip breakfast but compensates by eating a lot of junk food in his "lunch" the effect will be limited and he will still suffer a great deal to be able to go without eating until the next day. For best results, the change in the timing should be accompanied by a change in the diet. One should eat more leafy greens, cruciferous vegetables (broccoli, cauliflower, cabbage, etc.), roots (like beets, carrots, etc), and much less grains. Healthy fats (in moderation) are much better than grains from a weight-loss perspective.

The general advice given by many health agencies, that one should eat more carbohydrates and less fats is largely based on flawed research from the 1950s and 1960s. The situation was that since the 1920's the rates of heart disease were increasing in the US, and nobody knew exactly why. When President Eisenhower suffered a heart attack in 1955 the trend became a motive for public hysteria. A nutritionist called Ancel Keys published a study that pointed to saturated fat and cholesterol as the culprits. Now we know that actually, the problem was the rise in smoking and in the consumption of hydrogenated fats (like margarine), but at the time the debate was not so clear and the party led by Ancel Keys won the debate.

Despite the inconsistency of his evidence, he was able to convince many in the high circles, which lead to the establishment of public guidelines about what one should eat. As a result, most of the medical guidelines from there on advised people to go on a high-carb, low-fat diet, eating more grains, sugar, refined carbohydrates, margarine, and refined vegetable oils, and less butter and saturated fats in general.

This campaign was largely successful. The message was passed on and people started to follow the advice. Butter was outlawed, avocados and nuts

were frowned upon, margarine and cheap refined vegetable oils were promoted as “good for the heart”, sugar was not seen as an enemy, and the idea that a calorie is a calorie (and therefore from a weight gain perspective, doesn't matter what one eats) prevailed. This led to the explosion of cases of obesity, heart disease, hypertension, diabetes, Alzheimer's, and other modern diseases. Only recently the damage started to be undone, with new studies proving that these previous theories were flawed, and that actually the greatest villains are sugar, refined carbohydrates, and refined vegetable oils.

Examining the situation from a weight gain perspective, foods that are rich in starch, like many types of grains, potatoes, and practically all industrialized products, result in a huge spike of insulin. They make the body store fat and make one hungry, and therefore should be avoided as far as possible if one wants to lose weight. Wheat flour especially should be carefully avoided, because it's one of the ingredients that have the highest glycemic index of all. White bread, for example, has a GI of 75, higher than even pure sugar, which has a GI of “just” 65. For comparison, cooked chickpeas have a GI of just 28, and peanuts are even lower, at just 14.

Foods that are rich in protein (like legumes, lentils, or even cheese) result in a moderate release of insulin, while foods that are rich in fats (like nuts, avocados, ghee, and butter, etc.) result in the release of very little insulin. Therefore, a rule of thumb for weight loss is to eat a lot of vegetables, a moderate amount of fat and protein, and very little carbohydrates. This will keep the insulin low and force the body to burn fat. Doing like this, everything works: you will feel hungry during the first two weeks, when the body is transitioning from burning glucose to burning fat, but after that there will be very little hunger, and the weight loss will be quick and maintainable. I lost a total of 23 kilos during my first year following this system, and was able to maintain the weight afterwards without much trouble. Not only that, but my health also improved tremendously.

The main point is to maintain good habits after the weight loss, continue to avoid junk foods and high glycemic foods, and continue to eat lots of vegetables during the maintenance phase, after the diet. The change should be permanent. If you start to fall back into your previous habits, eating in an uncontrolled way, going back to junk food, etc. the easiest fix is to fast for a few days. This helps to "reset" our eating habits and gives us the chance of starting again with better choices.

This is actually a new approach to nutrition that started to become well-known only in the last ten years or so, but this is in line with what people were following for most of human history. We tend to think that people from past centuries were uncultured idiots, but actually many times the idiots are us. Because in most cultures people discarded the traditional wisdom that was accumulated over thousands of years, we commit so many obvious mistakes. In the Bhagavad-Gita Krsna mentions: "*That understanding which considers irreligion to be religion and religion to be irreligion, under the spell of illusion and darkness, and strives always in the wrong direction, O Partha, is in the mode of ignorance*". Unfortunately, this pretty much defines many aspects of our current society.

One of the first doctors to point out this mechanism was Jason Fung, who started by using this system to treat his diabetic patients and later noticed that it also works very well for people wanting to lose weight or to improve their health in general. If you are interested, you can check his book "*The Obesity Code*" or find some of his seminars online.

Something to avoid

In the previous chapters, we saw much information about why sugar and refined carbohydrates are bad and why they should be replaced by low-glycemic carbohydrates, like boiled sweet potatoes, barley, buckwheat and oats. People that don't have a problem with the waistline can eat such low-glycemic carbohydrates without much concern, provided they also take

a sufficient amount of vegetables and fruits, but for the ones that want to lose weight, it's better to combine vegetables and healthy fats, reducing the carbohydrates as much as possible.

The worst possible combination however, that should be avoided by all, is the combination of refined carbohydrates and fat (even healthy fats, like ghee). This is essentially a combination that exacerbates the bad qualities of both the refined carbohydrates and fats. It may be an efficient way to gain weight, but if you want to maintain good health, it is not very useful.

When starches are combined with fat and heated to high temperatures, they form acrylamide, a type of stick molecule, that is very oxidative and difficult for our body to absorb. It can do a lot of damage, especially for the cardiovascular system. Many believe that saturated fat causes heart disease, but this is a theory rebuked by recent studies, that show that the problem is not the saturated fat, but the combination of fat and refined carbohydrates. By avoiding refined carbohydrates, and especially avoiding frying, one avoids this problem.

Saturated fat (like found in butter and coconut oil) is actually neutral. The body needs a small quantity to supply its needs of essential fats, and what comes in excess is just transformed into energy. The problem is that the body is not capable of metabolizing fat in the presence of insulin. Every time we eat refined carbohydrates, there is a spike in insulin, and the metabolization of fat stops for a few hours. During that time, the body still absorbs and processes fat, but it can't transform it into energy. As a result, the fat is just stored in the fat cells. We have thus a situation where the refined carbs are quickly stored as fat (since it's are quickly transformed into glucose, and the glucose in turn is stored as fat because of the spike of insulin) and the fat is also stored as bodily fat (since the body can't burn it because of the insulin). To make things worse, insulin causes hunger, therefore after a few hours one will have an appetite to eat more, repeating the cycle.

This cycle is actually a mechanism programmed in our bodies and minds to make us gain weight for times of scarcity. It may sound strange nowadays, but our ancestors were much more concerned with starvation than with obesity. In their case, it made a lot of sense to eat as much as possible in times of plenty and become a little fatty, since they would probably need the extra reserve in the next winter. Our bodies are thus programmed to be attracted to foods that allow the storage of fat. One example is foods rich in fructose (therefore we are attracted to sweets), another is this combination of fats and carbohydrates. The problem is that our ancestors would indulge in it for a few months and then face a time of scarcity. People nowadays indulge continuously, and this has a serious impact on their health.

Recent studies point out that the most addictive type of food is the one that combines an equal amount of calories from fats and carbohydrates. This is a secret largely used by the food industry to create recipes of biscuits, snacks, ice creams, and other types of industrialized foods. Not only do they carefully combine fats and refined carbs, but usually also add sugar, creating products that are highly addictive. Once one is hooked, it's difficult to quit. People are not just manipulated to overeat, but also to eat frequently, making things even worse.

What can we eat then? Actually, it is very simple. If we replace the refined carbohydrates with low glycemic options (such as the above-mentioned barley, buckwheat, oats, sweet potatoes, etc. combined with healthy fats and plenty of vegetables) then everything works normally. Low glycemic foods don’t create huge spikes of insulin, and therefore the body can continue metabolizing the fat normally. The carbs are also absorbed slowly (that’s the whole point of being low-glycemic) and without the spike of insulin, the hunger will come again only when the body finishes using the energy. This is the secret to moderated eating.

We can see thus that the combination of healthy fats with refined carbohydrates is bad. However, If one combines refined carbs with unhealthy fats (like refined vegetable oils or trans fats) his problems are

going to be much worse. A diet rich in refined vegetable oils and refined carbs is not only fattening but highly inflammatory, which causes all kinds of health problems, up to cancer.

Insulin and glucagon

As mentioned, every time we eat carbohydrates (or protein, to some extent) the blood sugar rises, and the body reacts by releasing insulin. The insulin causes the cells in the body to absorb glucose, which makes the levels in the blood drop. We feel hungry again after a couple of hours and start to eat again, repeating the cycle. As long as we are eating refined carbohydrates, this mechanism will just work as a rollercoaster, with the blood glucose going up and down, and we feeling hungry (and eating) every time it crashes.

However, when we reduce or eliminate the refined carbohydrates, adopting instead a diet rich in resistant starches, healthy fats, soluble fibers and so on, the release of glucose after the meals will be much slower, which will provoke a much gentler insulin response from the body. This will cause the blood glucose to remain steady as the insulin fades, and thus enable the operation of another mechanism of the body: the release of glucagon.

Glucagon is a hormone that has an effect opposed to insulin. It makes the cells stop using glucose from the blood and instead start to burn fat. Insulin promotes hunger, while glucagon suppresses it. As soon as this mechanism starts to work, one will not only start to lose weight, but will feel much less hunger, and will thus be able to follow his intended diet with much less difficulty. Hunger stops being a ravenous urge and becomes more like a gentle reminder that it's time to eat. The secret is to continue avoiding refined carbohydrates, since the system stops working as soon as one starts eating refined carbohydrates again.

In other words, refined carbohydrates don’t kill one’s hunger. Just the opposite: they just make us feel more hungry in the long run. To feel satisfied, a person needs to eat foods that are rich in nutrients and also a good amount of fiber and healthy fats.

How to avoid loose skin when losing weight

One problem with losing weight, especially when one needs to lose a lot of weight, is flaccidity. Many of us know cases of people that lost weight, but got a lot of loose skin in exchange. This may seem like a normal consequence, since it's logical that when we lose the fat, the extra skin is going to be around. However, there is actually an easy way to avoid that.

Loose skin is a consequence of calorie restriction diets. In such diets, one is advised to make several small meals during the day, totalizing 1000 calories or so. The body doesn't get enough calories and therefore starts to burn fat to fill the gap, resulting in weight loss.

It's possible to lose weight by using this approach, although not very easily, as discussed previously. The problem is that with several meals around the clock, the body will never enter in a state of autophagy. As a result, the fat may go away, but everything else will remain, including the loose skin. Another problem is that one will lose a lot of muscle, because the frequent meals trigger the release of insulin and the insulin blocks (or at least limits) the fat burning, forcing the body to burn muscle to fill its energy requirements.

To avoid that, we need to change our approach, combining the calorie restriction with the idea of intermittent fasting. Instead of several small meals during the day, one should have just two meals, with an interval of not more than 6 hours between them (the 18:6 system)

Even if one eats exactly the same foods and the same portions, this simple change in the timing will result in a big difference. Not only he will lose weight faster and with less suffering, but in the end there will be no loose skin! This apparent miracle happens because the fasting time activates autophagy, a system that is suppressed when we eat frequently.

The word "autophagy" comes from Latin, it means "to eat oneself.” It may sound strange at first, but that's exactly what happens. When there is a long interval between the meals, especially if combined with caloric restriction and exercise, the body starts to look for alternative sources of fuel and raw materials, targeting non-essential parts of the body.

This system gives us two advantages: first is that it allows the body to preserve muscle (allowing one to lose the fat, while preserving his lean mass, and without slowing down his metabolism). Second is that it allows the body to destroy and assimilate the cells from the extra skin as one loses weight. As a result, the skin shrinks proportionally as he loses weight and in the end he will have fit skin, just like if he was never fat.

The difficulty is that autophagy starts only after many hours without food, therefore any diet that does not have provision for relatively long periods without food is destined to result in loose skin and other problems. That’s why intermittent fasting (especially if one is also restricting carbohydrates) can be so successful in promoting weight loss: not only reducing hunger, but also preserving muscle mass and shrinking the extra skin as one loses weight. To potentialize the autophagy, and thus increase the results, it’s useful to combine the intermittent fasts with a few short fasts, of two to four days.

A spiritual perspective

One point that Srila Prabhupada emphasized in quite a few purports is that to become fat is not favorable for our spiritual advancement. As he

mentioned, Srila Bhaktisiddhanta Sarasvati used to severely chastise his fatty disciples.

If one is becoming fat, he should reduce his eating. There are three ways to reduce eating: to eat less at each meal, to eat fewer meals (eat only three times per day, without snacks, eat only two times per day, or even to eat only one time per day, according to one's body constitution) or to fast regularly on Ekadasis and other appropriate days. One may choose one of these, or a combination of two or three alternatives, at his discretion.

An easy way to lose weight is to eat only one time per day during a certain period, like the Muslims do during Ramadan. This is one of the vratas one can do for Kartika or for the month of Purushottama, for example, which awards one great spiritual merits. If one can do it correctly, it's also a great way to improve his health. Ideally, one can do it during a period when he can interrupt his normal routine and do some retreat to just focus on his sadhana.

Many devotees do this during the month of Kartika, which is considered especially auspicious. The most common in such cases is for one to eat only one time in the afternoon or evening. The main point in this case is to take food that is healthy and easy to digest, in moderation. A good strategy is to start with fruits (that are easy to digest, and thus appropriate after a long period without eating), wait a few minutes, then eat some vegetables (like a salad or sabji) and a few nuts, and only then eat heavier preparations. This way, we can have a balanced meal, with all the different food groups.

The biggest danger of fasting is to eat junk food afterwards. If one does that, he will not only undo the benefits of the fast, but may actually cause harm to his body. This is especially important if one is going to try eating only one time per day, since this is basically a daily fast. If one has cravings and can't avoid eating junk food, it's better to first fix his eating habits, by first increasing the amounts of vegetables and healthy foods. Cravings are frequently a sign of deficiency in nutrients and they tend to become a

snowball, since by eating junk food one just increases the deficiencies. The way to escape is to break the routine, starting to eat healthy food, especially vegetables. Simply by eating healthy for a few weeks, the cravings should decrease substantially.

If one is mentally strong, he can do his normal activities during this period. I know devotees who eat once per day during long periods exactly as a way to improve their health and have more time for spiritual practices.

One may panic, saying that this can be unhealthy, but Muslims do this every year on Ramadan, and we don't see cases of Muslims dying because of that (quite the opposite, there is a lot of material written by Muslins exalting the health benefits of fasting during Ramadan). Similarly, fasting has been practiced by Buddhist monks, Christians, and other groups throughout the centuries. If it was something bad, the scriptures would not recommend it.

To avoid becoming overweight is actually an essential and important point for our services and spiritual life. Too much fat in the body makes us tired and apathetic, not a very good combination for spiritual life.

> *"To be too fat is not very good for spiritually advanced life. Rather, one should reduce because if one becomes fat it is an impediment to progress in spiritual understanding. One should be careful not to eat too much, sleep too much or remain in a comfortable position. Voluntarily accepting some penances and difficulties, one should take less food and less sleep. These are the procedures for practicing any kind of yoga, whether bhakti-yoga, jnana-yoga or hatha-yoga." (SB 3.33.14, purport)*

Keeping our body weight and other aspects of good health is an important aspect of our sadhana. We should do it as an offering to Krsna, meditating that we are taking care of the machine He gave to us to be engaged in His service.

As Srila Prabhupada explains, apart from the health and spiritual benefits, eating less also helps us to reduce sleep, which is crucial for spiritual advancement since it allows us to reserve more of the precious morning hours for spiritual practice. A sincere devotee may be able to go to sleep at 8:00 or 9:00 pm and wake up at 2:00 am for example, and thus have time to chant 16 rounds and study a little even before everyone else starts to wake up.

When someone is new, the general recommendation is that he should eat a lot of prasadam, so he can lose the taste for mundane food and get attached to spiritual life. As one progresses, however, austerity becomes more and more useful as a way to control our senses and progress to higher levels of devotional service. We can observe that most of our acharyas (and even many of our contemporary spiritual masters) underwent several austerities at periods of their lives. Naturally, we should not try to imitate, but if we can follow their example by as far as possible, trying to control our eating and sleeping, we can progress faster in spiritual practice.

It’s also important to eat freshly cooked prasadam and avoid eating from the fridge as much as possible. For this, it’s important to learn how to cook simple preparations quickly, so we can take fresh prasadam at every meal. Any kind of processed food is a no-no.

The next step is to try to find the exact amount of food the body needs, and adjust accordingly. As Krsna explains in the Bhagavad-Gita, one can’t perform yoga if he eats too much, or eats too little. This is something that can be noted not only in human beings, but also in animals. If there is no food, they starve, and their consciousness becomes focussed on food. If there is a lot of food available, they overeat, become sleepy and propense to sexual activity. However, if the food is just sufficient, they remain healthy and active. Therefore, the key for success is to be able to identify how much the body needs and give just as much. It's better to err by eating a little less than by exaggerating, since it's easy to just eat more if necessary.

One who eats too little may become emaciated and weak, but one who eats too much will become fat and diseased. Nowadays it is much more common to see overweight devotees than emaciated devotees, so the priority for most of us should be to become more disciplined in our eating habits. To fast regularly on ekadasis and other appropriate days help enormously on that, giving both material and spiritual benefits.

Milk: good or bad?

It's said that "we are what we eat", which is certainly true, considering that our bodies are composed of the nutrients we get from the food. The components in our muscles, bones, skin, and so on were all salvaged from the food we ate in the past. However, we are what we eat also in another sense: food affects our consciousness, including our mood and emotions.

One book we study regularly as part of our spiritual studies is the Bhagavad-Gita. There, one interesting concept is explained: that all our activities, the information we receive, our actions, and especially what we eat affects our thoughts, emotions, and therefore our future choices. We think that we are free to act as we please, but actually, our current choices are strongly influenced by the result of past decisions, just as what we eat today is based on what choices we made yesterday in the supermarket.

All these different factors are divided into three categories, represented by three modes: goodness, passion, and ignorance. Choices related to the mode of goodness lead to peacefulness, satisfaction, equilibrium, and happiness. Choices related to the mode of passion lead to tension, excess, anger, violence and frustration, while choices in the mode of ignorance lead to laziness, apathy, bad habits, and depression.

Foods obtained through violence are connected with the modes of passion and ignorance, and thus are not good for our consciousness in the long run, just like alcohol, smoking, or drugs.

In this line, the Ayurveda recommends a lactovegetarian diet, composed of vegetables, fruits, grains, seeds, nuts, honey, and milk products. With the exception of milk and honey, this is a diet very similar to the modern vegan diet.

One could ask why the Ayurveda recommends milk products and honey instead of completely avoiding all animal products, like the vegan diet does. The answer resides in how the foods are classified. In a vegan diet, foods are classified simply based on animal or vegetable origin, while in the ayurveda foods are classified based on the effect they have on our consciousness. Milk and honey are thus accepted because they favor the mode of goodness (although being of animal origin), while certain vegetables, like garlic and onions, are not recommended because they bring effects related to the modes of passion and ignorance.

Milk and honey are also accepted because they can be obtained in ways that don't harm the animals, different from meat where someone has to be killed. This leads to a whole different discussion based on the attitude of people from some of the ancient societies and the modern attitude. Nowadays, most of the time, we have an exploitative relationship with nature, while the ancients had a more harmonious, cooperative attitude.

In the present day, the dairy industry does terrible things to the animals, and of course, many sensitive and compassionate people want to avoid it completely. On the other hand, many people take care of cows, protecting, feeding, and building relationships with them. Cows and bulls are very social animals, and can make friendship with a human the same way a dog does. So one may have a pet dog, and another a pet cow. In both cases the animals are protected and happy. If one can properly maintain a cow and her calves, he can use the excess milk without exploitation. The problem thus is not the milk in itself but in the relationship with the animals.

Apart from all the moral considerations, there is also the health aspect, with some arguing that milk is a nutritious, beneficial food, and others vehemently condemning it. Even if one concludes that milk is good and that to drink milk from a protected cow is acceptable, what to do if one is living in a city, without the possibility of having a pet cow? Should he buy milk in the supermarket or should he become a vegan?

First question is about how the animals are treated. In many countries, most farms use an industrial system where the cows are kept in small spaces, fed only grains and treated with antibiotics. In my humble opinion, this type of milk should be completely avoided. Not only is this treatment of the cows unacceptable, but the milk is also not very healthy. Cows that are fed only grains are essentially diseased cows, and the extensive use of antibiotics doesn't help either. This type of milk is lower on nutrients, rich in omega 6, and contains various contaminants.

Another type is milk from pasture-raised cows, where the cows have the freedom to roam around a large area and feed on grass. The treatment of the cows is much better, much less antibiotics are used, and the milk is much healthier. This is the type of milk that may be acceptable to consume when there is no option of ahimsa milk available. The decision is up to you.

From a health perspective, milk does have a series of useful nutrients, including modest amounts of omega 3, some vitamin B12, and vitamin A in its active form, as well as a wide range of vitamins and minerals.

Practically, no plant-based source supplies any amount of omega 3. This is a particular type of fat that is found only in animals. What plants have is alpha-linolenic acid (ALA), a precursor that can be converted in the active forms of omega 3 (EPA and DHA) by our body. The problem is that this conversion is limited and inefficient, therefore only very small quantities are effectively converted. As a result, a vegetarian will always have only small amounts of omega 3, even if he eats large amounts of chia seeds or walnuts. Although milk products offer a relatively small percentage of

omega 3, it comes in the active form, serving as a good complement. This is also another reason to avoid refined vegetable oils: they are rich in omega 6 which competes with the scarce omega 3.

The only way to consume more omega 6 without harm to our health is to simultaneously also consume more omega 3, something that is very difficult for vegetarians, and even more for vegans (nowadays there are some vegan supplements of Omega 3 extracted from algae that contain EPA and DHA; they are an option, but they are generally expensive and the quality is not always up to the mark).

Similarly, vegetable sources don’t include vitamin A in its active form, but only beta-carotene that (although called "vitamin A") is an inactive form that needs to be first converted by the body. The problem is that a percentage of the population have difficulty converting a sufficient amount. These usually struggle in a vegan diet, unless they supplement with pills. Milk contains vitamin A in its active form, which can be useful in such cases.

Since both the vitamin A and the Omega 3 (as well as other important nutrients) are actually present in the fat of the milk, butter and ghee have it in a concentrated form. One that has difficulty in digesting milk can get vitamin A and D (as well as omega 3) by using these. Nowadays it's possible to get these nutrients in the form of pills, but in past eras the only reliable dietary source for vegetarians would be the milk.

Milk products are also an important source of essential amino-acids, high-quality fats, minerals, like magnesium and zinc (from which many of us are critically deficient) as well as most vitamins. They are also an important source of iodine. Nowadays, iodine is mixed in the commercial salt in most parts of the world, therefore it stopped being a problem in the largest part, but traditionally iodine would be a serious problem for vegetarians, since the main sources of this mineral are fish and seafood. Unless one would have the opportunity of eating seaweed frequently, iodine would be a

problem. Again, milk offers good amounts of iodine (from 59 to 119% of the RDA per cup), serving as a reliable source for lacto-vegetarians.

The main point about milk being healthy or not is about how much processing the milk goes through. Milk taken directly from a cow is very different from powdered milk, for example. The more the milk is processed, the more its properties are lost.

Raw, unpasteurized milk from a pasture-raised cow has about 4.5% fat and, as mentioned, is rich in essential nutrients, such as omega 3 fats, vitamin A and so on. In its original state, milk is a living food, full of nutrients.

However, most of the time this milk that comes from the cow is processed. First there is homogenization, where the droplets of fat in the milk are dissolved by a mechanical process, so it becomes a homogeneous fluid. After the milk is homogenized, the cream will not rise to the top (therefore you can't use it to make butter) and the fat becomes quickly absorbed by the body, which creates negative effects.

Next there is pasteurization, which kills all the beneficial bacteria in the milk and destroys some of the nutrients. The resulting milk is still generally good, but more properties are lost.

Most of the milk sold nowadays, even the so-called "full-fat" milk is actually toned milk, that has part of the fat removed. Instead of 4.5%, we are given 3 or 3.2%, the rest is transformed into butter and sold separately. The most important nutrients of the milk (vitamins A and E, omega 3, magnesium, etc.) are dissolved in the fat, therefore when the fat content is reduced, part of the nutrients are lost). The lower the fat content, the biggest is the loss. When it goes down to skimmed milk (that has 0.5% fat or less) it's already practically useless. Take away: if you can't get real whole milk, at least get full-fat. Don't go for low-fat or skimmed milk, they are worse in every way. Without the fat, milk becomes just a juice of sugars and protein, losing most of its properties.

Finally, there is the UHT process (where the milk is heated to above 135°C and then cooled down and put into a carton. More nutrients are destroyed and the milk becomes essentially dead. UHT milk is at the bottom of the chart. As far as possible it's better to go with raw or at most pasteurized milk (you can usually find it in pouches in the refrigerated session of the supermarket).

One way to “revive” UHT milk is to transform it into yogurt. By introducing a milk culture and allowing it to reproduce, many of the negative qualities of the UHT milk are nullified and it again becomes a nutritional, alive food. This also helps in many cases where people have difficulty digesting the milk, since yogurt contains far less lactose and the fats are present in a form that is much easier to absorb. An easy way to make yogurt is to get a kefir culture, this way you can get fresh yogurt every day.

Finally, regardless of the level of processing, milk has two ingredients that are not very helpful in most circumstances: lactose and whey. Lactose is a type of sugar that although low-glycemic favors weight gain, while whey is a protein that creates a strong insulin response in the body. Whey is useful for body-builders (who can take it after training to simultaneously provide the body with protein, and to create an insulin response that will make the body quickly mobilize it to build muscle), but it is not so useful in most other circumstances, when we want to keep the insulin levels low, avoiding spikes of hunger and fat accumulation.

The fat present in full-fat milk blunts the insulin response caused by the whey, and offers a good level of satiety, therefore it can still be taken (in moderate amounts) even by someone wanting to lose weight. Skimmed milk, however, should be avoided, because it creates a strong insulin response, making one more hungry. Ironically, skimmed milk is more fattening than full fat milk.

One important tip, if you are going to consume milk (especially if you are trying to lose weight), is to always drink it hot. If one drinks a glass of hot milk, chances are that he is going to feel completely full, while cold milk frequently just makes one feel more hungry. This has to do with the way the body absorbs the nutrients: the nutrients in hot milk can be more easily absorbed by the body, which creates the sensation of satiety. Cold milk is interpreted as just another liquid and doesn't create near as much satiety.

Another option are different types of yellow cheese. As long as you get real cheese, made from milk (and not processed cheese, mixed with vegetable oil), it will offer most of the good aspects of milk (good fats, good quality protein, and most of the nutrients), without the lactose and whey, which are the problematic aspects. Just be careful to not overdo it.

In conclusion, both a vegan and a lacto-vegetarian can be very healthy, it’s just about being attentive to maintaining a balanced diet and eating high-quality food. If one has access to good quality milk, this can be a good addition to one’s diet, otherwise, he can follow a vegan diet and complement the nutrients he may be deficient with supplements.

What about exercise?

In this book, I'm not commenting much about exercise, but that does not mean it's not important. Apart from having a bad diet, many people are also sedentary which creates further problems.

Just as the human body was not made to be continuously eating, it was also not made to remain in the same position the whole day. In previous times, people would be healthy without the need for separate exercise because they would move and walk a lot doing their daily occupations. Even housewives would be busy the whole day doing physically demanding activities. Now we have machines that do everything for us, and this artificial lifestyle also takes a toll on our health.

The solution is simply to move more, walk more on foot, do more house chores by hand instead of using machines, climb up the stairs instead of taking the lift, and so on. This can be supplemented by daily walks, cycling, swimming, or other activities that one may enjoy.

An observation is that many people do aerobic exercises to lose weight, but exercise is really not a good way to lose weight. One should do exercise to tone the body, improve his cardiovascular system, improve the hormonal system, etc. To lose weight, it is much easier and faster to focus on the diet.

Another observation is, just like most things in life, too much exercise can be harmful. Too much aerobic exercise produces free radicals that shorten one's lifespan (elite athletes usually have a life expectancy of around just 60 to 70 years, sometimes even less). Impact exercises like running can wear out the articulations and create lesions, etc. Just like many other things in life, too much of a good thing can bring a bad result. Again the secret is moderation.

Chapter 5: More topics

There is much discussion about the use of supplements and much hype around different vitamins and minerals, as well as different products that offer miraculous results. Similarly, there is much promise about the use of fasting or restrictive diets in the prevention or treatment of diseases or even cancer. To which extent can such claims be taken seriously?

One problem in modern medicine is that although there are many facilities for making studies about different subjects and thus finding good evidence about what can be helpful or not in terms of habits and diets, scientific studies are expensive to conduct, and thus the research tends to be concentrated in areas that bring direct revenue to the pharmaceutical industry, like the research for new drugs. A pharmaceutical company can invest billions of dollars in the development of a new antibiotic or a new vaccine, for example, expecting to make a good profit out of the final product, but will not be very enthusiastic about investing money on research about the use of vitamin D in the prevention of diseases, for example. Research connected to changes in eating habits or fasting is at the absolute bottom of the chart since they don’t bring any revenue at all. There is however still some information available. Here I try to give a summary.

Supplements: what to consider, what to avoid

The vitamin and supplement industry is a multi-billion business spread worldwide. Whole departments in drugstores (and even whole stores in some parts of the world) are dedicated to displaying and selling all sorts of vitamins and supplements. Some go crazy over it and spend thousands of dollars on pills in the hope it's going to make them healthier.

We can see practically that a lot of times multivitamin and multimineral complexes, as well as different supplements, can have adverse effects. Even doctors warn about this. To make things worse, the supplement industry is not as regulated as it should be in most parts of the world. New supplements can be put on the market without proper testing and proper quality control.

Since human beings are living on this planet for thousands of years without the need for vitamins and supplements, nurturing their bodies with all the necessary nutrients through their food, we should be able to do the same, without the necessity for synthetic vitamins and supplements from big pharma, right? Well, yes and no.

If one goes to live in the countryside, cultivating the soil, eating a good variety of organic fruits, vegetables, and grains, taking care of cows and drinking their milk, breathing pure air, drinking pure water, taking sun, and staying outdoors most of the time, he is probably going to have very good health and a long life. That’s the way human beings are supposed to live. The problem is that most of us live in cities, eating chemically cultivated vegetables and GMO grains. We stay indoors most of the time, working in front of a computer. Most of us drink UHT milk from the store, don’t take much sunlight or have contact with the soil. In fact, we usually have little contact with the elements. We are frequently stressed, depressed, repressed, compressed, living in small holes in the wall we call apartments. Living such an artificial lifestyle, eating food of questionable quality, it’s not surprising that nutritional deficiencies can be common. In such a desperate situation, it’s best to keep all options on the table.

In general, nutrients should come from food. Plants and milk offer nutrients in a bio-available form that can easily be absorbed by the body. With a few exceptions, nutrients in supplements don't come from plants but are fabricated in laboratories, or directly extracted from minerals. The nutrients are thus not as bioavailable as in food, and in many cases, they can have adverse effects.

Take vitamin C, for example. In nature, ascorbic acid is part of a chain that includes several nutrients and minerals, just like a grape bunch. What we buy in the pharmacy is not the complete thing, but just the ascorbic acid. Similarly, when we buy vitamin A, we usually don't get the bioavailable form, but beta-carotene, which can be converted into vitamin A by the body in limited amounts. In other words, most of the time we don't get the real vitamins, but chemicals that have a similar molecular structure, or compounds that (hopefully) can be converted into the bioavailable form by the body.

Finally, supplements cover only specific nutrients, or a combination of a few essential vitamins and minerals. Plants offer thousands of other useful compounds, such as enzymes and phytonutrients. Even many doctors recommend avoiding supplements and focusing on a balanced diet.

However, supplements can be useful when one is deficient in specific nutrients and is not being able to cover the gap with food. Nowadays this is especially common with minerals, since the use of chemical fertilizers and other modern practices are making the soils all over the world poor in minerals. To grow crops, farmers need to replenish only three minerals on the soil: nitrogen, phosphorus, and potassium (NPK), which are needed by the plants. Other minerals are thus slowly depleted as the same soil is used year after year.

Different from vitamins and phytonutrients, which are produced by the plants through different chemical reactions, plants can't fabricate minerals. If they are not present in the soil, they are also not going to be present in the food we eat. Nutrient deficiencies can cause all sorts of strange symptoms that can be confused with different illnesses, or simply remain unexplained. Fortunately, there are tests to identify deficiencies in specific nutrients, many of them inexpensive. When mysterious health problems appear, it’s useful to go to a doctor familiar with the subject. You can do a

few tests on common deficiencies, and then supplement what the body may be lacking. Here are a few nutrients that you should be aware of:

Vitamin D: Although called a vitamin, actually vitamin D is a hormone. Plants don't produce any vitamin D, therefore (apart from some types of mushrooms), it can only be found in animal products. In the case of vegetarians, the only natural sources (apart from these specific mushrooms) are milk and milk products, and even those offer it in small amounts.

Human beings are capable of producing vitamin D from sunlight, but the process works only when one takes direct sunlight, for at least 10 minutes, and still it doesn't work on higher latitudes. One that lives in Saint Petersburg or in Finland, for example, will hardly produce any vitamin D at all.

The minimum daily dose of vitamin D (for adults) is 800 UI, but many studies point out that higher doses can offer benefits, including a stronger immune system, better disposition, and so on. Low levels of vitamin D are extremely common. If you don't go to the beach or frequently take direct sun for extended periods of time, you are probably low on it. Symptoms of low vitamin D include depression, getting sick often (low immunity), fatigue and tiredness, back pain, bone loss, and hair loss.

Several studies link sufficient levels of vitamin D to an increase in lean body mass and an improvement in the strength and function of the muscles overall. There is for example doi.org/10.1371/journal.pone.0170665 (from 2017), ncbi.nlm.nih.gov/pmc/articles/PMC6021354 (from 2018), and karger.com/Article/Abstract/504873 (from 2019), just to mention a few examples. Other studies link sufficient levels of vitamin D with a higher resistance to respiratory infections, and so on.

Fortunately, it's easy to get vitamin D through supplements. Look for pills that combine vitamin D3 and K2. There are both pills and oral sprays, and both work. The combination of vitamin D3 and K2 is necessary because

vitamin D mobilizes calcium. When this happens, vitamin K2 must be present, so the calcium is deposited in the right places. Vitamin D is soluble in fat, therefore it's better to take it with a little bit of some oil, or after meals. One who is not deficient can take a daily dose of 1000 UI, which is a very safe dose. One who is deficient may take a higher dose (up to 5000 IU per day) for a period, or as recommended by a physician.

Vitamin D is one of the most essential nutrients for the body, and lack of it can cause effects that go much further than problems in the bones. Vitamin D deficiency will seriously impair one's immunological system, leading to all kinds of health problems. Lack of vitamin D also affects one's mood, leading to lethargy and depression. That's why historically people that would go to the beach in the summer would generally be healthier: they had more vitamin D! Vitamin D is also an essential part of the mechanism that absorbs minerals in the small intestine. Without sufficient vitamin D, the body is not able to absorb minerals from the food efficiently, leading to mineral deficiency and a range of other problems.

Vitamin B12: Vitamin B12 is a serious issue for both vegetarians and vegans. Although essential for neurological functions, it is not produced by the body and most plant-based sources are completely devoid of it. Lack of vitamin B12 can cause serious problems in the nervous system, up to brain damage in the most serious cases.

Originally, B12 is produced by bacteria in the soil. Due to the wind and other factors, grains of dust loaded with bacteria soil the grass and thus grazing animals get good quantities of it when they eat it, as well as getting extra doses produced by their gut microbiome. Carnivorous animals in turn, get their share by eating their bodies. In the case of vegetarians, however, the situation is a little more complicated, since we don't eat grass, nor animals.

Vitamin B12 is stored in the liver and the stock can last for several years. One may thus live normally for years without any problems, but then suddenly start to feel tiredness or weakness, sometimes progressing into

nerve problems, numbness, poor memory and mental confusion, difficulty walking, heart palpitations, and even loss of vision. One can become seriously sick due to a deficiency of B12.

It's possible to get small quantities of vitamin B12 by working with soil (since it's absorbed thru the skin and when we inhale the dust) and that's how most people in previous centuries would get it. A good solution for our B12 problems is simply to have a garden.

Apart from that, we can get small amounts of B12 from milk and dairy products. Certain mushrooms and seaweeds (like nori and spirulina) also contain some B12. The problem is that the body needs a specific protein called intrinsic factor to absorb B12. Many are deficient in this protein, and they are the ones who are usually prone to be deficient in vitamin B12. This deficiency is also common in elderly people. For both groups, a supplement is usually necessary.

B12 supplements can be easily found in any pharmacy. Oral supplements are usually not a very good option, because people who can't absorb B12 in the food due to a lack of the intrinsic factor protein will also not absorb it well from the pills. Oral supplements are more for healthy people that want to maintain their B12 levels than for those who are deficient.

A second option is B12 injections, that although painful, can quickly restore the stocks of the body. In the case of injections, the B12 is directly absorbed by the liver, therefore even one that lacks the protein will get it.

However, too much B12 is associated with a decrease in lifespan. It can result in a condition called hypermethylation, which is a risk factor for cancer. It's better therefore to take B12 injections with caution, except in cases of proven deficiency. If you just want to supplement your levels of B12, it's better to start with pills. Tests to check the B12 levels in the body are simple and cheap. In case of doubt, just take a test.

Potassium: Potassium is the most essential electrolyte and one of the essential minerals for the basic functions of the body. Potassium works in conjunction with sodium in the sodium–potassium pump, a basic component of all human cells, that is responsible for moving materials in and out of the cells, as well as powering the entire nervous system.

Each cell has millions of these minuscule pumps that depend on potassium to work correctly. Without sufficient potassium, the most basic functions of the body become impaired, resulting in symptoms like brain fog, muscular fatigue, lack of endurance, arrhythmia, and other conditions related to the heartbeat, fluid retention, and even bad digestion! Lack of potassium also results in problems in the transport of calcium, magnesium, and other minerals. A lot of times, deficiencies in these minerals are actually caused by a lack of potassium.

Potassium works in conjunction with sodium, therefore we need both. Getting sodium is easy since we get it from salt, but potassium is more complicated. We need quite a lot of potassium. Different sources recommend from 3500 to 4700 mg, but people that sweat a lot may need even more.

Most vegetables offer good amounts of potassium, but still, we need to eat a good quantity to get the amount needed. An average banana (100 grams), for example, has about 300 mg of potassium, therefore one would have to eat up to 1.5 kg of bananas (without even counting the peels!) to fill his needs. Different vegetables offer different amounts of potassium and other nutrients, therefore a good rule of thumb is to eat at least one to two kilos of vegetables and fruits per day, the more the better.

Potassium is a mineral that is better gotten from food, since the concentrated form is not very well tolerated by the body. There is no need to precisely calculate our ingestion of potassium (the body is capable of adjusting to less or more to a certain degree), but that’s something we need to be concerned about, since we really need a lot of it.

Just as the body suffers without potassium, it also suffers without sodium. Many people eat too much salt, which has adverse effects, but eating too little salt is also a problem. As in other situations, the key is moderation.

Magnesium: Lack of magnesium can cause or aggravate headaches, insomnia, depression, and muscular pains (especially in the lower back). If you are suffering from any of these problems, a magnesium supplement may help.

Apart from oral supplements, it's also possible to get some magnesium by rubbing magnesium oil on the skin. Although called an "oil" because of the oily aspect, magnesium "oil" is just a mixture of magnesium chloride flakes and water. Apart from buying the oil, it's also possible to buy magnesium chloride flakes in bulk and make your own. Having a massage with magnesium oil before sleep is also a good treatment for insomnia.

Zinc: Zinc is another important mineral, essential for the immune system and for many functions of the body. A deficiency of zinc makes us much more susceptible to viral infections, and can even stunt growth in children. Zinc is also not stored in the body, therefore we have to ingest a sufficient amount every day.

Normally, we would get sufficient zinc from vegetables and grains. The problem is that due to modern agriculture, most soils are deficient in zinc. Plants don't need zinc, therefore they grow normally without it but human beings suffer. Places where the soils are more depleted, like India, have a surprisingly high incidence of health problems connected with zinc deficiency.

Zinc is actually necessary for the production of more than 2000 different enzymes, as well as DNA synthesis and repair, some of the most basic functions of the body. Without sufficient zinc, the body suffers.

Unfortunately, due to depleted soils, more than one-quarter of the world's population is now critically deficient in zinc.

Due to all this, it's recommendable to supplement zinc, especially if you have symptoms like decreased immunity, depression, apathy, excessive hair loss, brain fog, impaired memory, poor wound healing, lack of appetite or white spots in the nails.

Iron: Iron can be an issue for vegetarians, especially for women. Lack of iron reduces one's energy, and can even lead to anemia. The problem is that too much iron is very problematic also. Excess of iron can cause serious problems for the heart and circulatory system. On top of that, iron supplements can cause serious intestinal problems.

Iron is a mineral that is better taken from food, which contains it in an absorbable form and in balanced amounts. Iron supplements should be taken only in the last case, when one is deficient and is not able to replenish it through the diet, and discontinued when the problem is solved. In case of doubt, you can just take a test and follow the guidance of the physician.

Calcium: Calcium is essential for strong bones, but just as in the case of iron, we need to be careful with supplements. The first problem is that most supplements contain calcium carbonate, which is the mineral in its brute form, that works more like a toxin than a nutrient, causing kidney stones, plaques in the arteries and other problems.

The second problem is that the body needs vitamin D, vitamin K2, and magnesium to properly utilize the calcium. As long as one is drinking milk or eating milk products, lack of calcium shouldn't be a problem. Usually, the problem is not lack of calcium, but lack of vitamin D. If that's the case, one can just take a supplement of D3 and K2, along with magnesium.

Copper: Alongside zinc, copper is needed in very small amounts by the body, but it’s also important for many essential functions including the

synthesis of essential enzymes and conjunctive tissue. Some symptoms of copper deficiency are fatigue and weakness, frequent sickness, weak bones, poor memory, pale skin, premature gray hair, and abnormal sensitivity to cold. We can notice that some of these symptoms are similar to the ones caused by a deficiency of zinc. This happens because these two minerals work together on the production of many enzymes.

The combination of sufficient zinc and copper is also linked with a longer lifespan. Copper and Zinc are the basic components of an enzyme called SOD that promotes longevity. The problem with copper is that just like iron, in excess it can cause serious problems, including depression, anxiety, lack of mental focus, fatigue, and insomnia. Therefore, copper supplements are usually not a good idea, except in cases of proven deficiency. The best way to increase the intake of copper is to consume sesame seeds, oats, and nuts, which are amongst the best sources of copper for vegetarians. Different from the supplements, these can be consumed in any reasonable quantity.

Another way to get a little more copper is to use a copper cup or bottle, leaving water there overnight and drinking it every morning. The water is going to absorb small amounts of copper, which will work as a very gentle supplement, without collateral effects.

Trace minerals: There are two kinds of essential minerals: macrominerals and trace minerals. Macrominerals are the minerals that we need in greater amounts, such as potassium, sodium, calcium, phosphorus, magnesium, chloride, and sulfur. Trace minerals, on the other hand, are all the others, minerals that, although also important, are needed in smaller amounts, such as manganese, iodine, cobalt, chromium, selenium, molybdenum, boron, etc. The list of trace minerals is long and there is not even consensus about all of them. There is also the possibility that other minerals may also perform important functions in our organism but they may not yet be discovered.

Traditionally, we would get trace minerals in food, just like all the other nutrients. There are particular foods that are especially rich in certain trace minerals, just like Brazil nuts, which are very rich in selenium.

Just like with zinc, the problem is that most soils nowadays are frequently depleted of essential trace minerals, therefore the amount of trace minerals in foods can vary radically according to the soil in which they were cultivated (if the soil is deficient in minerals, the plant will be also). In the case of Brazil nuts, for example, the nuts cultivated in the north of Brazil have a selenium content up to 30 times higher than nuts cultivated elsewhere.

A good way to get trace minerals is to consume vegetables cultivated in small properties, where the owners are not doing intensive agriculture, or from tracts of land that were previously unused. These are usually lands rich in minerals, that result in nutritious vegetables. It's also possible to get a small amount of trace minerals from black salt or pink salt, but in this case, the amounts are going to be very small, just a complement, not the main source.

There are also some supplements of trace minerals in liquid form. Such supplements are obtained by filtering the water from the ocean, or from lakes rich in such minerals. By taking out the water and sodium, one ends up with a concentrated solution. A portion per day diluted in your drinking water can help with many conditions.

A solution for pain

Many suffer from conditions that cause chronic pain, like low back pain, arthritis, tendinitis, headaches, fibromyalgia, etc. Such pains can be incapacitative and many times there is no effective treatment available, apart from analgesics (that most of the time may not be very effective either).

However, there is a diet that can help enormously with most chronic pain conditions. I myself suffer from low back pain, so that's something I can practically attest to.

First of all, we can reduce pain enormously by following the other advice I gave previously, cutting out refined vegetable oils, refined starches and sugar, eating more vegetables, and doing intermittent fasting. All these help to reduce inflammation and heal the underlying causes. Chances are that by following these principles for a few months, your pain will already reduce 50%. However, it’s possible to reduce it further by following a ketogenic diet.

A ketogenic diet is a diet based mainly on vegetables and healthy fats. It's moderate in protein, but very low in carbohydrates and especially in sugars. There is strictly no sugar, no starches, and no grains, and even the intake of fruit is very limited. Only low-glycemic fruits are allowed, and even then in limited amounts.

In a strict ketogenic diet, one would get 75% of his calories from fat, 20% from protein, and just 5% or less from carbohydrates, discounting soluble fibers (since they are metabolized differently from starches and sugars). On a diet of 2500 calories, for example, this would mean a maximum of just 30 grams of carbohydrates per day. Since most foods contain some amount of carbohydrates (even walnuts have 7 grams of carbohydrates per 100g, apart from the soluble fibers), entire groups of food (like grains, tubers, etc.) have to be avoided. For a vegetarian, a ketogenic diet is mainly based on leafy greens, cruciferous vegetables (broccoli, cauliflower, cabbage, etc.), as well as tomatoes, cucumbers, and other vegetables low on starches, lots of butter, ghee, coconut oil, and olive oil, some beans and legumes, nuts and berries, some cheese, as well as avocados and coconuts. Only low-glycemic fruits are allowed. One can eat small amounts of berries, cherries, and jicamas, for example, but not apples, oranges, and bananas. In other words: this is a restrictive diet that demands a good deal of planning.

On a typical ketogenic menu, you could eat steamed vegetables with a good amount of fat, nuts, a green salad with a little bit of beans, and berries as a dessert, for example. It's possible to find many ketogenic recipes on the internet. It's possible to make flatbreads out of almond flour, cookies out of shredded coconut, and so on.

The purpose of these restrictions is to force the body to work by burning predominantly fats instead of glucose. When the body starts to burn fat, initially fatty acids are produced and liberated in the bloodstream. These fatty acids are an alternative source of energy for the muscles, but can't be used by the brain, which remains working by burning glucose. After two days, the stock of glycogen in the liver starts to become critically low, and it starts the process of gluconeogenesis, which allows it to produce glucose from the fat. This glucose is destined mainly to be used by the brain. Alongside glucose, this process of gluconeogenesis produces another type of alternative fuel: ketone bodies.

Ketones are very interesting molecules that essentially change the way the brain works, improving cognitive function and focus. People that go through a long fast relate that after a few days, they achieve a much greater capacity of concentration and are able to remain focused for much longer than normal, something that I also experience when fasting. There are three factors that may explain this. First is that ketones are a more efficient type of fuel (the brain can produce about 25% more energy with the same volume of ketones and oxygen compared to glucose), second is that ketones curb the overstimulation of neurons in the brain, resulting in an improvement in focus and concentration. Third is that ketones stabilize the neuron networks inside the brain, allowing it to work in a more efficient way. The practical results can be impressive.

Apart from improving cognitive function, ketones curb the pain signals in the brain, working as a powerful analgesic. It can offer relief similar to strong drugs like Tramadol but without the collateral effects. Ketones also

help to alleviate the symptoms of Alzheimer's, work as a treatment for seizures, and so on. Ketones also help to further reduce inflammation, helping in conditions like arthritis, tendinitis, and so on. It treats insulin resistance, which is the root cause of type 2 diabetes, and it can help to manage mild cases of type 1 diabetes, allowing one to go by without having to inject insulin.

In other words, a ketogenic diet mimics a long fast, enabling the benefits offered by the production of ketones without the need for fasting. If you are suffering from fibromyalgia, low back pain, or any other type of chronic pain, or are in search of a method to give you more energy and concentration to navigate demanding periods in life, it's definitely something to try.

The body starts to produce ketones only when the glycogen in the liver is about to be exhausted. That's why they are usually produced only when one fast for two days or more. By drastically reducing the ingestion of carbs, a ketogenic diet keeps the reserves of glycogen in the liver very low, allowing the production of ketones to remain constant, even though one is eating.

For best benefits, the ketogenic diet should be combined with intermittent fasting, with all the meals grouped over a period of 8 hours or less (from 9 a.m. to 5 p.m., for example). The good news is that a diet rich in fats and poor in carbohydrates is very effective in suppressing hunger. In many cases, people on a ketogenic diet don't feel hungry at all. Although it's difficult in terms of the limited list of ingredients one can use, the ketogenic diet is actually very easy from a hunger standpoint. You just need to be mindful of eating sufficient fats to meet your caloric needs.

The exact amount of carbohydrates one can ingest is still a point of discussion. Some sources say 5% of the diet (20 to 30 grams per day), while others are more liberal, speaking about up to 50 grams. In any case, the amount of carbs has to be very low, otherwise one can easily stop the production of ketones.

The problem with the ketogenic diet is that it must be done very carefully. One who is careless and makes the wrong choices can end-up much worse than he started. An abrupt change from a diet rich in refined carbohydrates to a ketogenic diet is aggressive to the body and can lead to a series of flu-like symptoms, popularly called "keto flu". It's better to do a gradual transition, first increasing the intake of vegetables, then cutting the refined carbs, then starting with intermittent fasting, leaving the ketogenic diet for last.

Finally, a ketogenic diet must be based on high-quality fats (ghee, butter, olive oil, nuts, coconuts, and coconut oil, avocados, etc.) combined with lots of vegetables. A diet rich in saturated fats and protein, but poor on vegetables is not at all healthy (remember the Atkins diet). Some people do what is called "dirty keto", a corrupted version of the diet, based on poor quality foods, like refined vegetable oils, which can be very dangerous.

Although there are impressive short-term results, a ketogenic diet may not be the best for one's health in the long term. There is much evidence that a diet too high in fats is linked with a reduction in life expectancy, and in a ketogenic diet, the majority of one's calories comes from fat.

Some argue that this is because populations that historically had diets rich in fats, would also eat a lot of meat (like the Innuit) and very little vegetables, therefore the problem is not the fat, but the lack of vegetables. It makes sense, but there are no long-term studies supporting it. What we know for sure is that all the blue zone populations (groups with an exceptionally high life expectancy) would eat a combination of vegetables, low-glycemic carbs (like the beans, pulses, and whole grains of the ikarians, or the boiled sweet potatoes of the okinawans), nuts and herbs, with a moderate amount of healthy fats and sometimes milk. All evidence suggests that, in general, this is the best diet for most people, most of the time.

The ketogenic diet is a relatively new concept and the results of different studies are still contradictory in terms of long-term effects. A safe approach is, therefore, to combine periods of a ketogenic diet with periods combining intermittent fasting and slow-carbs. One can keep a base diet with low-glycemic foods and a moderate amount of fats and switch to a ketogenic diet for certain periods when there is need to deal with acute pain.

Concluding, people who are healthy, especially younger individuals, normally will not notice much of a difference when they eat a healthy diet or do intermittent fasting and when they just do like everyone else, indulging in refined carbohydrates, sugar and refined vegetable oils. That's exactly the trap: you don't notice it until you are already in trouble.

When a chronic pain condition is already in place, you are already suffering with fibromyalgia, back pain, migraines, etc. and you improve your condition by following a healthy diet, be it intermittent fasting, ketogenic diet, or other, you will notice that your body will quickly bounce back to the painful condition if you start to step too much off the track by again eating refined vegetable oils, refined carbs, and sugar. As soon as you go back to your old habits, the painful condition will come back, sometimes surprisingly quickly. This is actually a good thing, because it works like a feedback mechanism. You can observe your body and keep a diary, taking notes of what you are eating and how you feel. This way, you can easily correlate what you eat with the amount of pain you feel in the following days, learning thus to avoid what makes your condition worse. In my case, for example, I feel a sharp difference when I eat refined vegetable oils and high glycemic foods (white rice, for example). Gradually I learned to avoid it.

Cancer and diet?

Cancer was a relatively rare disease until the 1950s. There were a few cases here and there, but they were few and predominantly in the older

population. Very few people would die from cancer and not much would be spoken about it.

Starting from the 1960s, however, the number of cancer cases started to rise dramatically to the point it was declared an epidemic. Nowadays, cancer is quickly becoming the leading cause of death in many countries and the situation is just becoming worse year after year.

The traditional explanation is that cancer is a genetic disease. A carcinogen causes the cell to mutate and if the result of this mutation leads to uncontrollable growth it may result in a tumor. This put the blame on external contaminants like electromagnetic radiation, pesticides, chemical products in different products we use, and so on. It makes sense, since the rise in the number of cancer cases is strongly correlated with the general advancement in consumerism that introduced all these factors. People in the 1950's were not using cellphones, their food was mostly pesticide-free and they were not using much plastics, therefore this must be the cause, right?

There is, however, another theory: that cancer is a metabolic disease, caused by damage to the mitochondria in the cells. The mitochondria are responsible for the production of energy inside the cells. All cancer cells have damaged mitochondria, therefore there is strong evidence that a cancer cell can actually be the product of damaged mitochondria. This theory is gaining force with the publication of numerous studies, and also books, like "*Cancer as a Metabolic Disease: On the Origin, Management, and Prevention of Cancer"* by Thomas Seyfried.

According to this theory, the main culprit of the increase in the cases of cancer is actually our diet. It happens that alongside the use of pesticides, GMOs, cellphones, etc. there was a drastic increase in the consumption of refined vegetable oils, sugar, and refined carbohydrates and they may actually be the main culprits.

This could explain the rise in cancer cases in all ages that we have seen in the past decades. Nowadays there are cases of cancer even amongst the younger generation, people still in their 20s or early 30s. If we go to elders in their 60s and 70s then the problem assumes scary proportions. Even in our devotee communities, where no one smokes or drinks there is a staggering number of cases.

One possible explanation is that although our members are vegetarians, still they eat a lot of refined carbohydrates, sugar, and refined vegetable oils just like everyone else. It happens that within the cancer as a metabolic disease theory, these are exactly the main causes of cancer. High-glycemic foods and especially refined vegetable oils create an inflammatory environment inside the body, damaging the mitochondria inside the cells and creating an environment propitious to the appearance of cancer cells. In the end, the rise in cancer cases may actually be caused by our diets.

Every cancer starts as a normal, healthy cell in some part of the body. At some point however, something changes and the cell becomes a cancer cell and starts to replicate without control, eventually creating a tumor. According to the metabolic disease theory, the damage starts in the mitochondria, that once damaged, starts to produce Reactive oxygen species (ROS) that in turn lead to the other mutations in the cell. We can imagine that a damaged mitochondrion is like a damaged gasoline engine that produces a lot of smoke. In the case of the mitochondria, the "smoke" is the ROS, which poisons the rest of the cell, leading to the mutations that causes the cell to become a cancerous cell.

Thus, according to this theory, the best approach to prevent cancer is to avoid chronic inflammation and free radical damage to the mitochondria. By adopting a healthy diet, with plenty of antioxidants (fruits and vegetables), following a regimen of intermittent fasting and activating the process of autophagy, one can radically reduce the possibility of having cancer. Other factors like electromagnetic radiation, pesticides and other

contaminants also have an impact but diet would actually be the main factor.

Apart from potentially protecting us from cancer a healthy diet can be used to some extent to treat or at least reduce the speed of the growth of cancer tumors. All the cells in our bodies produce energy by a process of aerobic respiration, using oxygen to produce energy. This is a very efficient process that grants a great deal of flexibility to the cell, which can operate by burning glucose, fatty acids or ketones as fuel. Cancer cells, on the other hand, have damaged mitochondria, and thus lose the capacity for producing energy by this method. Instead, they rely on a process of fermentation to generate energy. This is a very inefficient process (it generates 16 times less energy using the same amount of fuel), and makes the cells less metabolically flexible. A cancer cell can produce energy only by using glucose or glutamine (an amino acid), they can't use fat as other cells, and because they use such an inefficient process, they need a great amount of fuel to survive.

By following a regimen of intermittent fasting, or a ketogenic diet, the glucose levels in the blood are drastically reduced, diminishing the available nutrition for the cancer cells and thus creating a hostile environment to them. Normal cells of the body can operate normally by using fatty acids or ketones, but cancer cells can work only with glucose and glutamine, therefore they are seriously hit by the change. It may not be sufficient to cure an already established cancer (especially an aggressive one) but it can at least reduce its growth, giving one a better chance to seek treatment.

Studies point out that we actually develop pre-cancer tumors several times during our life span. The difference between these silent tumors that the ones that become life-threatening is that in the first case the tumors are destroyed by the immune system in their initial stages, while in the later the cancer is able to grow to the point that the immune system is not capable of dealing with it. By strengthening the immune system and creating a hostile

environment for the tumors, we dramatically reduce the risk of developing a life-threatening tumor.

Apart from healthy eating, fasting can also help in many cases by activating the process of autophagy that leads the immune system to attack the cancer cells in a more active way. According to research by Tommas Zeighfried, a water fast of 7 days once a year is capable of clearing the body of pre-cancer cells. According to him, multiple 4 day fasts done during the same period can also be just as effective.

Not only can fasting help to prevent cancer, but it can also be used as part of the treatment for a tumor that is already established. According to studies published by Dr. Valter Longo from the Southern California University, fasting can be used to improve the effects of chemotherapy. According to his study, a fast of one, two or three days (the best option would be determined according to different criteria) before each session of chemotherapy is capable of making the cancer cells more vulnerable to the treatment, and at the same time making the normal cells more resistant to it. It happens that a fast has an opposite effect on both: the lower levels of glucose make the cancer cells start to starve and as a result they open up, starting to capture more blood and thus becoming more vulnerable to the chemotherapy. The healthy cells on the other hand stop using glucose from the blood and thus close themselves, reducing the collateral damage of the chemotherapy.

There are also cases of people that manage to control the growth of cancer tumors by doing longer fasts, to the extent of many of them being able to continue living normal lives for decades despite having cancer. There is also the possibility of trying a ketogenic diet (that is essentially a fast-mimicking diet), which may offer similar results. If you see yourself in this situation, it's definitely something to try. However, longer fasts should always be done under medical supervision.

Take away: eight principles for good health

If you would take just a few points out of all the information shared in this book, what should they be? What are the essential points? This is a short takeaway to keep in mind. You can try to implement these points in your practical routine, observe the results and go back to the respective sections in the book in case of need. I hope the effort spent in writing this book can be of help.

a) Avoid refined vegetable oils, wheat flour, and sugar.

b) Eat more vegetables and fruits, make them the basis of your diet.

c) Avoid high-glycemic foods (less starches and sugar and more soluble fibers and resistant starches)

d) Eat more high-nutrition foods (millets, nuts, etc.) in place of grains like rice and wheat.

e) Use butter, coconut oil, and other healthy fats generously, but avoid fried food.

f) Eat inside a time window instead of having many small meals during the day (intermittent fasting).

g) Do a water-fast regularly (autophagy).

h) Supplement with minerals, vitamin D, B12, and other nutrients that your body may be deficient in. Do some tests if necessary.