Eat Good Sugars Not Bad
Eat Good Oils Not Bad

Written and Edited by Desire' D. Dubounet
Scientists Declare War on Sugar in Food

UCSF Scientists Declare WAR on Sugar in Food

Erin Allday, Chronicle Staff Writer

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Like alcohol and tobacco, sugar is a toxic, addictive substance that should be highly regulated with taxes, laws on where and to whom it can be advertised, and even age-restricted sales, says a team of UCSF scientists. (University of California San Francisco)

In a paper published in Nature on Wednesday, they argue that increased global consumption of sugar is primarily responsible for a whole range of chronic diseases that are reaching epidemic levels around the world. The health care expense of sugar caused diseases is massive.

Sugar is so heavily entrenched in the food culture in the United States and other countries that getting people to kick the habit will require much more than simple education and awareness.
Sugars and Sweetness

Many diseases are due to factors that are related to Big Sugar, Big Sugar for its corporate name. As people who get bad sugars and bad oils, trans-fatty acids and cooked oils. Factors of bad nutrition in America are making people sick, producing blood sugar problems, producing obesity, cardiovascular problems, and many, many things that the FDA could also affect. Limiting trans-fatty acids, making good sugars (Left handed Fructose), rather than bad sugars (right handed Dextrose).

The body needs right handed sugar (Blood Glucose) to enter the cell for energy. Right handed dextrose sugars such as sugar cane, beet sugar, grape sugar, corn sugar are right handed and they enter the cells too fast. This produces fat more easily, hyperglycemia (mild addiction) and then hypoglycemia (mild depression). This puts a burden on the pancreas and all other organs. There is also a well documented negative effect on the immune system from dextrose. If you use chemicals to strip away vitamins and minerals to make the sugar white, it gets even worse.

Dextrose sugars are at the top of the Glycemic Index tables because they enter the blood stream and the cell so fast. Thus they are the main cause of obesity and all blood sugar disorders.

Fructose (levulose) revolves to the left and needs to be converted to the right. A process that takes time and thus allows for a more smooth delivery of the glucose. Less fat, less stress on organs, less craving, less depression, less blood sugar fluctuations. More hormonal and enzyme production thus it is an anti-aging therapy. Use fresh fruits as a sweetener; it will change your life.

Crazy food additives that have not been fully tested add to the food and drug problems. The synthetic foods and drugs have failed. Our society has learned to avoid and mistrust synthetic foods. We will not order them on a menu or buy them of the shelf. We have learned to be chemophobic. We know that synthetic foods create cancer and disease. Our society must learn that this is true of our medicines as well.

Our body needs good fatty acids. They make up the cell membrane of all of our cells. Stress sets them free. Cooking destroys most fatty acids. Meat and potatoes contain very little. In fact the fatty acids from an animal are saturated. Fresh and raw vegetable and unheated vegetable juice are the best source. Cooking oils destroys some of their nutritional value. Stress makes us fatty acid deficient. So fatty acid deficiency is the number one problem in the world of health care today.

People are made to be mostly vegetarian. Humans are not carnivores. But we are omnivores and some meat is good for the diet. Vegetarians will have to be careful and eat right and supplement to be healthy. As vegetarians we should mostly eat fruits and other foods that carry seeds. If we eat an apple, the apple tree does not die. In fact it wants us to eat its fruits and carry the seeds elsewhere. Fruits have no bad karma. Eating a cow has karma the cow must die. Eating a carrot has bad karma the carrot must die. But eating fruits have no bad karma.

We all have the instinct to like sweets for the reason to eat fruits (fructose). Our tongues are mainly proton detectors and sweet fruits the primary thing we crave for taste and health. But then came along the sugars from cane and other dextrose sugars that are problems for the body. The high glycemic foods with dextrose bring up blood sugar very fast we get addicted to the taste and the
rush. And our sense of taste for fruit gets perverted to seek dextrose sugars. The high glycemic dextrose sugars drive our blood sugar way up, force the release of extra insulin, this makes the blood sugar go down and the cycle repeats. Immune-depression, nervous-irritation, stress susceptibility, mood disorders and the cycle allows all other diseases and cancer a foothold.

**Downward Spiral**

Stress produces excess Cortisol, weakens adrenals, produces excess blood sugar, excess insulin, this makes you crave foods and eat more which increases blood sugar and insulin, which increase cortisol make you irritable and more sensitive to the next stressor.

All Disease are more prevalent
High Glycemic Index = DISEASE

Your Blood Glucose Level Changes When You Eat

Blood Glucose Levels to Aim for:
Before any meal: 4.0 - 7.0 mmol/L
2 hours after any meal: 5.0 - 10.0 mmol/L
Bad food is a problem in degenerative disease. And this is also another industry the FDA is not attacking that the FDA is not doing their job to protect the human beings of America. Big Sugar and cholesterol are leading to diseases that are killing over a million people a year.

"Well all we have to do is follow the candy and sugar holidays to sell our Flu shots and Drugs to the People, They will never believe that sugar weakens their immune systems. They believe what we tell them to believe."

Bad food is a problem in degenerative disease. And this is also another industry the FDA is not attacking that the FDA is not doing their job to protect the human beings of America. Big Sugar and cholesterol are leading to diseases that are killing over a million people a year.
Extra high levels of dextrose in the blood will diminish white blood cells and thus weaken immunity, irritate nerves, weaken cell membranes, lessen healing repair, and over-all decrease health.

**Sweetness** travels under a variety of aliases. Just check out the label of your favorite cereal or beverage and you’re likely to see the flavor show up many times, in the form of high-fructose corn syrup, dextrose, cane syrup, maple syrup, fructose, molasses, honey—and even agave, the latest caloric sweetener, which is derived from a plant native to Mexico. (These are all in addition, of course, to plain old table sugar, or dextrose sucrose.)

One study performed in 1973 showed that white blood cells from individuals who had consumed 100 grams of sugar (about 20 teaspoons) were less active. This study has been cited for many years as evidence that sugar suppresses the immune system, by no less than the famous pediatrician Dr. Sears.

You might also find some food labels or manufacturers hinting that their source of sweetness is more healthful than the others. Since the concept of "healthy" can be awfully fuzzy, let’s put it bluntly. "All of these are empty
calories that offer you no relative nutrition,” says Dawn Jackson Blatner, a dietitian and spokesperson for the American Dietetic Association. That doesn't mean they're forbidden, just that they should be eaten in moderation, she says.

And many of us are not moderate in our consumption of added sugars. The World Health Organization recommends that we cap our intake at less than 10 percent of our day’s calories, yet the average American gets 400 calories a day from beverages, a lot of which come from sugar. (Many people, including obesity expert Barry Popkin, say one of the easiest ways to drop weight is to simply cut out all caloric beverages.) Assuming you take in 1,800 calories per day, a 10 percent limit translates to fewer than 180 calories, or 45 grams, of sugar daily. The real problem of dextrose versus fructose has not been really discussed because of the problem of the profits of Big Sugar, and their lobbyists.

So if you are following WHO’s guidance and eating a moderate amount of the sweet stuff, does it matter what form it takes? Some hypothesize that fructose, one of the components of sucrose, is a particularly bad kind of sugar. It may not suppress hunger or stimulate the natural feeling of fullness, says Kathleen Melanson, an assistant professor of food and nutrition at the University of Rhode Island in Kingston. And there is also a concern that when it's consumed in very high amounts, fructose can't be properly processed by the body, which translates to a fatty liver or raised levels of triglycerides in the blood. It can also lead to higher levels of uric acid, which some believe raises the risk of cardiovascular disease and diabetes, among other woes. So fructose cannot be used to excess either. Dilute the 100% natural juices you buy and use sugar sparingly even fructose.

But those hypotheses have not been proven, emphasizes Melanson, and there's no take-home message for people in terms of the form of sugar they eat. Some mass production of white sucrose leaves less than 20% fructose. The mass de-naturalization of sugar is to remove the brown color and make it white. This was important over a hundred years ago as a social issue not a health issue. The use of mustard and nerve gases to strip away the minerals and nutrients that yield the color, all designed to make WHITE sugar, white Flour for a White biased society.
Sucrose is normally about 30% fructose and 70% glucose, while honey is about 40 to 45 percent fructose, and high-fructose corn syrup is about 55 percent. Unprocessed honey has lots of minerals and vitamins to support energy production. The amount of fructose in agave nectar can vary, with estimates starting at about 60 or 75 percent (some say it's much higher, depending on the processing method). Fructose in the supermarket is still at best only 90% fructose.

There are tiny differences in the minerals in some sweeteners; the less processed, the more trace minerals, says Blatner. (Honey, for example, has some magnesium and calcium.) And there is some evidence that the levels of antioxidants in sweeteners can vary. One study, published earlier this year in the Journal of the American Dietetic Association, found that among sweeteners, dark and blackstrap molasses had the most antioxidant activity. Maple syrup, brown sugar, and honey had a bit less, and refined sugar, corn syrup, and agave nectar had the least.

Still, it usually comes down to personal taste and preference, Blatner says. Some find agave so sweet that they use much less of it, which can mean fewer calories. Others find the taste of molasses vile. It's up to you. Importantly,
you shouldn’t let any fructose worries scare you away from fruit; while it’s true that tree fruits and berries contain a large percentage of fructose, the absolute amount is quite low, Melanson says. And it comes packaged with plenty of fiber and nutrients, which is more you can say for your average sweetened cereal or drink. Use fruit to satisfy you sweet tooth.

The sweet tooth or sugar craving is most often a sign of some disease. A weak or clogged gall bladder will create this. A blood sugar imbalance will also make this craving. Addiction to the glycemic rush of white sugar is a factor. Nerve damage, intestinal parasites, psychological imbalance also can be the cause of aggravate. If you were lost in the desert for 3 days and just came out and someone offered you an apple, you wouldn’t say “No, have you got a candy bar.” If the apple does not fit your hunger, you are not hungry you are addicted. Use fruit to satisfy you sweet tooth.

The unhealthy foods are on the top of the pyramid. Make most of your diet the bottom 2 rows.

The bottom row is the healthiest, rich in minerals and vitamins with fructose or levulose sugar for stable energy. You make more hormones with fructose than with dextrose. The bottom 2 rows limit disease and foster good health. the quick fix sugars of row 1 do not last and they upset the blood stability. They can cause or aggravate every disease known.

Low Glycemic Food List
Low glycemic food is very important for the weight loss plans that you have been trying to work on. Check out the low glycemic food list given below.
The glycemic index of the food is the numerical index that categorizes the carbohydrates according to their response to the glucose from the human body. It scales from 0 to 100, the higher the GI (Glycemic Index) count, the higher is the blood sugar counts. Glycemic index is usually counted by feeding a fixed portion of food to the test subject after an overnight fast and then calculating the blood sugar counts. The GI count is the best method to lower the blood glucose levels as well as the body weight.

**Low Glycemic Index**
More than 80% patients of type 2 diabetes suffer from obesity and high cholesterol levels. Eating low Glycemic food is very helpful for the overall health of a person. It helps a person to control the body weight, increase the insulin resistance, lower the risk factors of heart diseases and Polycystic Ovarian Syndrome (PCOS), maintain normal cholesterol levels, reduce craving for food, prolong physical endurance and retain the carbohydrate counts after a rigorous exercise.

However, it doesn't mean that all the high glycemic foods must be avoided because those who are not suffering from diabetes, may need a rapid increase in the blood sugar levels. This is the reason why many physical trainers advice the players to have high GI food immediately after a tiring workout or any other physical activity. More on glycemic index food list.

Low glycemic diet plan is actually a diet plan that a person needs to follow at least for 28 days, which will help him/her maintain the proper blood glucose levels. Low glycemic index diet generally consists of proteins, low glycemic carbohydrates and omega-3 fatty acids. After following this diet plan for a month, the person can either switch to a balanced diet plan or continue with the same GI diet: low glycemic index foods. Is there any low glycemic food list that one can follow for better results? Yes, given below is a list of low glycemic index foods that you can refer in order to manage your daily diet.

**Low Glycemic Index Food List: Vegetables**
<table>
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<tr>
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<tr>
<td>Name</td>
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**Low Glycemic Index Food List: Fruits**

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<td>Plum</td>
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### Low Glycemic Index Food List: Cereals

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<td>Pearl barley</td>
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<td>Rye</td>
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<tr>
<td>Wheat kernels</td>
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<td>Parboiled rice</td>
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<tr>
<td>Cracked barley</td>
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### Low Glycemic Index Food List: Others

<table>
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<td>Whole grain bread</td>
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<td>Multi grain bread</td>
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<td>Low fat yogurt</td>
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<td>Chocolate milk</td>
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<td>Fat free milk</td>
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<td>Whole milk</td>
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<td>Skimmed milk</td>
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<td>Low fat ice cream</td>
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<td>Soy milk</td>
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<tr>
<td>Peanuts</td>
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<td>Food</td>
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<td>----------------</td>
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<tr>
<td>Marmalades and jams</td>
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<td>Canned tomato soup</td>
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<td>Chocolate bar</td>
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<td>Macaroni</td>
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<td>Vermicelli</td>
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<td>Pound cake</td>
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Along with the proper ratio of the above mentioned low glycemic foods, one must also concentrate on a low carb diet that will be helpful to maintain the low glycemic index. Relatively less amount of oil, salad dressings, mayonnaise, fresh fruits and green vegetables, cereals and beans and low fat dairy items always top the low glycemic food list. One might also like to consider this glycemic index chart before opting for a healthy diet. Hope you found this article about low glycemic index food list, useful! Take care!

By Rutuja Jathar
Published: 9/18/2009
## The Glycemic Index of Select Foods

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<th>Grains</th>
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<td>Oils</td>
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Blood sugar

1. Stomach converts food to glucose
2. Glucose enters bloodstream
3. Pancreas produces insulin
4. Glucose enters body effectively
5. Glucose levels in balance
The fluctuation of blood sugar (red) and the sugar-lowering hormone insulin (blue) in humans during the course of a day with three meals. One of the effects of a sugar-rich vs a starch-rich meal is highlighted.

The **blood sugar concentration** or **blood glucose level** is the amount of glucose (sugar) present in the blood of a human or animal. Normally, in mammals the body maintains the blood glucose level at a **reference range** between about 3.6 and 5.8 mM (mmol/L). It is tightly **regulated** as a part of metabolic **homeostasis**.

Glucose is primarily a compact energy store, and is the primary **source of energy** for body cells, fats and oils (ie, lipids). It is transported from the intestines or liver to body cells via the bloodstream, and is absorbed by body cells with the intervention of insulin, which is a **hormone** normally naturally produced by the body.

The mean normal blood glucose level in humans is about 10 mM (10 mmol/L or 140 mg/dL) (since the molecular weight of glucose, C$_6$H$_{12}$O$_6$, is about 180 g/mol). However, the glucose level fluctuates during the day. It rises after meals for an hour or two by a few grams and is usually lowest in the morning, before the first meal of the day (termed "the fasting level"). The total amount of glucose normally in human blood is only about 3.3 to 7g (assuming an ordinary adult blood volume of 5 litres, plausible for an average adult male).

When a blood sugar level is outside the normal range, it may be an indicator of a medical condition. A persistently high level is referred to as **hyperglycemia** or if low as **hypoglycemia**. **Diabetes mellitus** is characterized by persistent hyperglycemia from any of several causes, and is the most prominent disease related to failure of blood sugar regulation. A temporary elevated blood sugar level may also result from severe stress, such as trauma, stroke, heart attack, or surgery; and also from illness. Alcohol, after an initial surge in blood sugar, tends to cause blood sugar to fall. Also, certain drugs can increase or decrease glucose levels.[1]

If blood sugar levels drop too low, a potentially fatal condition called **hypoglycemia** develops. Symptoms may include lethargy, impaired mental functioning, irritability, shaking, weakness in arm and leg muscles, sweating and loss of consciousness. Brain damage is even possible.

If levels remain too high, appetite is suppressed over the short term. Long-term **hyperglycemia** causes many of the long-term health problems associated with **diabetes**, including eye, kidney, heart disease and nerve damage.

**Low blood sugar**

Some people report drowsiness or impaired cognitive function several hours after meals, which they believe is related to a drop in blood sugar, or "low blood sugar". For more information, see:

- idiopathic postprandial syndrome
- hypoglycemia

Mechanisms which restore satisfactory blood glucose levels after hypoglycemia must be quick and effective, because of the immediately serious consequences of insufficient glucose; in the
extreme, coma, but also less immediately dangerous, confusion or unsteadiness, amongst many other symptoms. This is because, at least in the short term, it is far more dangerous to have too little glucose in the blood than too much. In healthy individuals these mechanisms are generally quite effective, and symptomatic hypoglycemia is generally only found in diabetics using insulin or other pharmacological treatment. Such hypoglycemic episodes vary greatly between persons and from time to time, both in severity and swiftness of onset. For severe cases, prompt medical assistance is essential, as damage (to brain and other tissues) and even death will result from sufficiently low blood glucose levels.

Dextrose Sugar Related Health Problems:
Acne
Addiction to drugs, caffeine & food
Adrenal gland exhaustion
Alcoholism
Allergies
Anxiety
Appendicitis
Arthritis
Asthma
Behavior problems
Binge eating
Bloating
Bone loss
Cancer (cancer cells feed on sugar)
Candidiasis
Cardiovascular disease
Cataracts
Colitis
Constipation
Depression
Dermatitis
Diabetes
Difficulty concentrating
Diverticulitis & diverticulosis
Eczema
Edema
Emotional problems
Endocrine gland dysfunction
Fatigue
Food cravings
Gallstones
Gout
Heart Disease
High blood cholesterol
High estrogen levels
High triglyceride levels
Hormonal problems
Hyperactivity
High blood pressure
Hypoglycemia
Impaired digestion of all foods
Indigestion
Insomnia
Kidney stones
Liver dysfunction
Liver enlargement & fatty liver syndrome
Low HDL cholesterol
Menstrual difficulties
Mental illness
Mood swings
Muscle pain
Nearsightedness
Obesity
Osteoporosis
Over-acidity
Parasitic infections
Premature aging & wrinkles
Premenstrual syndrome
Psoriasis
Rheumatism
Shortened life span
Tooth decay
Ulcers
Vaginal yeast infections

Sugar may not be the whole answer to why you are ill, but it could be an important part of the puzzle. Check out the following excellent resources and try a sugar reduction program. Then you'll know how much sugar is influencing your illness by the way you feel.

What to do for your Health

1. Kick the addiction to the high glycemic foods, eat fruits and vegetables and other low glycemic foods.
2. More green tea (use fructose), licorice, and other natural factors for treatment of blood sugar disorders.
3. The fruit juice you buy should never have any processed sugar added, use only fructose.
4. The fruit juice you buy is too often too concentrated. Dilute it buy one third to half for taste.
THE EFFECTS OF STRESS

- impaired cognitive performance
- nervous system
- acne
- suppressed thyroid function
- muscle tension
- blood sugar imbalances
- cardiovascular issues
- endocrine system
- gastrointestinal system
- higher blood pressure
- skin problems
- reproductive system
- decreased bone density
- decrease in muscle tissue
"The sugar in my urine seems to have decreased."

"Hmm... There's something in this green tea that has the power to reduce the blood sugar level."
Good Sugar and Oil

Eat at least Five servings of fruits and Vegetables a day, use Vegetables as the Center of the Meal.

Remember: do not eat foods boiled in oil, get good cold processed vegetable oils and thus good Fatty acids, not trans or cooked or animal oils. Eat only Levulose (fructose fruit sugars) not Dextrose (Cane, Corn, Potatoe, Grape sugar). Wellness is your Reward. Remember to chew your food, Fruits alone, Fluids alone, and Melons alone. Make Vegetable and Fruit juice part of your daily Wellness Healthy Regime.
FOOD IS YOUR BEST MEDICINE

Healthy Eating Starts on your Shopping trip and Health Makes the next step at the Kitchen, The Dinner Table is the next step of Healthy Eating. Food made with anger, fear or hate is Poison. Food made with love is nutrition. If made with extra love, the food is Medicine. Desire’s work on Medicine and Wellness has made her the World’s most Famous Medical Naturopath alive.
Heart-healthy diet: 7 steps to prevent heart disease

Changing your eating habits can be tough. Start with these seven strategies to kick-start your way toward a heart-healthy diet.

Although you might know eating certain foods can increase your heart disease risk, it’s often tough to change your eating habits. Whether you have years of unhealthy eating under your belt or you simply want to fine-tune your diet, here are seven heart-healthy diet tips. Once you know which foods to eat more of and which foods to limit, you’ll be on your way toward a heart-healthy diet.

1. Limit unhealthy fats and cholesterol.

*Avoid foods with trans-fatty acids, avoid foods boiled in oil, and high glycemic foods cooked in oil.* Of the possible changes, limiting how much saturated and trans fat you eat is the most important step you can take to reduce your blood cholesterol and lower your risk of coronary artery disease. A high blood cholesterol level can lead to a buildup of plaques in your arteries, called atherosclerosis, which can increase your risk of heart attack and stroke.

*The American Heart Association offers these guidelines for how much fat and cholesterol to include in a heart-healthy diet:*

<table>
<thead>
<tr>
<th>Type of fat</th>
<th>Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Saturated fat</td>
<td>Less than 7 percent of your total daily calories</td>
</tr>
<tr>
<td>Trans fat</td>
<td>avoid</td>
</tr>
<tr>
<td>Cholesterol</td>
<td>Less than 300 milligrams a day for healthy adults; less than 200 milligrams a day for adults with high levels of low-density lipoprotein (LDL), or &quot;bad,&quot; cholesterol or those who are taking cholesterol-lowering medication</td>
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</tbody>
</table>

The best way to reduce saturated and trans fats in your diet is to limit the amount of solid fats — butter, margarine and shortening — you add to food when cooking and serving. Use low-fat substitutions when possible for a heart-healthy diet. For example, top your baked potato with salsa or low-fat yogurt rather than butter, or use low-sugar fruit spread on your toast instead of margarine. You may also want to check the food labels of some cookies, crackers and chips. Many of these snacks — even those labeled "reduced fat" — may be made with oils containing trans fats. One clue that a food has some trans fat in it is the phrase "partially hydrogenated" in the ingredient list.
When you do use fats, choose monounsaturated fats, such as virgin cold processed olive oil, sunflower, safflower, soybean or canola oil. Polyunsaturated fats, found in nuts and seeds, also are good choices for a heart-healthy diet. When used in place of saturated fat, monounsaturated and polyunsaturated fats may help lower your total blood cholesterol. But moderation is essential. All types of fat are high in calories.

If you’re not sure which fats or oils to use when cooking or baking, use this guide:

<table>
<thead>
<tr>
<th>Choose (always use only as little as you can)</th>
<th>Avoid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Olive oil</td>
<td>Butter</td>
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<tr>
<td>Canola oil</td>
<td>Lard</td>
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<tr>
<td>Margarine labeled &quot;trans fat-free&quot;</td>
<td>Bacon</td>
</tr>
<tr>
<td>Cholesterol-lowering margarine, such as Benecol, Promise activ or Smart Balance</td>
<td>Gravy</td>
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<tr>
<td></td>
<td>Cream sauce</td>
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<tr>
<td></td>
<td>Nondairy creamers</td>
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<tr>
<td></td>
<td>Hydrogenated margarine and shortening</td>
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<tr>
<td></td>
<td>Cocoa butter, found in chocolate</td>
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<tr>
<td></td>
<td>Coconut, palm, cottonseed and palm-kernel oils</td>
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</tbody>
</table>

2. Choose low-fat protein sources.

Lean meat, poultry and fish, low-fat dairy products and egg whites or egg substitutes are some of your best sources of protein. But be careful to choose lower fat options, such as skim milk rather than whole milk and skinless chicken breasts rather than fried chicken patties.

Fish is another good alternative to high-fat meats. Some types of fish — such as cod, tuna and halibut generally have less total fat, saturated fat and cholesterol than do meat and poultry. And certain types of fish are heart healthy because they’re rich in omega-3 fatty acids, which can lower blood fats called triglycerides and may reduce your risk of sudden cardiac death. You’ll find the highest amounts of omega-3 fatty acids in cold-water fish, such as salmon, mackerel and herring. Other sources are flaxseed, walnuts, soybeans and canola oil.

Legumes — beans, peas and lentils — also are good sources of protein and contain less fat and no cholesterol, making them good substitutes for meat. Substituting soy protein for animal protein — for example, a soy burger for a hamburger — will reduce your fat and cholesterol intake.

To help you decide which high-protein foods are best, use this guide:
### Choose

- Skim or low-fat (1 percent) milk
- Fat-free or low-fat dairy products, such as yogurt and cheese
- Eggs
- Fish, especially fatty, cold-water fish, such as salmon
- Skinless poultry
- Legumes
- Soybeans and soy products, for example, soy burgers
- Lean ground meats

### Avoid

- Full-fat milk and other dairy products
- Organ meats, such as liver
- No SINthetic egg substitutes
- Fatty and marbled meats
- Spareribs
- Cold cuts
- Frankfurters, hot dogs and sausages
- Bacon
- Fried, breaded or canned meats
- All nitrate nitrite processed meats like hot dogs, bologna, salami

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### 3. Eat more vegetables and fruits.

Vegetables and fruits are good sources of vitamins and minerals; they are low in calories and rich in dietary fiber. A diet high in soluble fiber, the kind found in fruits and vegetables, can help lower your cholesterol and reduce your risk of heart disease. Vegetables and fruits also contain substances found in plants that may help prevent cardiovascular disease. Eating more fruits and vegetables may help you eat less high-fat foods, such as meat, cheese and snack foods.

Featuring vegetables and fruits in your diet may not be as difficult as you might think. Keep carrots, cauliflower and broccoli washed and cut in your refrigerator for quick snacks. Keep apples, bananas, grapes or peaches in a bowl in your kitchen so that you'll remember to eat them. Choose recipes that have vegetables or fruits as the main ingredient, such as vegetable stir-fry or fresh fruit mixed into salads. Even frozen or canned fruits and vegetables are good choices, provided they don't have lots of added sodium or sugar. Don't smother vegetables in butter, dressings, creamy sauces or other high-fat garnishes.

This guide can help you sort out which fruits and vegetables offer the most health benefits:

<table>
<thead>
<tr>
<th>Choose</th>
<th>Avoid</th>
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<tbody>
<tr>
<td>Fresh or frozen vegetables and fruits</td>
<td>Coconut</td>
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</table>
- Low-sodium canned vegetables
- Canned fruit packed in juice or water
- Vegetables with creamy sauces
- Fried or breaded vegetables
- Canned fruit packed in heavy syrup

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**TOXIC TRANS FAT IN PROCESSED FOODS**

Foods boiled in Oil are slow Poisons. Bake potatoes and cut into fries, no boiled oil.
Best & Worst Foods for Your Cholesterol

Trans fat is the worst offender. Here's how to avoid it.

While nutritionists and researchers may disagree about how certain foods and fats affect our overall health, one universal truth that everyone can agree on is that trans fat is an ultimate evil lurking in our food chain, proven time and again to lower healthy HDL cholesterol, raise artery-clogging LDL cholesterol, and put us at increased risk for cardiovascular disease. In fact, this artificial fat is so hazardous to our bodies that in 2007 the New York City Department of Health banned its use in restaurants.

Which of course led to the destruction of all the city’s restaurants and caused New York to drop into the sea. Oh no, wait … that didn’t happen. In fact, the effect on New York’s restaurants—including its fast-food joints—was pretty much zilch. That’s because there are plenty of suitable, and much healthier, options out there and plenty of industry titans are using them. But to this day, many chain restaurants and food manufacturers in most parts of the country are still clinging to hydrogenated oils and shortening, and putting you, the consumer, in danger as a result. As one customer said it best, “there was a small taste difference, but within two weeks we acclimated and now it is better in flavor”.

What’s so unfair about this ongoing disregard for our health is that many fats are actually good for us—having a positive impact on our cholesterol profiles while also helping us stay fuller longer. Monounsaturated fats, like those found in olive and canola oils and healthy foods like avocados and nuts, can be used to make most any food better for us. Good fats are essential for health. But high temp cooking (past 120 degrees Fahrenheit, 45 Celsius) destroys most of the nutritional value of a fat.

Make it your mission to eat healthfully for every single meal. Check out the four worst—and four best—meals for your cholesterol. And for more great tips like these, order the latest, most up-to-date version of the best-selling weight-loss series: Eat This, Not That! The Best (& Worst!) Foods in America!

The worsts

Worst breakfast

Bob Evans Stacked & Stuffed Caramel Banana Pecan Hotcakes

- 9 g trans fat
- 1,543 calories
- 77 g fat (26 g saturated)
- 109 g sugars
- 2,259 mg sodium

These problematic pancakes keep popping up on our worst lists for a reason: They have more calories, sugar, carbs, sodium and fat than nearly any other breakfast in America. Add to that list 4½ days’ worth of trans fat and you begin to wonder why Bob Evans doesn’t make you sign a waiver before applying the syrup. When ordering from Bob’s breakfast menu, stick with items labeled “Fit from the Farm”—aside from scrambled eggs or a plain bowl of oatmeal, they’re the only healthy breakfast foods Bob Evans offers.
Click here for more great weight-loss tips like this one.

**Worst lunch**

Boston Market Classic Chicken Salad Sandwich

- 5 g trans fat
- 800 calories
- 41 g fat (7 g saturated)
- 1,900 mg sodium

Chicken and tuna salad sandwiches might not be the models of health some purport them to be, but even we were surprised to see how bad this Boston Market sandwich really is. Where do they possibly find the room to cram 2½ days’ worth of trans fat into chicken, mayonnaise, lettuce and bread? The answer lies somewhere in the murky ingredient list, which, as with too many of their dishes, runs at more than 40 items long. Boston Market has a swath of solid entrées—from rotisserie chicken to slices of sirloin—and healthy sides on their menu. Get a sandwich stacked with lean white meat, minus the trans fat, with Boston Market’s line of open-faced sandwiches.

**Worst snack**

Pop-Secret Kettle Corn (4 cups popped)

- 6 g trans fat
- 180 calories
- 13 g fat (3 g saturated)
- 150 mg sodium

The only secret here is that the popcorn purveyor uses partially hydrogenated oil to pop their kernels, turning a reasonable snack into a nutritional nightmare of heart-wrenching proportions. This box has three bags of popcorn, which means every time you buy it, you’re bringing 54 grams of dangerous trans fat into your house. There’s not an easier—or more important—swap to make.

**Worst dinner**

Denny’s Double Cheeseburger

- 7 g trans fat
- 1,540 calories
- 116 g fat (52 g saturated)
- 3,880 mg sodium

There’s nothing redeeming about this atrocious cheeseburger—stacked between two buns is nearly three times your daily limit of trans fat, three-quarters of the calories you should consume in one day, and the sodium equivalent of 118 saltine crackers. Oh, and did we mention the 59 bacon strips’ worth of saturated fat? Aside from the Fit Fare Boca, you’re not going to find a reasonable burger on the Denny’s menu, so it’s either this or a
The bests

Best breakfast

Starbucks Perfect Oatmeal with Nut Medley

- 240 calories
- 11 g fat (1.5 g saturated)
- 0 mg sodium

Best lunch

Baja Fresh Grilled Mahi Mahi Tacos (2)

- 460 calories
- 18 g fat (3 g saturated)
- 600 mg sodium

Best snack

Wholly Guacamole Classic (2 Tbsp)

- 50 calories
- 4 g fat (0.5 g saturated)
- 75 mg sodium

Best dinner

Uno Chicago Grill Lemon Basil Salmon with Steamed Broccoli

- 510 calories
- 39 g fat (5 g saturated)
- 1,030 mg sodium

My buddy, Gill, came to me a while back looking for advice on how to banish the bulging belly he had acquired in his later years. I skipped the diet lecture and instead gave him a copy of the book, *Eat This, Not That!* , and a single piece of advice: Start with the drinks chapter.
Four months later, Bill has adopted the simple food swap philosophy and dramatically altered his calorie intake without giving up the foods and drinks he loves. His reward: 25 pounds and three inches off of his waistline—in around six weeks!

I told Gill to start with beverages because between soda, coffee drinks, smoothies, and booze, he was sipping away more than a quarter of his daily calories. He's not the only one. A study from the University of North Carolina found that we consume 450 calories a day from beverages, nearly twice as many as 30 years ago! This increase amounts to an extra 23 pounds a year that we're forced to work off—or carry around with us.

There's good news and bad news when it comes to liquid calories. The bad news is they are the most difficult calories for us to gauge, because we have none of the greasy, cheesy visual cues we get when we go face-to-face with a plate of loaded nachos or a triple cheeseburger. The good news is that they are the easiest calories to cut from your diet. Just ask Gill.

I've identified the most bloating beverages in gas stations, bars, smoothie counters, and coffee shops across America and replaced them with sensible and satisfying stand-ins for a fraction of the caloric cost. So you can sip what you want, skip the diet, and still lose lots of weight this year.

**You Must Skip Cola (Even Diet)**
Scientists in Boston found that drinking one or more regular or diet colas every day doubles your risk of metabolic syndrome—a cluster of conditions, including high blood pressure, elevated insulin levels, and excess fat around the waist, that increase your chance of heart disease and diabetes. Controlling blood pressure and cholesterol levels, preventing diabetes, and not smoking can add 6 to 9 1/2 healthy years to your life.

One culprit could be the additive that gives cola its caramel color, which upped the risk of metabolic syndrome in animal studies. Scientists also speculate that soda drinkers regularly expose their tastebuds to natural or artificial sweeteners, conditioning themselves to prefer and crave sweeter foods, which may lead to weight gain, says Vasan S. Ramachandran, MD, a professor of medicine at Boston University School of Medicine and the study's lead researcher.

Better choices: Switch to tea if you need a caffeine hit. Green tea is better. If it's fizz you're after, try sparkling water with a splash of juice.
First signs of Fatty Acid Deficiency
1. Sensation of chill or cold
2. Lightheaded
3. Brain Fatigue
4. Hungry
For the Body to make Fatty Acids it takes much energy. Energy that we might not have in an over stressful world. As we age and as we stress we should supplement FA in our diet to give us extra energy for life.
First signs of Fatty Acid Deficiency

1. Sensation of chill or cold
2. Lightheaded
3. Brain Fatigue
4. Hungry

When Stress takes the Fatty Acids out of the Membrane, the Membrane becomes more porous. This allows virus and toxins to penetrate easier. This makes cancer and virus exposure prevalent and probable.
Prof. Nelson's salad Oil: to get all of your fatty acids you must use cold processed oils of many types. Blend sesame, safflower, soybean, sunflower, olive, and avocado oil in equal parts. to get some of the high end fatty acids soak finely crushed nutmeg, cloves, mustard seed and parsley in canola oil or sesame oil. Let it sit in the sun for 2 days. Blend this into the oil and this will make a fine source of all your fatty acids. If you can get nutmeg, parsley, mustard, or clove oil all the better then you won't have to make it.
Prof. Nelson’s better butter:

For those of you who are not ready to give up the taste of butter, this is an excellent way to reduce your saturated fats. It combines the saturated fats in butter with the polyunsaturated fats in sunflower oil. By using cold pressed oil, you are giving yourself the essential fatty acids your body needs so much. If you eat the same amount of Better Butter as plain butter, you are cutting your saturated fat intake by half.

¼ pound all natural butter at room temperature
1/3 cup cold-pressed oil combo from above

Blend with a fork and refrigerate. Makes ¼ pound. It will soften quick in the heat.
1. Make Big Tobacco pay for the damages they incur
2. Must stop sales of cigarettes
3. Make Big Sugar pay for the damages they incur
4. Make Big Pharma pay for the damages they incur
5. End Allopathic philosophy and develop a new stressor reducing based medicine
6. Avoid Bad white processed sugars. Eat Good Sugars from fresh fruit. Avoid bad oils cooked or saturated. Eat good oils from fresh and raw vegetable and uncooked low temperature made oils.
7. Equal Economic Education- and a new medical education based on natural science,
8. Safe forms of early intervention medicine such as energetic biofeedback
9. Recognize the powers of the mind such as in the EPFX/SCIO system.
10. Recognize the need for an energetic medicine to safely evaluate the body electric and balance the aberrations of the body electric. We need to use a more modern medicine utilizing the body electric without emphasis on synthetic chemistry.
11. Recognize that the SINthetic experiment has failed and we should be using the synthetics only in extreme cases when the natural remedies fail. Quantum Electrodynamics has further proven the problem of synthetic chemistry.
12. Allopathy does not work, we must adapt a safer and more extensive theory of medicine.

With these social changes degenerative disease could be so greatly reduced to allow for an inexpensive medicine.
Never Have a Heart Attack
3 new surprising ways to help predict—and prevent—a heart attack.

Your doctor can order a host of complex tests to gauge the health of your heart, but I'd like to tell you about three new methods of predicting heart disease that are surprisingly simple and effective. One can be done with your eyes closed—literally. Another can be ordered the next time you have a blood test, and the third involves taking the temperature of your finger. Here's a rundown of how each one works:

1. The sleep test

Answer this question: Do you feel drowsy during the day? If so, you may be harming your heart. Every extra hour of sleep middle-age adults can add to their nightly average reduces their risk of coronary artery calcification by 33 percent, according to a study reported in the Journal of the American Medical Association. When you’re even a little sleep deprived, your body releases stress hormones that constrict arteries and cause inflammation. If you routinely wake up feeling tired or need an afternoon nap, then you're probably sleep deprived. Try either changing your sleep habits (darker room, TV off, earplugs) or going to bed 30 minutes earlier until symptoms disappear. If your spouse complains about your snoring or if you often wake up with a headache, get checked for sleep apnea disorder.

2. The vitamin D test

Low levels of vitamin D, found in nearly 80 percent of U.S. adults, can cause a rise in blood pressure and increased arterial inflammation. Fortunately, it's easy to test for and remedy any deficiency. Ask your doctor to order a vitamin-D analysis as part of your next blood test. Optimal levels are 30 to 40 ng/mL, but some doctors contend 50-plus ng/mL is even better. If
yours is low, get 10 to 15 more minutes of sunlight per day (without sunblock), eat more vitamin D-rich foods (salmon, tuna, fortified orange juice), or take a D supplement (as recommended by your doctor). It's one of the simplest things you can do to protect your heart.

Follow Dr. Agatston's 3-Point Plan to protect your heart's health.

3. The finger test

Lining all your blood vessels—even those in your index finger—is a single layer of cells, called the endothelium, that produce chemicals that affect the vessels' function, causing dilation, constriction, clotting, etc. Negative changes in the endothelium occur years before any other measurable signs of heart trouble appear, so researchers have believed that if the health of the endothelium could be tested, we just might lick heart disease and stroke.

Now we have that test. The one I use, called Vendys, involves attaching a fingertip-temperature detector to your index finger and wrapping a blood-pressure cuff around your arm. As the cuff is inflated, blood flow to the hand decreases and finger temperature drops. After five minutes, the cuff is deflated and blood flow returns. The faster and more completely finger temperature rebounds, the healthier the endothelium.

The great thing about this test is that I can not only assess your vascular health but also partially monitor how well treatment is working. If a patient loses weight, lowers her blood pressure or begins taking medication, I can detect positive changes in her endothelial function almost instantaneously. With other methods—calcium scoring, for instance—I'd be waiting years. Eventually, this finger test could be an invaluable aid for monitoring heart health.

If you're at risk of heart disease, discuss this and the other tests with your doctor. There's a good chance that if you pay attention to what they tell you, they'll help you keep your heart beating stronger, longer.

Symptoms Too Dangerous To Ignore

Important warning signs you should always discuss with your doctor.

Rebecca Ruiz, Forbes

Common sense tells us that symptoms like acute chest pain and abdominal pain or persistent fevers and headaches are important reasons to seek medical attention. Yet some patients, because they lack access to a physician or are simply too distracted or stubborn to make the phone call, disregard such symptoms until it's too late.

Dr. Joseph W. Stubbs, president of the American College of Physicians and an internist in Albany, Ga., has treated both types.

In Depth: 10 Symptoms Too Dangerous To Ignore

Recently, he saw a diabetic patient who quit taking blood thinner and blood pressure medications after losing her job. By the time she contacted his office for help, four of her toes had turned gangrenous—a common risk for diabetics who experience poor circulation.
Today this kind of behavior is common; the recession has forced many to postpone routine health care. A Kaiser Family Foundation telephone poll of 1,200 people conducted in April found that 60 percent of respondents were delaying care in some way, including skipping a recommended medical test, using home or over-the-counter remedies instead of seeing a physician, or failing to fill a prescription.

The ability to pay for health care, however, does not always mean a patient will seek needed treatment. Stubbs has also cared for work-obsessed patients who neglect their health because of perceived time constraints.

Either way, Stubbs says, "I would urge people to not be pound foolish and penny wise."

**Red flags**

Though it can be difficult to separate critical from typical aches and pains, Dr. Stubbs says that emergent symptoms should be considered on a continuum from acute to moderate to mild. Chest pains, fevers above 101 degrees and severe abdominal pain, for example, should be examined immediately.

A patient may diagnose new chest pain as indigestion, but it can instead indicate a heart attack. A high fever combined with shortness of breath, mental changes or lower back pain could be signs of pneumonia, meningitis or a kidney infection, respectively.

Unusual skin rashes should be examined quickly, since they can indicate an underlying infection, lupus, shingles or the measles. Changes in skin pigmentation or new growths, however, don't need to be seen in the emergency room; scheduling a visit with a physician soon after noticing the issue is sufficient.

Other symptoms that require urgent medical attention include sudden trouble with mental faculties—a sign of stroke—and fainting, a rare but deadly sign of an irregular heart rhythm.

**Planning for health**

Dr. Ron O'Quin, a physician in Bellevue, Wash., agrees that such symptoms should be considered urgent or high-priority and encourages his patients to contact him at any time with any concern.

His patients do pay for that privilege, however, since he practices with MD2 (pronounced MD squared), a network of providers who offer a so-called concierge style of medicine in which individuals pay an annual fee of $15,000 for unlimited access to a physician. MD2 physicians treat only 50 families, which allows them to develop close relationships with patients.

O'Quin recognizes the unique advantage of his practice, but says patients with varying levels of insurance coverage and access can try to achieve a similar level of attention by developing short- and long-term plans for their health. That should include scheduling the annual battery of tests, monitoring any chronic health conditions and asking for reminders about starting and adhering to new medication regimens.

Those plans may not prevent an emergency, but they can help a patient take control of his or her health and feel more comfortable about communicating with a health care professional about an emergent problem.

With some things, "you only get one chance," O'Quin says. "Ignoring that is a serious mistake."
5 symptoms you should not ignore:

- Chest Pain
- Blacking out
- Fever
- Bleeding
- difficulty swallowing or breathing

Atherosclerosis

This is full of Large Undigested Fats and Proteins and bad low energy Calcium, Bad Fatty Acids and unprocessed stress cells and traumas unhealed Produce an accumulation of blockage in the artery, producing circulation disease.
Fructose, or levulose, is the form of sugar found in fruit and honey. It is a laevorotatory monosaccharide with the same empirical formula as glucose but with a different structure. Although fructose is a hexose (6 carbon atoms), it generally exists as a 5-membered hemiketal ring (a furanose).

All fruit naturally contains a certain amount of fructose (often together with glucose), and it can be extracted and concentrated to make an alternative sugar.

Fructose is often used in food products designed for people with diabetes mellitus or who have problems with hypoglycaemia, because it is metabolised more slowly (GI 32) than cane sugar (sucrose) and is sweeter, so it has a smaller effect on blood-sugar levels. However, rarely some people can react badly to fructose so it is not an option for those who need to restrict sucrose intake.

1 Structure
The first -OH points the opposite way from the second and third -OH. **Be aware, there are mistakes in the formulas of the ring structures!** All -CH3’s must be -CH2’s (and instead of H3C- it must read H2C- of course)

### 1.1 Isomerism

D-Fructose has the same configuration at its penultimate carbon as D-glyceraldehyde. Fructose is more sweet than glucose due to its stereomerism structure.

**Fructose intolerance** is a hereditary condition due to a deficiency of liver enzymes that metabolise fructose. Not to be confused with fructose malabsorption, a deficiency of fructose transporter enzyme in the enterocytes, which leads to bloating and diarrhea.

**Fructose malabsorption** is a condition in which the fructose carrier in enterocytes is deficient. Symptoms and medical tests are similar as in lactose intolerance. This condition is common in patients with symptoms of irritable bowel syndrome. An appropriate diet can help. A small proportion of patients with both fructose malabsorption and lactose intolerance suffers from coeliac disease.

This is not to be confused with fructose intolerance, an inherited condition in which the liver enzymes that break fructose up are deficient.
Sugars

Carbohydrates fulfill important functions in our daily life. Firstly it serves as energy storage, as fuel and as metabolic intermediate. Secondly it serves in the structure of DNA and RNA. And lastly many sugars are coupled to proteins and fats, and fulfill a roll in recognition processes.

The carbohydrates form a large group of molecules. Carbohydrates are also known as saccharin’s or sugars. The name carbohydrate originates from the observation that these substances lose water (hudoor = water) when heat is applied and after that carbon is left. The general formula for carbohydrates is: C\(_n\)(H\(_2\)O)\(_n\).

Carbohydrates are made in large quantities inside plants during the photosynthesis (assimilation).

Hereby carbohydrates are formed from water and carbon dioxide:

\[ n \text{H}_2\text{O} + n \text{CO}_2 \rightarrow \text{C}_n(\text{H}_2\text{O})_n + n \text{O}_2 \]

In this reaction, sun-energy is taken up and is preserved in chemical substances. Carbohydrates are energy storage molecules. This energy can be released by the opposite process: burning (dissimilation). All animal life uses the burning of carbohydrates to obtain energy:
\[(\text{CH}_2\text{O})_n + n \text{O}_2 \rightarrow n \text{H}_2\text{O} + n \text{CO}_2 + \text{energy}\]

Carbohydrates are classified based on their molecular size in three groups. The three groups are:

- **Monosaccharides** (simple sugars)
  (among others Glucose, Fructose, Ribose and Galactose)
- **Disaccharides** (molecules composed of two monosaccharides)
  (among others Saccharose, Maltose and Lactose)
- **Polysaccharides** (macromolecules consisting of long chains composed of saccharides)
  (among others Cellulose, Starch and Glycogen)

### Monosaccharides

Monosaccharides are the simplest carbohydrates. They can be divided into aldoses and ketoses. The formula for monosaccharides is \((\text{CH}_2\text{O})_n\). The smallest monosaccharides are, with three carbon atoms \((n = 3)\), glyceraldehyde and dihydroxyacetone. Glyceraldehyde is called an aldose because it contains one aldehyde group. Dihydroxyacetone is called a ketose because it has one keto group.

Glyceraldehyde has an asymmetrical carbon atom, because of that, two different forms of the molecule are possible. These two forms are indicated by D- and L-Glyceraldehyde. The letter D and L refer to the asymmetrical carbon atom which is located the farthest away from the aldehyde or keto group (here one after the lowest atom). There are for aldose with three carbon atoms (trioses) two different forms possible. For aldose with four carbon atoms (tetroses), there are four different forms possible, because there are two asymmetrical carbon atoms. For aldose with five C-atoms (pentoses) there are eight different and with six C-atoms (hexoses) there are sixteen different forms possible.

Below the different aldoses until six carbon atoms are represented. The aldehyde group is represented in green. These sugars have the D configuration and are indicated in red. For each of the aldose there is also an L-form.
In the group of the ketoses also much different forms are distinguishable. Ketoses also have D and L form, except dihydroxyacetone because it has no asymmetrical carbon atom. There are less different ketoses than aldoses because they have an asymmetrical carbon atom less. Below the different ketoses until six carbon atoms are represented. They are called ketoses because they contain a keto group (represented in green). The group causing the D-configuration of the ketose is represented in red. For each D-ketose there is also an L is form.
The most important and most known monosaccharide are: glucose, fructose, galactose and ribose.

Glucose and fructose in a solution are not prevent in the closed extended form proposed until now, but a ring like form.

In glucose, the aldehyde group at the C-1 atom reacts with the hydroxyl group at C-5 to form a ring. This ring form is also called a pyranose because it resembles pyran.
By forming this ring an asymmetrical carbon atom on carbon atom 1 is formed. Because of this, two different forms of the sugar are possible. These two forms are called alpha or beta-D-Glucopyranose. Ketose also form a ring structure. The keto group at C-2 reacts with the hydroxyl group at C-5 and form a ring structure. This five carbon atom ring is called a furanose because it resembles furan.

Glucose

Glucose is also called dextrose. Glucose is a sugar that consists of six carbon atoms. These carbon atoms lie in a ring. This gives an asymmetrical molecule of five carbon atoms in a ring and 1 carbon atom outside of the ring.
Glucose is generally present in living organisms. The human blood contains approximately 0.8 g/l (5 mmol/l) of glucose. In case of an illness, the glucose level may have changed. Glucose is also a many measured mark in hospital laboratories.

Glucose is taken up in the small intestine and is transported to the liver via the hepatic portal vein. The liver regulates the glucose concentrations in the blood. If there is too much glucose in the blood, glycogen is formed. And when there is too little glucose in the blood, this glycogen is broken down again into glucose. This is all regulated in the glycogen metabolism.

Glucose is used as a fuel, glucose is energy. The use of glucose as energy happens in the metabolic processes: Glycolysis and Citric acid cycle.

**Fructose**

Fructose, is found in high concentrations in fruits and is a constituent of honey. Fructose tastes less sweet than glucose. Fructose is a sugar that exists of six carbon atoms. These carbon atoms lie in one ring. This gives a symmetric molecule of four carbon atoms in one ring and two carbon atoms at both sides of the ring.

Fructose is not taken up as well as glucose by the small intestine.

**Galactose**

Galactose is also a sugar with six carbon atoms with a somewhat different structure as glucose. It most often accompanies Vitamin C.
Galactose is taken up better by the small intestine than fructose. Galactose arises in the small intestine from lactose (milk sugar) from milk. Lactose is a disaccharide that consists of glucose and galactose. This lactose is broken down by lactase, produced by the intestine glands.

**Ribose**

Ribose is a sugar that exists of five carbon atoms. It resembles fructose, only in ribose a side chain has been taken off.

Ribose is one of the most important building blocks of large molecules. Ribose is part of the molecules: AMP, ADP, ATP, cyclical AMP and RNA. Also in DNA ribose is built in, but in the case DNA a variant called desoxiribose. Ribose can be produced by the body in the metabolic process the pentose cycle, in the form of ribose-5-phosphate.

**Disaccharides**

When two cyclic monosaccharides (acetal bonding) are coupled by means of a glucoside bonding a disaccharides arises. A glycoside bonding arises together with a split off of water. Disaccharides are commonly present in nature and form important components of foods. Disaccharides are also important in the formation of polysaccharides and monosaccharides. The most important disaccharides are: Saccharose, Maltose and Lactose.
Saccharose

Saccharose is also known as sugar, table sugar, sucrose. The organic chemical name is Alpha-D-Glucopyranosyl-(1->2)-Beta-D-fructofuranoside. This disaccharide is composed of the monosaccharides glucose and fructose.

During the digestion, saccharose is broken down by the enzyme invertase in glucose and fructose. Invertase is also called sucrase. This enzyme is produced in the small intestine where the breakdown of sucrose occurs. The known sugar from the daily life consists of saccharose, just as powdered sugar and sugar syrup.

Maltose

Maltose is also called malt sugar. This disaccharide is composed of two of the monosaccharides glucose. These glucose units are connected with an alpha 1,4 bond. Maltose can be broken down in our digestive system. The enzyme maltase can break down maltose in individual glucose units. The enzyme maltase is produced in the small intestine. Maltase hydrolysis the alpha-(1-4)-bond in maltose in which glucose is released. Glucose is absorbed in the small intestine.

The word alpha, in the name of the alpha 1,4 bond between the two glucose units, indicate that the
two units are in a straight area. The numbers 1,4 indicate that the bond is present between the carbon atoms 1 and 4.

Lactose

Lactose is also known as milk sugar and is present in milk. The organic chemical name is Beta-D-Galactopyranosyl-(1->4)-Alpha-D-Glucopyranose. Lactose is composed of the monosaccharides galactose and glucose. The two molecules are connected by a Beta-1,4-bond.

The word Beta, in the name of the bond between the two monosaccharides units, indicates that the two units are not in a straight area, they are slant on each other. The numbers 1.4 mean that the bonds is present between the carbon atom 1 of galactose and carbon atom 4 of glucose. Fungus like Candida is not killed by lactose, but lactose will stop their ability to reproduce.

Lactose intolerance

Lactose is broken down in the digestion to galactose and glucose by the enzyme lactase. Most children can break down lactose in their digestion. In contrast to children, there is a large group of adults in the world that can not produce the enzyme lactase. These people are intolerant to milk.

After drinking milk, lactose accumulates in the lumen of the intestine because there is no mechanism to take up this disaccharide. The symptoms of lactose intolerance are nausea, cramp, pain and diarrhoea.

Lactose intolerance is a genetic variation that mostly presents itself in adolescent or in adult life. Lactose intolerance is prevalent in 3% of Danish people, and in 97 % of Thai people. There is lactase treated milk available for lactose intolerant people. The ability of people to break down lactose also in maturity appears to have been developed since people started to domesticate cow cattle. This was some thousand years ago.
Polysaccharides

Polymers are biomolecules composed of units in which we can recognize the monosaccharides. Some polysaccharides can be hydrolysed by enzymes in our digestion. In this process polysaccharides are split up in monosaccharides. The most important polysaccharides are: Cellulose, Starch and Glycogen.

Cellulose

Cellulose is an important "building material" in plants. Cellulose is harvested from vegetable material such as straw and cotton plants. Natural textile fibre such as linen (flax), cotton and viscose (artificial silk) consist of cellulose. Just as paper, cardboard, cotton wadding and cellophane. Cellulose can not be broken down in our digestive system. Humans do not have an enzyme that is able to break down the beta bonds in cellulose. Cellulose and other indigestible compounds form the dietary fiber, which are important in our digestive system.

Starch

Starch is an energy storage molecule for plants. There are two forms of starch. The not subdivided form is called Amylose. In Amylose the glucose units are coupled by Alpha-1,4-bonding. The second form is Amylopectine. In this form, there are branchings in the form of alpha-1,6-bonds that occur once every thirty units. This form resembles glycogen, but with less alpha-1,6 branchings.
Starch can be broken down in our digestive system. Starch is broken down in individual glucose units by the action of the enzyme amylase. Amylase is present in our saliva and is produced by the pancreas. Amylase hydrolyses the alpha-(1,4)-bonds. Glucose is absorbed in the small intestine.

Glycogen

Glycogen serves as an energy storage in humans. It consists of glucose units that are coupled by Alpha-1,4-bonds, with branchings as alpha-1,6-bonds. The 1,6 bonds occur every ten units.
We call this handedness CHIRALITY, from the Greek CHIRO meaning hand.

Chirality (chemistry)

Two enantiomers of a generic amino acid

A chiral molecule is a type of molecule that lacks an internal plane of symmetry and has a non-superimposable mirror image. The feature that is most often the cause of chirality in molecules is the presence of an asymmetric carbon atom.\(^1\)\(^2\)

The term chiral (pronounced /ˈkærəl/) in general is used to describe an object that is non-superposable on its mirror image. Achiral (not chiral) objects are objects that are identical to their mirror image. Human hands are perhaps the most universally recognized example of chirality: The left hand is a non-superposable mirror image of the right hand; no matter how the two hands are oriented, it is impossible for all the major features of both hands to coincide. This difference in symmetry becomes obvious if someone attempts to shake the right hand of a person using his left hand, or if a left-handed glove is placed on a right hand. The term chirality is derived from the Greek word for hand, χειρ (cheir). It is a mathematical approach to the concept of "handedness".

In chemistry, chirality usually refers to molecules. Two mirror images of a chiral molecule are called enantiomers or optical isomers. Pairs of enantiomers are often designated as "right-" and "left-handed."

Molecular chirality is of interest because of its application to stereochemistry in inorganic chemistry, organic chemistry, physical chemistry, biochemistry, and supramolecular
chemistry.

**History**

The term *optical activity* is derived from the interaction of chiral materials with polarized light. A solution of the (−)-form of an optical isomer rotates the plane of polarization of a beam of plane polarized light in a counterclockwise direction, vice-versa for the (+) optical isomer. The property was first observed by Jean-Baptiste Biot in 1815,[3] and gained considerable importance in the sugar industry, analytical chemistry, and pharmaceuticals. Louis Pasteur deduced in 1848 that this phenomenon has a molecular basis.[4] Artificial composite materials displaying the analog of optical activity but in the microwave region were introduced by J.C. Bose in 1898,[5] and gained considerable attention from the mid-1980s. The term *chirality* itself was coined by Lord Kelvin in 1873.[7]

The word "*racemic*" is derived from the Latin word "racemus" for "bunch of grapes"; the term having its origins in the work of Louis Pasteur who isolated racemic tartaric acid from wine.

**Symmetry**

The *symmetry* of a molecule (or any other object) determines whether it is chiral. A molecule is achiral (not chiral) when an improper rotation, that is a combination of a rotation and a reflection in a plane, perpendicular to the axis of rotation, results in the same molecule (see chirality (mathematics)). A simplified, if incomplete, rule is that a chiral molecule lacks a plane of symmetry. For tetrahedral molecules, the molecule is chiral if all four substituents are different.

A chiral molecule is not necessarily asymmetric (devoid of any symmetry element), as it can have, for example, rotational symmetry.

**Naming conventions**

**By configuration: R- and S-**

For chemists, the *R / S* system is the most important nomenclature system for denoting enantiomers, which does not involve a reference molecule such as glyceraldehyde. It labels each chiral center *R* or *S* according to a system by which its substituents are each assigned a priority, according to the Cahn Ingold Prelog priority rules (CIP), based on atomic number. If the center is oriented so that the lowest-priority of the four is pointed away from a viewer, the viewer will then see two possibilities: If the priority of the remaining three substituents decreases in clockwise direction, it is labeled *R* (for *Rectus*), if it decreases in counterclockwise direction, it is *S* (for *Sinister*).

This system labels each chiral center in a molecule (and also has an extension to chiral molecules not involving chiral centers). Thus, it has greater generality than the D/L system, and can label, for example, an (*R*,*R*) isomer versus an (*R*,*S*) — diastereomers.
The $R/S$ system has no fixed relation to the ($\pm$) system. An $R$ isomer can be either dextrorotatory or levorotatory, depending on its exact substituents.

The $R/S$ system also has no fixed relation to the $D/L$ system. For example, the side-chain one of serine contains a hydroxyl group, -OH. If a thiol group, -SH, were swapped in for it, the $D/L$ labeling would, by its definition, not be affected by the substitution. But this substitution would invert the molecule's $R/S$ labeling, because the CIP priority of CH$_2$OH is lower than that for CO$_2$H but the CIP priority of CH$_2$SH is higher than that for CO$_2$H.

For this reason, the $D/L$ system remains in common use in certain areas of biochemistry, such as amino acid and carbohydrate chemistry, because it is convenient to have the same chiral label for all of the commonly occurring structures of a given type of structure in higher organisms. In the $D/L$ system, they are nearly all consistent - naturally occurring amino acids are nearly all $L$, while naturally occurring carbohydrates are nearly all $D$. In the $R/S$ system, they are mostly $S$, but there are some common exceptions.

**By optical activity: (+)- and (−)-**

An enantiomer can be named by the direction in which it rotates the plane of polarized light. If it rotates the light clockwise (as seen by a viewer towards whom the light is traveling), that enantiomer is labeled (+). Its mirror-image is labeled (−). The (+) and (−) isomers have also been termed $d$- and $l$-, respectively (for dextrorotatory and levorotatory). Naming with $d$- and $l$- is easy to confuse with $D$- and $L$- labeling.

**By configuration: D- and L-**

An optical isomer can be named by the spatial configuration of its atoms. The $D/L$ system does this by relating the molecule to glyceraldehyde. Glyceraldehyde is chiral itself, and its two isomers are labeled $D$ and $L$ (typically typeset in SMALL CAPS in published work). Certain chemical manipulations can be performed on glyceraldehyde without affecting its configuration, and its historical use for this purpose (possibly combined with its convenience as one of the smallest commonly used chiral molecules) has resulted in its use for nomenclature. In this system, compounds are named by analogy to glyceraldehyde, which, in general, produces unambiguous designations, but is easiest to see in the small biomolecules similar to glyceraldehyde. One example is the amino acid alanine, which has two optical isomers, and they are labeled according to which isomer of glyceraldehyde they come from. On the other hand, glycine, the amino acid derived from glyceraldehyde, has no optical activity, as it is not chiral (achiral). Alanine, however, is chiral.

The $D/L$ labeling is unrelated to ($\pm$); it does not indicate which enantiomer is dextrorotatory and which is levorotatory. Rather, it says that the compound's stereochemistry is related to that of the dextrorotatory or levorotatory enantiomer of glyceraldehyde—the dextrorotatory isomer of glyceraldehyde is, in fact, the $D$- isomer. Nine of the nineteen $L$-amino acids commonly found in proteins are dextrorotatory (at a wavelength of 589 nm), and $D$-fructose is also referred to as levulose because it is levorotatory.
A rule of thumb for determining the D/L isomeric form of an amino acid is the "CORN" rule. The groups:

\[ \text{COOH, R, NH2 and H (where R is a variant carbon chain)} \]

are arranged around the chiral center carbon atom. Sighting with the hydrogen atom away from the viewer, if these groups are arranged clockwise around the carbon atom, then it is the D-form. If counter-clockwise, it is the L-form.

Nomenclature

- Any non-racemic chiral substance is called scalemic.\(^8\)
- A chiral substance is enantiopure or homochiral when only one of two possible enantiomers is present.
- A chiral substance is enantioenriched or heterochiral when an excess of one enantiomer is present but not to the exclusion of the other.
- Enantiomeric excess or ee is a measure for how much of one enantiomer is present compared to the other. For example, in a sample with 40% ee in R, the remaining 60% is racemic with 30% of R and 30% of S, so that the total amount of R is 70%.

Stereogenic centers

In general, chiral molecules have point chirality at a single stereogenic atom, usually carbon, which has four different substituents. The two enantiomers of such compounds are said to have different absolute configurations at this center. This center is thus stereogenic (i.e., a grouping within a molecular entity that may be considered a focus of stereoisomerism).

Normally when an atom has four different substituents, it is chiral. However in rare cases, two of the ligands differ from each other by being mirror images of each other. When this happens, the mirror image of the molecule is identical to the original, and the molecule is achiral. This is called pseudochirality.

A molecule can have multiple chiral centers without being chiral overall if there is a symmetry between the two (or more) chiral centers themselves. Such a molecule is called a meso compound.

It is also possible for a molecule to be chiral without having actual point chirality. Common examples include 1,1'-bi-2-naphthol (BINOL) and 1,3-dichloro-allene, which have axial chirality, (E)-cyclooctene, which has planar chirality, and certain calixarenes and fullerenes, which have inherent chirality.

It is important to keep in mind that molecules have considerable flexibility and thus, depending on the medium, may adopt a variety of different conformations. These various conformations are themselves almost always chiral. When assessing chirality, a time-averaged structure is considered and for routine compounds, one should refer to the most
When the optical rotation for an enantiomer is too low for practical measurement, it is said to exhibit cryptochirality.

Even isotopic differences must be considered when examining chirality. Replacing one of the two $^1$H atoms at the CH$_2$ position of benzyl alcohol with a deuterium (²H) makes that carbon a stereocenter. The resulting benzyl-$\alpha$-d alcohol exists as two distinct enantiomers, which can be assigned by the usual stereochemical naming conventions. The $S$ enantiomer has $[\alpha]_D = +0.715^\circ$.\[9\]

] Properties of enantiomers

Normally, the two enantiomers of a molecule behave identically to each other. For example, they will migrate with identical $R_f$ in thin layer chromatography and have identical retention time in HPLC. Their NMR and IR spectra are identical. However, enantiomers behave differently in the presence of other chiral molecules or objects. For example, enantiomers do not migrate identically on chiral chromatographic media, such as quartz or standard media that have been chirally modified. The NMR spectra of enantiomers are affected differently by single-enantiomer chiral additives such as Eufod.

Chiral compounds rotate plane polarized light. Each enantiomer will rotate the light in a different sense, clockwise or counterclockwise. Molecules that do this are said to be optically active.

Characteristically, different enantiomers of chiral compounds often taste and smell differently and have different effects as drugs – see below. These effects reflect the chirality inherent in biological systems.

One chiral 'object' that interacts differently with the two enantiomers of a chiral compound is circularly polarised light: An enantiomer will absorb left- and right-circularly polarised light to differing degrees. This is the basis of circular dichroism (CD) spectroscopy. Usually the difference in absorptivity is relatively small (parts per thousand). CD spectroscopy is a powerful analytical technique for investigating the secondary structure of proteins and for determining the absolute configurations of chiral compounds, in particular, transition metal complexes. CD spectroscopy is replacing polarimetry as a method for characterising chiral compounds, although the latter is still popular with sugar chemists.

In biology

Many biologically active molecules are chiral, including the naturally occurring amino acids (the building blocks of proteins), and sugars. In biological systems, most of these compounds are of the same chirality: most amino acids are L and sugars are D. Typical naturally occurring proteins, made of L amino acids, are known as left-handed proteins, whereas D amino acids produce right-handed proteins.
The origin of this homochirality in biology is the subject of much debate. Most scientists believe that Earth life's "choice" of chirality was purely random, and that if carbon-based life forms exist elsewhere in the universe, their chemistry could theoretically have opposite chirality. However, there is some suggestion that early amino acids could have formed in comet dust. In this case, circularly polarised radiation (which makes up 17% of stellar radiation) could have caused the selective destruction of one chirality of amino acids, leading to a selection bias which ultimately resulted in all life on Earth being homochiral.

Enzymes, which are chiral, often distinguish between the two enantiomers of a chiral substrate. Imagine an enzyme as having a glove-like cavity that binds a substrate. If this glove is right-handed, then one enantiomer will fit inside and be bound, whereas the other enantiomer will have a poor fit and is unlikely to bind.

D-form amino acids tend to taste sweet, this enhances the sweet effect of dextrose. Whereas L-forms are usually tasteless, or in the case of fructose less sweet in flavor but more dynamic in variation. Spearmint leaves and caraway seeds, respectively, contain L-carvone and D-carvone - enantiomers of carvone. These smell different to most people because our olfactory receptors also contain chiral molecules that behave differently in the presence of different enantiomers.

Chirality is important in context of ordered phases as well, for example the addition of a small amount of an optically active molecule to a nematic phase (a phase that has long range orientational order of molecules) transforms that phase to a chiral nematic phase (or cholesteric phase). Chirality in context of such phases in polymeric fluids has also been studied in this context.

In inorganic chemistry

Main article: Complex Chemistry

Many coordination compounds are chiral; for example, the well-known tris(bipyridine)ruthenium(II) complex in which the three bipyridine ligands adopt a chiral propeller-like arrangement.
In this case, the Ru atom may be regarded as a stereogenic center, with the complex having point chirality. The two enantiomers of complexes such as \([\text{Ru}(2,2'-\text{bipyridine})_3]^{2+}\) may be designated as \(\Lambda\) (left-handed twist of the propeller described by the ligands) and \(\Delta\) (right-handed twist). Hexol is a chiral cobalt complex that was first investigated by Alfred Werner. Resolved hexol is significant as being the first compound devoid of carbon to display optical activity.

Chirality of amines

Tertiary amines (see image) are chiral in a way similar to carbon compounds: The nitrogen atom bears four distinct substituents counting the lone pair. However, the energy barrier for the inversion of the stereocenter is, in general, about 30 kJ/mol, which means that the two stereoisomers are rapidly interconverted at room temperature. As a result, amines such as NHRR' cannot be resolved optically and NRR'R" can only be resolved when the R, R', and R" groups are constrained in cyclic structures as in Tröger's base.

- Stereochemistry for overview of stereochemistry in general
- Axial chirality
- Supramolecular chirality
- Inherent chirality
- Chirality (physics)
- Chirality (mathematics)
- Pfeiffer Effect
- Chemical chirality in popular fiction
to it. There are then two possible OPTICAL ISOMERS. The molecular formula is identical, but the orientation of two chemical groups is different, as they are mirror images of each other. The two isomers can be distinguished by shining a beam of polarised light on the compounds and measuring rotation with a polarimeter. One optical isomer will rotate the plane of polarised light to the right and the other optical isomer will rotate it to the left. The right handed molecule is called RECTUS or DEXTRO and the left handed molecule SINISTER or LEVO.

Some common examples of optical isomers are sugars and amino acids. All naturally occurring sugars are right handed (for example dextrose which is D-glucose) and all naturally occurring amino acids are left handed (for example L-phenylalanine). Why life has evolved to favour just one isomer of each of these is a mystery, but the enzymes responsible for metabolising these nutrients can only recognise the naturally occurring form of each.

Other examples of optical isomers which we can distinguish between are found in the plant hydrocarbons carvone and limonene. S-carvone smells like caraway and is the major component of caraway oil. R-carvone however smells like spearmint and is the principle constituent of spearmint oil. Some oils like gingergrass oil contain a mixture of both optical isomers. D-limonene is found in the rind of citrus fruits and is responsible for the orange/lemon smell. L-limonene however has a piney, turpentine like smell. Our smell receptors are obviously able to detect a difference between the two optical isomers.

Spirals or helices in nature can also show chirality. The DNA double helix in the nucleus of a cell is always a right handed helix. This means it turns in a clockwise direction when travelling away from you. However the collagen triple helix in connective tissue is always a left handed helix. This means it turns in an anticlockwise direction when travelling away from you. You can check whether any helix has a right or left handed turn by using these definitions - try it yourself on spiral staircases, corkscrews, fusilli pasta and even knitting yarn. It doesn't matter which end of the helix you start from, the handedness is true from either end.

Climbing plants are also good examples of helices in nature. The shoots of some plants such as honeysuckle twist to the right (clockwise) whereas the shoots of others such as bindweed twist to the left (anticlockwise). The doomed marriage of these two plants was the subject of the classic song "Misalliance" by Flanders and Swann. External conditions such as humidity, light, heat or the earth's hemisphere cannot alter this handedness of climbing as it is genetically determined. In fact the Latin name of the ubiquitous climbing plant Common Ivy is Hedera helix, which itself means twisting.

The soft curly tendrils of clinging plants such as grape vines and beans however, can have their helices reversed when the tendril touches a support. This so-called "tendril perversion" fascinated Charles Darwin and he wrote about it at length in his book "The Movements and Habits of Climbing Plants". When the tendril starts to curl and tighten up, since neither the stem nor the support can rotate, the total twist in the tendril cannot change.
Therefore, as the tendril curls on itself, the coils of the spiral are reversed at some point and the two opposite spirals are separated by a small straight segment. This phenomenon can be likened in the modern sense to a coiled telephone cable, which is first completed extended, untwisted and then slowly released. A spiral inversion will appear, usually with annoying snarls.

There are many examples of handedness in synthetic molecules as well all right handed- try looking on the labels of toiletries, household chemicals and medicines when you go shopping. And the next time anyone asks "Do you take sugar?" you can reply "Yes, but only if it's left handed !"

**Literature**


Negative refraction. (a) shows an empty glass, (b) a glass filled with an ordinary medium with positive refractive index, such as water; the straw inside the glass is refracted. (c) shows what would happen if the water is replaced by a negatively refracting medium. From the Nanophotonics group at the Karlsruhe Institute of Technology.

Left-handed (or negatively-refracting) materials turn out to transform space for electromagnetic fields and their vacuum fluctuations [2,10].
References on Quantum Handedness

See e.g. E. Buks and M. L. Roukes, Quantum physics: Casimir force changes sign, *Nature* 419, 119

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8. ^ Infelicitous stereochemical nomenclatures for stereochemical nomenclature
11. ^ [1], New Scientist, 2005

SUGAR: YOU JUST LOVE YOUR CHILDREN TO DEATH

Gregory Grosbard of Miami, Florida received a U.S. patent on a process to improve the strength of plastic by using sugar. Each time plastic goes through a heat cycle, it loses strength because oxygen in the atmosphere goes into the material and creates oxygen "holes." Mr. Grosbard found that, by mixing a small amount of sugar into the plastic material during the heat cycle, the sugar grabbed the oxygen first, preventing the oxygen holes and making the plastic stronger.

Research has shown that:

- Processed sugar **blocks** the absorption of calcium.
- Processed sugar produces a low oxygen environment.
• Processed sugar is extremely acidic.
• Too much processed sugar is the death of the immune system. It interrupts the Kreb's energy cycle which in turn suppresses your immune system's manufacture of killer cells and antibodies.
• Processed sugar depletes B vitamins which is needed by the liver to detoxify it. The liver is the most important organ when it comes to healing the body.
• Sugar does stop hiccups. The New England Journal of Medicine published the results of a study that used sugar successfully to stop hiccups in 19 out of 20 people; some of whom had been hiccupping for as long as 6 weeks.

Cancer has become the number one "killer disease in children" in the past few years. Sugar consumption is robbing the oxygen out of their little bodies and making their cells extremely acidic while shutting off their immune systems. Sugar averages for children are around 36 teaspoons a day.

The next time you feel like having a soda, just think about this: Colas are extremely acidic with a pH of approximately 2.5. It takes 32 glasses of water with a pH of 10 to neutralize that one cola. And, keep in mind that most water is relatively neutral with a pH of 7.2; water with a pH of ten is approximately one thousand times more alkaline than your run of the mill glass of water.

The other night the news showed a small boy who had just had chemotherapy. His face and eyes showed the horrors he had been through and he appeared to be lifeless and unwilling to live due to being physically destroyed by the poisons (mustard gas). His doctor and loved ones stood over him with a vanilla milk shake in an effort to make him feel better. They were giving him more acid elements (milk shake - sugar) causing his cellular pH to drop more into the pH range that cancer needs to survive within. God forbid.

Alas, I cannot recommend the use of sugar substitutes such as Nutrasweet, which is made from aspartame. Aspartame is 10% wood alcohol -- which your body metabolizes into various carcinogens! (One of them is DKP--which may cause brain tumors.) Fully three-quarters of all non-drug complaints to the FDA involve aspartame. Complaints include headaches, dizziness, mood changes, numbness, vomiting, nausea, muscle cramps and spasms, abdominal pain, vision problems, skin lesions, memory loss and seizures.

You are the only one who change the circumstances that are slowly destroying you and your children. Although we can give you information, ultimately you are responsible for your health. Use sugar and allow it to steal the oxygen and calcium which depletes life and, bit by bit, weaken you and strengthen the environment that cancer needs to grow.
By Keith Nemec, M.D.

A big problem with a typical American’s diet is sugar. Sugar in all forms — except in its natural state in fruits and vegetables — should be avoided because of the following.

1) It extremely weakens the immune system increasing the chances of developing cancer.

2) It depletes the body of valuable B vitamins.

3) It depletes the body of necessary minerals such as calcium, magnesium, etc.

4) Excesses lead to sugar diabetes, one of the top fatal diseases in the United States.

5) It causes weight gain and stress on the whole system, especially the heart.

Let’s take a closer look at each of these points.

1) Sugar weakens the immune system.

Sugar puts stress on the immune system. Animal studies show that such stress results in a decrease in white blood cells (WBCs), which prevent bacterial, viral, parasitic and fungal infections, and cancer. Our immune system’s most important fighters are WBCs, which prevent us from getting cancer. We all have cancerous cells developing in our bodies, but a healthy immune system — with macrophages (Pac-Man WBCs) and natural killer cells — keeps cancer in check. But in today’s toxic world, we are exposed to many cancer-producing agents from the outside, which weaken our white blood cells from the inside, a bad formula indeed.

In one study, three groups of mice were injected with an aggressive malignant mammary tumor. Prior to injection the dietary induced blood sugar was altered to three different levels; high blood sugar, normal blood sugar and lower blood sugar. After 70 days 66% of the high blood sugar group had died, 33% of the normal blood sugar had died and only 5% of the lowered blood sugar group had died. This demonstrates that the less sugar in our system the more cancer and pathogen protective we become.
Remember this: Greater Toxic Load + Weakened Immune System (WBCs) = Disease (especially cancer).

Your motto in detoxifying is, “Get the bad (toxins/chemicals) out of the system and get the good in,” such as nutrients, vitamins, minerals, enzymes, antioxidants and phytochemicals.

A 12-ounce can of regular pop can reduce the ability of WBCs to eat bacteria by 40 percent for up to six hours. That means that if you drink pop and eat other sugars, your body’s defenses are down. If someone sneezes around you, or you rub your eyes or mouth with your hands, you’re highly susceptible to contract the bacteria or virus. Similarly, cancer starts to grow when WBCs are being suppressed with sugar, other dietary factors, stress, etc.

2) Sugar depletes the body of valuable B vitamins.27 B vitamins are essential for many bodily functions, too many to list here. A vitamin B deficiency can cause many problems, including:
• neurological disease
• fatigue
• pernicious anemia (red blood cells affected)
• blood sugar problems
• congestive heart failure
• allergies
• memory loss
• depression
• skin and tongue problems

Whenever we strip our sugars and flours — the manufacturers call it “refining” — to make them white, we’re taking away what God gave them to be a balanced food. Whole wheat, for instance, has B vitamins together with the starches that break down into sugar, so we do not become deficient eating it. On the other hand, white bread, like white sugar, has been stripped of essential B vitamins, so the body in turn draws them from other places — like nerves — to metabolize the refined sugars that have been eaten.

REFINING GRAINS

Grains are energy powerhouses and have an abundance of vitamins, minerals, fiber, phytochemicals, enzymes and bioelectricity. Grains should primarily be eaten sprouted and alive or by making sprouted grain uncooked bread that is dehydrated at a temperature under 110 degrees Fahrenheit. Grains can also be grown into greens like wheat grass and barley grass and then juiced for even higher contents of all of the
above, along with a high concentration of oxygen that they bring to your body because of the live chlorophyll.

But how does the average American eat grains? They have been cooked, refined and processed to make refined breads and pasta. They have lost all their enzymes, bioelectricity, oxygen — the three most important elements in any food source, and nearly all their vitamin, mineral, phytochemical and fiber content. The manufacturers of these products then—to satisfy the consumer quest for trying to get enough vitamins and minerals—add back synthetic vitamins and inorganic minerals that at the very best are non-absorbable and at the very worst are toxic. You the unsuspecting consumer read the white or pseudo wheat bread package and it says “fortified” or “enriched” with 100 percent of the recommended daily allowance of all these vitamins and minerals and you think, “great, I am eating healthy bread.” In fact you are eating a sticky gluey clogging anti-nutrient that will cause not only a slow decline of your general health, but that will cause very specific respiratory and digestive and absorptive problems due to the wheat gluten that remains after processing.

Here’s what happens during the refining and processing of a grain:

- 90% of fiber is lost
- 75-88% of trace minerals are lost
- almost all vitamins are lost
- 100% of enzymes are lost
- 100% of bioelectrical charge is lost
- 100% oxygen content is lost

To make our bread and pasta look pretty, chlorine bleaches are added to make the flour nice and white — these toxic chemicals are carcinogenic. What you are left with is a potentially toxic anti-nutrient that gives you nothing but empty calories. What is an anti-nutrient? An anti-nutrient uses up your nutrients instead of giving you nutrients. An example is eating an English muffin versus eating a banana.

1. 200 calorie English muffin needs three micrograms of chromium to be assimilated into the body. It only has one microgram, so the total comes up to 1-3 micrograms of chromium = -2 micrograms or it takes away 2 micrograms of chromium form the chromium store in your body.

2. 200 calorie banana has 150 micrograms of chromium. It needs 3 micrograms to be assimilated into the body so 150-3 micrograms chromium = 147 micrograms.

This means the banana actually adds 147 micrograms of chromium to the body instead of taking away as the muffin did.
All these reasons are why refined grains are not healthy, but actually slowly destroying our health. A general rule is the more food you eat in the way God created the food the better your health will be — uncooked and living is best. The best grains to eat are non-gluten, sprouted forms like quinoa, millet and amaranth. These grains rarely cause any allergy or sensitivity and were the staple diet of the Aztec and Inca empires. Quinoa has been called the “Supergrain” because of its being a complete protein having all the essential amino acids needed for human health.

3) Sugar depletes the body of necessary minerals.

When sugar depletes our supply of valuable minerals like calcium and magnesium, this can result in osteoporosis, arthritis and a host of mineral-deficient symptoms like:

- leg cramps
- muscle tightness or spasms
- low blood sugar
- diabetes
- low blood pressure
- PMS
- low back pain
- learning disabilities
- ADD (Attention Deficit Disorder)
- depression
- asthma

In his book, *Rare Earth’s Forbidden Cures*, Dr. Joel Wallach states that sugar loads increase the normal rates of mineral loss in sweat and urine by 300 percent for 12 hours. So if you regularly eat sugar, no amount of supplementation or diet will allow you to keep up with your mineral losses.

4) Excess of sugar leads to sugar diabetes.

The average American consumes 100-150 pounds of sugar per year. Consequently, diabetes is the No. 7 cause of death in America. Our sweet tooth has cost us dearly. Interestingly, studies of the world’s people who live longest — such as Tibetans and Hunzas — indicate that degenerative diseases, including diabetes, are virtually unknown among these peoples. A probable cause of our high rate of diabetes is the high intake of refined sugar, in the form of white sugar (sucrose), corn syrup (fructose), and all others ending in “-ose.” David Reuben, M.D., states that “there is no doubt that diabetes mellitus — otherwise known as sugar diabetes — is caused by excessive consumption of refined sugar.”
5) Sugar causes weight gain and stresses the whole system.

Sugar’s empty calories quickly flood the bloodstream and are stored as fat, which can be a major contributor to the alarming number of obese adults and children in the United States today. This excess weight causes stress on the whole system, especially the heart, which has to pump harder to circulate the blood to all the “excess” tissue. The excessive weight also is a contributing factor in all major disease.

Bottom line: Cut down on the refined sugars and starches and add some sugar vegetables (yams, bell peppers, carrots) or fruit to your diet instead. You should be aware that the fruit today is hybrid for sweetness, being 30 times as sweet as it was created to be, so do not over eat fruit or it could negatively impact your blood sugar and your immune system.

The immune system is an organization of cells and molecules with specialized roles in defending against infection. There are two fundamentally different types of responses to invading microbes. Innate (natural) responses occur to the same extent however many times the infectious agent is encountered, whereas acquired (adaptive) responses improve on repeated exposure to a given infection. The innate responses use phagocytic cells (neutrophils, monocytes, and macrophages), cells that release inflammatory mediators (basophils, mast cells, and eosinophils), and natural killer cells. The molecular components of innate responses include complement, acute-phase proteins, and cytokines such as the interferons. Acquired responses involve the . . .

Three Levels of Defense

Immune Recognition

Innate Immune Responses

Cellular Components of Innate Responses

Soluble Factors in Innate Defense

The Acute Inflammatory Response

Acquired Immune Responses

The Structure of Antigen-Specific Molecules

The B-Cell Receptor and Soluble Antibodies

The T-Cell Receptor

The Diversity of Antigen Receptors

Clonal Selection

Major Populations of B Cells

T Cells and the Thymus
Tolerance Mechanisms

Source Information

From the Department of Immunology, the Windesyer Institute of Medical Sciences, University College London, London.

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Trans Fatty Acids and Cardiovascular Disease

Dariush Mozaffarian, M.D., M.P.H., Martijn B. Katan, Ph.D., Alberto Ascherio, M.D., Dr.P.H., Meir J. Stampfer, M.D., Dr.P.H., and Walter C. Willett, M.D., Dr.P.H.

Trans fats, unsaturated fatty acids with at least one double bond in the trans configuration (Figure 1), are formed during the partial hydrogenation of vegetable oils, a process that converts vegetable oils into semisolid fats for use in margarines, commercial cooking, and manufacturing processes. From the perspective of the food industry, partially hydrogenated vegetable oils are attractive because of their long shelf life, their stability during deep-frying, and their semisolidity, which can be customized to enhance the palatability of baked goods and sweets. The average consumption of industrially produced trans fatty acids in the United States is so large and out of control that it boggles the mind of the health care industry.

Physiological Effects of Trans Fatty Acids
Serum Lipids

Systemic Inflammation

Endothelial-Cell Function

Other Effects

Potential Molecular Mechanisms

Intake of Trans Fat and Cardiovascular Disease

CHD

Sudden Death from Cardiac Causes

Diabetes

Trans Fatty Acids from Ruminants

Reducing Intake of Trans Fatty Acids

Optimal Levels

Consumers' Choices

Industry Alternatives

Potential Benefits of Reducing Intake

Source Information

From the Channing Laboratory, Department of Medicine, Brigham and Women's Hospital and Harvard Medical School, and the Departments of Nutrition and Epidemiology, Harvard School of Public Health — all in Boston (D.M., A.A., M.J.S., W.C.W.); and the Division of Human Nutrition, Wageningen University, and Wageningen Center for Food Sciences — both in Wageningen, the Netherlands (M.B.K.).

Address reprint requests to Dr. Mozaffarian at the Harvard School of Public Health, 665 Huntington Ave., Bldg. 2, Rm. 315, Boston, MA 02115, or at dmozaffa@hsph.harvard.edu.

This article has been cited by other articles:


Healthy Heart - Avoid Trans Fat

Second and final deadline for trans fat regulation is July 1, 2008!

On December 5, 2006, the Board of Health approved an amendment to the Health Code to phase out artificial trans fat in all NYC restaurants and other food service establishments. It is now in full effect.

The phase out of artificial trans fat in restaurant foods took effect in two stages. First, as of July 1, 2007, NYC food service establishments have been prohibited from using oils, shortening and margarine containing artificial trans fat for frying or as a spread that have 0.5 grams or more of trans fat per serving. The second and final deadline was July 1, 2008. As of July 1, 2008, all foods must have less than 0.5 grams of trans fat per serving if they have any artificial trans fat. Packaged foods served in the manufacturer's original, sealed packaging are exempt.

Detailed information is available for food service establishments on how to comply with the new Trans fat regulation. To receive a printed brochure on the "Regulations to Phase Out Artificial Trans Fat in New York City Food Service Establishments", please call 311.

Visit the Trans Fat Help Center website for information on how to replace artificial trans fat, Trans Fat with 0 grams trans fat products in your food service establishments.

Questions regarding trans fat violations should be directed to the Bureau of Food Safety at the Health Department by calling 311.

Learn more about the amendment to phase out artificial trans fat in New York City food service establishments.
Trans fat in your diet increases your risk of heart disease - New York City's biggest killer. Many restaurant and store bought foods contain trans fat - including fried foods, baked goods, margarine and vegetable shortening, and snack foods. The New York City Department of Health and Mental Hygiene's Trans Fat Education Campaign aims to educate consumers, city restaurants and other food service establishments about why trans fat is bad for your heart and how to avoid it.

Consumer Information

Consumers can avoid trans fat in supermarkets by checking the Nutrition Facts panel on food labels to choose foods with 0 grams trans fat.

Why do I see "0 Grams Trans Fat" on food packages when I also see "partially hydrogenated oil" as an ingredient in the ingredient list?

Food companies can list the amount of trans fat as '0 g' on the Nutrition Facts panel and/or claim "Zero or No Trans Fat" if the amount of trans fat per serving is less than 0.5 grams. If you see both '0 g trans fat" and "partially hydrogenated oil," the food product contains less than 0.5 g of trans fat per serving.

Learn more about the dangers of trans fat and how you can reduce your intake by clicking on:

- Health Bulletin #43: Choose Foods With 0 Grams Trans Fat
  Other languages: [Español][中文]
- Learn more about cholesterol.
  Other languages: [Español][中文]

Other Resources for Consumers:

- U.S. Food and Drug Administration
  - Revealing Trans Fat
  - Questions and Answers about Trans Fat Food Labeling
  - What Every Consumer Should Know About Trans Fatty Acids
- Harvard School of Public Health Fat and Cholesterol
- American Heart Association
- International Food Information Council: (in English and Spanish)
Restaurant and Food Service Information

The Trans Fat Help Center offers NYC food service establishments information on how to replace trans fat, FREE classes; and information on 0 grams trans fat products. Call 311 and ask for the "Trans Fat Helpline" or go to: notransfatnyc.org

Food Supplier and Supermarket Information

Products that often contain artificial trans fat include commercial vegetable cooking oils that are partially hydrogenated, as well as packaged foods made with partially hydrogenated vegetable oil, such as pre-fried vegetables (e.g., French fries, fried zucchini, etc.), pre-fried chicken and fish (e.g., chicken nuggets, fish fillets, etc.), baked goods (e.g., hamburger buns, cakes, cookies, pies, crackers, etc.), pre-mixed foods (e.g., croissant dough, pancake mix, salad dressing, hot chocolate mix, etc.) and snack foods (e.g., potato, corn and tortilla chips; candy; packaged and microwave popcorn; and doughnuts).

Food Suppliers:

Be aware of which products are made with partially hydrogenated vegetable oil so that you can assist restaurants and other food service establishments in choosing 0 grams trans fat- products.

The Trans Fat Help Center offers NYC food service establishments and their suppliers information free of charge on how to replace artificial trans fat, Trans Fat 101 classes, and information on 0 grams trans fat products. Call 311 and ask for the "Trans Fat Helpline" or go to notransfatnyc.org

Supermarkets:

Help your customers avoid artificial trans fat by promoting products made without partially hydrogenated vegetable oils. Read the ingredient lists and feature those with 0 grams trans fat.


More information

- Health Bulletin #43: Choose Foods With 0 Grams Trans Fat
  Other languages: [Español][中文]
- The Regulation to Phase Out Artificial Trans Fat in New York City Food Service Establishments
  Other languages: [Español][中文][Bengali][Русский][عربي]
- Does Your Kitchen need an Oil Change?: What Every Restaurant and Food Service Establishment Needs to Know About Trans Fat
  Other languages: [عربي][Bengali][中文][Farsi][Greek][Hindi][Korean][Русский][Español][Urdu][Vietnamese]

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Health Care Provider Information

Trans fat consumption raises LDL cholesterol and is associated with coronary heart disease. If a product contains partially hydrogenated vegetable oil, it contains artificial trans fat. Given the scientific consensus on the relationship between trans fat intake and heart disease, the new federal Dietary Guidelines recommend that trans fat intake be kept as low as possible.

Counsel your patients on how to avoid foods containing artificial trans fat - and choose heart-healthy alternatives. Click here to download a sample nutrition facts panel that you can use to teach your patients how to avoid trans fat while shopping.

More information

Dietary recommendations:

- Dietary Guidelines for Americans 2005 - See Chapter 6 for clear key recommendations regarding trans fat

For your patients:

- Health Bulletin #43: Choose Foods With 0 Grams Trans Fat
  Other languages: [Español]
- Health Bulletin #42: Control Your Cholesterol: Keep Your Heart Healthy
  Other languages: [Español][中文]
  Order copies for your office by calling 311
- Teach your patients how to spot trans fat with this sample ingredient list and nutrition facts panel

Medical literature:


Scientific Research

Problem

The World’s Problem is too much Carbon Dioxide + too little Oxygen.

Solution

The Solution is Plants

According to Quantum Electrodynamics, plants take CO₂ and convert it to O₂. We must encourage city and all plants. Stop wasting good farmland anywhere; use our deserts to develop large desalination steps that use the sun to desalinate sea water and use the water to grow plants HYDROPONICALLY.

In the Garden of Eden the Serpent tempted the woman and the man. They gained knowledge, but lost innocence.

Mankind has developed many false beliefs based on the promise of this knowledge. These false beliefs have jeopardized the planet. False beliefs such as synthetic drugs and foods, that petroleum should be our fuel, allopathic medicine, tobacco, dextrose sugar, meat as a staple food, unequal education to keep minorities down, the survival of the fittest, and that the media is real and unbiased. In fact these false beliefs make money and greed become uncontrollable. Money is a drug.

Now at the time of change, an Angel of both sexes will tempt the serpent. The serpent is the base lizard brain in all humans. This lizard brain is the source of anger, hate, aggression, greed, and the delusion and clinging to false beliefs that make money but threaten the very existence of human life on this planet. The Angel will defeat the greed and delusion of the lizard brain and lead humanity to a thousand years of peace harmony, freedom from excess degenerative disease, excess greed, discrimination, and inequality.

The Angel will return us to the Garden of Eden.

1. We must stop the over consumption of meat and switch to the more healthy fruits and vegetables. Wake up people’s minds.
2. Switch from fossil fuel to Bio-fuels and Bio-mass fuels.
3. Limit petro-synthetical chemical production and use organic chemicals from plants such as sugar or herbs.
4. Use dextrose sugar for Batteries, and fructose sugar for foods.
5. Use more Natural Medicine by changing the law to not just protect Patents but to protect Natural Recipes and Natural Made Medicines.
6. Stop the Danger of GMO’s to destroy the balance.
Two of the major problems of our world today are:

1. Excess green house gases (like Carbon Dioxide, Methane, and Synthetic compounds) the deep ground Petroleum makes excess pollution, and a lack of good available oxygen. Cows and farm animals take in Oxygen and produce excess Methane and Carbon Dioxide.

2. Bad diet and life style of excess meat, synthetics foods and medicines, dextrose sugar, cooked oil trans fatty acids, lack of vegetables, tobacco, stress, lack of exercise and lack of good air (as the oxygen level decreases) all producing excess DEGENERATIVE DISEASE.

These problems have a simple quick solution from the Angel. The switch to increase plants and thus a more farming society and economy is the answer. Plants take in Carbon Dioxide and give off oxygen. Eating more vegetables drastically reduces degenerative disease. We can easily now use bio fuels and bio mass to produce a much cleaner gasoline from plants.

This would quickly solve many problems, But this would effect the greed of Big Sugar, Big Oil, Big Pharmaceuticals, and others. Greed and delusion of false beliefs stop us from Healing the Planet and Ourselves.

THE ANGEL MUST TEMPT THE SMALL PETTY GREEDY MINDS TO RELEASE THEIR FALSE BELIEFS. RELEASE THEIR AVARICE, RELEASE THEIR ANGER. EAT OF THE FRUIT OF KNOWLEDGE AND SEE THAT WE ALL SHARE AIR.

THE ANGEL CAN LEAD US TO RETURN TO THE GARDEN OF EDEN FOR A THOUSAND YEARS.

PEOPLE COMPLAIN ABOUT CHANGING FOOD INTAKE BECAUSE OF ADDICTION AND HABIT. BAD FOODS CAN BE ADDICTIVE. WHEN PEOPLE ARE GIVEN MORE HEALTHY DIETS THEY COMPLAIN AT FIRST, THEN THEY START TO ACCOMMATE, THEN THEY LIKE BEING MORE HEALTHY AND HAVING MORE ENERGY, THEN THEY CANNOT IMAGINE EATING THE OLD UNHEALTHY FOODS AND FINALLY THEY DISLIKE THE OLD UNHEALTHY SLOW POISON FOODS.

YOU JUST NEED TO START EATING HEALTHY FOR YOUR HEALTH AND THE HEALTH OF THE PLANET.

BREAK THE ADDICTION TO SLOW POISON FOODS.
Desiré is the Professor Emeritus of IMUNE. IMUNE is an accredited and legally registered medical university in Europe.

Since 1995 IMUNE has been offering medical education in a variety of subjects to defend and perpetuate Natural Medicine. There are many small minded people being driven by the Synthetic chemical companies to destroy Natural Medicine as a viable choice in Medicine. IMUNE has offices in Switzerland, Mexico, Dubai, Budapest, England, and the British Virgin Islands. The small petty minded pawns of the chemical companies constantly attack with their anal retentive biased short sided views. We must fight for freedom of choice and especially freedom of choice on medicine.

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