THE REAL TRUTH

About Carbs

HUMAN ECOLOGY PROJECT

THE PERSONAL IS PLANETARY

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The Human Ecology Project is dedicated to illustrating the connections between human actions and their effects on individual health, society, animals, and environmental impact. The unifying factor is the food we eat.

This is a
Human Ecology Project Workbook

We hope you can find a group of friends and watch the video together and discuss the issues presented in it. We have supplied some questions to get the ball rolling if you need them, and supplied a full text of the video with references to some studies and articles if you want to carry your studies deeper.

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It is easy to see that the mythologies regarding **weight gain** and **carbohydrate consumption** are related to the overconsumption of refined products. One needs to look no further than the cultures that rely on cereal grains as their main food to see the absurdity of the weight gain claim. For centuries the human diet has relied heavily on complex carbohydrate foods such as grains, beans, root vegetables, tubers, seeds, and fruits as principal foods. Our bodies are even especially constructed to eat them.

Remember: The Personal Is Planetary

WATCH THE VIDEO: The REAL Truth About Carbs

https://www.youtube.com/watch?v=ukTheT6oP0k&t

Carbohydrate
CONFUSION

There are three essential nutrients called macronutrients, they are carbohydrates, protein, and fats. They are the ones that we need to consume in larger quantities. Each of them has a unique role to play in our wellbeing. Because they are acknowledged as central to a healthy diet it is important to understand the considerations that come into play when deciding how to source these vital substances, since all three have abundant sources in the environment.[1]

Of the three macronutrients, Carbohydrates are the primary source of energy. Glucose is the fuel for all the bodies cellular functions, including the brain. The brain uses about 20% of the glucose we consume. Carbohydrates are the quickest, most efficient, and simplest macronutrient to breakdown and metabolise.

In the form of starches and sugars, they are the macronutrients required in the largest amounts. It is generally recommended that **carbohydrates** should supply

45–65%

of our total daily energy needs.

This may be the reason that humans have chosen to focus on grains, root vegetables and tubers as primary foods over the centuries.[2]

We might wonder then why there is so much negative press about the dangers of so-called “carbs”. If they are so important what is the problem? Let’s put the conversation in context.

[1] https://www.webmd.com/diet/what-are-macronutrients

[2] https://www.hsph.harvard.edu/nutritionsource/carbohydrates/carbohydrates-and-blood-sugar/

Simple or Complex?

SOME OF THE CONFUSION ABOUT CARBOHYDRATES IS IN THE DEFINITION.

Carbohydrates all contain sugars that are the source of the energy used and stored in the body. These sugars come in several different forms that reflect their chemical structure, their source and even the way they may be processed. The body responds to these differences in a variety of ways. It's essential to identify these differences if we want to understand why there are controversies regarding the place of these essential ingredients in the human diet.

The complex carbohydrates not only contain the sugars essential for our energy and repair, but they contain a natural balance of the all-important vitamins, minerals, and fibre that nourish the gut biome, slow the digestion, and provide a broad range of crucial nutrients. They do not cause a quick rise in blood sugar but slowly make the energy available as needed.

This is an important and often overlooked consideration.

The simple sugars are very different.

The two main monosaccharides are fructose and glucose. They occur naturally in fruit and some vegetables and are present in processed sugars and other sweeteners such as agave, fructose, corn syrup, or honey. These simple sugars may have very small amounts of other nutrients depending on origin and processing, but all have the certain characteristics that can damage health. These problems arise from the speed of absorption. [3]

[3] https://www.hsph.harvard.edu/nutritionsource/carbohydrates/

Simple sugars are absorbed quickly into the body and cause blood sugar levels to rise quickly or spike. The simpler the sugar the faster it is digested. These spikes in blood sugar drive up the insulin response. Rapid rises in blood sugar provoke the pancreas to produces insulin, a hormone that prompts cells to absorb blood sugar for energy or storage. As cells absorb blood sugar, levels in the bloodstream begin to fall.

The absorption of too much sugar too quickly can cause your pancreas to produce extra insulin to facilitate glucose transport from your blood into your tissues. Some of the extra glucose may be converted into fats called triglycerides in your liver, and the fat may be shipped to your tissues.

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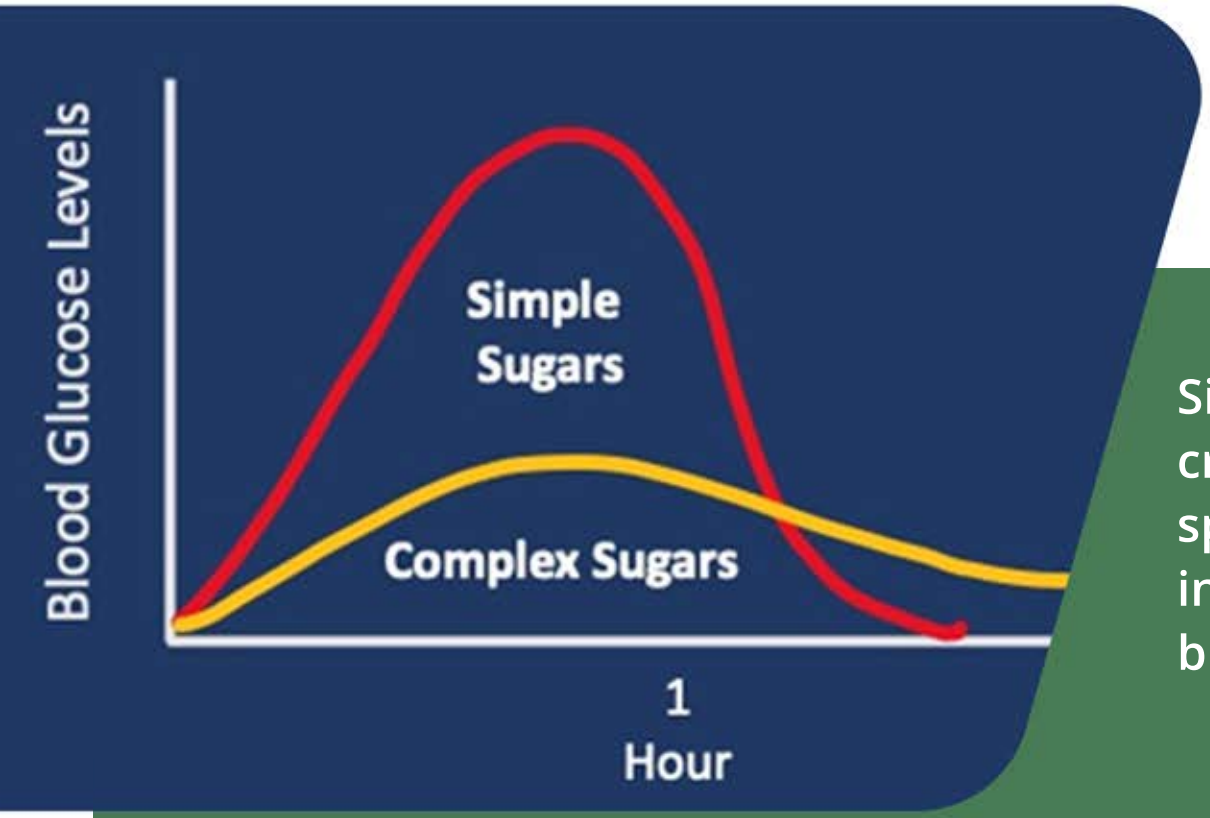


Simple sugars create a quick spike in both insulin and blood sugar

Glucose not used quickly is stored in the liver and muscles as glycogen. If the simple sugars are consumed on a regular basis with little demand for excess energy (such as strenuous exercise) the fat is stored as adipose tissue. This is often referred to as body fat and a main source of obesity. This is where the confusion, misunderstandings and mythologies around carbohydrates come from. **The "no carbs" message is based on a false narrative about carbohydrates and fat.**

Obesity and Diabetes

One of the major **health problems** world-wide is **obesity**. According to a recent European WHO report, overweight and obesity affect almost

60%

of adults and nearly one in three children.

In America it is estimated the 3 out of 4 adults over the age of 20 are either overweight or obese. Obesity is associated with the incidence of diabetes, heart disease, some cancers, and a wide variety of other diseases. For many people weight is also an important issue of social beauty standards. [4]

There is absolutely no disputing the fact that consumption of refined carbohydrates such as the simple sugars found in processed or refined foods like biscuits, cakes, soft drinks, supermarket bread, etc., have practically no nutritional value and cause chaos to your blood sugar levels. In fact, they may be thought of as having a negative nutritional value, requiring more nutrition to metabolize than they contribute. They rob the body of valuable nutrients. But they are not the same as the complex carbohydrates. This is well known and conveniently ignored by those selling books, diet plans or weight loss products.

[4] https://www.diabetes.co.uk/nutrition/carbohydrates-and-diabetes.html

The carbohydrate debate is entirely driven by the issue of weight loss. Certainly, extreme weight loss can be achieved by avoiding all carbohydrates. Low-carb diets prompt the body to produce its preferred fuel, glucose, in the liver and kidneys, through the breakdown of fat and protein in a process called gluconeogenesis. Another low-carb metabolic strategy is ketosis, a state where the body adapts to fuel the brain and other organs by burning fat instead of glucose.

These are emergency functions of the body. This is where the body starts using its fat and protein as an energy source. Ketosis will produce weight loss, but it will also damage the kidneys and the liver. It is not a sustainable or healthy way to nourish the body. These are extreme purging approaches to losing weight. They are not sustainable and pointless.[5]

A recent Meta-Analysis printed in Nutrients, 2022 as follow-up to a massive study of the relation of diet and diabetes observed that,

"Despite the high carbohydrate content of a vegan diet, all trials reviewed demonstrated glucose lowering effects with more pronounced changes seen in participants adopting a conventional hypocaloric diet. This may be attributable to the higher fibre content; dietary fibre reduces the postprandial response of glucose by processes, such as reduced gastric emptying and subsequent slowing of starch digestion and the glucose absorption".

Complex carbohydrates raise blood glucose levels for longer and produce a more lasting elevation in energy. [6]

The complex carbohydrates, particularly the whole grains are also sources of other nutrients such as proteins, fats, minerals, and vitamins as well fibre.

[5] https://www.uchicagomedicine.org/forefront/health-and-wellness-articles/ketogenic-diet-what-are-the-risks

[6] https://www.mdpi.com/2072-6643/14/22/4870

Fibre refers to classes of indigestible starches that are essential for your health. Fibre is correlated with many health benefits, from improved digestion and a healthy, robust microbiome, to better blood sugar regulation and healthy weight management. There are two forms of fibre: Soluble and insoluble. [7]

Insoluble fibre doesn't dissolve in water. It remains mostly intact in your body and acts like a broom, cleaning out your digestive tract as it moves through it. Soluble fibre, on the other hand, does dissolve in water, forming a gel-like substance. Some of this gets absorbed and some provides a prebiotic that supports the growth of healthy bacteria in the intestines. All this should bring us to one of the most important aspects of the anti carb argument, diabetes.

It is important to be aware that the food industry strips away most of the valuable proteins, fibre, minerals, and fats in the milling process that creates refined flour products such as white bread, pastas, breakfast cereals and other baked products. This milling degrades the nutritional value of the grains and make them simple sugars. This produces confusion and deceit – whole grains and their products, create the same problems as other simple sugars.

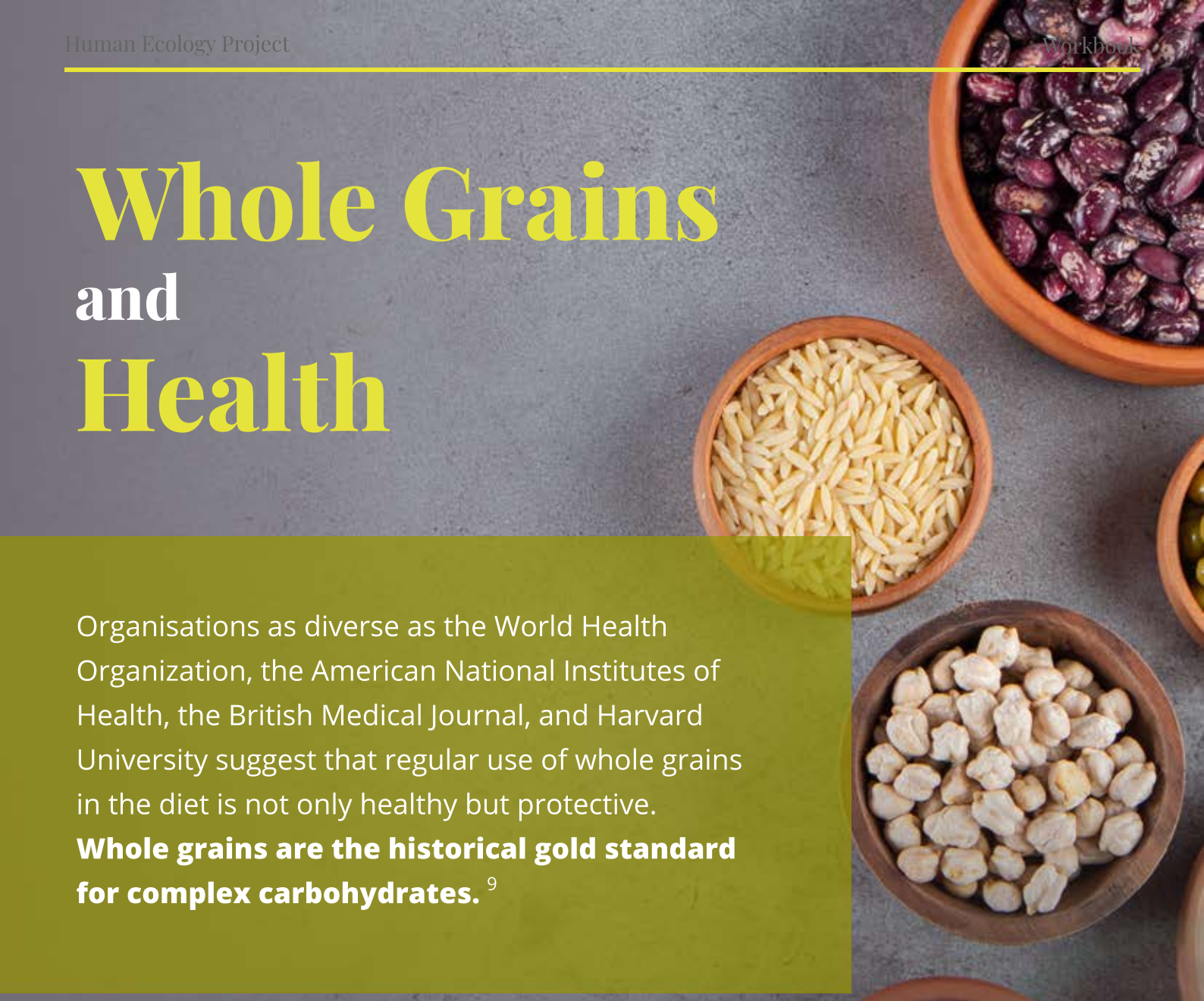
It has been shown that it is the over consumption of simple sugars that is one of the driving forces of the obesity epidemic. The growth of the fast-food industry world-wide with the emphasis on high calories from simple sugars and fat is matched by the rising incidence of this terrible disease. In 2019 the global diabetes prevalence was estimated to be 9.3% and projected to rise to 11% by 2025. Half of the people who have the disease do not know they have it. In America, the CDC reported in 2022 that over 11% of adults suffered with the problem. [8]

Obesity is believed to account for 80-85% of the risk of developing type 2 diabetes, while recent research suggests that obese people are up to 80 times more likely to develop type 2 diabetes. The relationship between simple sugars and refined carbohydrates shows a direct link to overweight, obesity and diabetes. It is also a direct link to heart disease, inflammatory diseases, and some cancers. The opposite is true with complex carbohydrates.

7 https://www.mayoclinic.org/healthy-lifestyle/nutrition-and-healthy-eating/in-depth/fiber/art-20043983

8 https://www.cdc.gov/diabetes/data/statistics-report/index.html

Whole Grains and Health



Organisations as diverse as the World Health Organization, the American National Institutes of Health, the British Medical Journal, and Harvard University suggest that regular use of whole grains in the diet is not only healthy but protective. **Whole grains are the historical gold standard for complex carbohydrates.** [9]

According to a Cambridge University research review, "Epidemiological studies find that whole-grain intake is protective against cancer, CVD, diabetes, and obesity". They went on to say that whole grains have high concentrations of dietary fibre, resistant starch, antioxidants, and other compounds linked to disease prevention.[10]

It is easy to see that the mythologies regarding weight gain and carbohydrate consumption are related to the overconsumption of refined products. One needs to look no further than the cultures that rely on cereal grains as their main food to see the absurdity of the weight gain claim. For centuries the human diet has relied heavily on complex carbohydrate foods such as grains, beans, root vegetables, tubers, seeds, and fruits as principal foods. Our bodies are even especially constructed to eat them.

[9] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9179146/

[10] https://www.cambridge.org/core/journals/proceedings-of-the-nutrition-society/article/why-whole-grains-are-protective-biological-mechanisms/25042F202584EDAE68C7CBBFCDBB5471

Scientists at Harvard University and the Max Planck Institute have studied the teeth of our ancestors going back **600,000 years**. Both the markings on the teeth and the ancient bacterial traces confirm that the mainstay of the human diet was complex carbohydrates. The bacteria in the mouths of these Neanderthals were strikingly like modern humans, especially the presence of amylase. This enzyme is used to start the breakdown of complex sugars in the mouth. Humans have an exceptionally high concentration of this enzyme, a **reflection of the importance of complex sugars in our diet.** [11]

> The human digestive system from mouth to lower intestine is designed for carbohydrate digestion...

Our bodies are perfectly designed to eat carbohydrate. Aside from the amylase in our mouths, and the obvious grinding surfaces of our molars, our GI tracts are designed to absorb carbohydrate. We have a fine-tuned insulin/glucagon endocrine system to help us utilize carbohydrate efficiently. We have an extremely effective system of storing carbohydrates as glycogen and a warning system for when those stores are low. Every cell in our body is designed to run on carbohydrate. [12]

The complex starches in the human diet have been a major contributor to the development of the human brain. The efficiency of digesting and metabolising complex carbohydrate is a key to our evolution and our health. A healthy diet is one that uses the least amount of energy to digest and process, this means that there is more energy available for cell function and repair and what is referred to as executive function. Executive functions (EFs) are high-order cognitive abilities such as working memory, inhibitory control, cognitive flexibility, planning, reasoning, and problem solving. A diet high in the nutritional stress of excessive fats, refined carbs, meats and food additives puts a strain on both body and mind. [13]

[11] https://www.shh.mpg.de/1995366/the-surprising-evolutionary-history-of-our-oral-bacteria

[12] https://www.webmd.com/a-to-z-guides/what-is-glycogen

[13] https://news.harvard.edu/gazette/story/2021/05/study-explains-early-humans-ate-starch-and-why-it-matters/

By the time of the agricultural revolution placed at 10,000 years ago. The cereal grains had become synonymous with the beginning of human agriculture and settled culture. One of the main features of this radical shift in human life was the cultivation of cereal grains. They provided an efficient source of food energy for the smallest amount of land. The fact that they are non-perishable, so can be stored efficiently for year-round use, made them an essential part of the diet in all the agricultural civilizations. [14]

Common sense should prompt us to ask why, after centuries of living on a diet based on carbohydrates, we are seeing an epidemic of obesity and overweight? Why are the slenderest people in the world eating diets that include grains, beans, and roots as a foundation? The answers are that the problem is not complex carbs but the simple sugars that dominate the nutritional profile of the soft drinks, cakes, cookies, and junk food that are common elements of the modern diet. These along with the excessive use of fats and meat have been the hallmarks of a diet that features excessive calories and is nutritionally deficient.

You might be motivated to ask why, if all this is true, why have these low carb diets become so popular? It is a great question and may require some uncomfortable answers.

The decisions that most people make about diet are based on advertising, society, habit, or taste. These are all powerful motivations but are not a reflection of either science or common sense.

Science is often called into play with advertising, but the science is invariably cherry picked or sponsored by those with a vested interest. Independent and Comprehensive studies or epidemiological reports are often ignored. In the case of carbohydrates every reputable medical study shows the benefits of a diet that includes significant emphasis on whole grains, beans, and vegetables. [15 / 16 / 17]

[14] https://www.reading.ac.uk/AcaDepts/aa/DAISY/JFinn/Sustainability/History_of_%20Agri_121099.htm

[15] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5310957/

[16] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3662288/

[17] https://www.health.harvard.edu/blog/what-is-a-plant-based-diet-and-why-should-you-try-it-2018092614760

There are lessons that need to be learned here. It is not only the issue of carbs, but also the fact that our nutritional needs are not as difficult as often presented. Confusion generates alternative realities, confusion stimulates artificial needs and most importantly, confusion sells products. Both orthodox and so-called alternative approaches to healthy nutrition find it difficult to accept one simple fact. Science, history, and ancient wisdom all show that the best human diet is one that is based on ecological principles that have not changed in centuries.

The greatest challenge we face in adopting a sustainable and healthy diet is accepting that simple food, well cooked and eaten with respect will always be better than the fads, supplements, exotic miracle foods and smoothies that are now popular.

If you are interested in how to incorporate a balanced approach to using carbohydrates and all the macro and micronutrients into a healthy, simple, and sustainable diet visit the Human Ecology Project web site and download our free eBook, **The Human Ecology Diet.** [18]

You will also find more free videos and eBooks to help you live a healthy and earth friendly life for humans and non-humans alike.

Thank you for listening.

Bill and Marlene X

The Human Ecology Diet

[18] https://humanecologyproject.com/wp-content/uploads/sites/34/2021/01/The-Human-Ecology-Diet-1.pdf

Possible Discussion Topics

11

1. What would you consider to be the best grains, beans, and fruit choices to include regularly in your diet?

2. Why are sugars so appealing to us?

3. What could change the course of the world-wide diabetes problem?

4. Can governments do anything to reduce obesity and diabetes?

5. What are the social implications of our sugar addictions?

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