

Gbiota thinking

Colin Austin 16 September © creative commons

Objectives

The aim of this document is to explain the thought process behind the Gbiota system and provide links that how it works in practise.

The Gbiota system

The Gbiota system is a method of growing plants in biologically active nutrient rich soils which aims to restore the gut biome and provide a full spectrum of nutrients including phytonutrients and trace minerals.

It is much more than growing healthy plants - it is about growing health making plants - but what are the features of a health making plant? Obviously the plant itself must be healthy - it must have the right balance of nutrients, phytonutrients, minerals etc. Biochemistry is now a mature and sophisticated technology and we now have a good understanding of the chemicals which make use healthy.

But this is essential but not enough - we have to look at health from a biological viewpoint. Go back forty or so years and there was little dietary or nutritional advice yet the incidence of non-communicable chronic disease was minor. Since then dietary and nutritional advice has grown rapidly often with conflicting recommendations - low fat, high fat, some fats are good others are bad, eat fruit, avoid fruits they contain sugar etc.

We are given diets which specify to the gram how much of this or that food we should but the simple fact is that despite all this advice we are fatter and the associated diseases like diabetes, heart attacks, strokes, dementia etc. have simply exploded to epidemic scales.

There is a saying that the difference between a wise man and a fool is that they both make mistakes but the fool keeps on repeating his mistakes while the wise man learns from them.

The basic mistake is the assumption that we are just some mechanical - chemical system and we can regulate our health by what we put in our mouths. This is just not true - our guts have a high level of intelligence and have successfully and automatically regulated what and how much we eat for hundreds of thousands of years.

Of course genetics play a part - some people are genetically prone to becoming overweight and diabetic - despite eating well - but they are only a small percentage of the population - now in many areas over half the population are overweight and heading for a chronic disease. Something significant has changed and we need to ask what?

Modern science has yet to understand how the system which controls our appetite actually works - but we know it does this very effectively.

As a personal example when I moved to the hot dry Queensland climate I developed irresistible cravings for something - I tried everything I could lay my hands on but nothing satisfied these cravings until I learned about replacing the salts lost by sweating. Immediately the craving disappeared but how did my body know that I was lacking these salts and the all the liquids and foods I tried to satisfy these cravings were not what I needed?

We may not know how the system works but we do know we have a very effective control system which regulates what and how much we want to eat. The most plausible explanation is that we have somehow damaged this control system by a combination of toxic chemicals which have compromised our micro-biome, by a lack of key minerals in our diet and by food combinations of high fat, sugar and salts which have made us as addicted.

Infectious and non-infectious diseases

For thousands of years humanity has suffered from infectious diseases which have caused pain, destruction and death. The Black Death killed over a third of the population in Europe, Spanish flu killed more people than were killed in the Great War.

Medical science has had enormous stride in combating these infectious diseases using the classic reductionist science approach of detailed studies of the source of the infection and ways to combat it - often by the development of customised anti-biotics.

Until recently non-infectious diseases - such as obesity, diabetes, heart attacks, strokes, dementia, depression etc. certainly existed but were relatively insignificant. But in the last thirty years they have simply exploded into epidemic proportions.

Over half the older population now suffers from some form of non-infectious diseases while even among children (which historically have been virtually free of non-infectious diseases) - obesity - the precursor to many non-infectious diseases is now common.

Classic science approaches to combat non-infectious diseases.

The early medical science approach focuses on massive epidemiological studies involving many thousands of people over many years and using sophisticated statistical techniques hoping to uncover correlation which would lead to a better understanding and eventually effective solutions.

It would be a euphemism to say the results were disappointing - the truth is that these studies failed to answer obvious questions and in some cases led to making the situation worse.

The classic example of negative impact was the work of Ansel Keys who promoted the 'fat is bad' philosophy which led to the low fat craze and with the 'profit above health' orientated mega companies which dominate the food industry resulted in products loaded with added sugar, particularly high fructose corn syrup which is a highly processed artificial product with known health hazards.

This low fat craze certainly was a component in the non-infectious diseases epidemic, particularly diabetes and has led to a counter craze of ketogenic diets which - while effective in the short term - could in the long term be as damaging as the low fat craze.

We are a thermodynamic machine converting fuel into energy and our natural fuel is sugar either consumed directly or more commonly created in our bodies by the breakdown of carbohydrates.

While this has certainly created intense scientific debate between equally aggressive sides the epidemic continues to grow with horrifying results.

Diabetes - which is often related to obesity or at least excess fat deposits in the body - and is often called the diabetes epidemic - is resulting in horrifying damage. In Australia every working day some twenty people have a limb amputated as a direct result of diabetes - which again is the most common cause of blindness.

It is a major component of our health costs which run into billions of dollars per year but costs poorly reflect the pain of suffering of the people. It is now becoming a common sight to see amputees being pushed around supermarket in wheel chairs with the quality of their life dramatically curtailed.

With the ever increasing scale of the epidemic it is fair to say that the classic medical science approach is failing us. This is reflected in the increasing number of doctors adopting holistic or life style medicine.

The diabetic crisis is so severe it is time to take a step back and think about how science, technology and innovation actually work and is there a better way of resolving this health epidemic.

How science, technology and innovation actually work

There is a commonly held view that innovations starts in the research lab and the new ideas and concepts are picked up and applied by applied technologists and entrepreneurs.

This model has an underlying truth. There is no doubt that Shockley's developed the transistor using classic reductionist science - but it seems that he did not appreciate the importance of what he had discovered. It took Akio Morita of Sony to demonstrate its importance followed later of course by the computer revolution.

But some of the world's major technology did not come out of the research labs. James Watt did not develop the steam engine because of the development of thermodynamic theory neither did the Wright Brothers developed the first successful aeroplane because of the development of the theory of aerodynamics.

In fact it was actually the opposite, Carnot developed the thermodynamics theory and Fred Lancaster developed aerodynamic theory because of the success and practical importance of the heat engine and flight.

But James Watt and the Wright brothers did not work on a purely empirical trial and error basis; they both had developed a hypothesis - or at least a deep instinct - on how heat engines and flight should work - even though there was no scientific proof - in the sense that we now use the words 'scientific proof' today.

Importance of measurement

But they both had two things in common. They both had a measure of how successful their innovations were. Watt developed the measure of horse power to measure how efficient his engines were while the Wright Brothers had the figure of eight test to prove they had complete control of their flight.

They also had to develop practical solutions to many other technical problems to finally develop a successful innovation - precision machining, effective seals and lubrication for Watt's engines and lightweight structures for flights.

With the major importance of finding a solution to non-infectious diseases can we use these models to develop an effective solution?

Reversing diabetes

Professor Roy Taylor, of Newcastle University, has shown that the conventional paradigm that diabetes is a non-reversible chronic disease is outdated.

He has provided us with a model of how diabetes develops and can be reversed. Diabetes starts with a failure of our dietary system. We over eat the wrong sorts of food and start to put on weight - accumulating excess fat in the body. At first this has absolutely no harmful signals other than getting a bit podgy.

This is unlikely to arouse any medical concerns apart from the only too common situation of young children putting on excess weight which is now a well-recognised indicator of later health problems.

At some point the amount of fat in the muscles starts to block the passage of sugars into the muscles and is the start of insulin resistance. But again this may go unnoticed for an extended period of time as the pancreas will produce additional insulin to maintain stable sugar levels. Again there may be no indications of poor health but this may be picked up by routine blood tests.

At some point excess fat will accumulate in the pancreas blocking the production of insulin and the patient has then developed serious diabetes and unless steps are taken is likely to suffer the severe results of diabetes - limb amputation and blindness.

Roy Taylor has shown that diabetes can be reversed in many cases - simply by diet. His diet routing is however extreme and he does not show how this could be applied on a large scale to the millions of diabetic sufferers.

Challenge of scale

This issue of scale is a fundamental problem with diabetes with well over billion people suffering from the disease world-wide. It is one thing to treat a few people in a laboratory experiment supervised by qualified medical staff - it is a totally different issue to treat over a billion people - what do you feed them and where does the medical staff come from.

This issue of scale is a fundamental issue which the medical profession has failed to address.

Developing the working hypothesis and method of testing

To reverse diabetes on the scale needed requires two things - we must have a working hypothesis of how to reverse diabetes and we must have a test so we know for sure that the hypothesis is actually working - or otherwise.

The working hypothesis I am proposing has two key components or chains, these are complex and the reality is that science has not proven every single step of either chain, but this does not mean we have to wait until science has developed a proven theory for every individual link in the chain. There would be literally millions of amputations if we were to wait until every 'i' and 't' has been dotted or crossed.

What matters is that we can test that the system is successful overall. We can then help millions of diabetic sufferers now while accepting that there will be some people so susceptible to diabetes that we cannot help them right now and further technology needs to be developed.

Simply to wait for the science to catch up would be immoral.

How to test for success

There are many different non-infectious diseases some are very difficult to test for - how do you know if that if you eat this or that particular diet you will be fit and active with no signs of dementia when you are 104 without actually waiting until you are 104.

With diabetes we have the recently developed technology of continuous blood sugar monitoring. Examining the graphs for sugar spikes and the speed of recovery after a spike after eating a specific meal and noting trends over a few weeks will show, for a specific individual which diets are helping to reverse diabetes and which are not.

The literature is full of diets, low fat or low carb, multiple small meals or long periods of fasting. Sometimes these are based on tests on groups of people - others what some expert thinks *should* happen (as opposed to does happen). There is no consensus among the experts.

Continuous blood sugar monitoring shows - for real - what actually does happen to a particular individual on a particular diet.

It may well be that continuously measuring blood sugar may be useful for other non-infectious diseases but at this moment we simply don't know so the immediate focus is on developing a strategy for reversing the billion or so diabetic sufferers world-wide.

This is a big enough project for before lunch we can leave the others diseases until after lunch.

Simple questions

Before developing our working hypothesis of how to reverse diabetes we need to ask two - almost childlike - questions.

The literature is flooded with papers on diets which cause health problems, fast food, sugars, fats and there is little doubt that in today's world there are billions of people eating simply terrible diets and that this is one of the factors causing millions of people to become diabetic.

On the other hand there are billions of people eating these terrible diets and they remain fit and healthy with no apparent harm.

The first childlike question is 'how is it that all these people eating a recognised terrible diet don't get diabetes? How do they do it?' We really should try and answer that critical question.

It could be genetics or epigenetics which determine which genes are active, it could be the way they eat, their gut biology, the time between meals or something else not currently known.

But whatever the answer is it indicates that we should; -

'not even attempt to develop a universal diet which suits everyone but try and develop a diet specific to that particular individual'.

Again the issue of scale arises, how do you develop a custom diet for a billion people?

To put that in perspective it would take 5,000,000 doctors a full year to give every patient an adequate consultation time to reverse their diabetes. This is just not practical so we must look for another solution.

The next childlike question is thirty or forty years ago non-infectious diseases were a fraction of what they are today. What were they doing right then and what are we doing wrong now - what has changed?

If we could really answer that question the solution would be handed to us on a plate.

Developing the working hypothesis

Our bodies are equipped with a highly effective control system which manages how much and what foods we eat. We know that this is a combination of an intelligence system in our guts and our brain, they communicate with each other by chemical messengers, hormones and through the vagus nerve.

Medical science has done a good job in identifying these signals and what they do. We have some conscious control over parts of this system while with others we have neither control or know nor even are aware that they are working.

We know that our gut will automatically generate hormones like ghrelin and leptin to make us feel hungry or full. We know that we can make our guts generate these hormones - simply staring at a piece of cheese cake for long enough will flood our bodies with the ghrelin the hunger hormone.

Fear and stress - over which we have some control - will also generate appropriate hormones which will not just kill appetite but simply bring the digestive system to a very abrupt halt. Just think about the number of jokes about brown underpants.

But we have really no idea about how our guts and brain go about computing which hormones or signals they should be sending. Our guts are like a super computer with trillions of bits but these bits are made up a variety of different species which do their own thing making any form of understanding of the logic process incredibly complex.

We may have a good idea which species of gut bacteria correlate with being fat or slim but we have as yet no idea how they operate to make us fat or slim. That is an issue so complex it will be many years before science has the answer.

The two part working hypothesis

The first part of the working hypothesis is that our guts have been compromised so our internal control system is not working as well as it should by providing an effective control system to manage our desire for food and what our bodies do with that food - consume, store or fat or excrete from the body.

This compromised gut biology can come from toxic chemicals that are in our food system. Many studies have shown that toxic chemicals from our chemical industrial agricultural system are imbedded on our foods.

These chemical may (or may not) have been tested to see if they harm the human body but there is no issue they harm our gut biology - they were developed to kill things like bugs.

We also know that the amount of critical trace element, minerals and phytonutrients have dramatically declined since the wide spread adoption of chemical-industrial agriculture. Our guts are sufficiently smart to know that something is missing so we develop a food craving until (by chance) we find out what is missing. It's a not like the food craving that many pregnant women get when their bodies are telling them something is missing in their diet.

Another part of the hypothesis is that our modern foods (and the way they are promoted) have made us become addicted to them. Added sugars, combinations of sugars and fats and various artificial flavouring are some of the food substances we are becoming addicted to. Our guts simply have not evolved to deal with these new food types.

Solutions - step 1 fix our internal control system

The first step is to produce food which will restore our gut biology and provide the essential minerals which are now generally lacking in modern processes foods.

To meet this challenge I developed the Gbiota bed system which breeds biology in containers then flushes what is essentially compost tea through the soil and drains off any excess.

Trace minerals - which are important for managing diabetes - like magnesium and chromium - are added to the mix.

There is no doubt this develops highly biologically active nutrient rich soils which are highly productive. While it expected there is a chain from the soil, through the plants and into the food and then into our guts which reinforces and restores gut biology this complex process has as yet not been subject to the rigorous scientific analysis this important subject deserves.

But what matters right now is does it work to reduce blood sugar levels.

Continuous blood sugar monitoring can confirm - for a specific individual - that the system overall is working overall for them. We know for sure that if a particular

individual eats food grown in the way that their diabetes is reversed. We may not fully understand every stage in the complex process but we know that it works - just like James Watt and the Wright brother knew that their engines or planes worked pending the development of the theoretical models.

Solutions - step 2 cure addiction

The second part of the hypothesis is that modern foods are making us addictive which is harming our health.

Reversing addictive is never easy but having a supportive group with a qualified and sympathetic leader can restore more healthy eating habits which once established become the norm so the craving disappear.

Intermittent fasting is proven to improve health in general but can be difficult to adopt in isolation without support.

Solution - step 3 cycle fats

Our bodies have evolved to cope with a variable food supply by temporarily storing fat as an energy source when food is available and releasing it when there is no food. Fuel goes into and out of our fuel tank (fat storage) just like fuel in a car.

In our modern society food is generally available virtually all the time so our guts seem to have forgotten about this natural energy flow so we are locked into fuel storage mode. We need to retrain our guts to go back to the natural system with an in and out of energy flow - this is simply done by adopting one of the many versions of intermittent fasting.

Solution step 4 - Developing a practical system

The system must provide

- toxin free nutrient rich biological active produce
- food and dietary assistance
- expertise in blood sugar monitoring and interpretation of result to determine what diets actually work
- advice on exercise which has a profound influence on blood sugar levels
- stress management to avoid cortisone induced sugar spikes
- education so clients can continue after the initial high intensity training.

Providing a comprehensive health resort type full service for the large numbers of diabetics would be logistically and financially difficult.

The focus is therefore on helping people be self-sufficient by focusing on education leading to self-help.

There are many growers who aim to produce organic style food free of toxins and they could readily adopt the Gbiota bed system. They can readily extend their services - or cooperate with neighbours to prepare food and blood sugar monitoring services.

The details of how this system could work on the large scale needed are being developed in China under the name the Yangtzu project.

This is described in detail on my web page www.waterright.com.au/library.htm simply go to the library section, then you can either search the files in date order or go to the Gbiota section and click on the appropriate file name.

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