

The Gbiota club

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Join the Gbiota club

This is an invitation to join the G-Biota club. So what are the aims of the club and why should anyone even think about joining? In essence it is about developing the top down technology of improving health by changing gut biology based on growing plants in biologically active soil.

Summary

We know that the type of food we eat affects our gut biology which in turn affects chronic disease such as diabetes, strokes, heart attacks, dementia, mental health etc.

There is a mass of information available on which types of food are beneficial but very little on how the way the food is grown affects these chronic diseases. Yet it seems axiomatic that plants grown in a biologically active soil would have more impact on gut bacteria than plants grown under the near sterile conditions of modern agriculture. All cabbages are not the same.



The Gbiota technology is a growing system to maximise the improvement in gut biology by growing and processing food in a way that improves gut biology.

The initial aim of the Gbiota club is to set up a citizen research project to see if significant numbers of people benefit from eating this Gbiota grown food.

The second aim is to set up a system where commercial growers can produce Gbiota food to make it widely available.

The technology will be described in a confidential living document - the Gbiota manual - which will be available to all members of the Gbiota club.

There will be a membership fee of \$20 per annum for home growers and initial fee of \$100 per annum for commercial growers. This membership fee may be changed to fund promotion of the trade mark name Gbiota which offers commercial growers a financial return for their investment.

If you may be interested in joining the club please read on then email me at colinaustin@bigpond.com

Part 1 the Gbiota project

Gut biology is hot

The gut biology ball may not be the social event of the year but in the medical world gut biology is hot.

We have known for a long time that gut biology ferments and releases food we could not otherwise digest but we are now finding out that our tummies are much more than an internal brewery - rather they are the intelligent control centre that manages our bodies. That vast array of trillions of individual cells is communicating with each other like some biological computer.

It starts with our immune system, produces vitamins we cannot make ourselves, and manufactures the hormones which act as messengers to tell our body what to do with that marvellous process of homeostasis which tells us when we are full or hungry and controls our weight which has such a dominant effect on those modern chronic diseases which are causing us so much harm like diabetes, heart disease, strokes, depression etc.

It now seems that gut biology has a major effect on our moods and can make us happy or sad, stressed or relaxed - and in reverse stress affects our gut biology.

We don't get fat simply because we eat too much - rather our gut brain decides that we should store fat and where that fat should be stored. How and why it decides this is a mystery to me and I think the dietary experts. We do know it sends out hormones, leptin, ghrelin, insulin etc. which instruct our bodies what to do. Why some people get fat with some putting fat on their thighs and others on their stomachs seems to be a mystery that only our gut brains know the answer. Other people of course end up as walking broom sticks whatever they eat.

Storing all this fat means there is not enough energy to drive our bodies so we get hungry and eat more. We get fat because our gut brain tells our body to store the fat which means we end up eating more not simply because we eat too much which is the result not the cause. (See - Why we get fat by Gary Taubes)

We may not like to have conversations about our poo, farts and tummy rumblings but if we want to be healthy we simply cannot afford to ignore what is going on in our guts. We need to manage our gut biology. That's what the Gbiota club is about.

Science and models

The scientific process is based on formulating models. For many years our model of how diet affected health was based on the assumption that the body was like some dumb steam engine - you put food in and the body made energy and any imbalance ended up as fat.

We now know this is simplistic - our head brain and the brain in our stomach formed from trillions of cells work together to control how our body works - making us fat or slim and even where the fat goes.

When I was young I ate like a horse and was as skinny as a rake. When I got older I actually ate less but put on weight around my tummy. I went on a diet and my face looked like I was starving but there was little effect on my waist line. That was little to do with the diet but what my twin brains had decided.

We are not there yet

But if we compare the state of development of gut technology with other branches of medicine we have to recognise just how far there is to go before the science of gut biology reaches the same level of sophistication.

I have a knee replacement, foamed titanium no less. Foaming gives a similar stiffness to natural bone and as an engineer I know about stress concentrations and really appreciate the technology which really works. I may not win any triathlons but my knee does not hold me back - one up for medical science.

But to truly understand and manage gut biology we need to understand how the trillions of cells in our guts operate as a computer to control how our bodies work.

It's pretty obvious that gut biology - which produced the hormones which regulate appetite - is crucial in managing chronic diseases like diabetes and strokes so it is perfectly reasonable to ask what I should do to change my gut biology to avoid these diseases as I age. But I cannot get a clear answer.

I can find many learned papers on the different types of gut bacteria indicating which ones are beneficial or harmful. DNA sequencing has given us a new tool to identify the vast array of types of gut bacteria. But it is clear that the many thousands of species which inhabit our guts are working together as a complex computer system which as yet we do not fully understand.

We know that insulin makes us fat and can make us insulin resistant (diabetic) but we really do not know why some people make excess insulin while others don't.

I have no doubt that the thousands of scientist working in this field will painstakingly work their way to developing a deep understanding - as scientist do - given time.

My problem is I am getting old (not just older but old) so I really can't hang around for twenty years or so while they work it out - I'll be dead by then. To those who are younger than me (most people) - don't believe the myth that as you get older you get more patient and philosophical - no you get more grumpy and impatient and want answers right now - just like a kid. So what do I do?

Self-experimentation

Don't underestimate self-experimentation. I read everything I could find about gut biology then rushed out and bought some commercial pro-biotics. What changes did I notice? Absolutely nothing! I forked out another \$50 and bought a second and then a third bottle. Still absolutely nothing! Maybe I would live for another ten years but I had no way of telling. Anyway I am far more interested in being fit, active and healthy while I am alive and I could see no improvement.

At this point gut technology had failed the acid test of proving useful.

The explosion in these chronic diseases is a recent phenomenon so something has changed. We know there has been a major reduction in gut biology compared with traditional tribes. Processed and fast foods, sugar particularly in drinks and cereals and less exercise have received the bulk of the blame.

However we know that the way we grow our food has changed with a dramatic reduction in minerals and phytonutrients, the use of chemicals for fertilisation, and pest control plus a significant cleaner product in the shops but with extended times from harvest to eating. We seem to be missing out on that traditional source of gut biology.

Definitely not sterile

I am no great enthusiast for the paleo theory. It may or may not be true that modern tribes are healthier than us but with a terrible infant mortality the ones that do survive are genetically selected. All that we can say is they do not suffer the chronic diseases we do. They have a diet, both plants and animals, which are 'wild' e.g. harvested from a living eco-system.

So I set up an experiment to see if eating a substantially 'wild eco-system' diet would improve my health. I say substantially because my devotion to science does not extend to giving up red wine and chocolate.

I grew food in a modern version of the traditional way - either eaten straight out of the garden or fermented. Actually it is very difficult to set up an experiment to grow wild food under cultivated conditions. My experiment involved importing a large amount of yuck from the local swamp and incorporating this into an open style Wicking Bed with a water circulating system which technically could be described as compost tea or more accurately yucky water.

Again this could be described technically as bio-diverse or more accurately - simply yucky - but the plants grew very well - certainly well enough to attract an assorted wild life zoo. If this puts you off stop reading right now because this project is not for you.

On harvesting I hoped I got rid of much of the zoo that had invaded my plants but I certainly had no fetish about excessive cleanliness - I wanted to preserve the biology I had so carefully tended.

Eco systems are yucky but yuck does not make an eco-system

All living creatures need to reproduce. For that they need a certain level of moisture, food and often oxygen. But that is not enough - they need to be part of an eco-system of symbiotic living creatures. Plants - like sunflowers - emit sugars which attract mycorrhizal fungi; deep rooted plants extract water from deep in the soil during the day and release it at night near the surface which benefits shallow rooted plants.

If we want to develop an active soil biology we need to develop a functioning eco system. This is more than just piling on yuck. We need to feed the biota but in the early stages of decomposition toxins are produced which can inhibit plant growth. That's why gardeners avoid labile or young compost - but I need to feed my little babies.

We need to learn how to develop a functioning eco system with all those complex symbiotic relationships so both the biota and our food can prosper. We need quality yuck.

Yes something happened

Unlike my experiment with commercial pro-biotics something really happened.

I could feel my stomach churning away like some internal brewery, the gurgling noises could be heard along the street, the gasses both North and South were spectacular and my pooh - simply ferociously spectacular to all five senses.

May be I should not have eaten the whole jar of fermented vegetables in one go but moderation is not my middle name.

So what do we know for sure? We know that eating food grown in the traditional (wild) way has a major effect on gut biology but we do not know for sure that I will live longer. Feeling of general health and energy levels are highly subjective and not scientific even though they are what really matter.

In a vain attempt to introduce some scientific rigour I thought I could try measuring my pulse rate should a pretty girl passes me in the street. At least that showed I was alive and 'normal' in the medical sense.

The Gbiota club

The results however are encouraging enough for me to think about forming the 'Gbiota club'.

I can and will give the reasons for setting up a club but let's not bullshit and get to the real reasons.

Diabetes the new Black Death

The fact that one person appears to have better health by eating a 'wild' style diet statistically means nothing. The improved health could just as easily be due to the red wine and chocolate.

But I have a hunch that this 'wild' style food could really be a significant factor in fighting these chronic diseases. Diabetes has been described as the new 'Black Death'. If, as I believe, this 'wild' food diet could reverse diabetes, this would have major benefit for over a billion people so this needs to be thoroughly investigated.

Forming a club where many other people experiment and tests this 'wild' food to see what affect it has on their health could have major social benefits. This is citizen research which I will talk about in Part 2.

The clock is ticking

I have spent much of my life with an interest in food and health. Food - because I am basically a pig. I love good food and food is among the major factors influencing health.

I don't have that many skills in life, normalcy being a major omission. But I have always been proud of my numerical skills and when I ask my good friend Mr. Google about life expectancy I am painfully aware that according to the statistics I have a couple of years to go before I join my friends - the worms - in my final Wicking Bed grave.

No doubt the worms will appreciate me as a food source but maybe not for all that knowledge I have acquired on food and health. Forming a club is a way that this knowledge and my work can continue to be passed on (assuming that my final Wicking Bed grave is not equipped with Wi-Fi).

Explosion of Chronic Deceases

We know that the explosion in Chronic Deceases are recent so must be caused by something that has changed recently - in a matter of decades.

We know that tribes enjoying a classic hunter gather life style just don't have chronic diseases they have a much broader spectrum of gut biology than we do and most interestingly in tribes where there is a difference in summer and winter diet there gut bacteria changes with the season.

We can be pretty certain that we can change our gut biology by diet but we don't know whether it is by simply eating pre-biotics which enable existing biology to out-complete others or whether pro-biotics are needed as well. It is a good guess that pro-biotics without the pre-biotics to feed them don't work.

So the practical conclusion is to have a diet with both pre and pro-biotics. (Pro-biotics are the bugs, pre-biotics are the food the bugs like to eat.)

Tribal living

The next thing we can learn is the immense capacity of some scientist to get funding for what appears to be totally off beat research such as studying the poo of tribes like the Hadza in Tanzania, the Pima in America and the Yanomami in the Amazon. How do they do it? - but I am very glad they do as it throws light on one of the biggest battles in the murky world of diet and health.

We learn from the Hadza that gut biology changes with the season, we learn from the Pima that genetically similar peoples living a totally different life style (Western and traditional) have dramatically different incidence of chronic diseases and from the Yanomami we learn they are a totally new set of gut biology which we have never seen before but work together as an effective system.

This indicates that focusing on the types of bugs in our tummies may not be the most effective approach and we should think about how our bodies - the gut brain axis - work as an intelligent system.

For years we have been told that we get fat because we eat more calories than we burn up and the balance end up as fat in our bodies - which in turn leads the dreaded chronic diseases. (It is pity more engineers don't get involved with diet - this concept is a total corruption of the laws of thermodynamics as I have written about before.)

Changing our gut biology may well be the answer - but how? We can wait until the science is fully developed and we really understand how our gut brain works or we can

learn from what happens in life. I have a funny feeling that the Hadza and Pima tribes do not have sophisticated DNA sequencing machines hidden in the trees for analysing the genomes in their guts. But they have better gut biology than we do.

Gbiota Club phase 1

The first step is to get together a group of people who are willing to set up a 'wild' food production system - what I will now call a Gbiota bed and consume this food as a supplement and basically see what happens, hopefully generating enough case histories to show that this system works could well be part of the solution to these chronic diseases like diabetes.

To be really effective this may mean some changes to the normal eating habits such as cutting down on sugars and high glycaemic carbs and adopting some intermittent fasting. When you eat can be as important as what you eat. (But still consuming red wine and chocolate - life still has to be worthwhile.)

Some measure for effectiveness is needed. The most important in the 'is it useful test' how well do you feel - but scientist like things they can measure. Weight and waist circumference are easy to measure and make a good indicator. Diabetes sufferers have an automatic measure with their blood sugar readings.

But we need to consider what we need to do if it really does prove successful. Here we should learn from the experiences of Wicking Beds.

Gbiota Club phase 2

I made a big mistake with Wicking Beds. I told anyone and everyone about Wicking Beds which certainly led to their widespread adoption - which is the good news.

The bad news is that there was corruption of the technology making it more complex and less effective than it need be with the sad result that commercial growers were put off by the (unnecessary) complexity and cost.

I feel that there will be many home growers who will be happy to set up their own little Gbiota bed for their own use. But there are over a billion people suffering from diabetes - I really cannot see this number of people being able to grow their own food.

This means we need to be able to attract commercial growers who can supply produce grown using the Gbiota system.

I don't see Gbiota as a conventional - just for profit - commercial operation rather I see the objective to provide a social service - however commercial growers will certainly need to be able to make a profit and for this they need to be able to differentiate their products from the mass produced sterile produce we buy in Supermarkets.

In reality this means protecting the name Gbiota and restricting the technology by a license arrangement.

It also means that the technology needs to be developed so it can be expanded to large area production. The design of my current small system is based on being able to readily scale up.

We would also need to promote the name Gbiota so the public could associate the name with recognised health benefits - which will require some resources and expertise.

The Gbiota manual

How will all this work in practise. Simple!

I will develop the Gbiota manual based on my and other member's experiences. This will be available to all members of the club to help them set up their own beds.

This will be a confidential document protected under Copyright laws and every member will be asked to agree to keep this information confidential. I am hoping that members will try and recruit new members to the club but they should not pass on detailed information but get the new members to join the club and obtain a copy of the Gbiota Manual for themselves.

This is to ensure that the technology is not corrupted (as happened with Wicking Beds).

I am hoping this Gbiota manual is a communal effort with members making their own contribution to development - which they will submit to me for incorporating into the manual. There is simply so much to know about growing food. I have had an interest in soil and water for many years (and in the time long ago in my professional career I was considered a world leader in computational fluid flow) so maybe I can claim some competence in the hydraulic of the Gbiota bed.

But look at all the variety of different plants which are reputedly beneficial to health and each with their own horticultural protocols for growing. No one person can have all this knowledge so it needs to be a group effort with contributions from across the club. I have only just discovered what a wonderful plant Okra is - how many more plants which are beneficial to health that I don't know about?

Hopefully my cut and paste and editing skills will lead to a readable manual.

Classes of membership

There will be two classes of membership - home and commercial.

Home members will have a license to grow their own food (and to give to friends - this is not a police state). There will be an annual fee of \$20.

Commercial growers will have a license to grow food for commercial production and market it using the registered trade name Gbiota.

There will be an initial fee of \$100 per annum. This may be changed later to provide funds for wider promotion of the Gbiota trade mark and the benefits of improved gut biology.

Part 2 citizen research

Let's talk about what citizen research really means and how it has been critical in many innovations.

Top down and bottom up technology

The classic scientific approach to complex problems - like gut biology - is to study in minute detail each individual aspect and hopefully learn how these individual pieces of understanding can be integrated together to form a working solution. This is the bottom up approach.

However many of the great developments in technology have come from the top down approach.

Agriculture - probably the most single important technology that humans have made - did not come about because of an in depth understanding of gene technology but instead from finding out - purely by chance - that food supply could be increased and made more reliable by planting seeds.

The concept of selecting seeds from the most productive plants was without doubt one of the major achievements of humanity.

But what it showed above all was that agriculture was useful. Once the top down approach had shown how useful it was to agriculture it sponsored the detailed bottom up scientific studies which have proved so beneficial in modern agriculture.

This is a pattern which extends throughout the history of technology. Prove something is useful which spurs scientific research.

Mechanical power - as first illustrated by the steam engine was not developed from an understanding of the laws of thermodynamics but was proved useful in pumping water out of deep mine shafts. This led to the development of the science of thermodynamics - as typified by the Carnot cycle - which led to dramatic improvements in the efficiency of those early steam engines.

This is the top down approach showing that some technology is useful initiating the scientific development.

Many of our modern technologies - from the computer which proved useful in code breaking - to the smart phone and the internet were first proved useful in practise.

Pragmatic approach

There is an ancient adage that says; -

Science is the art of truth and engineering is the art of ignorance.

Engineers have been learning to live with ignorance for millennia.

When the Ancient Romans built a viaduct the engineer in charge would be forced to sit under the arches while the wooden support structure was knocked away - nothing like a little incentive of a few hundred tons of stones dropping on your head to get things right.

Now engineers have developed managing ignorance to an art form.

So if we don't yet fully understand the complexities of our gut computers how do we manage our ignorance?

We start off by showing that eating some 'wild' food to improve gut biology actually works. This does not have to be the super rigorous statistical analysis of modern science - just to show it basically works and is useful.

Hopefully this will initiate the sadly neglected area of the importance of how we grow our food to improve our gut biology and health which in turn will lead to continuous improvements - that is the way that technology develops in the real world.

We seem to live in a world dominated by a 'what's in it for me' attitude. One of the very few benefits of getting old is you just stop caring about 'what's in it for me' as you know full well that you aren't going to be around long enough for it to make any difference to you.

But there is a medical condition I call 'grandfathers disease' which however old you are makes you not just worry about now but wants you to make sure your grandkids have a good life.

If you sense you have these symptoms then join the Gbiota club by emailing me at colinaustin@bigpond.com

If there is enough support I will prepare the documentation. All I need for now is an expression of interest.