

## GBiota responses

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I received some really eye opening replies to my last article on gut bacteria and reversing diabetes. Thank you for these responses and I hope you understand that it probably more effective to write a reply which addresses all the issues raised in the replies rather than send out individual responses. Let me assure you that I read all replies and appreciate your comments.

I am now busy rethinking my strategy - hopefully you will give me more feedback.

What struck me was how many people were really interested in gut biology and understood just how important it is for our health. This is amazing as ten years ago gut biology was purely for the specialist researcher and it is only in the last few years that it has moved into the wider field. I have been a gut enthusiast for some time now and just assumed I was in the pseudo freak category but apparently there are a lot of us out there.

That's the good news; the bad news is that very few people showed any interest in fermenting themselves and would prefer to buy a product - however assured quality was essential.

There seemed a strong preference to buy a probiotic pill from the local chemist.

This reflects the conflicts between myself and my wife - Xiulan. I am an engineer by training and my first inclination is to say - that all sounds fine in theory but does it work in practise. I want to see real results I can believe in. In practise that means doing test on myself (and Xiulan when willing) to see if it works for us by giving real benefits which we can measure.

Xiulan is a doctor by training and her first inclination is to look for a pill which has been tested in large scale statistical trials.

So let's talk more about the pill versus food controversy.

We have both trialled a number of commercially available pro-biotics (drinks and pills) and could see no tangible evidence of any improvement. They just do not seem to work (for us).

There are three possible reasons.

- if we already have the appropriate biology in our guts then taking a further probiotics will have no effect
- most commercial probiotics contain one or at best a few strains of carefully cultured biology. This is not the way our guts work - they contain a broad spectrum of biology which communicate with each other to provide a beneficial working eco system
- the upper regions of our gestational tracts are highly acidic which will kill of most of the introduced biology before they reach the critically important lower regions.

So from a theoretical and more important practical reasons commercially available probiotics do not seem to be very effective.

Now compare this with the practical trials (on me) of eating fermented vegetables. Let me tell you that the results are dramatic. Let us not be too squeamish here and talk about pooh. I may be a bit weird but I have got into the habit of weighing myself before and after having a pooh as a convenient way of measuring the about of pooh.

Eating the fermented vegetables just about doubled the number of times I need to go to the toilet and the sheer volume increased dramatically.

Next are the gassed. Anyone who has fermented will be familiar with the continuous stream of little bubbles and the pressure build up. I have been trialling some plastic container and the lid rises to a dome which collapses when I release the pressure.

Judging by my wind this was what was happening inside my tummy - not just the volume but the smell - but I won't go into that. Let me be euphemistic and say there was solid (and gaseous) evidence that I had a highly active gut biology.

But producing monster poohs and farts is not the objective of the exercise - it is to actually be healthier.

At first the results looked very good - I certainly felt more energetic and actually got around to doing the jobs I said I would do when I got a round tuit. (Once I was given a round tuit so I could do those jobs when I got a round tuit).

But then things took a turn for the worse. I was so pleased with the results of my fermented vegetables that I went a bit extreme and ate little more than fermented and leafy vegetables. But I found myself paying more attention to my granddaughters sweetie jar than normal. But before I get into that lets look at the various theories on diet.

## **Reversing diabetes?**

I have been studying diabetes intensely since my wife Xiulan was diagnosed with type 2 diabetes. It is a conflict zone some experts say low fat, others low carb and others high fibre. Then there are another schools arguing about when to eat with some praising fasting while other promote snacking.

So I look at the scientific papers - every view is supported by major research projects, typically statistically based but from a practical view with very low correlation factors 27% seems as high as they go.

Now think what this really means - you can drive from say Melbourne to Sydney in a day and would expect a problem in less than 1 in a 100 trips (99% +). If your car had a 27% correlation it would mean it would take 4 days with 3 days spent by the road side for repairs. Who would buy a car like that?

Why are the correlations so low? It is simply that there is immense variation between people. Some can pig out on food and never exercise and still be fit and healthy while others just look at a cooking show on TV and get sick and obese. We understand that diabetes is caused by insulin resistance which in turn is caused by fat in the muscles

So what to do? I study the diabetes literature where there is general consensus on the steps needed to reverse diabetes (with some areas of dispute). I have put the best ideas I can find with some of my own innovations to develop system of reversing diabetes which I can then put to the practical test on me (and poor Xiulan).

## Feeling hungry

So my craving after my granddaughter's sweetie jar was a first class experiment. I could attack my granddaughter's sweetie jar to see what it did to my hunger level. Actually that is a euphemism - I am just weak willed and snuck a bit of candy bar. Far from satisfying my hunger it made is worse so I thought I extended the 'experiment' to a carb trial with a piece of cake. Result even hungrier.

Simple fact for me eating carbs made me hungrier. This is not a general law - just how I work.

Now I have always been puzzled by the effect of exercise on hunger. May be I am a bit weird but I can sit at my computer feeling really hungry then get up and go for a walk and my hunger has gone. I have no idea why - it just happens. It is about 2K to the local post office so I decided to walk there and back. Even at my age a 4K walk is no issue.

On the way back I was feeling really tired. For me this is not normal exercise usually makes me feel more energetic and less hungry. It looked as though carb were not working (for me) so I thought I would switch from my carb experiment and pop in to the local fish restaurant.

I have read all the arguments for a low fat diet which seems to make some sense on the surface but I was still somewhat suspicious of the high fat philosophy. But I can say that the results were truly surprising (to me).

Whereas eating carbs seemed to be making me feel hungrier and less energetic just about thirty minutes of eating one piece of battered fish I stopped feeling hungry (which is sort of important) but actually felt energetic again and wanted to get back to those round tuit jobs (whichps really important).

## So where are we?

I am really convinced of the value of fermented vegetables. The evidence that they improved my gut biology is overwhelming. Fermented vegetables are both a pro and pre-biotic. I am not sure whether they worked because of the pre or pro-biotic nature but they certainly worked. Maybe they are a good pro-biotic or a highly effective pre-biotic feeding my existing microbes - I just don't know for sure.

There is a really good video on YouTube <https://www.youtube.com/watch?v=pxqxXMwSomA&t=217s> which explains the importance of pre-biotics.

However - and I emphasise this is just for me a sample size of one - that just eating fermented vegetables and leafy green vegetables only was simply not providing me with enough energy. I need to eat more solid foods and having a bit of fat seems to make me feel both full and energetic while just carbs seems to make me feel hungrier and not so energetic.

## **Steps to reversing diabetes**

Here I really want to focus on fermented vegetables as a way of improving gut biology but I don't want to lose sight of the big picture.

My overall aim is to develop a practical system of reversing diabetes with minimal reliance on drugs. The key points of the system are;-

- changing gut bacteria
- adding minerals and trace elements such as chromium, magnesium, vanadium etc.
- consuming phytonutrients (plant based chemicals)
- intermittent fasting (to allow the beta cells in the pancreas to recover)
- moderate exercise

One of my longer term aims is to write up a guide to the complete system but the recent responses tell me that there are some problems to resolve in the short term.

## **Changing gut bacteria**

Changing gut bacteria is probably the most important part of the system. Changing gut biology will not - by itself reverse diabetes - but unless you sort out the gut biology then it is unlikely that diabetes can be reversed.

Steady consumption of fermented vegetables - which act as both a pro and pre-biotic look to be the most practical way of improving gut bacteria however there are some issues which need resolving.

In my system there are two stages in producing fermented vegetables.

## **Flood and drain wicking bed**

The first is the flood and drain Wicking Bed. This is a natural extension of the conventional wicking bed which I have been playing with for over twenty years so I am very comfortable with the technology.

In this latest version I have three containers - the first is a water container which has a float valve to up the water level and a small pump which periodically partially floods the second or growing bed as well as the third chamber which is filled with composting material together with mineral supplements.

At the end of the pumping cycle the water drains out of both the growing and composting bed bringing with it nutrients and biology ready for the next cycle.

This is a mature technology which is very suitable for an amateur gardener and can be easily scaled up for commercial production.

The responses I have received indicate that there are people out there willing to grow the biologically active vegetables which are the raw material for the next stage of fermentation - either on an amateur or commercial basis. I have mentally ticked that part of the project off as solved.

## **Fermentation**

The problems come from the fermentation stage where there are both technical and logistical problems.

The technical problems arise because fermentation is essentially a craft based operation. It works very well if someone with the appropriate expertise is overseeing the entire operation but the process does not readily lend itself to large scale automated production and distribution.

Fermentation is just not like a mass production car factory with virtually identical parts all fitting precisely together to make the perfect car. Small variations in the vegetables themselves, temperature, starters etc. all make a subtle difference to the process. This is where there is a skilled fermenter watching over the process but it is not mass production.

## **Dead or alive**

Having said there are large scale fermentation processors but to control the process the fermentation is taken to the required stage then pasteurised to kill off all the bacteria. There are good technical reasons for this - not least that if the fermentation process is allowed to continue without control of time and temperature the pressure in the bottles can build up to the point where the bottles explode. Not good to have exploding bottles in the supermarket.

This means that while people can readily buy fermented vegetables from the supermarket they are essentially dead and provide no probiotic benefits.

Not what I am after.

## **Sorry - not for me**

The feedback I have been getting is that very few people are interested in fermenting and certainly not for commercial sale. I was hoping that there would be people who may like to have a small fermenting operation for extra income but this does not appear to be the case.

The technical challenge is how to set up a production and distribution system where people can buy living fermenting vegetables.

This is a challenge I do not have the answer to as yet but I do know my very next step and possibly the following step.

## **Trip to rural China**

My wife Xiulan is already in China. Her blood sugar level were getting too high for comfort (I think the heat wave was a factor) so off to China she went and is now eating a more traditional Chinese diet and her blood sugar levels are dropping. Just another piece of information on how important diet is in managing diabetes and that diabetes may actually be reversible.

So on Saturday I zap off to China where I will meet up with her and we will take a study trip to look at traditional Chinese fermentation processes. I have no idea what I will

find out but as they say in the adds 'if you never ever go you will never ever know'. They have been fermenting vegetables for some four thousand years and diabetes was virtually unknown until Western foods appeared so I should learn something.

Now in case you think this an appeal for sympathy let me say that going to rural China is not a hardship for me. I know many people take the Hong Kong, Shanghai, Beijing, Xian and Yangtze River trip let me tell you that China has the most incredibly beautiful hinterland.

My only problem is that I have a false knee so the traditional stoop toilets give me a bit of a problem - not so good when researching fermented vegetables.

## **Back home**

When we get back to Australia (with my other Chinese granddaughter who has won a scholarship to study in Australia - oh no more sweetie jars) I will look at setting up a small scale fermenting operation - basically as a pilot plant operation.

If this works out - and never count you chickens after the stable door is shut - I may have a model which could be used for local fermentation plants.

At this moment my thinking of providing living fermented vegetables is leaning towards small scale local production rather than large plants with all the problems of managing distribution of a living product.

## **Last word and apology**

I know there are important emails I have not replied to - but I do like to get some sleep - but I often find I have time on trips where I can catch up with the backlog. (Specifically when Xiulan goes off to play marjong)

Does it work? There is no ways I can conduct a major statistical trial with the thousands of people needed for a full scale statistical analysis to derive the magic numbers. But I can try it out on me - it works but I cannot give you that magic probability number which will tell you whether it will work for you.

So it boils down to looking at the risks and rewards - positive and negatives. On the positive side if it works then you can stop worrying about going blind and having your feet and fingers chopped off, you may avoid a heart attack and live ten years longer.

On the negative side it means paying much more attention to your diet but if you do it right healthy food need cost no more than eating convenience food. If you are on insulin producing drugs you must take precautions to avoid a hypo if your blood sugar drops but that is just a question of being sensible and it will mean taking a walk in the park now and again.

So here are the headlines which I will expand on in later sections.

The dangers of too a high blood sugars - which are a symptom of diabetes - are well understood and fortunately the medical profession has many drugs to control blood sugar levels.

The technology of reversing diabetes - which means improving insulin resistance - is controversial with the main stream saying that diabetes is not reversible but with an

increasing minority claiming that there are techniques which can reverse diabetes (meaning type 2 diabetes) to the level where there is no need for medication.

This controversy stems from our poor understanding of how insulin resistance and particularly why insulin resistance varies so much from person to person. Research on diabetes inevitably involves sophisticated statistical techniques which may or may not be able to predict the probability of a particular diabetes sufferer (who I will now refer to as you) being able to reverse your diabetes.

Reversing diabetes is not the same as a cure which would mean being able to eat and drink what you like when you like and only exercise when your dog insisted on being taken for a walk - which pretty well sums up how I lived when I was young.

Reversing diabetes means you no longer need drugs and are pretty well free of the worry of going blind, having your limbs chopped of and dying young from diabetes - provided you maintain a healthy diet and do some exercise.

I imagine that you may well have little interested in the complex mathematics needed to predict the probability of you being able to reverse your diabetes. You may well take the view that to calculate the proportion of the 500 million sufferers of diabetes around the world is the job of the medical statistical analyst. What you are far more likely to want to know is simply whether you can reverse your diabetes.

You can find this out for yourself very easily within a few weeks and with very little risk. I do include a section on these risks later which you need to read before starting but I want to get stuck into the key issue of what steps you can take to reverse your diabetes.

There is a good chance they may work and even if they don't you will certainly end up healthier.

Let me be upfront - this is not a scientific paper on reversing diabetes - it is what I have learnt by studying the extensive literature on diabetes and my experiments on growing food and self-experimentation.

There is no doubt that my overall health has improved from these techniques but just because it worked for me in my experiments does not necessarily mean it will work for you - but it just may and there is significant evidence in the literature that the chances are high and certainly out way any costs.

## **Changing gut bacteria**

[http://mpegmedia.abc.net.au/tv/catalyst/catalyst\\_14\\_15\\_05.mp4](http://mpegmedia.abc.net.au/tv/catalyst/catalyst_14_15_05.mp4)

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