Combating diseases of the fat tummy by changing gut biology

Colin Austin 16 June 2016

Summary

This is an invitation to join a crowd research project to combat diseases arising from the fat tummy - more formally known as the metabolic syndrome - which leads to diabetes, heart attacks, strokes and can accelerate cancer.

Highly processed sugar and flour are the root cause but they are highly addictive which create cravings which come from our gut biology and can be virtually impossible to resist. The aim of the crowd research is to test a system of changing gut biology by eating plants grown in soil with a highly active biology.

The first part looks at why the current methods of managing the fat tummy are failing tracing the history of diet from the days of Ancel Keys and his failed calorie theory, Robert Ludwick's work on sugar and hormones and Tim Spector et al work on gut biology.

The second part looks at the work I have been doing on soil biology to make nutrients available to plants and hence us.

The third part outlines how a crowd research project may work and invites people to register their interest in participation.

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Preface

The Yunnan shock

My trip to Yunnan in South West China was a shock. I gave a rather light hearted commentary while I was in China (www.waterright.com.au/yunnan.htm) but now I am back in Australia I have had time to review what I saw which has encouraged me to try and set up a community research program (like crowd funding but with no money involved) and this is an invitation for you to participate (details in Part 3).

People in this remote area are eating almost idyllic food yet some people were fat - not all - some ladies had figures that Western ladies would kill for - slim with firm fat in the right places - not that I noticed. But many men and ladies had fat tummies but worse the kids were getting fat.

In this region - high in the Himalayan foot hills with rich volcanic soil and traditional agriculture with no chemicals or artificial fertilisers - people eating locally grown produce were getting fat because of drugs.

The word 'Drugs' conjures up images of shady characters in dark allies but some of the biggest drug dealers are highly respectable. The biggest drug dealer of all time was the British Government in Queen Victoria's reign - when ladies should not show their ankles because it was improper - the Governments sent in gun boats to force the Chinese Government to allow British traders to sell opium in exchange for tea - so the ankle hiding ladies could have afternoon tea on their lawns.

But the drugs that were making these people fat in this remote mountain region were not opium or heroin or speed. They are the same drugs that we are persuaded to buy every day in our respectable super markets - highly processed sugar and flour.

You may say how can these be drugs? Sugar and wheat are natural - sugar is in fruit and generally healthy while bread that is made from whole grains is exceedingly healthy. We have evolved to eat these healthy foods and our bodies have learned to manage them without setting up irresistible cravings. But refine them into concentrates and mask them in packaged food and our bodies have no experience of this new food and - like drugs - we develop irresistible craving for them.

These Western foods had scaled the mountains and people were consuming fizzy soda drinks and earing ice cream - and getting fat.

Let me explain why this shock has forced me to review and rethink everything I have learned about diet and health.

The global tragedy of the fat tummy

There is a medical condition called metabolic syndrome which really means visceral fat around the vital organs - this leads to diabetes, strokes heart attacks and can accelerate cancer growth. I am just going to call all these diseases of the fat tummy.

It starts of innocuously - just a little extra fat around the tummy - but the point about drugs is that they become addictive. The diseases which follow from the expanding tummy have led to the world's worst health crisis which on a global scale will kill or maim billions of people.

A recent Government report
http://www.health.gov.au/internet/main/publishing.nsf/content/3AF935DA210DA043CA257EFB000D0C03/$File/Australian%20National%20Diabetes%20Strategy%202016-2020.pdf
looking just at diabetes put the cost to Australia as $14 billion dollars - but that does not consider the personal hardship of going blind and having your limbs chopped off.

On a global scale the number of overweight people is passing the 2 billion mark with costs in the trillions - the world's major health epidemic.

It's up to us

Don't think for a second that the Government is going to save us - true we have organisations like the National Diabetic Service Scheme - but they are totally overwhelmed by the sheer numbers and anyway by the time you are diagnosed with diabetes it is bit late - we need to act before we get sick.

It is up to ordinary people - like you and me - to act to protect ourselves from the effects of these drugs. People are different so one size fits all will not work so in this proposed trial I want to develop a system where people can develop a diet which suits their individual needs.

I spend much of my time looking for ways to reverse diabetes - I could pretend that this is out of some form of public duty but that would not be strictly true. I have intense personal reasons to try and reverse diabetes.

My wife Xiulan was diagnosed as diabetic about seven years ago - acting on then medical advice - I persuaded her to cut out fats from her diet. I now still feel guilty about this as she was always hungry craving more food. She tried - unsuccessfully - to satisfy the cravings by eating carbohydrates. Her eyes began to deteriorate and she fell down some steps and broke multiples bones in her foot. For some four years I have been fighting to prevent the doctors getting out their chain saws and cutting her foot off.

I have not tried to hide the emotion in this article but I have tried to ensure the arguments are based on logic.

I started to read anything and everything I could find out about diabetes and I slowly began to realise that the advice we were being given was just **plain wrong**.

I tested this low fat hypothesis on the only person I know stupid enough to be a medical guinea pig - me - with exactly the same results. I developed food cravings and started the sneaky nibbling of carbohydrates (ginger biscuits and chocolate) to satisfy my hunger.

I felt they were simply treating Xiulan's symptoms - the pills were certainly holding her blood sugar levels within limits but there was no treatment for the fundamental caused of diabetes.

My conclusions could easily be taken as an anti-medical science rant so let me say upfront that I believe that medical science really works and my rant is focused on the major failures in managing diabetes and its related diseases stemming from a fat tummy.

Part 1 Review of classic dietary theory

Diet and health is rarely a black and white area with clear results and relies heavily on statistics based on large scale surveys - but this holds certain traps for the unwary so I need to have a short (or as short as I can make it) explanation of how science should work.

How Science should work

It starts with a hypothesis - or in lay language a hunch - which appears logical and fits the (often limited) existing data.

Then the hunch is thoroughly tested by collecting extensive data and if the hunch fits the facts it may be elevated to a theory. In the area of diet and health this usually involves statistical analysis of large samples. But statistical correlation does not necessarily mean the hunch is either correct or more importantly useful.

Take a simple example of operating the starter on a car and seeing if the engine actually starts. If the car engine never starts there is zero correlation - if it always starts there is perfect correlation and if it starts 50% of the time - it is totally random. But let us say that the car starts three days out of five (60%) - statistically this is significant but no one would put up with a car that only started three days out of five. This is the level of correlation typically found in dietary surveys.

The finding may be statistically significant but practically useless. This is pretty much what has happened in the campaign against diabetes. There are many theories on how to combat diabetes but they are all dramatically failing - it is not simply the number of people with diabetes that is a concern - it is the rate of increase particularly among children which is so alarming.

The figures I have been able to obtain suggest some 1,200 new case a week in Australia which is totally overwhelming the available support services which have now deteriorated to the stage where they are totally ineffective.

The real test of a theory is - can it be used to provide practical predictions that work? If the predictions always work then the theory may be updated to become a fundamental law of nature. If it only works under certain conditions it may be classified as conditional - it works under certain conditions.

A classic example of a conditional theory was my assumption that fat tummy diseases stem from a lack of mineral and vitamins in our diet. It is true that the mineral and vitamin content of food has dramatically declined and this can set up food cravings. But the Yunnan experience shows that even if people have adequate minerals but are eating excess sugars and flour they will still develop cravings and get fat.

Many of the dietary rules are in reality little more than hunches - they seem to make sense but are not verified in the real world - others are conditional - they only work under certain conditions.

Take a relevant case - there is some (minimal) historical data which shows a correlation between a low fat diet and weight loss. This may give some support for the low fat theory yet in practise when people have been put on a low fat diet they have almost universally failed to lose weight permanently. It does not matter what the statistics says the theory has failed.

Medical technology really works

Let's look at how good modern medical technology really is. The extension of life and elimination of many otherwise fatal diseases are well documented. Just in case you think from my later comments that I may be having a go at medical research let me give you my personal experiences.

Fifteen years ago I had a triple heart bypass in which they take out your heart and lungs and basically re-plumb you. I have also had a complete knee replacement which is just so good that a hardly notice until the scanner at the airport picks up the titanium in my knee.

I have also had other operations so I look a bit like a medical student's dummy - ranging from burst appendix, heart surgery, post pancreatic operations etc. - and they have all worked. If anyone of these had failed I would have been dead long ago.

I am truly grateful for medical science.

The only negative is that when I go for a Chinese massage - once the girl has got over the size of my nose which is large even by Australian standards - but apparently staggering to the Chinese massage girl - she spends the next five minutes examining all the scars on my body.

So with this amazing background of success how has medical science failed so miserably with diabetes and the fat tummy?

A fantastic film plot

The story of dietary theory would make a fantastic film. Just look at the array of characters.

We have scientists who have a hunch - conducted massive statistical studies on populations which disprove their hunch yet pig headedly defended their conclusions. Other scientists have become so focused on the minutiae of their specialism that they have completely missed the big picture.

We have groups of qualified doctors who describe their work as functional medicine who have rejected the conventional wisdom and quote numerous successful individual cases from their practices to show why they are right and the conventional wisdom is wrong.

Unfortunately there are so many quacks selling fake cures that it is difficult to establish what is genuine and what is bullshit.

Then we have the big business interest in processed food, pharmaceuticals, dietary supplements and pills that clearly put profit before public health and seem able to control the Governments that we elect to protect our interests.

Then we have a group of alternative lifestylers who argue that just because it is natural it is good (forgetting that the two most damaging products - tobacco and sugar - are natural) and we should go back to a hunter gatherer existence.

There would be a nice little subplot here as they often promote the use of various herbs and plant based medicines which are now being studied by research scientists which sometimes confirm the folk law and at other times say it is total rubbish.

With these characters how could the film fail?

But a film need a plot.

Here I want to explain how the classic dietary theories have failed and why the understanding of gut biology explains many of the anachronisms of the old failed theory.

Why is the science of diet and health so shonky?

So why is it that we have all the totally incredible technology available to us yet the science of diet and health make African witch doctors look spectacularly competent.

Over the last fifty years we have been exposed to a variety of diets which are supposed to manage weight - but they have been largely unsuccessful because of faulty underlying science.

Let's start with Ancel Keys. There is no doubt that he was a smart cookie and was among the first people to realise the health benefit of the Mediterranean diet. Full marks to him there.

Now what baffles me is this - the Mediterranean diet is **not** a low fat diet, it is full of fish, olive oil, cheese and all fatty stuff like that. So why did Ancel promote that we should all be eating a low fat diet - which in reality ends up as a high carbohydrate diet - an error which killed or maimed millions of people over his period of influence?

More people have died or been maimed by this error than Hitler killer in the second world war - staggering but true.

We need to understand how such a smart cookie could make such a major and damaging goof. Maybe he had a hunch that excess calories were harmful, fat contains a lot of calories so fat must be bad.

The hunch that eating fat makes you fat sounds pretty reasonable as hunches go. I have no problems with hunches that turnout to be wrong - that's life. I have had hundreds of failed hunches in my life but the key is to throw them away and start again until you get it right.

Ancel's failure was not that he got it wrong but that he hung onto his wrong hunch - killing and maiming millions of people in the process.

Of course now we have a better understanding of fat and know there are different types - some like saturated fats are not particularly good for us - while trans-fats are killers and some unsaturated fats are actually healthy - even essential - for the body.

Of course he was not the only one to make goofs. There is a bit of an issue with the China Study conducted by Colin Campbell. He came to the conclusion - quite rightly I think - of the benefits of a largely vegetarian diet. This was based on a large scale statistical analysis - but there are dangers in this type of analysis.

He collected data from all over China - including one of my favourite places - Yunnan. A small tribe up there in the hills lives virtually entirely off meat - it is just too cold to grow any vegetables - it is right on the border with Tibet and seriously high and cold. It just so happened I went there a few years ago and found the people to look pretty fit and healthy.

The number of people involved is so small that as part of a large scale statistical analysis this group is little more than a statistical anomaly - not worth worrying about.

But the implications are significant. Whereas some scientists have argued that eating meat is bad and we should all become vegetarian - this little snippet indicates that it is not eating meat per se that is harmful - it depends on how the animals are reared. Up in the mountains the animals just wonder about eating a wide range of natural vegetation growing on highly nutritious soil.

Much of our meat comes from feedlots with animals fed on corn - which is not their natural diet - and pumped full of antibiotics to accelerate growth.

The calorie goof

The argument that fat has a high calorific value and excess calories are therefore bad - now appears to be fundamentally flawed.

The calorie goof seems to be a direct result of Ancel Keynes war on fat and basically says that we get fat because we eat more calories than we burn up. Proponents claim this is firmly based on the laws of thermodynamics which is just wrong.

Basically it says that; -

Weight gain = calories in - calories used

You would probably consider me pedantic if I pointed out that this equation is not dimensionally correct - weight is measured in kilograms while calories is a measure of thermal energy so it fails the most basic of scientific tests of being dimensionally consistent but I am not going to harp on that - there is a much bigger error.

It completely ignores what every three years old knows - we poop and pee and that contains a lot of energy and mass. In a modern wealthy society people consume far more food than they actually burn up - the body decides whether to store the excess as fat or expel the excess from the body.

An early test for diabetes was that ants would be attracted to the sugar in the pee. The body - via the liver - was getting rid of as much of the excess sugar as possible and diabetes only really set in when the liver could no longer cope in getting rid of the excess sugars.

But the validity of any theory is tested by whether it can predict what happens in the real world. Here the ‘calorie in and out’ theory fails miserably.

Some people can eat as much as they like and never get fat while other people can eat so little that they are on the brink of starvation but the body just hangs onto any excess fat totally refusing to give it up.

The calorie theory totally fails to explain this. If the calorie theory were true - in a modern society where we all overeat we would all be revoltingly fat - but we simple are not - some are fat and some are skinny.

Advocates of the calorie theory say this is because of genetics - but there are many identical twins where one is fat and the other not so fat - there is obviously more to this than this over simplified hypothesis.

Practical tests

But it is always good to put a theory to a real world test - my trip to Yunnan provided such a test (see www.waterright.com.au/yunnan.htm).

On this trip every night involved a serious Chinese feast - just masses of totally delicious food and I must plead guilty to being a total pig (the food tastes so good). At first my body seemed to obey the calorie law - I became fat and bloated and put on three kilograms in as many days. But then my body revolted and simply said there is no more room (which in the land of the squat toilet - which is not one of my skills - was not good).

So after my initial increase in weight when my body decided I had had eaten enough I ended up losing 4 Kg so I was lighter than before despite eating all that food - in direct conflict with the calorie law.

Stage 2 the power of hormones

Robert Ludwick is the scientist who has most clearly explained the fallacy of the calorie argument. I should also reference Zoe Harcombe - both easily found on YouTube or google.

His explanation is that the body has a highly sophisticated control system made up from the gut and brain connected by the Vagus nerve and using hormonal signals as messengers.

If the body senses that we have too much sugar in the blood
- it switches on the autopilot and churns out insulin so the body stores the excess sugars as fat in the liver and elsewhere so we get fat.
- having stored the excess sugar as fat we feel hungry and eat more.

We don't get fat because we overeat - we overeat because the body is storying excess sugar as fat so we are hungry and need more energy to power our bodies.

Exactly the opposite of the calorie theory.

This is a cycle which gets out of control so we end up in hospital waiting to have our foot chopped off from diabetes.

Robert Ludwick's explanation that we have a control system which determines how much we weigh is one of the landmarks in dietary theory.

But it raises the question of how this control system actually works (and how we can modify its set points).

Dr Susan Pearce Thompson is a prolific writer on diet and health and explains that the hormone leptin should tell our brain when we are full so we stop eating. Leptin is produced by fat cells so in theory the fatter we are the more leptin we produce we should feel full and stop eating so our weight should be automatically controlled. Sounds good in theory **BUT - .**

Researchers at the University of California found that leptin can be blocked (technically down regulated) by insulin which is released when there is too much glucose in the blood stream from eating too much sugar and flour.

She then goes on to explain why our bodies just don't seem able to cope with modern sugars and flour products. She uses cocaine and heroin as examples of drugs which people can cope with in their natural state. Local people at high altitudes regularly chew cocoa leaves to handle the altitude without any adverse effects.

However when they are processed into concentrated from - our bodies have simply not evolved to cope with this level of concentration - so we become addicted with major problems.

Natural forms of sugar and flour are similar - people have been consuming sugar for centuries without harm - in Chinese markets you can buy sugar cane which people chew without problems. But the high level of concentration in process sugar and flour (with all the fibre removed) is just too high for our bodies to handle.

The Calorie Myth and our control system

The tragedy for millions of people is that they have been told they can manage their weight by managing their calories - and it just does not work. You have to get down to basics and manage our internal control system.

My analogy it that it is a bit like trying to control the speed of a car by how much fuel you put in the tank. Totally daft - you control the speed of a car by how hard you press on the throttle.

Fortunately, we are learning how to do this by managing our gut biology which is a major player in making us feel hungry or full.

As I read I began to realise that the root cause lies in our brain**s** - high blood sugar level are just a symptom. Brain**s** is not a mistype - we have three brains - the first in our skulls - the second is our brains which sit in our stomach - the third and very important brain is the gut biology which lives in our guts and actually has intelligence.

These three brains between them - by a system of hormones and the vagus nerve control our appetite and whether we use, store or expel energy.

Gut biology and the symbiotic creature

I suggest you may like to have a look at some of Tim Spector publications - The Diet Myth - is as good as any while Giulia Enders - Gut the inside story of our body's most underrated organ is very readable.

Microbes have been on the earth for some three billion years (compared with a couple of hundred millions for humans - if you are a bit flexible in what you call human).

These early microbes twigged Darwin's law of natural selection (which should really be called the law of natural adaption) - adapt or go extinct. In reality this meant an obsession with sex and food - as demonstrated by adolescent males of the human species.

But microbes can reproduce in less than twenty minutes - there is an awful lot of 20 minutes in three billion years so microbes are the most highly evolved creatures on the planet.

Group intelligence

But microbes have another thing in common with adolescents - group intelligence. (Which is how they work out how mobile phones work).

One solitary microbe is a pretty useless creature which by itself would soon die out. But put a whole bunch of them together into pack - or more formally called a colony - and you have something totally different.

Each microbe can communicate with all neighbouring microbes so information can flow right throughout the colony and by some uncanny knack can take decision as an entire community.

This communal intelligence is now quite well known, intelligent slimes have been known for years - as have the communal intelligence of ants and bees. The nearest thing I can see in human behaviour is Chinese street dancing where many people dance in perfect synchronism - just by following the person next to them. That is except for me acting more like a kangaroo having a fit - but eventually even I get into the swing of it.

In many ways it is similar to the way our brains and computers work - with millions of cells communicating with each other - the only real difference is that our brains are in a box while the microbes were al-fresco.

An example of the effectiveness of this group intelligence is shown in inter colony war fare. Each microbe has a puny gun (actually a minute chemical squirt) which would be totally useless in isolation. So under attack the colony breeds like mad until it reaches an overwhelming size then simultaneously they all give billions of micro-squirts which usually sorts out the enemy.

But these colonies had one major problem - food or lack of it. They could scrape a living just hanging around for things to die but world domination was what they were after. They needed a major source of food.

They noticed that there were creatures like worms wondering around which they could colonise and form a symbiotic relationship - the worms provided raw food which was difficult for the worms to digest but the microbes could take their share and provide digested food directly to the worm - a mutually beneficial relationship.

But the microbes soon realised that there were many large stupid creatures wondering around eating plants and it would be very easy for them just to sit on a bit of grass until one of these creatures ate the grass - into the tummy they would go - and hey presto a reliable and large source of food.

As far as we know microbe colonies have no social conscious but they soon worked out that it was in their interest to keep these stupid creatures alive. If the host dies they die. So they gave them a helping hand by digesting their food for them - killing of any pathogens which may decide to attack the lumbering beasts - provide the animals with some vitamins that they could not make themselves - nice to see them paying their rent.

Microbes go to help humans

This was a pretty good deal for both parties (the essence of a symbiotic relationship) and soon these microbes had spread to the tummies of virtually all creatures - including us. For a couple of million years this worked great until about fifty years ago we discovered anti-biotics and started killing off the protective biology which was feeding us and killing pathogens.

No doubt the microbes thought this was pretty silly and put it down to the lower intelligence of these human creatures that could not think as a colony.

That did not bother them too much as they breed every twenty minutes so it did not take them long to evolve an antibiotic resistant version. This was not a total solution as some of the colonies were overrun by rival colonies which were not so beneficial for humans.

These harmful colonies made people fat and die which was certainly not in the interests of the microbiology colonies.

Some colonies were vindictive and thought the silly humans needed to be taught a lesson and invaded their brains giving them all sorts of psychological problems - it could make them hungry or have a total aversion to food or affect their moods like depression or anger.

It is a pretty scary thought how much control these microbes have over our bodies and minds.

But about ten years ago humans began to realise that these microbes were pretty useful and started to study them seriously which had the side benefit of giving a mechanism for how diet works. This turned the then shambles that was dietary science into one which was had an underlying mechanism rather than just relying on crude and unreliable statistical analysis.

Messing with the microbes

I appreciate that many people do not like the idea that our guts are full of foreign microbes - they are even more off put by the idea that these microbes are controlling how our body works and even worse are controlling our appetites and even our moods. The idea that world war three is being conducted between fighting colonies inside our tums is not exactly comforting.

Sorry about that - but I didn't invent the system it is just the way of the world.

Now we have a mechanism which gives an understanding of how we work and what makes us fat or slim.

But the sad fact is that we have screwed up an awful lot of tummies with our obsession with antibiotics, antiseptics and highly processed food which allows the wrong sort of microbes to take over.

So this great health crisis we are facing is not simply caused by a simple excess of calories - that must be among the greatest recent goofs of modern science. It is because we have allowed our guts to be taken over by the wrong sort of microbes which are not healthy for us.

The last big goof

Humans have made major goofs before - it is a long time ago but one of our previous major goofs which wiped out a third to half the population was an obsession with black cats - which was just as harmful as our current obsession with calories and fats.

For some reason the Church of the time developed a thing about witches and adopted the habit of tying older women that kept black cats to a stake and burning them. The theory was that keeping black cats was an indicator of being a witch. Not surprisingly this discouraged people from keeping cats which led to a surge in rat population and the Black Death.

If we don't change our ways - the damage we are doing to our gut biome will lead to a major health disaster which will challenge the Black Death.

We could run around blaming the food processing, pharmaceutical and supplement industry but that gets us nowhere. What we need is solutions which are the subject of the next section.

Part 2 Changing our gut biology

The evidence is that by eating concentrated sugars and flours we encourage the development of gut biology which thrives on concentrated sugars and flours. When established this colony sends out signals to our brain creating craving for these foods. We need to change our gut biology to stop these self-perpetuating cravings.

The science of gut biology is now pretty solid - we can make mice and people fat or thin by simply changing their gut biology - simply amazing. So how do we change our gut biology?

Here the science is not so well developed but there are two methods - the pre and pro biotic methods.

Pre-biotics approach

The pre-biotic theory is that even though the colonies of bad bacteria may have taken over (because we eat too much sugar and carbohydrates) there are still remnants of the good biology left. The hunch is that we can starve out the baddies and feed the goodies so they take over. The theory is we can do this by simply changing our diet to favour the goodies.

Pro-biotic

Another approach is to take pro-biotics e.g. bacteria which you can take as a pill of food. You can buy these pills over the counter from any good chemist shop. I have tried this and am not sure what I think. The range of bacteria listed is very limited in comparison with the thousands of different species which are known to exist in our guts.

I cannot say I noticed any great change in my health and I am allowed a little prejudice and would rather avoid taking pills if a more natural way is available.

Another method for changing gut biology which has a high track record of success is what would be colloquially known as the pooh pump. You take the pooh from a healthy person and physically pump this up your bum. OK I accept it works but given the option of having someone else's pooh pumped up your bum or eating a good healthy meal I can guess which way most people would go.

So at long last I get to put forward my ideas on how to change your gut bacteria.

Before I get down to the nitty-gritties let me explain how I think. In my previous life I used to do a lot of work in Japan and they would ask me **how** I thought about some issue. They were more interested in **how** (the method) rather than **what** (the answer).

I make no pretence to being a specialist in gut biology but I have a great interest in studying how eco-systems work.

The eco-system approach

The essence of the eco system approach is to accept that in any system there will be beneficial and harmful biology - the essence is to provide the conditions that benefit the beneficial biology which will out-compete the harmful.

While this may seem obvious it is in direct contrast with the traditional approach of trying to totally eliminate the harmful biology (usually by aggressive chemicals and antibiotics) then re-introduce known beneficial biology.

The limitations of this approach are that it is virtually impossible to totally eliminate all harmful biology and that as we have limited knowledge of what makes a beneficial biology we will only introduce a small variety of the needed species.

One of the fundamental principles of biological management is to have a broad a spectrum of biology as possible.

Changing the eco system

So let us look at diabetes - and the metabolic syndrome from which it springs - as part of a changing eco-system.

Diabetes and fat tummies have always existed (Henry V111 was monstrously fat) but people died young from many reasons so diabetes was - by comparison - a minor disease it is only in the last fifty years that it has become a major problem.

What has changed and how can we correct any harmful changes? It is all about food.

Changes in food supply

Historically food has been in short supply and expensive for most people. Now it is cheap and abundant. But is it not just about quantity - it is quality.

Traditionally agriculture involved small mixed farms - a broad mixture of animals and crops - with manure the main fertiliser. The recent change in agriculture has been totally dramatic with the wide spread adoption of mono-culture, artificial fertilisers and antibiotics. This has resulted in an all-out war on our soils. Minerals and trace elements have been dramatically reduced and the soil biology decimated.

Home cooking has been substantially replaced by convenient processed food or fast food outlets. We almost have no control over what we eat - supermarkets are brimming full of a multitude of different packets but with similar contents - sugars, fats, salts, high fructose corn syrup or the likes. It is a battle to find a packet of old fashioned oats for breakfast among the multitude of sugary breakfast cereals.

What can be done about this?

My approach - up to my Yunnan trip - was to focus on methods of growing fruit and vegetables in nutrient and biology rich soils. I still think this is essential but now realise this is not enough (it is a conditional theory) - we need to focus on changing our gut biology which can create almost irresistible craving for sugary foods.

It seems a reasonable hunch (seems likely but as yet unproven) that the easiest and most pleasurable way is simply by eating food grown in a biologically active soil. Fruit and vegetables are naturally pre-biotic (feed beneficial gut bacteria) while fresh biology would be transferred to the food and hence our tummies - particularly if excessive peeling and cleaning are avoided.

Practical ways of changing our gut biology

The following is a basic description of the system I am using based on my particular circumstances. This is not intended as a manual (which I will write later) but more to cover the basic principles. Different regions, soils and climate may require different approaches.

My aim has been to develop a pragmatic overall system which works as a total entity rather than becomes absorbed in highly specialist technologies.

Inoculants

Soil biology breeds incredibly fast so while some starter of inoculant is required only a small amount is needed to get the process going.

I am fortunate as I live on an eco-village with virgin areas with a broad spectrum of biology which has evolved to be suited to the local climate. I have monitored the growth over the years - particularly of fungi - and select soils from these regions.

Feeding the inoculants

The inoculants must be fed to grow.

I am a bit of a recycling fanatic and I don't expect other people to follow me but this is the system I have developed which works fine for me.

I live in an eco-village with lots of green waste, grey water and a composting toilet. These obviously contain pathogens so I do not want to use them directly. I make a horse shoe with plants which give abundant green foliage. In my climate Queensland arrow root, sena alata, comfrey etc grow really well.

I put all the waste (and that means anything which is vaguely compostable) into the centre of the horse shoe and just let them do their own thing. It may take several years for some of the large pieces of wood to decompose. I don't worry about all those rules that composting enthusiast insist on - like no grapefruits skins or onions, or carbon nitrogen ratio - in it goes.

I do not use any of this material directly as it may contain pathogens but will harvest the leaves growing from the outside of the horse shoe hoping the plants filter out the pathogens. I have been doing this for years and am still alive.

I will simply pile or spread these green leaves out onto the garden bed I am making or improving. If I am keen I will run the slasher over the leaves to chop them up. This will slowly rot down to form what I call a sponge bed.

If I am starting a new bed I will sprinkle the inoculant over the leaves then cover with soil I have already made.

Now I have to feed the biology so they will multiply. I need growing plant to provide the energy from photosynthesis. Biology grows largely in the root zone of plants so I select plants which are known to encourage biological growth. Sunflower is a classic example (it encourages mycorrhizal fungi) but I make up a mix of various seeds and sow. Apart from watering I just let them get on with it. I have about a dozen species in my seed mix, typically

most germinate but if some fail I do not worry as long as there is a good cover - this is really lazy gardening.

After about three months when the sunflower has seeded I will slash everything down.

The eco zone

I really don't like leaving soil with nothing growing - this is what keeps the biology active. I will quickly make eco-zones which will act as a reserve for the biology. Typically these are around the edge of the bed but I also divide the bed into strips with the eco-zone forming paths.

It is just a reality of life that the soil which will form my growing zone will be full of weed seeds so although I don't like leaving the soil without plants I will let them germinate and mow them as they come up and finally scrape the surface (with the bucket from my tractor or a hoe if I am feeling fit) until I have got rid of most of the weeds. I am surrounded by natural bush so weeds are just something I have learned to live with and tell myself they are highly beneficial for the soil biology.

Wicking beds or direct planting

I now have two options. I can take the soil and use this in a wicking bed. I simply dig up the soil which is full of roots and is rather coarse and put in the base of the wicking bed then cover with a fine soil or vermicast for germinating my crops.

If I am direct planting I will simply cover with the seeded area with another layer of soil or vermicast. After germination I will keep the surface mulched with grass clippings or my compost leaves after running through a shredder.

Problems and snags

This all sounds pretty simple on paper however like so many things when you get round to doing it there are snags and problems.

My problems come from living on an eco-village surrounded by bushland. Weeds are a major problem as seeds are simply blown in on the wind. We don't use any chemicals to control weeds and removing by hand just is too much grunt work.

Weeds are pioneering species and can be highly beneficial for soil improvement but many varieties seed prolifically (which seems a feature of weeds).

I attempt to out compete them with plants they are actually useful. Pumpkins just grow like weeds on my place so I just let them take over until winter - put my long boots on to avoid the snakes - and harvest the pumpkins then out with the slasher on the back of the tractor.

Insects are certainly an issue but as this is a dry climate apart from fruit fly we do better than most in Australia.

But animals and birds are in a different category. I keep out he kangaroos with a big fence - even though it is taller than me they can easily jump over it but I chase the out with the zero turn mower which goes like a rocket and they now seem to have decided there is a voodoo on my place. But that still leaves the rabbits and possums which can wipe out an entire crop overnight.

Birds are another issue. We have a system of lakes to supply us with water in the dry so we have large numbers of water birds ducks, herons, spoons bills, ibis and the dreaded water hens. They are so destructive that I have to resort to netting. When the sunflowers are in seed there are so many parrots that their weight breaks the stems.

There is a plus that they are bringing an additional stream of biology on their feet.

Known and Unknown

This is just my method of making biology rich soil, there are many others and basically soil biology is pretty resilient so if you stop killing it with chemicals and excessive tillage it will flourish. We can put this into the ‘known’ category.

Now we come to the critical issue how to transfer the biology to our tummies and probably even more important how to make sure the right biology gets transferred.

This is an area where humans and other animals have been doing this successfully for hundreds of thousands of years but has received very little scientific investigation.

There are some pretty quack sounding methods even simply eating soils directly - which does not sound too healthy to me.

I imagine that roots crops that are eaten fresh without cooking like radish, carrots celery etc. would provide effective transfer from their skins if they are just washed and not peeled or scrubbed.

I would like to think that the leaves of green vegetables would also have a surface coating of bacteria but I have not found any hard information one way or the other.

Part 3 Crowd research to changing our gut biology

Why we need crowd research

I wonder how many people reading this have experience of the Australian Diabetes Service Scheme either as a patient or career - but let me give you my experiences. I appreciate they are suffering from chronic overload but the scheme is simply not working.

I contrast my experiences of the Diabetic service with when I had my heart operation. Then I was placed in the care of the consultant surgeon who was in total control of my care. He looked at my total medical history and from the beginning to the end was taking responsibility for my care and I had confidence in his skill both as a surgeon and a manager.

I contrast this with Diabetes Service Scheme. There is no one in control of the patient doctor relationship - you just get shunted off to the various specialists like a sausage in a machine.

Some of this I was very comfortable with - I was more than happy to take Xiulan to the eye specialist to have her eye checked for retinal detachment. Definitely a tick here.

The foot doctor was less beneficial telling us that her foot was going black and we had to be careful. This we could see for ourselves so was a redundant visit.

But the dietician almost caused me to blow a blood vessel. We were treated to a standardised lecture which could have been taken straight out of a fifty year old text book written by Ancel Keys.

As my wife is Chinese and looks Chinese it only needed raising the eyes and a miniscule of thought to realise that standardised dietary advice may have to be modified for a Chinese person and that a certain amount of cultural adoption may be needed.

Let me digress for a moment and tell you about one of my farm visits in China. I was showed a field of fresh vegetables - a little rosette of human turds was arranged like petals around every plant. It looked very pretty and I can only guess that the farmer's kids were just at that stage in their kindergarten that they liked making pretty patterns.

Using animal or human manure is routine in Chinese agriculture and many Chinese will only eat vegetables that have been cooked. Just quoting form a text book to eat more salads does not work.

Do it yourself

I read the report outlining the Government's plan to combat diabetes hoping to find some cause for optimism from a concrete plant which recognised the realities of life. It is an elegant document written in Government prose but totally devoid of any action plan.

The current sausage machine approach just does not work and the only option is for people to take charge of their own health - preferably before they get diagnosed with diabetes or a major health problem - as this is the most effective time for action.

I am therefore inviting you to join in a crowd research project to test if this simple approach has the benefits expected.

Let me be 100% clear - in no way am I advocating that you should stop taking advantage of the medical services that really work - blood and faecal tests are critical.

The essence of the approach is to create a balance between beneficial and harmful biology with the beneficial biology controlling and limiting the effects of the harmful biology.

If want to participate in the trial you need to recognise that not all harmful biology will be eliminated from your body. If you have read this so far the odds are that you already have significant harmful biology in your guts - the target is to bring these under control - not eliminate them.

This is just recognition of reality - the only way I know of killing off all harmful biology is to put your body in an oven at 250°C for four hours. As the script writers say this has non beneficial side effects.

I am urging all participants to do this under medical supervision.

Let me be honest it will involve changing your diet to reduce the level of highly processed sugars and flour. This can be a bit rough until your gut biology has changed - but after that the food cravings do go away. Believe me I have done it.

The first step is to email me to let me know of your interest in participating. Let me be honest I have never tried to set up a crowd research project before so I am going through a learning process myself. But I am hoping that other people may have expertises that we can share as a group. That is what crowd project are all about.

I will run an update and sharing service from my web to keep you informed of developments as they happen.

I may be able to help some people with inoculants but quarantine can be strict - if they had their way they would make everyone go through a batch of concentrated nitric acid when crossing a border.

I can also share my self-experiments on diet but I simply don't believe that a standard diet for everyone will work - it is a process of self-experimentation to find the diet that suit an individual. Some people seem able to digest loads of fat without problems while others are highly sensitive. A lesson that Mr and Mrs Jack Sprat taught us - if we can remember our nursery rhymes.

I respect people's privacy but on the other hand sharing information is important to a project like this. If I make any comments to the group I will only use your first name and if you prefer you can make up a fake name to completely mask your indemnity.

The next step will be to measure your current gut bacteria, this is a relatively simple test based on a faecal sample. I have had this test done on both myself and Xiulan. I was not totally satisfied that the information I received as the emphasis seemed to be on identifying pathogens when what I was really looking for was an analysis of the spectrum of biology.

I will be trying to contact other laboratories and this may be an area where some members of the group may have expertise or contacts.

Measuring blood cholesterol and sugar levels history is also recommended which in Australia is available under Medicare with a doctor's prescription.

The next step is to grow and eat plants in the biologically active soil which can be prepared following descriptions I will provide. Some change in diet may also be required particularly limitations on the consumption of sugar and high GI (fast acting) carbohydrates and an increase in fibre which feeds the gut biology.

Weight and waist measurements needs to be checked regularly together with a general assessment of feeling of wellbeing such as energy and vitality.

At the end of the trial the gut biology and blood sugars will need to be retested to see what changes may have occurred.

While subjective I am also interested in a general feeling of health, energy and vitality.

Why participate in this crowd research

If I have not already put you off perhaps I can do a little sales job to persuade you to join the project.

The immediate benefit to you may be an improvement in your health. In our case avoiding Xiulan having her foot chopped off comes under the category of an improvement in health.

But the reality is that the number of people who are or who soon will (particularly kids) be affected by the fat tummy is measured in the billions.

While I have great respect for the scientific process it tends to be highly reductionist with researchers looking at highly specialised areas. This project is not planned as a classic reductionist research but aims to create a holistic understanding of the fat tummy.

If this project is successful it may help these billions of people directly. It may also help direct more formal research into providing practical solutions.

Please feel free to pass this article onto any of your friends or contacts who may be interested in participating.

I look forward to hearing to hearing from you.

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