

# Pragging post Jiangkou

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**“Pragmatic”** *‘Pragging - Solving problems in a sensible way that suits the conditions that really exist now, rather than obeying fixed theories, ideas, or rules: In business, the pragmatic approach to problems is often more successful than an idealistic one’* – The Cambridge Dictionary

In my last letter, I talked about gawking in Jiangkou - just mindless looking at why the elderly Chinese are so fit and healthy. As I explained it is important to be mindless or you will just see what you are looking for and miss what is really there.

I promised I would try and make sense of what I saw in my next newsletter - that's now. But how?

## Long and boring

The answer to what I found is long, boring and involves comments on how to use statistics which will put most of my readers off. A later letter will be about how to grow food to change gut bacteria which is good practical stuff. I know that most of my readers are more interested in how to grow food which will make them healthy and I don't want to lose you so here is a quick summary.

In an ideal world scientists develop **general** theories which can be applied to solve specific problems. I have had a bunch of operations including a triple bye-pass, removal of inflamed appendix and gall bladder and a knee replacement with a flash foamed titanium insert. All worked really well or I would now be fertiliser rather than writing this - so I am not knocking the system. It works because knees from Australia, Tanzania or Chile work in pretty much the same way.

Scientists have tried to use the same method for diet, particularly diabetes and it simply has not worked. We hear heated arguments for low fat, low carb, high vegetables diets with total conviction - what a shambles.

We have a diabetic machine - run by pre-programmed avatars who say that diabetes is not reversible and the only solution is to keep on increasing insulin until you go blind, have you legs chopped of and eventually die early of a heart attack.

This is simply not true - many people could have their diabetes reversed - so what goes with this diabetic machine which, with the best intentions, is killing millions of people world-wide?

The answer is simple, unlike hearts and knees our tummies are all different. I say our tummies but it is really the biology in our guts which is so different. At this moment there is no generally available method of finding out what is the most appropriate dietary protocol which may provide the best chance of a cure for a specific individual.

In the absence of this critical information there is little option other than to pump people full of insulin which will guarantee the prediction that diabetes cannot be reversed.

In this letter I describe a system where we could readily measure people's sensitivities and therefore recommend specific dietary protocols which may give them a sporting chance of reversing their diabetes.

This means getting away from our obsession with correlation coefficients at the ridiculously low levels found in the typical mega trials and replacing these with individual sensitivity factors.

If all this makes absolutely no sense let me put it like this - my wife is diabetic and an extra piece of cheese cake sends her blood sugars through the roof. I can eat cheese cakes until the cows come home but a fatty pork chop sends me reaching for the Mylanta (antacid). All the numerical mumbo jumbo I talk about in this long and boring message simple boils down to people being different - me eating cheese cake and she eating pork chops.

Not a totally revolutionary idea - Jack Sprat et al had that all sorted out lone ago

**Jack Sprat** could eat no fat,  
His wife could eat no lean.  
And so between them both, you see,  
They licked the platter clean.

The essence of this long and tedious letter is a method of measuring individual sensitivities to determine the most appropriate dietary protocol.

So to the dull and boring work - otherwise wait for next letter on changing gut biology.

## **The garbage that passes as dietary science**

I was going to call the final section - the crunch pages where all is revealed -

**'How to live into your nineties, contentedly tending your garden growing vegetables, going fishing, having fun between the sheets and reverse diabetes, avoid obesity, strokes, heart attacks, Alzheimer's diseases etc. by using statistical methods to determine your sensitivities to food types and changing gut biology coupled with intermittent fasting and social support'**

but when I hovered my mouse over the heading icon it extended over seven lines which is far too much for a heading.

So, I have simply called it **42**. This is a tribute to one of my mentors - the highly talented but unfortunately late Douglas Adams who spent his life writing deeply philosophical articles with great social significance in a witty and humorous style. He once wrote about the meaning of life and the universe and revealed the answer to be 42.

Unfortunately, most people just sit back and enjoy his wit and humour and totally ignore his meaningful philosophy.

I have a horrible feeling that this is about to occur again with me but they say that the difference between a wise man and a fool is that the fool keeps on repeating his mistakes expecting a different reaction to the same methods. If that case I would have to resign myself to the rank of 'silly old fool'.

Anyone who reads anything about diets and health - whether in technical articles, google, YouTube, Amazon or wherever - will be struck by the almost endless number of different diets being promoted which will keep you young and healthy - with supreme confidence - and mangled science.

The three great sins are confirming preconceived ideas (that is why mindless gawking is essential), the copycat effect and portraying probabilities as hard facts.

My wife, Xiulan, is diabetic her eyesight started to deteriorate, consequently she fell down a flight of stairs breaking multiple bones in her foot which months after the operation started to turn black with the threat of amputation. I am not interested in some academic debate - my wife does not want to be a blind cripple and that is not I want for her - I want practical solutions that works and I want it now.

We have been mishandled by the diabetes machines and I am a grumpy old man. But if you read on you will find I have other failings (at least that I am prepared to admit). One it that I am incredibly mean, tight, careful, financially prudent, waste intolerant or whatever euphemism you prefer.

I also admit to a slight tendency to obsession so I have devoted totally ridiculous effort into analysing the three deadly sins of the diabetes machine - this may be primarily to find a cure for my wife but I just cannot reconcile myself to wasting all that effort and as diabetes is the number 1 health crisis of our age I would really like to make my findings have an impact on turning this around.

This means I must make my letter interesting. Let's face it I had a ball in Jiangkou so making my last letter 'Gawking in Jiangkou' interesting was a fun challenge.

But how to make the misinterpretation of probability theory interesting is a challenge beyond my writing skills - but hang in there as reading this may just save your life or someone you love.

## **The art of truth and ignorance**

Diet and health are complex topics - we have been told to eat less and exercise more, cut back on fat and eat more fruit and vegetables but that advise simply has not worked.

Go back a few decades - diabetes in China was very rare - but now well over 20% of the population have pre or full blown diabetes - the incidence of these diet related diseases continues to increased exponentially - we need to rethink and try a different approach.

There is an ancient adage that says; -

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

This adage extent back through the ions of time to about eight seconds ago when I first made it up.

But there is truth in it. Every scientists dream is to come up with some fundamental new truth or understanding which explains and brings clarity to what was before a totally confusing picture.

Just like Newtons laws of motion were incredibly simple and brought clarity to what had been a state of confusion. They were general laws (until Einstein showed their limitations) and they have been applied to solve countless specific problems - in fact our current wealth is based on the successful application of these laws.

But notice the pattern - science develops general laws which are applied left right and centre to solve almost anything and everything. Great when it can be pulled off.

Unfortunately, science is a long way from providing those simple general laws for diet and health and the common catch phrases like **eat fat get thin** just don't give us the solution.

## **We are all so different**

Now the basic problem is we are all so different that formulating general laws which can be applied to everyone is a bit tricky (read impossible as yet).

At one time, we thought we could understand our bodies by uncovering the magic of genetics, then we found out that genes could be turned on or off so knowing the genetic code was not enough. We need to work out where this magic switchboard that control our genes is located in our bodies.

But that is just the start of understanding our differences, in our guts we have thousands of different types of biology which by some incredible process work in unison to provide intelligence. It is a bit like the on/off switches in a computer working together to provide apparent intelligence but there are trillions of cells of all different types. Working all this out is more than an afternoons job in the lab.

Our tummies are all different.

This starts right at my kitchen table. My wife is diabetic - too much of that goody-goody ice cream and her blood sugars go through the roof and we are in emergency mode.

Now me - I can pig out on ice cream, cheese cake and all that party food without a glimmer. But too much fat - like that extra slice of that oh so yummy pizza I could not resist - means spending the night getting up and down for yet another Mylanata pill.

How can you have a general law which applies to everyone when we are all so different? At some point in the future we may well have those magic laws of fundamental science but right now we don't - so our only option is to fall back on the less intellectually appealing skills of the engineer in managing ignorance.

## Managing ignorance

So, my approach is the classic engineering approach of managing ignorance - look at all the current science - pick out what seems the most likely to work in practise - to produce a model, a concept of how it may work - then build a prototype to see if actually does work.

If the prototype does not work then it probably means the model is wrong - if it works then that does not prove the model is true - but at least it encourages the next prototype.

Science often uses mice as prototypes - engineering prototypes need to be real world so I am the prototype - next is my wife Xiulan - then you are invited.

## The three deadly sins of diet and the internet trap

In the last few decades or so we have been through a simply astounding technical revolution with more data than ever before. Unfortunately, the technology of converting that data into useful and trustworthy information has not kept up.

There are three fundamental ways we have gone wrong. The first is the **google affect** where there is so much data that it is possible to find supporting evidence for any idea (however stupid). I talked about the dangers of the google effect in my last letter on [gawking in Jiangkou](http://www.waterright.com.au/jiangkou.pdf) (<http://www.waterright.com.au/jiangkou.pdf>) - now I need to explain two more traps in the information age.

## The Alp map or copycat trap

I have not always been old and silly - once I was young and silly - and one bit of silliness taught me a powerful lesson about information. This goes back many years before four wheel drives became the favoured shopping trolley and the only off-road vehicles were dilapidated old Land Rovers.

My idea was to drive an ancient Series 1 Land Rover from Melbourne to Canberra along the North face of the Australian Alps. My first problem was I had no money - but I was able to locate a Series 1 Land Rover which was fulfilling an excellent role in stopping cattle getting out of a hole in the fence. Basically, for the price of two metres of fencing I was able to negotiate my ownership of this dilapidated but remarkable vehicle.

I say remarkable because the Series 1 Land Rover was made out of war time scrap but it did have one redeeming feature of front and rear power take offs which enabled it to do all sorts of farm yard jobs until industry cranked up to produce 'real' farm machinery.

It also had a remarkable trait that bits and pieces could fall off or break but somehow it managed to keep going. On this famed trip, I replaced a broken spring with a branch of alpine gum chopped form an obliging tree.

But that is only the start of this tale. The Australian Alps are not like most mountains ranges with high peaks but are a plateau dissected by ravenous gorges which are unnavigable - this makes having a carefully planned route essential. The trick is to travel along a ridge and find a place to cross to the next ridge. This was then pretty rugged and remote country so how was I to get accurate information of potential tracks?

I admit to being mildly obsessive (I am in fact totally obsessive - I just don't admit it). I laid my hands on every map I could find, National Surveys, military, forestry whatever I could find. I then spent many evenings pouring over these maps to find a route which was on every map. I could then be sure the track actually existed - couldn't I?

Well not exactly - I arrived in the middle of nowhere to take a critical track crossing from one ridge to the next. I was pretty sure I had located the exact point but the only sign I could find of this track was that the trees instead of being fifty metres tall were only thirty metres.

What had happened was that way back in time some authority had marked the track which may or may not have actually existed. After that some map maker had simply copied the original track, then the next map maker copied that map and so on until the track became enshrined in the wonderful world of alpine cartography. I survived due to the incredibly low gearing of that ancient vehicle which enable me to navigate an unnavigable route.

This happens all the time in the wonderful world of diet and health. Dietitians have been fighting the battle of the fat versus carbohydrates for over half a century in a totally useless (and bitter) war. There simply is no general universally applicable law.

I can pig out on sweets and carbs till the cows come home without a glitch but one fatty pizza bowls me over. My wife can pig out on the fattest spiciest Chinese banquet without a hitch but one piece of cheese cake is about as safe a swallowing a live hand grenade. My hypothesis is that this is due to difference in gut bacteria. I have always had vegetarian tendencies while my wife is a meat eater. Our gut bacteria have evolved to match our eating habits.

The preprogramed diabetes machine based on simplistic but wrong general laws just does not work. We are asking the wrong question and getting the wrong answer.

## Google alerts and amazon

Let me tell you about my friend Mr. Google. If you want to research a topic the temptation is to google whatever subject you are interested in - my search items would be diabetes, diet and health, insulin, insulin resistance etc. In a single search, my friend Mr. Google will then give you all the referenced he can find **at that time** in what he thinks is the most relevant sequence.

Helpful as he tries to be, he may not get your priorities right, so the information you may be looking for is on page 154 of the search - so being human you miss it.

So instead I set up google alerts and every time these subjects appear in a new publication he kindly tells me about it. Every morning I get some twenty or so new alerts - most of them rubbish but I scan to pick out the ones that look good to me. I have been doing this for years - ever since my wife, Xiulan, was diagnosed with diabetes.

My calculator tells me that means I have probably scanned some 15,000 search results.

That's not all that many so I am not really obsessive (am I?). Oh, sorry I forgot the YouTube searches but that would only be another 5,000 videos at the most - maybe just marginally obsessive.

But it worked - we got Xiulan's blood sugars under control with a combination of diet, exercise and Metformin (which is a very safe drug). She did not go blind or have her foot amputated.

Until - as they say in kid's stories - all of a sudden - well actually over several months - her blood sugar started to go up.

So, we talked to our nutritionist and diabetic coach - who actually aren't real people - they are some form of mechanical avatar which keeps on spitting out the preprogrammed rhetoric that diabetes is irreversible and just keeps on getting worse so you need stronger pills - then insulin injections until you die of a heart attack.

Wonderful bit of human relation programming in these mechanical avatars.

But no problems - Xiulan also thinks they are totally useless and was quite happy to take my advice and just ignore them.

The National Diabetes Service is the most expensive service in our health service and is about as effective as you would expect from preprogrammed avatars. The economic rationalist like it because the patients die off quickly so are no longer a strain on the service.

But I hit a problem when we went to see our local doctor. The problem is that she is really nice and like Xiulan an ex surgeon, ethnic, a little bit short and overweight and has T2 diabetes. They have formed a close bond so Xiulan will follow her advice.

I try and explain to Xiulan that our doctor has no choice. She has to follow the formal procedures of offering you more powerful pills and advice and that the formal recommendations are to eat frequent small meals and have a snack before you go to bed. If our friendly doctor did not follow these prescribed rules, and anything went wrong, she could be accused of negligence. She has no option - she is beaten by the system.

What chance does a husband have against such force?

## **The pig from Yunnan**

Now I may not admit to being seriously obsessive but there is no way I can wriggle out of admitting I am a pig. I just love good food and no-one outdoes the Chinese in taste.

In one of my previous letters I talk about my trip to [Yunnan](http://www.waterright.com.au/yunnan.htm) (<http://www.waterright.com.au/yunnan.htm>) - I have no technical description of the food in Yunnan other than hyper exponential yummy. Given the choice of - living to an old age sitting in a wheel chair wondering whether my blanket was wet from dribble or pee or - pigging out in Yunnan and going out with a bang out I would have to try and paraphrase P. G. Woodhouse's famous quote - 'giving up wine women and song does not actually make you live longer - it just makes it seem longer'.

So, I took the short term option and pigged out in Yunnan putting on 10Kg - after all - with Trump sitting in front of the red button who knows how long the earth will exist.

But there was method in my madness.

## **Intermittent fasting**

The theory behind intermittent fasting is simple. With normal eating, there is always enough readily available sugars in our blood so our fat supplies are not used. If we fast for long enough we will use up all the sugars so we will start to burn stored fat and hence lose weight.

The only question is how long is enough - and the quick answer is when you feel hungry typically after about twelve hours.

I experimented with intermittent fasting by finishing my evening meal before 5pm - and not eating again until well into the next morning - may be 8 or 9am. I would try and aid the process by going for an evening and morning walk. The evening walk to use a bit of energy and the morning walk to take my mind off being hungry as well as using a bit more energy.

Being a wimp I found this a particularly easy and reliable way of losing weight so when I pigged out in Yunnan I did not worry - I simply waited until I got back to Australia and started by intermittent fasting. Sure enough, I got rid of the 10Kg - not quickly but steadily.

This is a sample size of one and I know enough about statistics to know that this does not mean it will work for anyone else but I am happy enough to tell anyone else that wants to go to Yunnan that here is an interesting experiment you can try.

But the intermittent fasting theory - as proposed goes one step further which could have simply world shattering implications.

## **The insulin resistance theory**

The theory goes that diabetes (T2) is caused by our bodies becoming resistant to insulin which in turn is caused by exposing our bodies to too much insulin for an extended period of time.

The analogy is made that it is similar to the way resistance to other drugs work - you become resistant to alcohol, amphetamines, cocaine etc. by ongoing exposure to that drug.

Let's not debate whether this is true or not right now - but think of the implications if it were true.

I am not going to talk about how serious diabetes is - every article and book I read starts with an introduction on the global implications of diabetes and frankly I am fed up with reading about it and certainly do not want to waste your or my time repeating the over trodden.

But just think of the implications if this theory were true. It would mean that all the methods of managing diabetes are not just wrong but actually making diabetes worse for millions of sufferers - particularly my wife Xiulan with her pepped up pills which make her pancreas produce more insulin.

Giving your pancreas a break from producing insulin to reverse diabetes would be the medical breakthrough of the century and should be front page news and Nobel quality science.

But it seems to be largely ignored by the diabetic machine - why?

## Xiulan in China

Xiulan had been given her pepped up pills just before we left Australia and when we got to China the side effects hit home. Her blood pressure went up, she was suffering severe headaches and was seriously ill.

I am not one for taking risks but Xiulan's blood sugars always go down in China (interesting fact) so I persuaded her to stop taking the pills. OK so far.

But it was time to unfetter my obsessive traits (if there were any). The internet is not that good for googling in China but I can readily access Amazon (Kindle books). So, I searched for any books on diet and diabetes and insulin resistance. I bought anything I could find and Mr. Kindle has been kind enough to point out that I bought 77 books. (Ps on proof reading this has risen to 86 but who cares - read big number)

Had it been over 100 that would have been obsessive but 77 is clearly in the normal range.

I admit to being an old fogey and find mobile phones frustrating but I have to accept they are really useful. With all my books on the Kindle reader I could whip out my phone at any dead time and get reading.

Now I admit that I am not a start at page 1 and keep on going type reader - if the subject is new to me I will be diligent but it was soon obvious that the Copycat syndrome was at work with a vengeance and many books were just a repeat of the same old content so I simply extracted the jist from these and I got through the 77 books on my travels.

Back to the second deadly sin

- the copycat (or alpine map effect)

As I ploughed through all my Kindle books, YouTube videos, Google alerts etc a distinct pattern emerged - there were basically 5 groups, the low-fat brigade, the vegans, the low carbers, the intermittent fasters, the psychedelics and of course we need that ubiquitous group - others.

## The low fatters

The low fatters seemed to have all stemmed from Ancel Keys. Many seemed to have an obsessive hatred of fat which makes my mild obsessions seem particularly mild. A few of the more modern writers do seem to be moderating and acknowledge that some fats may actually be beneficial but the hard liners still persist.

In any war, there is incoming fire and the low carb brigade are lobbying that Ancel Keys fiddled his results by taking data from 21 countries and selected the 7 that conformed to his preconceived 'fat is bad' philosophy. Honestly, I have no idea of the truth but having seen some of the statistics used by the medical profession (see my outrage later) I think I will ignore doctors statistics and take my statistical advice from professional numerical analysts.

But what gets me is there use of thermodynamics. Now I am an engineer and years ago in the dim and distant past when I was young - thermodynamics played a key role in my studies, energy balances were lecture 1 then it moved onto entropy and thermal cycles like Monsieur Carnot who was employed by the French Governments to study the theory of heat engines as those mean-spirited English over the water seemed to be stealing a march in steam engines.

I see the low fatters peddling the idea of an energy balance with any (food) going in either being used as energy and the balance turned into fat.

In the Australian language (a derivative of English) we have a simple word which I assume is spelt **uh**. It is a multi-functional word depending on how it is pronounced. A short **uh** means sorry I didn't catch that - please say again. A longer **uh** raising in tone fills the same function as the Chinese ma it turns a statement into a question and is moderately polite. Another version is longer with a rising tone and formally means I think you may be mistaken but really means you brains are addled and you are talking crap. That's the version I need now.

I could go on and on about the various ways the body uses energy and question whether those heat balances included a late-night romp between the sheets but there is a more pressing issue. When people come out with these statements they obviously have some image or model of the system they are talking about.

It is obvious that they have the model of the human body as some form of inert machine like a steam engine. But that is just not the way of the world - our bodies, particularly our guts have an inbuilt level of intelligence which is controlling how our bodies work by a complex system of chemical and neuron signals and will dispose of any unwanted energy in a way well known to any toddler who has just completed potty training.

Personally, I have never measured the calorific value of turds but a significant proportion of the human population use dried turds as a power source so I am sure it is significant. Sorry low fatters you are not the fountain of knowledge - let's move onto the vegetarians.

## **The vegetarians**

Everyone has the prejudices and obsessions - that's great for me - it gives me something to poke fun at - but I have got mine and I have a distinct prejudice for plant based foods. I eat them all the time and I am pretty sure that my gut biology has adapted and that is why I suffered when I experimented with a high fat diet. I should have done a gentle transition but I didn't - no one is perfect.

If I tell the truth I took my Chinese granddaughter to the pictures and she wanted pizza - she ordered special Chinese sea food - I don't think I want to know what 'special' Chinese sea food actually is - probably some incredibly yukky creature but boy oh boy was it fatty and tasty and I pigged out - and suffered later.

The extreme vegetarians warn of the danger of lack of vitamin B12. I have found a malt extract which is right up there on the yummy scale - a bit of a salty sweet taste. Let me own up - I have no idea whether I was B12 deficient before but since discovering this hyper yummy malt extract that weak willed piggy me is not B12 deficient now.

I can overlook the almost religious fervour with which these vegetarians attack meat eaters - I am a little more puzzled about their attacks on rice but I can leave that until I have a go at the low carb high fatters which have some extraordinary logic but before that I want to give a few one liners about the fasters.

## **Intermittent fasters**

Everyone like to think there are cool and logical and independent in their thinking. And of course, they are not - including me so I am letting my emotions pour out.

If there is one school of dietary thinking I could go potty over it is intermittent fasting - probably for the wrong reasons.

The first reason I want to talk about is a purely selfish cover for my human weaknesses.

I am a pig - I love good food - I have a Chinese wife, spend a lot of time in China and really enjoy the Chinese food. I am a self-appointed pig.

All people have stupid ideas. We can divide people with stupid ideas into two groups. The first group are just plain stupid. Let us not sneer - these are probably the happiest and most content people on earth.

Then there are the clever people who act stupidly again can be split into two - those that have a process of self-deception which says 'this is my idea, I am clever so this is a good idea'. They then proceed to use their talent to think of irrefutable arguments to support their view.

The remainder of the 'clever but acting stupid' group can again be split into two further sub groups.

The first sub group is the falling wall category. This group will come up with a series of arguments, like rows of bricks in a wall, but each row is out by just a few millimetres so it is impossible to see any error in any one step but eventually the wall has such a lean that it over balances.

The second subgroup has a perfect wall but they build this on a faulty model like a wall with no foundations. Eventually this wall will just topple over. If you cannot see the fault in an argument forget about finding cracks in the logic and examining the underlying model.

I learn all this about self-deception and faulty logic from studying diet and health.

Having some skills in this area if I really needed to I could create some logic and self-deception to justify my pigging out on all this delicious Chinese food.

But the beauty of intermittent fasting is I don't have to worry about being a pig. I can pig out all I like, then go on an intermittent fast typically cramming all my eating into an eight-hour window and fasting the rest of the time.

It works every time (for me) and I am truly grateful for however thought of intermittent fasting.

But what justifies all this work is that intermittent fasting may be the solution to diabetes by providing a rest period of low insulin when the body can recover and is no longer insulin resistant.

There is also a theory that at night our bodies are expecting us to fast and so are pumping out sugars and fats to keep us going overnight. This is a good explanation why eating early works as well as it does. Let us hope this can be proved.

There is a little trick here that I am not revealing, I combine intermittent fasting with changing gut biology. If I told people that they would say I did terrible science changing two variables simultaneously so it is impossible to work out which variable is causing the change.

I would then have to admit that I have no idea on whether the benefits come from intermittent fasting or changing gut biology - actually I think - but don't know - that it is the combination of the two.

On paper (in theory) changing gut biology is the flavour of the month and despite what people say it incredibly easy to do but to check out it is working (for you) involves taking an unprecedented interest in your own poo. As soon as that is revealed the enthusiasm for changing gut biology changes dramatically.

But having talked about self-deception lets go to the next group - the low carb high fatters.

## **Low carb high fat**

Now this is where I have some problems as the intermittent fasting movement - which could be the solution to diabetes - has come out of the low carb movement so the last thing I want to do is to destroy their credibility. A lot of what they say actually makes sense but like many good ideas - obsession takes them to an extreme and makes the whole idea ridiculous.

Let me just take one example - rice. The argument seems to be that rice is a carb - all carbs are bad so rice is bad.

In my gawking around China it is impossible to avoid the reality that a few decades ago China had a very low incident of diabetes - people were generally fit and healthy - then in an evolutionary flash, diabetes became the countries major health problem.

The sensible thing is to look at what has changed over those few decades. Just comparing then and now to see what has changed - imagine a trip from the airport.

Thirty years ago everyone seemed to ride a push bike, now electric bikes (or BMW's) are everywhere. Is the lack of exercise a cause? Certainly, plausible until you look at the night time dancing, abundance of exercise machines and the odd habit of the Chinese of 'street twitching'.

Look at the shops, Ok the golden arches abound as do KFC and Chinese imitators but look closer - the proportion of the population eating there is quite small. Possible - but not totally plausible.

Soft drinks - now this looks like a winner -

Drink bars are all the rage.

There is a whole range of drinks prepared on site with a range of flavours including fruit juices. They certainly look attractive as do the shops which are brightly lit with the lighting often at shoulder height. I tried a chocolate drink with cheese - yes cheese - but like most Chinese food up there on the yummy scale.

They are everywhere and the soft drink shops have become imbedded as a social phenomenon where the young teenagers meet up.

I hope that is not the cause of the diabetes epidemic as they would be impossible to eradicate.

The young girls hang out at these shops wearing that Chinese style based on fine cloth (a modern version of silk) which is almost opaque but not quite. The girls wear this to torment the boys, the boys are so full of testosterone that even though they cannot actually see the girl's underwear they think they can.

But the young bucks tell me that if the girls stand in front of the lights that they can make out the profile of their underwear. No one seems to have told the girls that as they make no effort to avoid standing in front of the bright lights - almost the opposite.

No law can stop the young being young.

This may seem like an impossible situation but the Chinese are masters of making dull boring foods extremely tasty - often using the principle of contrast. I am sure they could come up with a tasty side dish - like a biscuit or cake - made from one of those healthy seeds like flax or linseed which we are all supposed to eat. If this were served with these drinks they should work like the combination of rice, fat and vegetables works to control the sugar spike.

Of course, you would have to persuade the young to eat them and any mention of being healthy would immediately kill the project.

But I have a solution to that. I have never seen a nation so obsessed by Taylor Swift - may be because she looks so un-Chinese. So just tell one teenager that Taylor Swift uses these flax seed cakes to improve her sexual drive and within four hours the rumour will have spread the 4,000 kilometres across China and there would be insatiable demand for boring flax seed cake.

But the explosion in teenage use of soft drinks cannot be the sole cause of the epidemic as the older Chinese are also suffering so we have to look further.

What is quite alarming is the change in Chinese agriculture. I don't just mean the American style factory farming monstrosities - I mean the small local grower. They are now spraying like mad and that cannot be healthy. Also, the use of just nitrogen based fertilisers to boost production but with no extra minerals - certainly plausible.

Anybody with even moderate skills in gawking would have noticed that Chinese don't eat rice. Sorry typed that wrong Chinese don't **just** eat rice. They eat rice at the end of a meal

in a bowl. They have multiple dishes often including fatty pork, fish and numerous vegetables which are served swimming in fat. The essence of Chinese cuisine is contrast so the rice is eaten soaked in fat with vegetables with the dry boring but absorbent rice acting as a contrast to the rich and often spicy food.

So, don't tell me rice has a high glycaemic index - tell me the glycaemic index of rice soaked in fat and eat with bok choi.

I have lived a life surrounded by my google alerts, YouTube videos, Kindle books, Lancet abstracts for the best part of a decade now and the only thing I can be sure of in the world of diet and health is that you cannot be sure of anything - except one thing.

Today about 5 billion people eat rice as their staple food, they have been doing this for some ten thousand years. The explosion in diabetes in China is not caused by the Chinese suddenly starting to eat rice. The suggestion is just plain stupidity - of the highest order.

Now I have an instinct that intermittent fasting may resolve my wife's diabetes - I am desperately trying to persuade her to give it a go - I feel confident that I can watch her closely enough to avoid any hypo's or hype's so there is little danger. But I have to persuade our rice eating, ethnic doctor to give the green light.

With the low carb high fat movement talking such rubbish about rice it makes them look idiots and makes my life more difficult. Please stop it.

## **Psychedelics**

I am good at something but not others. Sitting cross legged contemplating the beauties of my big toe is not one of my great achievements in life.

But when I ask the Chinese people themselves why they are so healthy in old age the answers I get falls into the psychedelic class.

I have to admit that when I was in Jiangkou going for my morning stroll I would meet up with this old lady - hoe in hand - on her little block of land carefully tending her vegetables. No doubt she was growing these for her family - she felt good about it and they appreciated her.

She must have been one of the most relaxed and contented people I have come across. Statistically irrelevant but still true. But just hang in I am getting my guns polished ready to blast away as statistical rubbish.

I look at the street dancing - OK it is good exercise, I like the music and the atmosphere feels good. I look at the support from the family - the norm in China. In the West How many times have a seen a lady struggling with a pram up steps - in China someone will always help.

May be there really is something in these psychedelics.

I often look at Lancet papers. The most successful drug of all times is a product called placebo. It never comes in first in the trials but always a good second whatever the illness. Why hasn't some smart drug company put it on the market.

And how does it work so well over all illnesses? Maybe it has a reaction to our brain as a universal fix it - a sort of Acme of the medical world.

The next section is a blast against faulty statistics but if I were to apply the same tests on psychedelics I would be forced to admit there may be something in this mind over body stuff.

I really need to work out how to think about it. Maybe my mental image of young girls dancing around in flimsy veils may be the motivation I need. Sorry I just don't know where to start but maybe the vision will come but for now let me get back to my area of comfort - numbers.

Having explained how much of the information on diabetes is just a regurgitation of old and probably incorrect information let me get stuck into the third information sin.

## The great statistics deception

When I read through all the statistical stuff on diet I keep on coming across the most extraordinary statements.

For example, a survey may say that a low carb diet reduced deaths by 12.2% while a low-fat diet reduced deaths by 14.8%. They then do kids maths and subtract 12.2 from 14.8 I get 2.6 which as a percentage of 12.2 is 21.3%. They then claim a low-fat diet reduced deaths by 21.3%.

The maths may be correct but the answer certainly is not.

Now at great risk of driving you away can I talk a bit about probability. We use probability - which is typically quoted in statistical results when we simply do not know the answer - it is a way of handling uncertainty.

## The building block fetish

Let us say I have 5 blocks all exactly 1cm high and I pile them up - I know without any statistics that my pile will be 5cm high.

Now let's say I get my block from the local quarry that is not into super precision so the blocks vary from 0.9cm to 1.1cm. I know for sure that the minimum height of my new tower will be 5 times 0.9 i.e. 4.5cm and the maximum height will be 5 times 1.1 i.e. 5.5cm for sure.

But if I suffer from some rare block building fetish I may not be happy with that answer and may want to know what is the **likely** range. I can now use probability theory to calculate out that **most** of my little towers will be between 4.8 and 5.2cm tall.

But if instead of suffering from a block building fetish and have diabetes I may be more interested to know if I eat that extra piece of cheese cake will they chop my leg off and I want a yes/no answer not some probability number.

So, let us make this a bit more real and say I design a car which is generally pretty good but only starts about 14% of the time - that's about once every 7 times and is typical of correlations in diet research.

## Want to buy a car - have I a deal for you

I want to sell you the new car I have created.

Now there is one snag - it only starts about 14% of the time - by pure coincidence that is the typical correlation in diet and health trials.

You may not be too happy about this random starting feature but you work out that if you buy 7 off my cars that you will at least have one car that starts every day. You are unlikely to be too impressed with having to buy and store 7 cars but you will be distinctly unimpressed when I tell you that to be actually reasonably sure of having a car that starts every day you need to buy 20 cars.

Fearing that I may lose a much-needed sale I may tell you I have another model of car which will start virtually every time for the next two years until the battery conks out. If I offer you good terms and a good price on your trade-in I may actually get the business.

Now I tell this story to make the point that the real problem with the diet and health statistics is not just the dodgy mathematics of subtracting percentages to get a claimed 21.3% improvement - which is certainly dodgy but commonplace - in diet analysis but the useless correlation of 12 of so %. It is just too low to have any real practical use.

So, who do I blame for this - I would point the finger at the Chinese, Persians or Egyptians or whoever it was that invented paper. They made us think in terms of two dimensions.

When I was a young and silly undergraduate I had to draw lines of best fit for a bunch of data points. This was a long time before computers and statistical analysis so we did it by a few tricks and a bit of eye work.

Now of course even a basic science calculator has a built-in regression analysis to do the grunt work.

But because of those infuriating paper inventing races they are generally for two variables - why can't we have regression analysis for twenty or thirty variables which is sophisticated enough to describe diets so we can get correlation up into the high nineties which make them useful.

Well we can - but to explain how I have to tell you a little story as an aside.

## The bargain in the book basement

The basis of modern science was developed several centuries ago by people like Newton, Leibnitz, Fourier, Des Cartes and the rest.

They had a total understanding of the calculus, coupled partial differential equations and all that technical sounding stuff.

They had developed all the equations for fluid flow, heat transfer etc. but they just could not solve them when coupled together as partial differential equations so they remained stuck in the text books of ancient libraries as academic curiosities.

Nowadays in the era of modern technology the solution to these partial differential equation is big business saving industry billions of dollars and much of the technology which exists today would not be possible without these solutions.

Two of my failings played a part in solving these equations. The first failing is my meanness. I like to go to the bargain basement of book shops and see what I can pick up cheap. One book I bought was an elderly book on numerical methods - I think it cost \$2 and was otherwise headed for the tip.

My other weakness is I have a singularly bad memory. If the medical profession had been a bit smarter when I was young I may have been diagnosed as the first case of infantile dementia.

Having a bad memory is not good for academic prowess and I failed Latin and so reading modern text books where phenomena are described in pseudo Latin occupying half a paragraph for one word is not my expertise. This ancient book was written in plain English I could understand.

I just managed to hang in at school masking my defective memory until I discovered calculus and mechanics. My discovery was not the wonder of these technologies but simply that if you understood the concepts you only needed to remember a small number of very simple equations like

$\text{force} = \text{acceleration} * \text{mass}$

- well within the capabilities of someone with undetected infantile dementia.

## **Newton's secret**

What I learned from my bargain basement book was that Newton - who we think of as the father of calculus had developed a comprehensive theory of numerical methods.

One - we now call the predictor corrector scheme. He would guess a solution to his current equation then with his quill pen and parchments see if it worked - which according to Murphy's law would always be wrong - but he had an error which he could then use to make a better estimate and so on until he got a pretty good answer.

Now quill pens and parchments being in limited supply this made zero impact on current technology so he gave it all away and had the idea that if he kept on making his increments smaller they would eventually converge to a finite limit and calculus was borne.

Interesting to muse if computers had been available then whether he would have bothered to invent calculus. No doubt the immediate success of calculus was its intellectual elegance compared with the empirical nature and time consumption of his numerical methods.

## **More failings to the rescue**

In addition (or because of) to having a bad memory I was singularly bad at arithmetic. If the truth were known I could remember my tables up to 5 but between 5 and 10 my memory just pegged out.

So, when I first discovered computers - actually then operated by punched cards, an invention of the devil - I realised that I could use them to calculate things that were well beyond my mental capacity. This was about the same time as I made this major book purchase on Newtons numerical methods.

Putting the two together the penny dropped that I could solve all those unsolvable coupled partial differential equations using Newtons forgotten numerical methods and the high-speed processing of even those early computers.

Not a very elegant solution - and I know mathematicians love elegance - and if an analytical solution to solving these equations existed it could be processed in 15 microseconds whereas the numerical methods take 50 microseconds.

Despite the inelegance and extended processing time (on a modern computer it may be still take 30 nanoseconds) industry jumped on the solutions - saved themselves billions of dollars which unfortunately went to their bank balance rather than mine but nevertheless earned me enough money to go to Jiangkou and buy 77 e-books to read while traveling.

## Getting there

We are getting there - timer for the drum role when we reveal the answer is 42.

I have been spewing out wild comments left right and centre and I am close to being serious and giving a sensible answer. But to what and to whom.

As they say the art of finding a solution is to understand the question first.

So, who has the problem and what is it?

Well I have a problem - my wife is diabetic. We have a Government system operated by preprogramed avatars who tell us that diabetes is irreversible, she may go blind and loose her leg before she dies prematurely.

If that were true (which I doubt) then they should put in a bit of human empathy and compassion into the programming of their avatars.

My studies tell me that there are many qualified medical practioners who say that diabetes is reversible, it is caused by the accumulated effect of excess insulin over a period of time and if you stop this dreaded combination of insulin concentration and time that her body will recover.

But the Governments of the world have their own problem - diabetes is the most expensive single item on their budget and the combined cost of managing (or not managing) these non-communicable diseases caused by diet is simply staggering.

## 42 where all is revealed

All this is not just waffling on but leads to new ways of approaching diabetes.

The heart of the problem is that with our modern technology - we create simply huge amounts of data - it is so cheap to store megabytes of information that we just keep on

collecting it without any idea of how to extract useful information from all that data - the internet syndrome.

The core of the problem with analysing diet data is that people are so different so what may work for one person may not work for another. The sad reality is that there are many people who could easily reverse their diabetes with the right treatment and there are others where they may be no treatment that works.

Science - being pure rather than pragmatic - has taken the approach that labelling everyone as incurable - so many, probably huge numbers of people, simply miss out on a cure.

We need to stop thinking in terms of two-dimensional regression and its chronic low levels of correlation and build multi-dimensional models which are more realistic.

Now this is where the true scientist is going to get the abjads and go off in a screaming rage because we have no idea of how to do this scientifically - but we are 'pragging' - being pragmatic - just doing what seems a good idea at the time, seeing if it works according to our two rules - does it work and is it useful'.

## Monster equations

So, we are going to create one monster equation with a mass of terms which seem as though they may be relevant. We simply don't care at this moment - we leave it to Newtons increments to tell us.

What sort of things may we bung into our monster equations. Well height and weight seem good starters.

This is where life can get a bit confusing for the real scientist who likes to think in terms of inputs and outputs. In a classic scientific experiment, we vary one thing and see what happens to another - the concept of dependant variables. Forget all that logical stuff because in this scheme they can be both - at different times they may be dependant or independent variables.

We start by collecting data on one specific individual.

If you are diabetic they are already collecting a mass of information on you. I know, our preprogramed avatar - who has a title 'diabetic educator' - a woman of enormous proportions just flowing out of her chair and instilling untold confidence in what she knows about weight control - just sits there and after lecturing us about the dangers of being overweight - sits at her terminal entering data in her computer.

I have no idea what happens to that data - I just assume it is to provide accurate information for the death certificate at the appropriate time - we certainly get no feedback.

It wold be great to access that information but as we are 'pragging' it may be best to simply ignore it and start afresh with a simple app on our mobile phone. Height is pretty much determined by our genetics so will normally not be a variable - just a simple input. But understanding weight is incredibly useful.

We need someone visual recognition expertise then we can simply take a selfie when we weigh ourselves on the scales each morning. The app can then upload that info.

But people have very different body shapes, ectomorph or mesomorph - light or heavy build. Again, we take a selfie in our naughties and let the app enter it into the data base.

But gawking in any supermarket will show there is more to body types than simply fat or thin. Some people may start off skinny and when they get fat put it on around their waist but their legs and arms are still skinny. These are 'fat skinny' people.

Others put on fat all over so they become wobbling lumps of walking jelly. We could measure this by vibrations in the ground but a simple selfie in our naughties will do the job.

We probably should be measuring blood sugar so a photo of the blood sugar reading will get that for us. Those new continuous blood sugar monitoring device sound ideal and as we are more interested in changes in blood sugars rather than absolute values they may be adequately accurate. And we also need a photo of our medication when we take it.

Now for things which are clearly inputs like food. I cannot believe how many of the 77 books I have just read say keep a diary of what you eat. There must be something wrong with me because there is no way I would get my diary out at every meal and record everything I eat.

But put a dollar coin on the table (for dimensions) and take a photo of my next meal - yes, I could do that - and with the appropriate recognitions software it would extract the weight or volume of all the major components - fat or carb or veg - which would be uploaded to my personal data base.

Most people would do that if the alternative is going blind and having your legs chopped off.

Exercise could be measured by one of those little devices I am always trying to be sold but never buy - but I believe my mobile phone can readily capture all the relevant movements.

## **Gut biology**

The next one is the biggy - gut biology. I have made the point that the model - how we envisage our bodies working - is a critical factor. My mental picture of gut biology is of a mass of different sorts of microbes working together as some form of computer controlling how our body works.

Despite a whole load of rubbish being talked about gut biology it is relatively easy to change and it has a dramatic effect. After all this entire China trip was initiated by my interest in learning better ways of fermentation from the experts.

This means of collecting information on gut biology is going to be a centre piece of this system. Is there are viable way of measuring on a daily basis?

Fortunately, the answer is definitely yes. It is simply a question of examining poo after that indelicate operation. Did you know that scientific tests have shown that humans have a deep interest in their poo and 85% of the population will turn their head to examine their masterpiece?

(Note the sample size was a bit small - I could not find a way of getting the thousands of people necessary for statistical significance to tell me if they inspect their poo)

Ok there is no need to go into this in detail. Just accept the fact that you need to carry your mobile phone around with you most of the time and take a quick picture of your poo, upload it and immediately delete it so you don't have to explain to Aunt Ethel why there is a picture of your poo among the picture of the kid's birthday party.

We may also like to take a photo of when we go to bed and wake up and may be when we get pulled over by the police for speeding so we know a bit about our stress and cortisol levels.

No doubt the experts will think of a whole bunch of other thing to record on our mobile phones but the beauty of these iterative numerical schemes as opposed to analytical schemes is that it simply does not matter a toss how many variables we have.

We need to have enough variables so we are getting good correlations (actually they are not correlations we are measuring sensitivities) so we get away from these irrelevant 12% numbers and get something in the nineties.

We just write the code up as a series of nested loops and let the computer have fun. Any increase in processing time is irrelevant with modern computers.

## How it works

We have this giant equation which has terms for everything we can think of. To show of my great ingenuity I will call these A,B,C,D etc. These are what mathematicians like to call a variable constant which get some people a bit screwed up.

But think of it like a politician's promises before an election. He promises to build an eight-lane super highway between here and that 'over there place'. As time goes on it get diluted to a six, four, single, track, footpath until you end up with a sign nailed to tree with a big arrow labelled 'over there place' and you just set off through the woods on foot. That's a variable constant.

At the start, we have no idea what the value of these A,B,C terms are so we may just bung in 1 or 100 or your birthday - it makes no difference.

The program then runs and gives a value of 8 metres for your height, 1,600 Kg for you weight and 0.3 for you blood sugar - obviously all nonsense and you know it is nonsense because you actually know all these values because you measured them (or your mobile phone did).

## The dreaded instabilities

But you notice that your weight is exactly twenty times your real weight, so you are tempted to simply divide the weight term by twenty.

Let me tell you that after playing around with numerical methods for much my life of - this is not a good idea. It's called instability and people who play around with numerical method have night mares about it. They dream that their bed is 10 metres long then suddenly

collapses to 2 cm and on the next iteration the expands to twenty metres knocking down the virtual bedroom walls.

When I was cutting code, I used magic F factors to make the scheme stable. If anybody looked at my code I would tell them it stood for a Fourier Transform. Fourier was probably one of the world's greatest mathematicians - he was also French and spoke in such a convoluted way that even the French had no idea what he was jabbering on about - let alone the English. No one ever challenged me on this mysterious Fourier Transform which is just as well because F stand for Fiddle or Fudge.

I get a bit excited about some bit of modern technology - Chinese trains is one technology that turns me on. It's not the absolute speed of 314Kph the MagLev train in Shanghai is much much faster.

It is the way they stop. About 10k before a station you will feel them cut the power and go into a glide. As they approach the station they gradually and oh so gently apply the brakes - you can hardly feel it - then, and this is the good bit - they stop the train so the doors are within a couple of mm of the magic yellow line where the passengers stand.

As the train comes to a complete stop you have no sensations of the brakes working. Now that is a stable system. People talk about damping and if we can get our numerical methods as good as the Chinese trains we deserve a treat.

## Engineers fetish

Numerical systems are more stable if the terms are linear - but in health they rarely are - if you double your weight you are more likely to more than double your chances of getting diabetes. In real life things are rarely linear so engineers have developed a bit of a fetish in nudging them to be a bit more linear - taking logs, exponentials, powers series are the first cab of the rank and if that fails it is out with the old maths texts books to find some weird function which may just have the right shape - that's why things like tanh were invented.

I know that there are probably less than 2 people in all my readers who have the slightest interest in stability criterion and linearization (OK make that 1 including me) then why am I doing it. Well I may be a bit silly but solving we are looking at what may be the world's most important diet and health issue.

I am going to call this the Taylor Swift solution to the diabetes crisis.

## The Taylor Swift solution to diabetes

I have a Chinese granddaughter who apart from being a teenager is really quite cute. Like the other 350 million Chinese teenagers she is totally obsessed with Taylor Swift.

I have said that many arguments may appear - and actually be - totally logical but if the underlying model is incorrect then the final prediction won't be either.

My image of what causes diabetes - and how it can be reversed - is best illustrated by the reactions between my granddaughters love of Taylor Swift's music representing the cause of diabetes and me as the recipient.

There is a classic image of how diabetes works which is portrayed over and over again in the 77 (now 86) books I have just read on diabetes. They are all copycats so there really is only one model.

It basically says that insulin is needed for sugar to enter the muscles and liver. Insulin acts like a key but the key hole can get blocked up by fat like a naughty kids putting chewing gum in a lock.

The image of little men running around with keys and kids poking chewing gum into locks is not exactly the pinnacle of medical science. As insulin is a fairly reactive material it may be better to think of insulin acting a bit like wine when you marinate a steak with the wine opening up the pores between the cells.

Despite the incredible importance of what happens with insulin resistance there seems remarkably little written about it. One explanation I came across was that the insulin causes inflammation. Most of my practical experience with inflammation is when I cut myself in the garden and am just too lazy to go and fix it so a few days later the cut is inflamed.

It is pretty obvious that this inflammation is trying to teach me to be more careful next time and to protect the cut area from further infection - like some magic protective barrier - which also stop insulin working as per spec sheet.

Taylor Swift provided a pretty good model of how this works.

My granddaughter has yet to discover that there are other volume settings than max and honestly the sight of Taylor Swift's long legs careering around the stage is not exactly torture for an aging fellow like me. The music is OK too so the initial results are good - just like insulin is good.

But after hearing the same song over and over again the torture needle begins to flicker off its stop. After about an hour it reaches the 2% level.

That's when I ask her if she has done her homework.

It's no wonder that teenagers think that oldies like me are stupid. First why bother with this distraction stuff when it is perfectly obvious that I am saying I am fed up with Taylor Swift at full volume - she thinks that's level 2 dumb for a start but to think that I could entice her away from Taylor with another burst of homework - that's level 10 dumb.

After two hours I get a bit more direct and ask her to turn the volume down. This is a technical problem she had never challenged before but she eventually gets it down to 98%, at least for 10 minutes.

After four hours, I have had it and tell her it's time to go and play with her friends.

For some reason I get a full week free of Taylor and when she starts again I actually find Taylor long legs is having a positive effect - as intended.

Think of this as a model we could use for diabetes. We start from a normal state and eat some food - our gut bacteria munches this up and puts sugar into the blood stream. The

pancreas squirts out insulin to bring the blood sugar back under control. But the insulin starts to create just a wee bit of insulin resistance - but the problem is that insulin resistance will increase over time - as we go round the food then insulin cycle.

## **Insulin resistance - a two stage exponential process**

This is an exponential process - at first there is minimal insulin resistance but as it increases we need more and yet more insulin.

Mathematically we can model this with a simple exponential function which in theory needs two terms - a size and a rate term - but because I am pragging rather than being a pedantic scientist I will for now use a simple rate term. (I can test and justify this simplification later as needed).

With luck we well process all the sugar (and carbs etc.) so the insulin level drops and we enter recovery mode. Again we can model this as a simple exponential with a time factor.

As we eat on our regular cycle we will switch from creating insulin resistance to recovering from insulin resistance.

If we are a normal healthy person the recovery speed will be much faster than the eating term so we never become diabetic. This is why it is so important to study people who are not diabetic so we understand why despite eating the world's worst junk food they never become diabetic.

If the ratio of eating and recover terms is closer then they will probably be diagnosed as pre-diabetic and put on an appropriate diet which reduces the eating factor while increasing the recovery factor. With luck they will avoid diabetes.

There are many more pre-diabetic than diabetic people so this is the diabetic machines working really well and being beneficial for the patient.

Now let's push the eating recover term up a bit more and now the patient is diagnosed as genuinely diabetic. This is where tragedy set in as they are captured by the diabetic machine and pumped full of insulin so there is no chance of recovery and they will unhappily continue down the road of blindness, amputations and early death - probably totally unnecessarily as at this level diabetes is reversible.

Now let's push the ratio up a bit more then we have to face the sad reality that conventional wisdom is probably correct and diabetes is not reversible.

But think about this - the probability is that many people who are captured by the diabetic machine and treated as having non reversible diabetes could actually have their diabetes reversed.

But why? Are the doctors caring for diabetic patients sadistic or incompetent? I think not.

There is a more fundamental cause. The aim of science - on which our medical technology is based - is to develop a fundamental understanding. Newtons laws were once considered universally true - then Einstein showed they were only limited to the earth and maybe when

we are catching the 8.15 commuter space transporter to Galaxy 67 we may find that Einstein's laws are only true for this galaxy.

## **No Universal solution for diabetes**

But it appears that there is no universal solution to diabetes and we need tailored solution for specific individuals. Some people may only be marginally diabetic and a change of diet is all that is needed.

Others may have their diabetes reversed by simple intermittent fasting with minimal hardships.

More extreme cases may need a combination of intermittent fasting and avoidance of high glycaemic carbs.

Sadly others may not be reversible at all and the only option is to minimise the damage of high blood sugars.

What is clear that the current one size fits all with an automated diabetic machine run by avatars with controls set to maximum is no solution.

What is needed is a system of measuring the sensitivities of a particular individual so the appropriate solutions can be implemented.

The system continuous self-monitoring to measure these sensitivities suggested has the potential to reverse diabetes in many if not most cases and could save millions of people unnecessary suffering.

Let's be clear - we are not interested in using this system to predict our weight or blood sugar reading - it is much easier to measure them directly. What we get is sensitivities - it can predict that I am low fatter and Xiulan is a low carber.

## **Individual sensitivities**

This trial has to be run over time changing the inputs in a controlled way and measuring and analysing the results to produce a sensitivity factor for all the variables. To get the needed information we may get a suggestion that we should increase something or other - eat a bit fatter or cut down on the breakfast cereal - and we just have to be good little people and obey. The whole system works on measuring small changes to any variable and measuring the effect of that small change.

It may tell us that we need to cut out that third slice of bacon for breakfast and if we do not obey it will give us the computer equivalent of looking over the top of its glasses and saying in a deep voice 'Colin we need to have a serious talk about that third slice of bacon'.

How does it know that I am sneaking a third slice of bacon - well that sneaky mobile phone told it and also told it that I had put on half a kilogram so it was politely suggesting that I try cutting it out.

If I decide to ignore the bossy contraption but decided to increase my intermittent fasting time and my weight went back it would offer a humble apology.

What we learn from this is how each of our bodies react to specific inputs. All this argument about high or low fats or carbs is a bit of a furphy and each group is probably right for some people but we don't want generalisations, you and I need to know how each of our bodies work.

This is accurate and reliable information for any one specific individual. It should tell me that I am not a high fatter and my wife is not a high carber.

## **How do we know**

If you are a bit like me and are just slightly marginally obsessive and read all the books you can find on diet and health you cannot avoid meeting Mary Ellen from Florida.

Both the fatters and the carbers use case histories to prove (?) their case and no doubt Mary Ellen was a spectacular success. But what they don't tell you is how many failures (bodies sent off to the morgue) before they got to Mary Ellen (or George from Illinois if you are following the opposing camp).

Tip - before selecting whether to be a carber or a fatter check out the spare room in your doctor's surgery. If it is full of 194 coffins and 195 is your lucky number you may well appear in their next book as a success story. If 196 is your lucky number - no worries - your coffin awaits you.

But it is not that simple because it depends on you or more specifically your gut bacteria which seem to dominate everything in this field.

## **The cowards way**

The safest way is to avoid the fatters and carbers and go for the low glycaemic veggie brigade. I am a coward and that's the way I went with a bit of intermittent fasting thrown in. The great thing about fasting is that you just say I am not going to eat between - well you pick your own times - but for me it is between 5pm to 8am and it is easy not to eat at all.

There is a hunger period when your body switches from consuming sugar to fat but that does not last long - for me it is about 30 minutes and I just go for a walk to take my mind off the hunger.

But if you want to follow the calorie restriction mob it is difficult (= impossible) not to have another piece of the yummy tart.

## **Gut bacteria**

But as I say gut bacteria seem the rulers of the world (your world anyway). If you go the veggie route I can help as I have been experimenting with the various ways of fermenting vegetables - with great success as measured by the poo test. After all that was the main reason for my China trip.

But if you decide to go the fattie route I may not be much use to you for a very good reason.

I have had a big enough job convincing Xiulan to let me put my veggie fermentation experiments in our kitchen fridge. But to get the right bacteria to become a fatty I would have to ferment pig guts and I just know Xiulan's answer to that - don't even think about it.

Anyway, I am not sure that I want to eat pork chops for breakfast, lunch and dinner and since I they tried to persuade me that Chinese chronic diabetic epidemic is cause by eating rice I have lost a bit of confidence in the fatters and cooled off on that idea for a bit.

I do appreciate that the fatter brigade stems from studies of extreme endurance athletes and is probably sound for them but the nearest I now get to a marathon is my morning walk around the park. I also know that extreme athletics started with the gladiators in Rome where life was extremely extreme and short. That appears to be still true today

We may have achieved our objective of getting our personal information but we would be a bit dumb to leave it there. We can integrate all this personalised data into one monster analysis with not much more effort.

## **Integrate results for population studies**

The key is that we measure the effect of small changes over time to calculate sensitivities for a specific person.

But there is no reason why we should stop there - we can integrate all these tests on individuals into a population study just like we have been doing for ages with our mega studies.

We may learn that tall elderly Scotsmen drinking large quantities of whisky are likely to get fatter but have lower blood sugar levels than short Asian ladies living in the tropics who developed an obsession with mangoes.

This may or not reveal useful information but at the minimum it is harmless which is more than can be said for the current recommendation which tell us to eat all the time and keep our insulin levels high which is probably killing many people.

At the maximum, we may get some useful insights we would never have thought of otherwise. That's the nature of learning - research is a bit of a randomised rat bag really.

## **Bait**

Now as you have guessed this is ground bait to attract some enterprising organisation to mature and commercialise this technology.

Now I do know a bit about software. I started writing code in my back bedroom and my company eventually became Australia's leading exporter of technical software. So, I know full well there is more to being successful in the software game than having a smart bit of software. You need a pretty neat support structure.

I can knock up a bit of neat code in an afternoon. Now the first problem is that it is really nice to know if that smart bit of code actually works and does what you want it to do. This means testing and more testing. In my experience it takes many times longer to test a bit of code that to write it in the first place.

The next problem is that I would classify this smart bit of code in the category of **author friendly** e.g. I am the only person in the whole wide world who knows how to run that code.

So, you need documentation, education and support services and may be non-obsessive people that know about ergonomics - and that costs serious money.

Then you need to market it. Now whatever you think about Steve Jobs you have to admire his skill as a marketer.

So why should any organisation want to get involved?

## Reasons for getting involved

Well I would like to think that in the board rooms of the rich and famous and the Vice Chancellors office at the Universities that they would see I was a nice guy trying to reverse my wife's diabetes and have compassion and help me. But I have a funny feeling that does not cut much ice so I will try something a bit more to their way of thinking.

Diabetes and its related non-communicable diseases are the major expenses in our medical system. Even if you do not have a Ph.D. in market research you will no doubt appreciate which way people would choose between these two options.

Option 1 - living an active life into your nineties, doing your garden, going for walks or fishing, going on luxury cruises to the Caribbean or simply being old fashioned and frolicking between the sheets or

Option 2 - going blind, having your legs chopped off, having a stroke or dying young of a heart attack.

I have never run a full scale statistically significant survey but my sample size of 2, me and my wife Xiulan have no doubt that number 1 seems a better bet.

Ok run all the surveys you want but the answer won't change.

Now when the finance manager does her sums and sees that this is a market of over a billion people and growing exponentially she may see some economic incentive here. In fact a number running into billions of dollars.

I could be accused of incorrect application of statistics if I were to extrapolate from a sample size of 1 to the seven billion on the earth if I would predict that the entire global population is totally fed up with the ongoing battle between the fatties, carbies and vegies with each accusing the other of grossly unethical behaviour - to living in the dark ages and not moving with the times etc. - and which leads to the death of many people.

I can of course be totally right while being statistically incorrect.

There is an awful lot of people fed up with this ongoing ferocious debate on diet and would like to see some clarity to the debate so they can get back to watching the sillies on YouTube.

Now you may have noticed that I seem to get some pleasure at poking fun at some of the crappy statistics and extrapolations which seem to be rife in internet age - in fact I am almost concerned that I may be developing a mild obsession about it. So, let me join in the game.

## **Crappy statistics that happen to give the right answer**

It is probably purely coincidence that these non-communicable diseases just happened to start at the time when we switched from picking cabbages out of the garden and started to eat micro ground flour dust loaded with sugar out of vacuum packed plastics.

On a similar basis of probability, I would predict that at precisely 1.30 pm on 30<sup>th</sup> July 2018 we will be invaded by species by space creatures which will place all Taylor Swift fans into servitude to satisfy the invaders deep envy of her long legs.

It is also statistically incorrect to extrapolate the rate of increase of these diseases which would result in every person on earth becoming a sufferer.

Just because people offer crappy statistical as evidence does not mean that it is not true. This is why humans were empowered with the skill of reaching a conclusion before looking at the evidence - and sometimes getting it right.

## **What about the rest of us**

Which bring me to a total aside, why is it that every day I read about some investigation or other on diabetes or some other nasty but I never read about why the rest of the population manages to avoid them.

If 20% of the population is diabetic then I can show off my numerical skills and say that 80% are not diabetic (at least as yet). Would it not make some sense for some researcher somewhere in the world to click onto this fact and work out why they are resistant? She would be well on her way to Stockholm to collect her Nobel prize.

But even if we divide the alarmist propaganda by three then it is pretty clear that we are on the road to rack and ruin. (Ps does anybody know where the rack comes from in that overused phrase - is it that mediaeval torture device, even Mr Google who know everything is not sure). This certainly must add a point in favour of the decision to act.

## **Food industry - ally or foe?**

And one final argument. The food industry has proved remarkably effective in blocking legislation which would affect their profits - just look at the sham we call food labelling laws.

Why cannot they have a line saying added sugar?

If the food giants saw there was a way to find out which customers would keel over from their junk food and which customers could continue to stuff it down without apparent harm they could continue to make huge profits by selling to the junk food resistant.

In politics money counts so having the food industry on side, even if for totally the wrong reason would be better than having them opposed.

Just in case you think I have developed an obsession with the food industry let me get my position clear. I have no doubt that technically all this sugar and micro ground carbs is harmful - but I don't have to buy it - I can live without fizzy drinks and energy bars.

But I am not a morning person - it takes about an hour for me to reach a reasonable state of mental alertness so I would dearly love to pour my cereal from a packet in a zombie state.

But I can't as virtually every cereal is loaded with added sugar so instead of a zombie friendly packet I have to mix my own cereal from raw materials. This really bugs me - quite reasonably - as I am quite happy to pay for a no added sugar cereal.

They are just trying to get me addicted to sugar and I am narked.

But just because someone should pick up the ball and run with this does not mean they will.

We need a plan B.

## What happens if we get the Douglas Adams effect?

Douglas Adams was a brilliant political satirist, his books were widely read and enjoyed and should have changed the world. Every night people would laugh at his books or films, then go to bed. But the next morning they would carry on as though nothing had happened. That is the Douglas Adams effect.

Now what happens if we get the Douglas Adams effect with this piece of proposed software which could increase the life span and happiness of millions of people?

Someone **should** pick up the ball and run with it but **should** is not the same as **will**.

Well the good news is we can do the basics of the scheme manually.

I used to be a code cutter (write software) and you can write a beautiful piece of code and run it but you have no idea what is really happening inside the machine. So, you put in a whole bunch of diagnostics and stop points etc to virtually look inside the machine.

But in times of desperation I would get out my pen, paper and calculator and just work through a bit of code manually. May be a bit obsessional but I have admitted to mild obsessionalism - but it did give me an understanding of how the code was working which I would not have got in any other way.

Fortunately, there is a manual version of this code which we can use as a back stop - a Plan B.

It may not be elegant - it starts with changing our gut biology and making small but progressive changes to diet so we don't run any unnecessary risks plus a bit of intermittent fasting (which is infinitely easier than all this calorie restriction).

The beauty about Plan B is anyone can do it in their kitchen - we just have to work out a way of getting the message out to the population - over and above the noise (and lies) of the food industry and the quacks.

This letter has already exceeded my limit of 20 pages (even without my fun pics) so that will be the subject of a later letter when I get back to Australia. (I am currently still in China recovering from a monster Brunchin - a meal so huge it combines breakfast lunch and dinner.)

I am also bugged by the fact that virtually every Chinese person I asked why they were so healthy in old age said it was because of their social support structure. I really don't understand how that works but if inspiration strikes while watching some silly Dr Who episode I would love to write about that too.

All comments welcome - particularly if you are CEO of a mega software company that want to commercialise my sensitivity system.

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