Reversing diabetes by health farm stays
The future of eco-villages

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Summary

Eco villages can play a crucial role in reversing the current epidemic of chronic diseases which is caused by a combination of toxic chemicals and antibiotics compromising the gut biome control system and addictive foods which distort our eating patterns.

The solution is to first fix the gut by a largely plant base diet with plants grown in biologically active and nutrient rich soil and free of toxins then use continuous sugar monitoring to find the diet that best suits the individual.

Eco villages can grow food - using the Gbiota system - to restore the intelligent gut biology and provide support in breaking food addictions by health farm stays.

People are all different and need diet and exercise best suited to each individual. Guests are fitted with a continuous blood sugar monitor which helps find the desirable diet and exercise routine for that individual guest. They learn how to grow and cook food so they can better manage their health when the leave.

This is a highly desirable social service but can also bring significant revenue into the village.

The chronic disease epidemic - the older you get the worse it gets

Here I explain how - but first I need to clarify the basic problem.

We are now in the midst of an epidemic of chronic - or non-infectious - diseases which includes many common diseases such as diabetes, heart attacks strokes, dementia, Alzheimer's, cancer etc. aggression, depression and mood swings are also thought to be related. They are commonly grouped together under the generic term of metabolic syndrome or in lay language diabesity.

The extent of diabesity is jaw dropping. A few decades ago less than 1% of the population were diabetic, the number of overweight people was much less than today and they did not progress to become diabetic.

Today one in three people suffers from some form of diabesity but this is just an average figure with young people relatively free from diabesity but as we age there are progressively more sufferers.

By the age of forty there is an even chance of suffering diabesity and from then onwards the figures increase so people can expect that they will die at younger than normal age from a chronic disease.

So serious is the issue that the average age at death is now decreasing after many years of gradually increasing life expectancy.

The personal costs are high - every four minutes someone has a limb chopped off from diabetes which is also the single most common cause of blindness. In economic terms the costs are staggering with global expenditure on the health care systems running into trillions of dollars. Put crudely there is not enough doctors or money to handle the epidemic.

More alarming is the rate of increase with more and younger people being affected.

Symptoms v causes

Fortunately, modern science has made excellent progress in managing the symptoms of diabetes - we now have a range of progressively stronger pills which can manage high blood sugar which is the symptom of diabetes. If we did not have these pills anyone with diabetes would suffer rapid decline with amputations, blindness and an early death.

That's good.

What is not so good is that science had made relatively little improvement in resolving the basic causes of diabetes. At first sight that seems surprising as the basic cause seems relatively simple - excess fat in our muscles and liver block the entry of sugar so insulin - the basic carrier of sugar - can no longer transport sugar into the muscles.

At first sight this would seem a simple problem to resolve - just get rid of the unwanted fat. But our bodies are an incredibly complex organism and simple solutions like 'eat less exercise more' simply do not work.

Our gut biome is an intelligent system (enteric nervous system) which automatically controls many body functions, if this intelligent system is compromised the dietary system cannot be overridden by artificial diets - the source of the problem has to be fixed first.

Naturally the medical profession have developed their own model of how the body works but let's take a different model - the body as a heat engine. May be not very complementary to the human body which is infinitely more complex than the engine in a car or a steam turbine but the basic laws of thermodynamics - which every engineer accepts as true - still apply to the human body.

The body as a heat engine

The body is really quite a remarkable heat engine - it can take in food from seal meat in the artic to coconuts in the tropics and turn it into the fundamental energy source - sugar (technically glucose).

Yes it is very fashionable now to classify sugar as an evil but whether we like it or not sugar is our fundamental energy source powering the body. The body it truly remarkable and can run on other energy sources like ketones but our regular fuel is sugar.

The body can also convert foods to replace worn out body parts equivalent to the consumables like oils and brake pads in a car.

Now despite what the medical profession says we do not eat calories (which is a measure of energy and has no physical form) - we eat matter, hunks of bread, cheese, meat or whatever which has a mass and physical form which we can weigh as so many grams. What we eat is grams of food (which has the potential to be burned and release energy).

All foods contain carbon and hydrogen and maybe other chemicals as well and these can burn to release energy which we can measure as calories. But energy has a second property which measures how useful it is. A block of ice contains oodles of energy but it is useless - while steam in a boiler has useful energy - the higher the temperature the more useful the energy.

It is useful because as heat flows from being useful (high temperature) to less useful (low temperature) it can generate mechanical energy or do work.

Engineers measure the usefulness of energy by a term called entropy which many first-year engineering students consider was invented to confuse them - but unfortunately it is just a reality of life.

We all work as heat engines taking in food as fuel which has the potential to release energy - burning (or chemically processing) it to release energy which can be converted to mechanical energy and the less useful energy released as waste.

That's how all heat engines - (which include us) - work. We eat food containing useful energy - convert some of this energy to mechanical work and the rest end up as less useful energy e.g heat.

We run, move or simply sleep - burning food to create mechanical energy and waste heat so we get hot.

Us as a heat engine in practise

That is the physics of us as a heat engine - but turning these laws of thermodynamics into reality is a bit more complicated.

The efficiency of burning our fuel varies, a lot depends on our gut biology - some species of microbes are very effective at burning our food so we capture a high proportion of available energy, if we lack this species of microbes much of our food will go down the big brown pipe and be excreted. That is why poop is such a valuable source of energy in primitive societies and why we can eat a monster Chinese feast and not get fat (straight away anyway).

But we don't just have a tonne of energy floating around in our bodies - we have a very clever control system to manage that energy. Again it is useful to look at how a car engine works.

The oh so clever control system

Our bodies have an incredibly sophisticated control system but if we can help understand a bit of its complexity by looking at the fuel control system on a car.

Obviously, a car has a wide range of energy requirements. It just needs a little bit of fuel when standing at traffic lights - it needs a burst of energy to get back up to speed then less fuel to maintain cruising speed.

On a modern car this is all done by a small computer system which has multiple sensors to read what is going on. It will read air flow, engine speed, and temperature and may even monitor the driver's mood which may need a burst of acceleration or want to conserve fuel.

It will work out just the right amount of fuel to inject and what the ignition timing should be.

It is a pretty clever little device that works extraordinary well but is nothing in comparison with the complexity of the human control system we call our guts (or enteric nervous system).

Even before we wake up it will sense from previous history and the light level that it will soon be time for the lord and master - our bodies - to wake up. It will release cortisol into our blood stream which will tell our organs to release sugar into the blood stream so when we do wake up there is an energy stream just waiting for us to leap into action. (That function is often disabled in teen agers).

It will sense it is breakfast time and make us feel hungry and want to eat and when we have had enough make us feel full so we stop eating. Whether we walk, ride or drive to work it will provide us with just the right amount of energy without us even thinking.

If we are silly enough to eat a monster meal it will work out that it needs some rapid energy to help digest this mountain of food we have just eaten so will signal that we need some quick energy food - like a really sweet desert to provide that energy burst.

This is really clever - it is not just telling us how much food we need to eat but what type is needed right now. We have no idea how this complex computer does this but it does this totally automatically.

Our guts don't just tell us we need food - they tell us what sort of food - it's our guts telling us to eat chocolate.

Day in and day out for thousands of generations this highly sophisticated control system has made sure that we eat just the right amount of food so we have the energy we need for whatever we are doing.

It has learned that there are bad times with no food so it makes us a little more hungry so it can built up some reserves and there are other times where there is an excess of food but it stops us from overeating so we get fat - which is not a good idea if we may need to run from a ferocious bear.

This control system is truly remarkable and has served us more than well for eons of time.

But sad to say we have over abused this faithful servant and have created the major epidemic of diabesity.

What research says - diet not pills

The epidemic has initiated a major research effort around the world to find explanation an of the causes and to find solutions. Scientists have been faced with facts which are beyond debate.

Some forty years ago people did not worry about weight - most were neither fat nor skinny. Only 1 in a hundred people suffered from diabesity now about a third of the population has some form of diabesity, another third is overweight while the other third appears to be perfectly healthy (even if they eat junk food). In such a short period of time a change in genetics can be ruled out so the question is what has changed?

There is now general agreement among the research community that this epidemic comes from two changes.

Gut biome the key

The first is that the toxic chemicals, herbicides, insecticides, chemical fertilisers and imprudent use of antibiotics are compromising our gut biology the second is that the combination of fats, sugar and salts are addictive.

Naturally the giant chemical and food processing industries - dominated by multi-national companies have tried to protect their sales by causing confusion and controversy about the science which has left the research community struggling to defend their position.

However, the effectiveness of faecal implants provides solid - non-debatable - evidence. Early experiments on mice showed that fat mice could be made thin and thin mice made fat simply by changing their gut biology. This has now been repeated on humans - and has become a standard medical procedure with virtually 100% success - fat people can be made thin simply by changing gut biology. No argument!

There is no debate - our guts are a very clever control system and given a chance will control our weight without us worrying about it.

Gut biology is very complex - at the latest count some six thousand different families, species and sub species have been identified. They control many of the automatic functions in the body - in particular appetite and how the food we consume is managed e.g. stored as fat, consumed or excreted from the body.

The gut biome is truly a second brain - the trillions of cells communicate with each other to take decisions - behaving in a similar way to a conventional computer but with such power and complexity it is still well beyond our understanding.

We know that the gut brain acts as the control hub for many of the automatic functions of the body - it decides what to do with our food - to store as fat, to use as an energy source or to discard by excreting from the body. It does this by a complex system of hormones and nervous signals. It has a major role in our immune system and even controls our moods.

It seems that if people have an effective control system that they can resist the attractions of addictive foods and so they remain healthy - however if the gut biome is compromised they start by putting on fat and can eventually end up with diabetes.

The gut brain (enteric nervous system) communicates with our head brain (central nervous system) via a direct link called the Vegas nerve to take decisions on how our body should operate. It sends out signals - electrical and hormonal - to tell our bodies how to operate.

There are many hormones - for example there is ghrelin which tell us that we are hungry and should eat - there are others messengers like leptin, cholecystokinin and others which tell our hypothalamus that we are getting full and should stop eating.

We have also learned that our gut brain is a delicate organism which needs the right conditions and food to function properly and breed.

Toxins

It is now clear that our gut brain is being severely compromised by our food system. At the very basic level many species of bacteria can be simply killed by contact with aggressive chemicals widely used in agriculture.

For example, glyphosate is generally considered a safe chemical, at least by the chemical companies, who say has been well tested for adverse effects on the human body. That may or may not be true but these toxins can be devastating for our gut biome, even at parts per billion. Concentration on commercial foods is far higher than this threshold level.

But our gut biome is an eco-system - if we kill off some species in the biome it opens the door for other - often harmful species - to flourish.

The gut brain - the control centre for the body - our Achilles heel

It does not matter how powerful the car - damage the fuel control system and it becomes virtually useless.

It is the same with our human bodies - compromise the control system - our second brain - and our bodies suffer.

Science may be struggling to learn how this complex control system works but that does not matter in the short term - we know that before we started using toxic chemicals in agriculture that our gut brain control system worked perfectly well with very few cases of diabetes (1%).

The first step in reversing diabetes is to restore our gut biome by eating food grown without toxic chemicals and in a biologically active nutrient rich soil to give our gut biology a chance to recover naturally. This is what Gbiota beds were developed.

Fats, insulin, sugar blocking and addiction

But this is just the first part of the problem. Our damaged control system means we no longer have the benefits of an automatic control system to manage how much or what we eat so we are liable to put on fat.

Dopamine is a reward hormone - if we get addicted to a particular food - typically containing a combination of sugar, fats and salt such as found in ice cream, sweet biscuits, pizza and cheese cake - we develop cravings or an addiction for that particular food and simply the sight

or smell of that food give us an almost irresistible craving to eat that food - there and then - whether we are hungry or not.

We are particularly prone to the widespread consumption of processed foods - containing that magic combination of sugars, fats and salt. This is happening all the time with our modern diet with the widespread use of fructose in corn syrup and the high concentrations of high glycaemic foods.

The onset of diabetes

This may just lead to people becoming overweight - which from a health viewpoint is not so big a problem - people can be fat, fit and healthy. Problems start when the fat blocks sugar from entering the muscles and liver so they become insulin resistant and diabetic. That's the road to going blind and having your limbs chopped off.

Cynical people may say that is their fault - they should simply stop eating that type of food - but that is not facing reality.

The food companies spend billions of dollars promoting their product often with misleading information - health bars and energy drinks are promoted using sports connections saying this food is heathy when in reality it is just packed with sugars. Breakfast cereals are typically loaded with sugars and are promoted to children - profit before health.

In the real world these foods become addictive - they lead to the generation of dopamine which floods the brain and after time becomes irresistible. Dopamine - the reward hormone - is an emotional input to the head brain leading to addiction which is virtually impossible to overcome directly but can be side stepped by avoiding the dopamine rushes in the first place.

So what do we do about it?

It may seem backwards but look at what does not work. Well continuing to repeat the message - over and over again - about eating less and exercising more certainly does not work. It is impossible to avoid the barrage of propaganda on diet which we all blasted with. Anyone with two eyes that goes to a shopping centre will see that people are now fatter than ever. We are bombarded on TV, the internet, mountains of books, articles and blogs but it has been totally ineffective - people just keep on getting fatter and fatter.

Most people simply ignore this barrage and for those that try and understand there is just a mass of contradictions - cut out carbs or fat - eat more vegetables but vegetables contain cryptogonigens which will give you leaky gut - eat fruit but fruit contains polydiburitates which attack the mucus layer in your guts. Fasting is the best way of losing fat but fasting stresses your body so you end up eating more.

Diabetes then becomes irreversible and just keeps on getting more acute but cut enough high glycaemic carbs and use sugar blockers (e.g. fibre) and diabetes can be reversed.

For every view there is an equal and opposite view (to misquote Newton). These are not just magazine articles but come from qualified doctors and researchers.

Even respected studies are not convincing - how do people react to being told that 12% of Nurses in Framington in 1952 had a 12% chance of living two years longer it they limited the number of eggs they ate to two per week? Answer I don't care - if I only eat two eggs per week will I live to 89 and still be healthy?

John and Mary Smith are totally unimpressed by the mass of confusing and contradictory statistics - they simple want to know what will work for them.

With such a mass of contradictions it is no wonder that people tune out.

This is not negative - it is telling us precisely what we need to do. We need to set up a system where people can test for themselves whether the solution works for them. If Bill Jones is a totally different solution to John Smith who cares - the question is does it work for them?

General theory v individual solution

The aim of science is to develop a general law which provides a general solution.

When this works it is highly effective - take any branch of mature technology - computational fluid flow, heat transfer, (the areas I specialised in when I was younger), heat engines aerodynamics or whatever - technologist agree on the fundamental laws and get on with the job.

With chronic disease there is no agreement amongst the specialists on the basic laws - the battle between the low fat and the keto brigades is fierce. Every doctor has their own views and seem totally convinced they are right. How can it be that there should be so many disagreements amongst dedicated and well trained professionals?

The answer is simple - people are all different and need diets tailored to their needs. We should stop looking for that one ideal diet and learn how to find that tailored diet. Currently millions of people are suffering chronic diseases - so what do we do? We can take a pragmatic approach.

First fix the gut by a largely plant base diet with plants grown in biologically active and nutrient rich soil and free of toxins then use continuous sugar monitoring to find the diet that best suits the individual.

We may not be able to help everyone with a general solution but we can help people on an individual basis.

Individual solutions

A bit difficult to do with diseases like heart attacks where the metric is 0/1 living or dead, but with a disease like diabetes we can tell exactly how well the cure it working by continuous blood usage monitoring.

This is a dead simple technique of sticking a little patch on your arm and it gives you a graph of blood sugar. The results are almost immediate - you can tell which foods give you a blood sugar spike within a couple of hours and if a particular diet is reducing insulin resistance within a few days.

This is where farm health stays on an eco-village have a role to play. Researchers using statistical techniques may have many thousands of subjects in their studies which mean limited attention to any one person. By contrast on an eco-village carers can provide concentrated support to a group to help each individual find the diet and exercise pattern best suited to them.

It seems that most people can reverse diabetes so they no longer need medication and are technically sensitive to insulin and free of diabetes. In reality if they are already suffering from diabetes they have a body which is prone to insulin resistance so they will need to watch their diet and exercise but this is infinitely better than taking pills which do nothing more than temporary suppression of the symptoms of diabetes.

Credibility - does it work?

Eco villages have an important role to play in fighting the diabesity epidemic - but they must be effective - they must work with clear and positive results - not just for the clients but to show the medical profession - who will be recommending the service to their patients and so largely providing revenue.

Credibility is key!

The number of people suffering from these chronic diseases is daunting - in Australia over 2 million - in China some 115 million. It would be simply impossible to provide these massive numbers of people with a dedicated qualified medical practitioner - there are just not that number of doctors but an eco-village can provide a range of services to battle the epidemic.

An eco-village is a community with a range of people with different skills and interests.

Farm health stay on an eco-village

Reversing diabetes is a two stage operation - the first to restore the gut the second to reverse food cravings.

Some residents can act as growers providing the food to restore the gut biome by growing food without toxins in a biologically active nutrient rich soil. This is the reason why Gbiota beds were developed. The guests eat these plants to restore their gut biology.

Other residents can act as cooks - almost everyone accepts that a healthy diet should have a high concentration of fruit and vegetables but the fact is that fruit and veggies can be pretty boring and unappetising to someone who is addicted to junk food.

However they can be made attractive using the well-established culinary arts of blending contrary flavours together - sweet and sour - and using herbs and spices to add both flavour and combat diabetes. (Many herbs provide both flavour and can act as sugar blockers to reduce the glycaemic load).

The role of carers

Some residents will be looking after clients as carers so they need to fully understand the process of reversing diabetes.

There is more to reversing diabetes than just being told to follow some standard routine. This happens every day in overworked doctor's surgeries and the only effect is to alienate the patients so they go straight out for some comfort food.

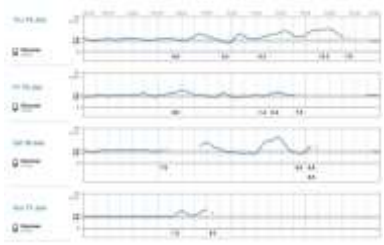
Support is needed by being part of a group and from carers who have some knowledge and training - (and access to medical practitioner when needed).

The second role of carers - after restoring the gut biology is to help people overcome addiction by a combination of education, group therapy and active support.

Cortisol is a critical hormone - the stress hormone - which is perfectly natural but in an artificial situation - like a diabetes crisis - pumps extra sugar into the blood stream which just makes the situation worse. It is important that guest enjoy a stress free - supportive environment.

The good news is that it only takes a couple of weeks to break the addiction and a sympathetic carer can coach people through this difficult stage.

Continuous blood sugar monitoring



Having trialled continuous blood sugar monitoring I am convinced that this is an invaluable tool in both reversing diabetes but showing that diabetes is being reversed.

The diagram shows a typical trace. This is from a long suffering diabetes patient (who also happens to be my wife).

During most of the night the blood sugar level is within bounds so all is well. But about an hour before wake up time the blood sugar starts to rise. This is the normal process of the control system generating cortisol to provide energy for when we wake.

At each meal or snack there is a sugar spike which indicated how the body is responding to that food.

One of the realities of life is that people have very varying responses to different foods. Some people can handle fatty or treat foods like ice cream or sweet biscuits with no difficulty while others are highly sensitive.

Continuous blood sugar monitoring can show how each person reacts to each food type so a custom diet can be developed for each person.

It would seem obvious that foods which cause sugar spikes should be avoided, but this may not always be true. For examples bananas are loaded with sugar and can result in serious spikes. However they are also full of beneficial fibre and if coupled with a sugar blocking food (like a lettuce leaf) they can be safely eaten.

I must admit I was totally surprised by the effect of exercise. A walk around the park dropped her blood sugar from some 13.9 to 5.9.

But the aim is not simply to avoid foods which cause sugar spikes (which always occur but are amplified by insulin resistance caused by fat) but to reduce the fat so the body becomes more sensitive to insulin.

The real aim is to increase insulin sensitivity which can be interpreted from the graphs, a major sugar spike with a long recovery time indicated that the body is not sensitive to insulin (severe diabetes). By inspecting the traces to find which foods and exercise lead to a general lowering of blood sugar levels the diet and exercise protocol can be developed to reverse diabetes. This may well vary from person to person.

This may not need to be extreme - if could be as simple as getting up from a sedentary position (e.g. watching TV) and making a cup of green tea every hour. A little movement seem to do a lot of good - but this is not a general recommendation - the procedure is to fit a continuous blood sugar monitor and find out what works for that particular individual.

There is no magic to this - any carer can acquire the skills with a little training.

There is one important proviso. A carer is not a doctor and cannot change any prescriptions that the guest may have been prescribed by a doctor. However, as the diet is improved to give greater insulin sensitivity the blood sugar levels should drop so the amount of medication will need reducing. This is where the carer must seek professional medical advice which should be part of the eco-village system.

I'm hungry

Diabetes is the result of excess fat in the muscles and liver preventing insulin from doing its job of transferring sugar from the blood to the muscles.

Pills can certainly help manage the blood sugar but as yet there is no known pill which can cure insulin resistance - this can only be done by getting rid of the fat which is blocking insulin.

It seems our bodies are perfectly capable of getting rid of that blocking fat but it does mean experiencing a little regular hunger - sad but true.

Dieticians have tried for years to develop the technology of controlling the amount of food that people eat - an effort which has met with little success.

Yet our bodies have a highly refined system of telling us when we are full or hungry - given a chance it works far better than any artificially forced protocol. Unfortunately in our modern factory farming and processed food system these internal signals are often overridden.

One of the roles of a career is to help guests becomes sensitive to the signal our bodies are sending us to control our appetite and how much we should eat. It must of course be remembered that our guts evolved in times when shortage of food was more common than excess - as we have now. Consequently, the signals telling us to stop eating are less forceful than those telling us to eat.

The blood sugar graphs show when exercise has dropped to a target level to start removal of insulin blocking fat.

Education

It would be naïve to think that a person could spend a few weeks in an eco-village - undertake a once off renewal of their gut biology and thereafter everything would be fine and dandy. The focus must be on education - providing the basic skills for growing some of their own food - anyone, even people living in an apartment - can do this with a wicking bed, they need knowledge of the plants which are highly beneficial for health and how to cook so the food is tasty and the biology is not destroyed.

They also need to understand the basics of how eco-systems work. It was once thought that harmful organisms can be eliminated by toxic chemicals (like glyphosate) and all will be well.

This fallacy is now evident - an eco-system needs to be balanced with the beneficial organisms out-competing the harmful organisms and so controlling their numbers.

There is now an opportunity for eco-villages, existing and new, to become to become examples and ambassadors to the community at large by demonstrating that it is possible for a community to be both sustainable and prosperous.

The aim should be that everyone leaving the village has learned what diet is most suited to their metabolism, how to obtain the food (by growing or careful buying), how to prepare it so it tastes good, and how to listen to their gut signals so they know when to eat and when to stop.

Social responsibility

Anyone who has lived through two world wars, or studied the history of the great depression, and mass starvation knows full well that life is now infinitely better than in the past.

But is has a way to go. We live in an age where factory farming and the excess power of multinationals is causing a great deal of damage to our health. This is not easy to change but demonstrating that eating healthy food and leading an active lifestyle is a first step in overcoming this imbalance.

The increase in physical ailments is readily identified, but there is subjective evidence that society is suffering more aggression and depression and suicides rate are increasing. May be this is associated with our declining diet.

Eco villages have the opportunity to become ambassadors for food that makes people healthy.