



HEALTH RESULTS
Inspired Wellbeing and Preventative Healthcare

Inner Health Made Easy

A simple guide to metabolic health

by Dr Campbell Murdoch





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Design by Theo Johnson

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Welcome

This book was created by Health Results to help you understand what inner health is. Much of my daily work as a GP is due to people's poor inner health. It is the health problem of our time and yet the solutions may be simple. However, before we can tackle the problem we need to understand what inner health is.

The medical term for inner health is metabolic health. The majority of the adult population in the UK are not in good metabolic health. Poor metabolic health is associated with most modern diseases, from type 2 diabetes, to

dementia, heart disease, fertility problems, some cancers, and much more. Poor metabolic health can make us feel generally unwell, lethargic, put us at greater risk of serious infections, make it more difficult to lose weight, and even have an impact on our mental health.

Improving our metabolic may be easier than you thought. I hope you enjoy this short book and it provides you with a strong foundation to achieve health goals that matter to you.

Dr Campbell Murdoch



The Health Results One Rule

What you do is not good or bad,
therefore you are not good or bad.
What you do can be helpful or unhelpful.
Helpful moves you towards your goal.

Inner Health Made Easy

Part 1

Understanding the human body
Homeostasis and inner health

Part 2

The problem and the solution
Inner health, insulin resistance,
and carbohydrate

Part 3

**Maintaining and improving our
inner health**
The Health Results Way



Part 1

Understanding the human body
Homeostasis and inner health

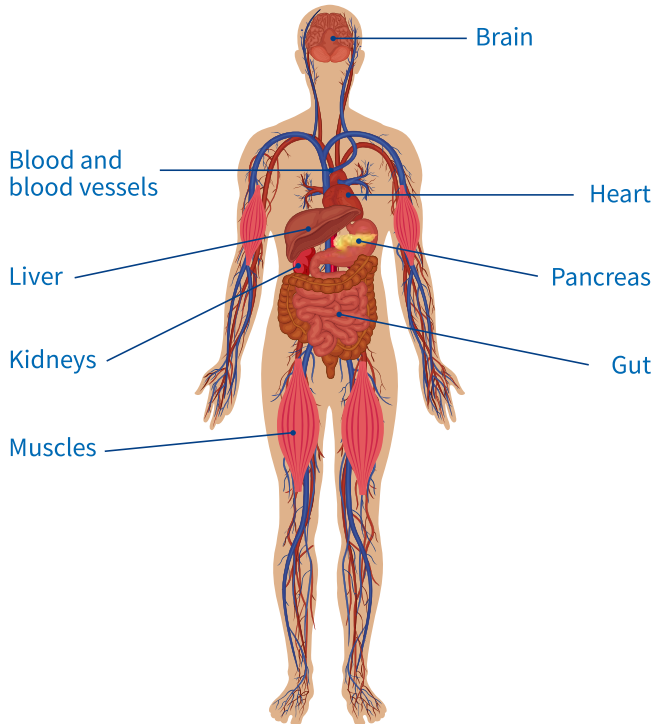
We are humans



We live on the Earth.

We eat, move, think, sleep, and we
interact with the world around us.

Our body parts (anatomy)

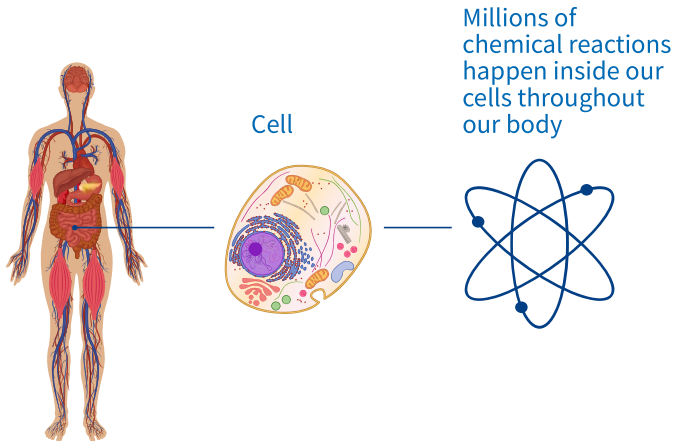


We have lots of parts inside our body.
These work together to keep us alive.

Some of the parts are shown in the picture.

These body parts are called organs.

Metabolism

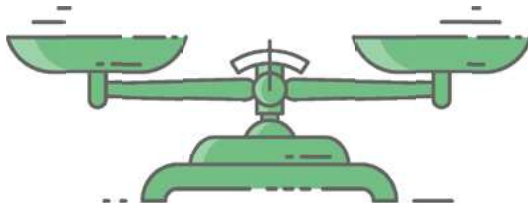


All of our body parts are made up from cells. Inside the cells there are millions of chemical reactions going on.

This is called metabolism.

It is all part of life.

Keeping the balance

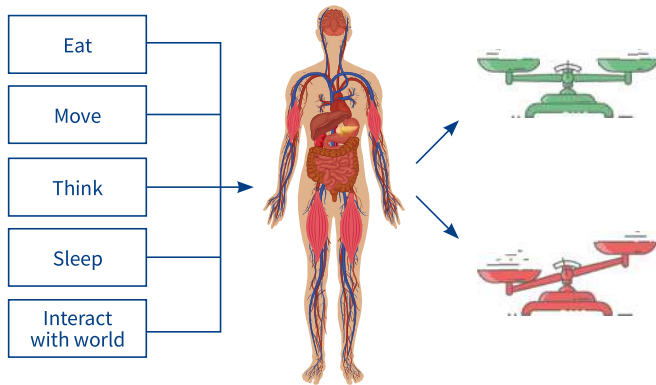


Whilst all the activity is happening throughout our body, it is working hard to keep everything in balance.

This is called homeostasis.

Homeostasis is the body keeping itself in balance

Keeping the balance



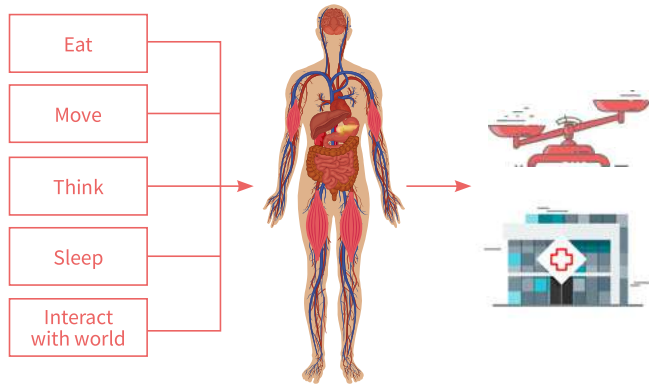
Our nutrition, movement, mind, sleep, and environment all have an effect on our body.

Some of our behaviours, and some parts of our environment, can help our body to stay in homeostasis.

Whilst other behaviours and parts of our environment can make it harder for our body to stay in homeostasis.

What we do and the world around us affects whether the body can stay in homeostasis

Upsetting the balance

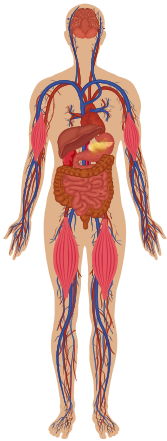


The world around us and what we do in our daily life can cause our body to struggle to keep in homeostasis.

If every day our body has to struggle to keep everything in balance, then over the years many diseases and illnesses can happen.

If homeostasis is challenged too much for too long then diseases can develop

Blood glucose homeostasis is very important for inner health



5 litres
of blood

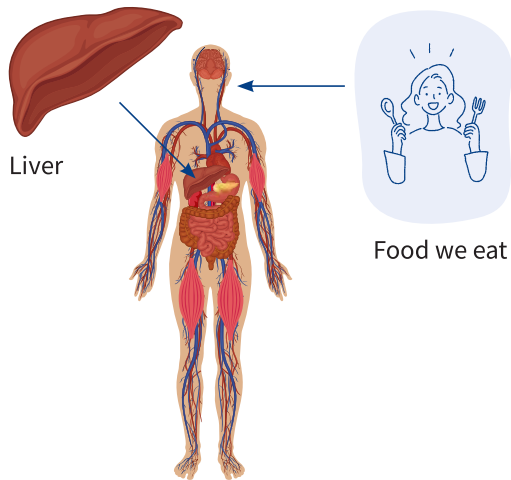
1 teaspoon
of glucose

We have approximately 5 litres of blood in our body.

In all of our blood we should only have about 1 teaspoon (5g) of glucose.

Normal blood glucose

Blood glucose is increased by our liver and our food



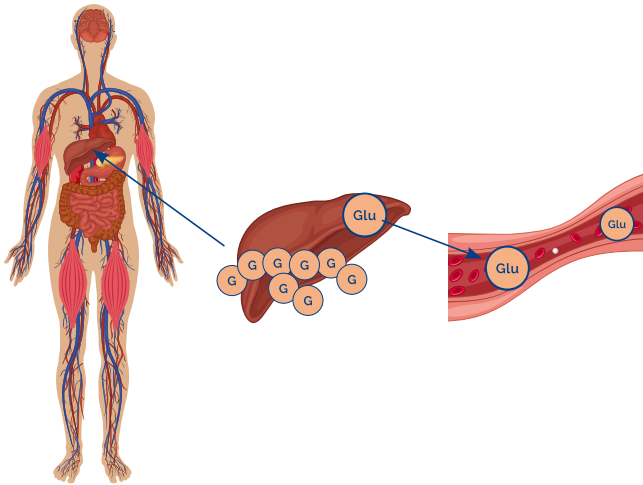
In our blood we have many things, including sugar. The type of sugar in our blood is called glucose.

The glucose in our blood can come from:

- The food we eat
- Our liver which can make glucose and release it into the blood

Glucose in our blood comes from our food and from our liver

Our liver makes, stores, and releases glucose into our blood



We do not want too much glucose in our blood, just one teaspoon or 5g.

It is very important to have this small amount of glucose.

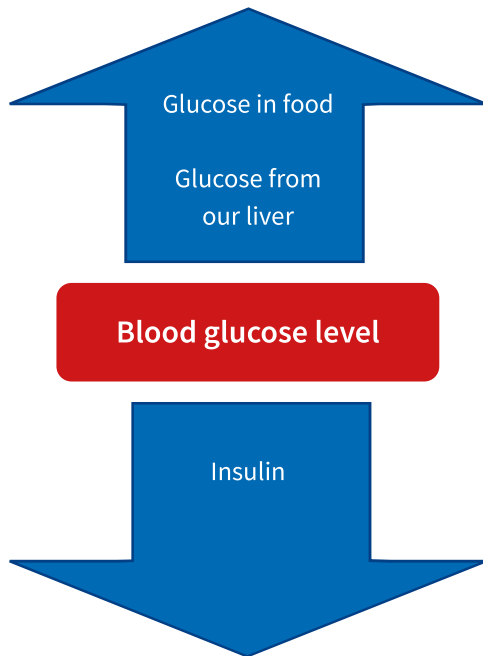
Because this is so important our liver can store glucose. The glucose stores in the liver are called glycogen. Glycogen is long chains of glucose, very similar to starch in plants.

When more glucose is needed in the blood the glycogen can be broken back down into glucose and released into the blood.

Our liver can also make glucose itself. This means when we are not eating any carbohydrate foods our liver can happily keep our blood glucose at just the right level.

Because our liver can do this, we don't have to eat any carbohydrate to be able to live.

Increasing and decreasing blood glucose



Keeping the blood glucose at a level of 5g is called blood glucose homeostasis.

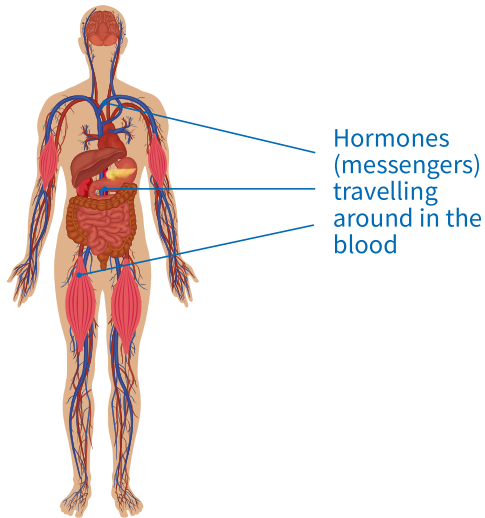
When food is eaten causing the blood glucose level to rise, the body needs to work fast to bring the glucose level down again.

To do this the pancreas (an organ near our stomach) releases insulin.

Insulin is a hormone. Hormones are messengers that tell the body what to do.

Insulin tells the body to get glucose out of the blood.

Hormones

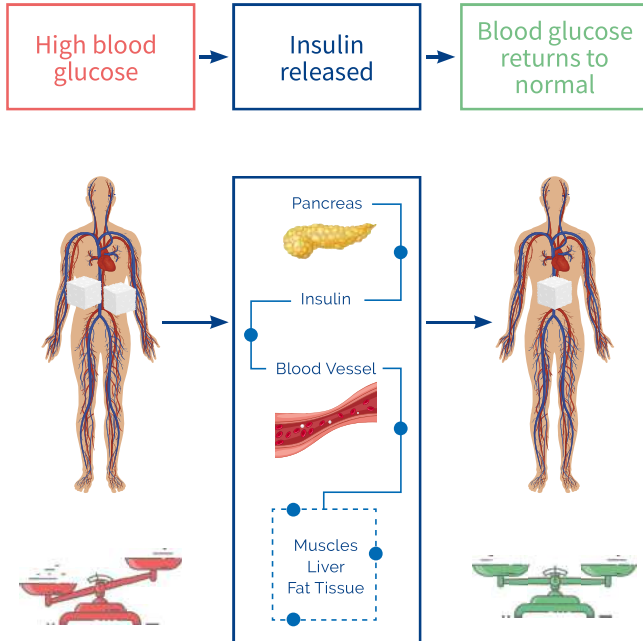


Our body is very good at looking after itself most of the time. It has many control systems to try to keep everything in balance and homeostasis.

Hormones have a big role to play in homeostasis.

Hormones are messengers. They are released from one part of the body, then travel in the blood and tell other body parts what to do.

Insulin



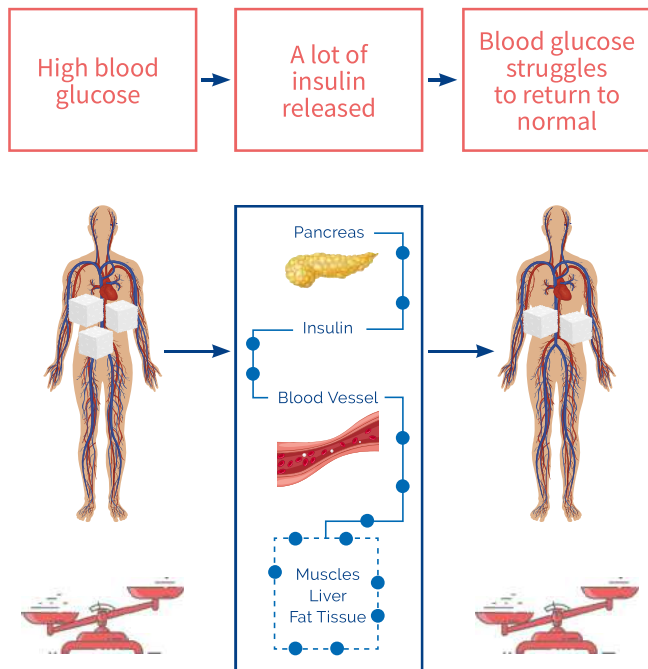
Insulin is one type of hormone. It has a very important role in helping to keep our blood glucose level normal.

When our blood glucose level goes too high our pancreas releases insulin into the blood.

Insulin travels around the body telling body parts to help bring the blood glucose level back down to normal.

The liver, muscles, and fat stores have a big role to play in this.

Insulin resistance



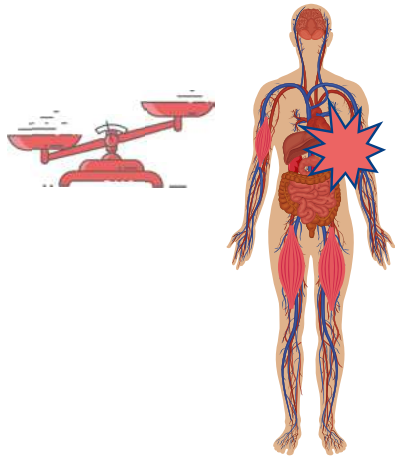
How easy or hard it is for our body to keep our blood glucose level normal can have a big influence on our health.

If there is a lot of glucose going into our blood (from our food), and if the parts of the body and the cells do not want to take glucose out of the blood, then a lot more insulin has to be released to try to force the glucose out of the blood.

When this happens the body is no longer in balance (homeostasis). The medical name for this is insulin resistance.

Many common modern diseases, that were rare 100 years ago, are due to insulin resistance.

Insulin resistance is linked to many unhealthy changes in the body



Inflammation and fat inside
the belly also happens with
insulin resistance

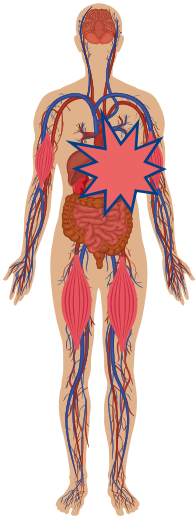
When the body continues to be overloaded with too much sugar, it is not just insulin resistance and the body struggling to keep blood sugar normal that is the problem.

A lot of other harmful changes happen throughout the body. This includes fat building up inside the belly and the organs.

Inflammation also develops. Inflammation can be thought of as the cells and parts of the body being upset, angry, and unable to look after themselves properly.

This is poor inner health. A more technical name for inner health is metabolic health.

Poor inner health causes lots of daily problems



- Tired with low energy levels, and energy slumps
- Frequently hungry
- Brain fog
- General aches and pains
- Difficulty losing weight
- Feeling generally a bit fed up

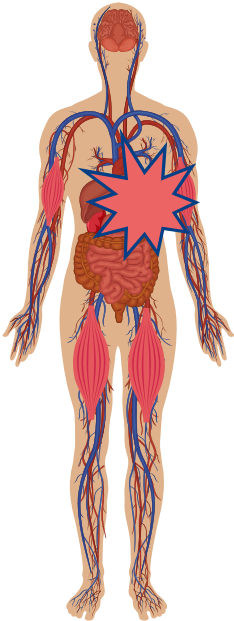
Poor inner health can make us feel generally unwell. It can feel that we are not functioning at our best.

We may not know why we do not feel well, and we may have felt like this for so long that it has become normal.

Poor inner health is linked to many modern diseases

Poor inner health is associated with many modern diseases.

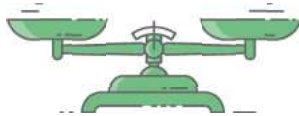
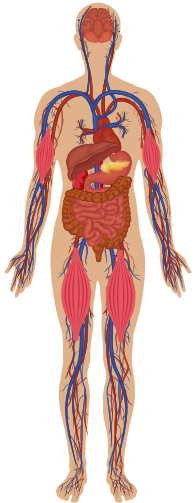
Many of these diseases and conditions were very rare 100 years ago.



- prediabetes
- type 2 diabetes
- high blood pressure
- non-alcoholic fatty liver disease
- heart disease
- some cancers
- fertility problems
- joint pain
- skin conditions
- low mood
- dementia

- overweight and obesity
- prediabetes
- type 2 diabetes
- essential hypertension
- non-alcoholic fatty liver disease
- metabolic syndrome
- reactive hypoglycaemia
- polycystic ovary syndrome
- joint pain / osteoarthritis
- migraine
- skin conditions
- irritable bowel syndrome
- acid reflux
- heart failure
- some mental health conditions (including depression and anxiety)
- asthma
- erectile dysfunction
- sleep apnoea
- fibromyalgia
- gallstones
- severe COVID
- some cancers (bowel, breast, prostate)
- alzheimers dementia
- chronic kidney disease
- prostatic enlargement
- ischaemic heart disease
- stroke
- gout
- osteoporosis
- and more....

Maintaining and improving our inner health makes us feel better



- More energy
- Better mood
- More effortless weight & belly loss
- Greater mental performance
- Greater physical performance

Good inner health also helps to reverse, prevent, and improve many diseases

By improving our inner health we can improve how we feel, as well as our current and future health.

The benefits can be rapid. Many people will feel better within a few days or weeks.

Body measurements of inner health start to improve within days to weeks.

People can reverse their type 2 diabetes, prediabetes, lower their blood pressure, and lose weight.



Part 2

The problem and the solution
Inner health, insulin resistance,
and carbohydrate

Creating inner health

the insulin sensitivity of the body



the amount and type of
carbohydrate eaten



inner health

Our inner health is significantly influenced by:

How easy it is for our body to keep our blood glucose at a normal level.

The amount of carbohydrate we eat, and the type of food it is.

How easy it is for our body to keep our blood glucose at a normal level.

In medical terms this is how insulin sensitive we are. Being insulin sensitive means if our blood glucose goes up then only a small amount of insulin is needed to bring our blood glucose back to normal. The opposite of insulin sensitive is insulin resistant. Insulin resistance means when our blood glucose goes up it takes a lot of insulin to bring our blood glucose back to normal.

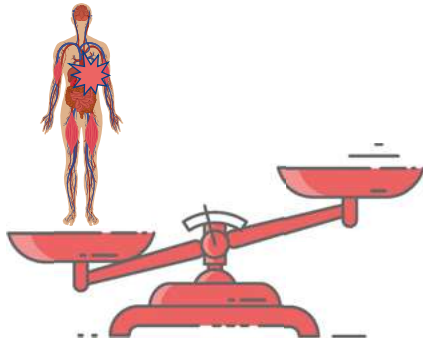
The amount of carbohydrate we eat, and the type of food it is.

If we eat a lot of carbohydrate we are eating a lot of sugar or starch. The starch will turn into glucose in our gut. More carbohydrate in our food means more glucose is going into our blood.

As well as the amount of carbohydrate, the type of food the carbohydrate is in also makes a difference. Food that is already glucose sugar will go into our blood very quickly. Starchy foods need to be digested in our gut into glucose first. Some starchy foods will digest into glucose very fast, and some will digest into glucose more slowly.

(You will learn all about carbohydrate later, so don't worry if you don't really know what carbohydrate means at the moment.)

Creating poor inner health



Do things that make the body
insulin resistant

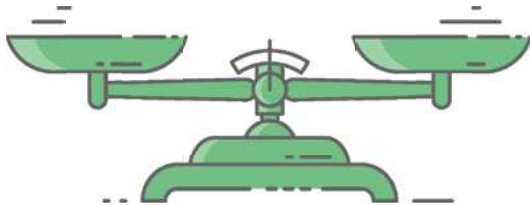


Eat a lot of foods that put blood
glucose up, and eat them frequently

If we want to make our inner health poor
we need to:

- Do things that make it more difficult for our body to keep our blood glucose at the normal level. This means making ourselves more insulin resistant
- Eat a lot of carbohydrate foods that keep sending our blood glucose level up, and do this frequently

Creating good inner health



Do things that make the body
insulin sensitive



Mainly eat foods that do not put
blood glucose up a lot

If we want to improve our inner health
we need to:

- Do things that make it easier for our body to keep our blood glucose at the normal level. This means making ourselves more insulin sensitive
- Mainly eat foods that do not cause our blood glucose to go up a lot and frequently

Insulin sensitivity

the insulin sensitivity of the body

+

the amount and type of
carbohydrate eaten

=

inner health

We are now going to learn a little about what makes the body more insulin sensitive or more insulin resistant.

Things that make the body more insulin sensitive or more insulin resistant

Insulin sensitive

- Exercise and build muscles
- Sleep adequately
- Relax
- Eat real foods
- Spend some time not eating

Insulin resistant

- Eat lots of ultra-processed foods and sugar
- Eating a lot all the time
- Spend all our time sitting or lying down
- Get inadequate sleep
- Smoke tobacco

There are many aspects of our life that will affect how insulin sensitive or resistant we are.

Big muscles that are moved frequently make us more insulin sensitive. This means doing some activity that challenges our arm, leg and buttock muscles on many days of the week.

Sleep is important to help our body to stay in homeostasis and be insulin sensitive.

Ultra-processed food and sugar can directly cause the body to become more insulin resistant.

(We will learn more about this over the coming pages)

Carbohydrate

the insulin sensitivity of the body

+

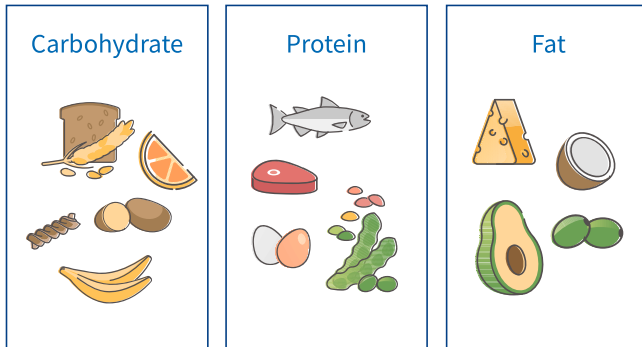
the amount and type of
carbohydrate eaten

=

inner health

We are now going to learn more
about carbohydrate.

Macronutrients



We get energy to live from our food. This energy comes from macronutrients called carbohydrate, fat, and protein. Fat and protein are also used for growth and repair of our body.

Carbohydrate, fat, and protein in our food provide our body with energy for us to live. They are called macronutrients. Macro means big, and nutrient means something we eat.

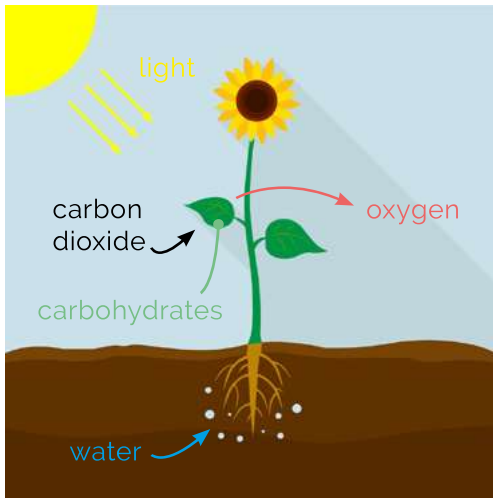
(We also eat micronutrients in our food. Micronutrients are the vitamins and minerals our body needs to be able to live.)

Fat and protein are also used so our body can grow and repair. We always need to eat protein and some fats.

Carbohydrate is only used for energy. Most of the carbohydrate we eat is digested in our gut to glucose. We only need a little bit of glucose in our blood, just 5 grams. The glucose in our blood can come from carbohydrate in our food, and glucose can also be made in our liver. This is why we don't have to eat carbohydrate to be able to live.

Different foods we eat have different amounts of carbohydrate, fat, and protein. Eating the right amounts of these macronutrients is important for our inner health. This means we need to eat enough of each one, but also not too much. Too much carbohydrate can be a problem for our inner health.

Where does carbohydrate come from?

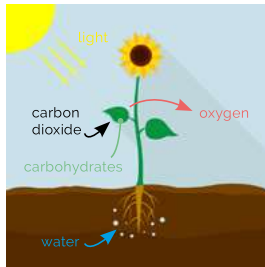


Plants use the sun, carbon dioxide in the air, and water to make carbohydrates. This is called photosynthesis. (Oxygen is also made during photosynthesis).

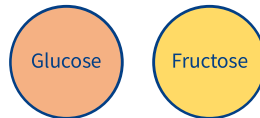
The plant makes carbohydrates so it can grow.

The plant also creates carbohydrate stores for new plants to grow. Examples of this are seeds and potatoes.

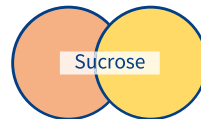
What carbohydrates do plants make?



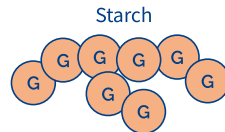
The plant makes two different sugars. One is called glucose and one is called fructose.



The plant can join the glucose and fructose together. This is a new sugar called sucrose. The plant does this because sucrose is better for travelling around the plant.



The plant can also join lots of glucose together to make starch. Starch is how the plant stores lots of glucose.



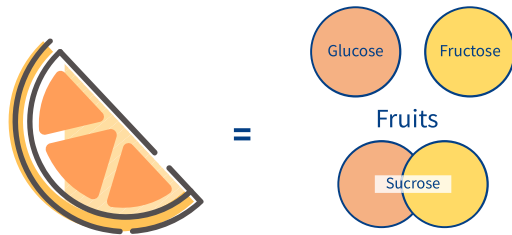
There are two basic sugars that plants can make. One is called glucose and one is called fructose.

The plant might use some sugar straight away, and it will put some sugar into storage for later.

For the sugar to be able to travel out of the leaf and around the plant it first needs to be made into another sugar called sucrose. To make sucrose the plant joins one glucose with one fructose.

If the plant wants to be able to store lots of glucose it needs to join the glucose together into long chains. Lots of glucose joined together is called starch. Starch is the plant's sugar store to be used for new growth.

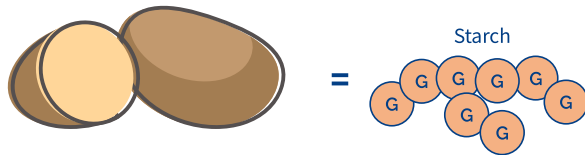
What do we eat?



Fruits contain the sugars glucose, fructose, and sucrose.

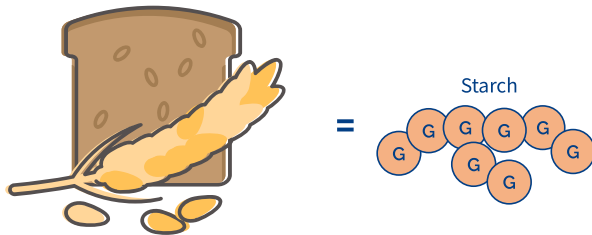
Different fruits have different amounts of these sugars.

Some fruits have a lot of sugar and some have only a little bit. The sweeter the fruit the more sugar it will have. Fructose is especially sweet.



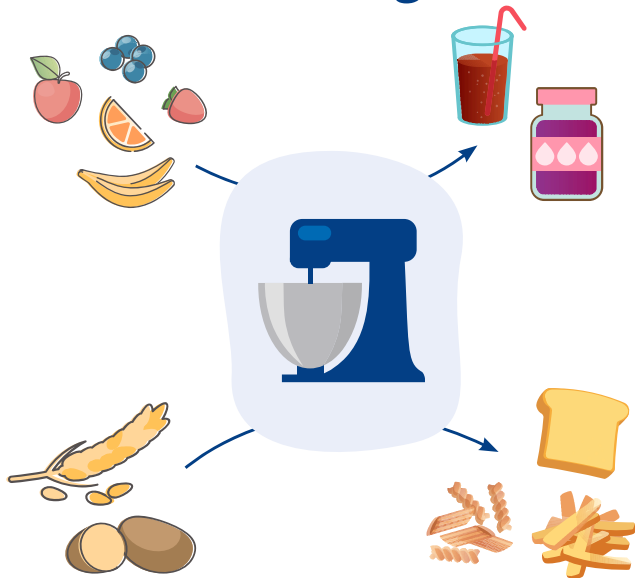
Starch stores can be used when a plant cannot photosynthesize to make new sugar, such as before new leaves grow each year.

Starch stores are also used to grow new plants.



Potatoes are big starch stores that grow into a new potato plant. Seeds from plants like wheat are starch stores to grow new plants.

Plants that contain carbohydrates are sometimes used in cooking

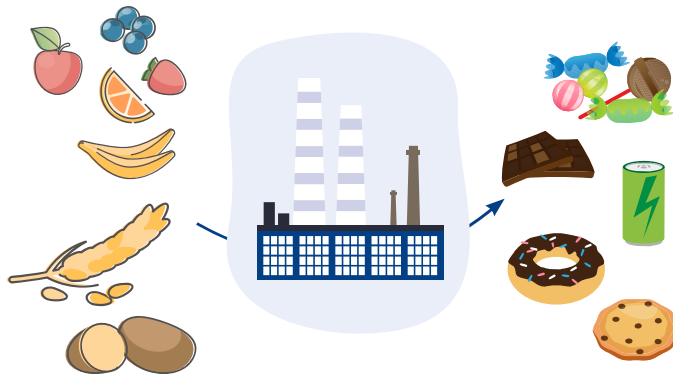


Carbohydrate foods can be cooked with at home.

Fruits are sometimes turned into other sweet foods such as jams and juices.

Starchy plants are often turned into other foods such as flour, bread, pasta, and chips.

Plants that contain carbohydrate are also used in food manufacturing, along with other ingredients, to make ultra-processed foods



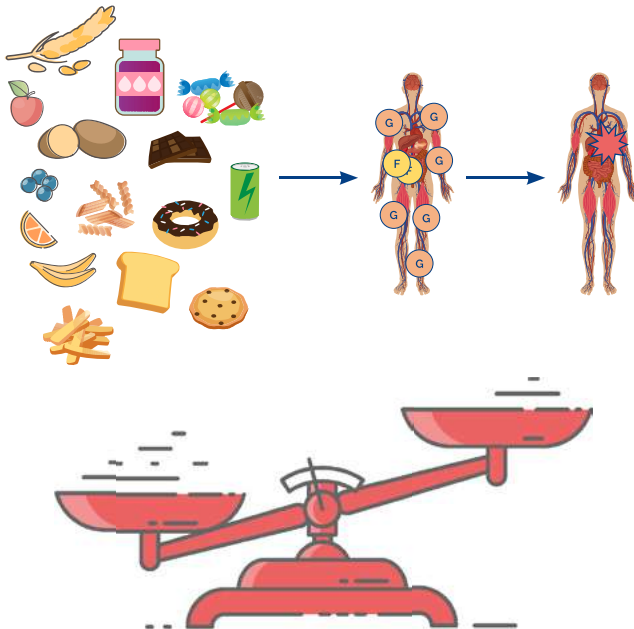
A lot of the food we now eat has been significantly changed in a factory. This includes what is called ultra-processed foods. There is a lot of sugar or starch in these foods.

Ultra-processed foods can be very tasty. This is because the people that make these foods want us to buy them. So they make them in just the right way so we really want to eat them.

These ultra-processed foods might also be advertised and labelled to make them look healthy, even though they might be very unhealthy.

This is because we are more likely to buy the ultra-processed foods if we think they may be healthy, or at least not too unhealthy.

When we eat these foods they all become sugar in our body



When we eat any carbohydrate foods they all get digested in our gut back into glucose and fructose. The glucose and fructose then moves from our gut into a blood vessel that goes straight to our liver. Too much glucose and fructose in our blood and body can cause us to have poor inner health.

Remember in the blood throughout our body we only want a very small amount of glucose, just 5g, which is 1 teaspoon.

Our body does not want any fructose in it at all. Our liver has to work fast to get rid of fructose. Our liver turns fructose into glucose or into fat. A large amount of fructose in our diet makes the body insulin resistant. This means too much fructose is particularly unhealthy.

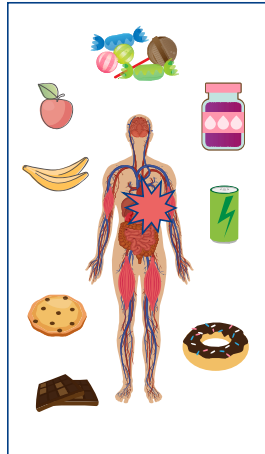
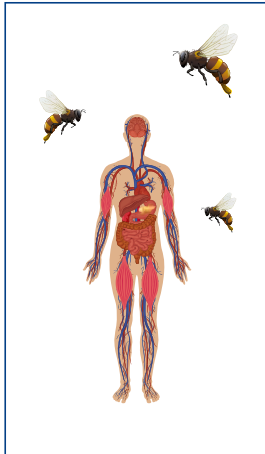
The greater the excess amount of glucose and fructose we eat the faster we will develop poor inner health.

Some important information about fructose

In the past



Now



Too much fructose seems to cause a lot of problems to our inner health. It is probably because we are not supposed to eat very much of it.

Years ago before big farming machines, food factories, and shops, we only ate a small amount of fructose and not that often. That is because it was only in fruits that appeared once a year, or in honey. In nature honey is protected by bees.

The reason we love fructose is because it helps us to make and store more fat in our body. This is due to large amounts of fructose causing our liver to make more fat and by creating insulin resistance which leads to us storing the new fat. Being able to store lots of fat would have helped us in our past to deal with times when less food was available.

These days we have sweet sugary fructose containing foods all around us.

Because our brain loves to eat sweet sugary foods we can sometimes eat a lot of them.



Part 3

Maintaining and improving
our inner health
The Health Results Way

Improving our inner health starts with what matters

What will be better when you improve your inner health?

Why does this matter?

Health Results is a preventative healthcare organisation dedicated to making inner health and happiness easier for people.

Improving inner health can seem like a bit of a jigsaw puzzle, and changing our behaviours can sometimes seem difficult.

Health Results created the important stepping stones for success.

Turn over to read these.

- 1. Learn about inner health.** When we understand inner health it helps us to realise why it is so important.
- 2. Think about why we care about our own inner health.** Making changes to our lifestyle is easier when it is important to us.
- 3. Have an assessment of our inner health** and know what the assessment results means. Health Results created the HRM Score to help us understand where our inner health is. The HRM Score can help to guide lifestyle changes and confirm if the actions we take are leading to an improvement in our health.
- 4. Know what actions will lead to us maintaining and improving our inner health.** Health Results created the 5 Foundations to help with this. Nutrition, Movement, Mind, Sleep, Environment.
- 5. Have the support from people that care about us, and that can help us to take action.** Health Results Coaches do this with us.
- 6. Have access to learning and practical resources to help us take the actions that will make the biggest difference to our inner health.** More knowledge and very practical resources can help with our day to day choices. Our experiences and learning can also help us to understand what to do if we are not reaching our goals.
- 7. Nurses and doctors with a special interest in inner health (metabolic health) who can provide advice and personalised plans.** The nurses and doctors can also deal with our medical needs if necessary.
- 8. Supporting the places we live and work,** and the UK, to make sure the world we live in helps to improve our inner health.

We can measure our inner health



Blood glucose
Blood triglycerides
Blood HDL-cholesterol



Waist
Height



Systolic blood pressure
Diastolic blood pressure

There is no single test that can tell us exactly how our inner health is.

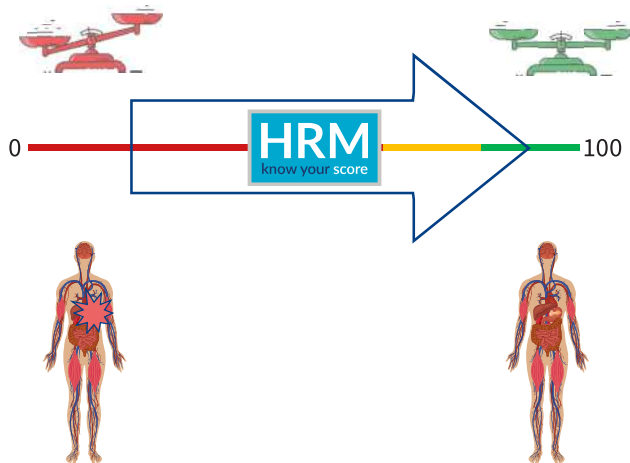
Health Results has brought together a range of scientifically established inner health tests. These include:

- measurement of waistline (at the level of your belly button)
- blood pressure
- blood test for the glucose level and the levels of some fats (the fats are technically called triglycerides and HDL-cholesterol)

The Health Results Metabolic (HRM) Score uses all these measures to give us an overall inner health score out of 100.



We can improve our inner health



We can improve our inner health.

To improve our inner health we need to take action to make ourselves more insulin sensitive.

We also need to eat fewer foods that excessively challenge our blood glucose all the time.

We need to help our body to maintain homeostasis.

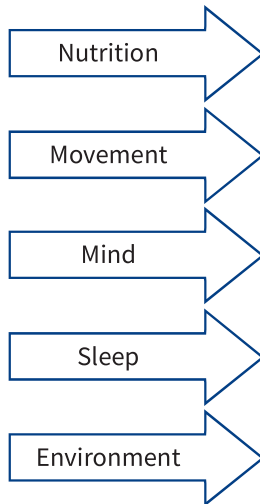
If we help our body to maintain homeostasis it will be able to look after itself much better.

We are more likely to avoid getting modern diseases.

We will feel better.

And we can even reverse conditions such as type 2 diabetes.

The Health Results 5 Foundations to maintain and improve our inner health



The Health Results 5 Foundations to improving our inner health are:

**Nutrition. Movement. Mind.
Sleep. Environment**

By taking the right actions in the 5 Foundations our inner health will improve.

When our inner health improves our measurements and our HRM Score will improve.

To find out about the actions that will improve our inner health please read the Health Results book **Look After Your Inner Health.**

The www.HealthResults.com website and the Health Results App are very useful resources to find out more.

Health Results is dedicated to improving inner health and happiness for everyone in the UK

We hope you enjoy looking after your inner health



Who we are and what we're about.



HEALTH RESULTS | A national preventative healthcare organisation dedicated to the health and happiness of people in the UK.


Improving metabolic (inner) health |

- IMPLEMENT evidence-based healthcare
- REVERSE t2 diabetes & prediabetes
- PREVENT modern diseases
- SUPPORT weight management
- PROMOTE well-being

5 Core Beliefs

-  free reliable health information
-  training, coaching, & support
-  purposeful testing
-  high quality clinical preventative healthcare
-  supportive communities


5 Health Foundations



0 ————— **HRM** ————— 100

Preventative Healthcare Services

Health Results Website	Health Results App
HR Live	HRM Service
T2D & Prediabetes Reversal Service	HR Publications Printed & Electronic Resources
Nurse and Doctor Consultations	Health Results Community





HEALTH RESULTS

Inspired Wellbeing and Preventative Healthcare