HEALTH RESULTS
Inspired Wellbeing and Preventative Healthcare

Look After Your Inner Health

A practical guide to improving your metabolic health

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This short information booklet provides some insights and ideas into metabolic health and how it can be improved.

Contents

The Health Results One Rule

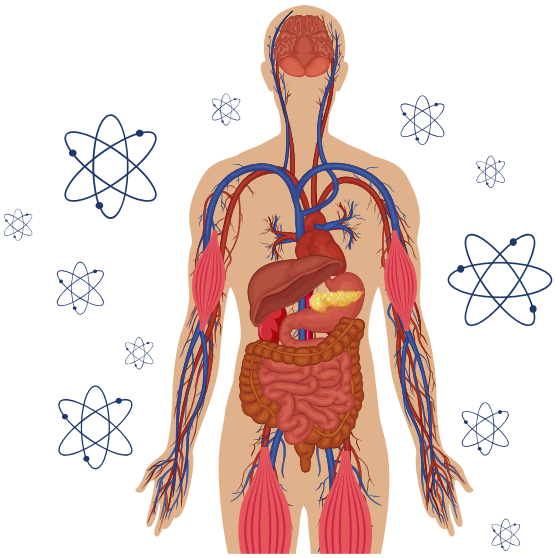
What I do is not good or bad,
therefore I am not good or bad.
What I do can be helpful or unhelpful.
Helpful moves me towards my goal.

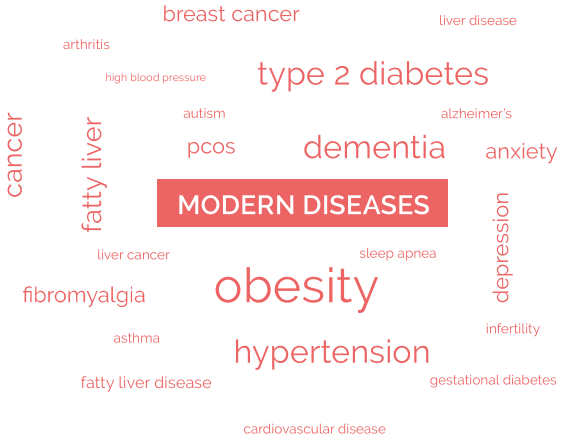
Our mindset matters. Success comes from taking action and learning what is most helpful.

Inner health, a brief summary

The body is built for survival. Inner health refers to what is going on inside our body and how it affects our health. Inner health is also known as metabolic health.

Inside our cells there are billions of chemical reactions happening. Our body and all our organs must work together to sustain life and maintain health.



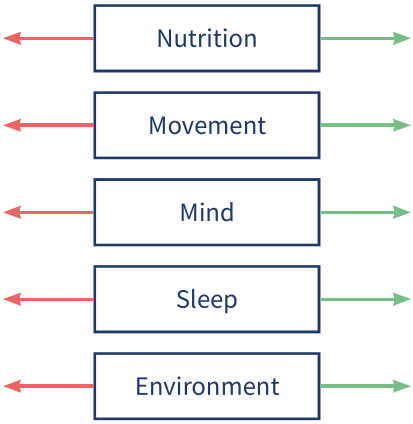


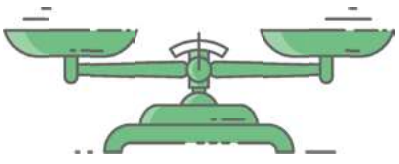
The body maintaining a state of harmony and balance is called homeostasis. Blood glucose homeostasis is particularly important for metabolic health.

Constant challenge to homeostasis and the effect this has on our metabolic health is associated with many modern diseases.

What we do and the world we live in can affect our inner health. Our daily life can either support our metabolic health, or it can have a negative impact and lead to illness.

Poor inner heath





Good inner heath

Nutrition

“Eat real food”

What and when we eat is the central lifestyle factor for maintaining and improving metabolic health. Food that supports our health must include adequate vitamins, minerals, protein, and essential fats. Conversely, overwhelming our body with ultra-processed foods and sugar is a significant contributor to type 2 diabetes, obesity, and most modern diseases.

Nutrition is such a key topic because over the past few decades the typical foods people in the UK eat are more ultra-processed and higher in sugar. This shift in diet has led to more people developing poor metabolic health and insulin resistance. Once people develop insulin resistance the body struggles to manage large amounts of carbohydrate, especially when it is refined, such as in breakfast cereals for example.

Eating real food, tailored to our individual needs and preferences is key if we wish to feel well, prevent modern disease, reverse conditions such as type 2 diabetes and achieve sustainable weight loss.

The Health Results Nutrition Foundation has two core principles, and 6 adjustable components or levers.

The two core principles are:

- Eat real food
- Minimise ultra-process food, sugar and refined carbohydrate, and seed (vegetable) oils

Eat real food

This sounds a simple concept, but what is meant by ‘real food’? There is no formal definition of real food. However, it can be summarised as:

- Food that could have been recognised by our ancestors
- Unprocessed, or minimally processed food
- Often has no ingredients list

Minimise ultra-processed food

Food that is ultra-processed food has been modified through some form of significant factory processing. These manufactured foods will often come in a packet and have a list of ingredients. The ingredients list may include items that would not normally be used in home cooking.

Ultra-processed foods are made by food manufacturers whose primary purpose is to increase their financial profits, and not necessarily our health. The foods are usually engineered to keep us going back for more, even when we are not hungry.

Minimise sugar and refined carbohydrate

Sugar includes table sugar, as well as sugar added to processed foods, and sugar in products such as fruit juices. Fructose is a type of sugar that is present in all of these. It has a very sweet taste and can be very hard to resist. When fructose is consumed in larger amounts it causes insulin resistance and the liver to become fatty. This insulin resistance and fatty liver is a significant step in developing conditions such as type 2 diabetes, weight gain.

Refined carbohydrate refers to starchy foods that have been processed. These foods are rapidly digested in our gut to glucose. The influx of glucose from these foods causes our blood glucose to rapidly rise. The rise in glucose requires insulin to be rapidly released to bring blood glucose back to normal. Frequent consumption of refined carbohydrates, especially if we are already in an insulin resistant state, will worsen insulin resistance and metabolic health. Refined carbohydrates include refined flours, breakfast cereals, white rice, bread, and pasta.

Minimise seed oils

Seed oils are often known as vegetable oils. These are oils that have been extracted from plant seeds. They may be bought as oils, such as sunflower oil to use in cooking. They are also used to produce margarines, and used in ultra-processed foods. There is limited research and evidence on the health risks and benefits of seed oils. At Health Results we recommend minimising seed oils because:

- they tend to be high in omega-6 compared to omega-3
- they will oxidise if left in storage and when heated (oxidised fats are unhealthy)
- they are part of ultra-processed foods

The 6 nutrition levers are

- Eat adequate protein
- Enjoy non-starchy vegetables
- Enjoy fat that is part of a whole food
- Adapt carbohydrate amount to personal needs and goals
- Only eat when hungry and stop when full
- Drink adequate water

Adequate protein

Adequate protein in our diet is important for our body's growth, maintenance, and repair needs. Adequate protein also helps us to feel full.

What is protein?

- Protein is one of the macronutrients in our diet (the other two macronutrients are fat and carbohydrate)

- Protein is made up from smaller sub-units called amino acids

- Protein, and its amino acids, are the 'building blocks' for every single part of the body. Protein can also be used as a fuel for the body if needed.

How much protein should we eat?

- There is a minimum amount of protein needed in our diet. The recommended minimum amount of protein people should eat a day is about 0.8 grams per kilogram of ideal body weight. For example, someone whose ideal body weight is 60kg should eat at least 48g of protein each day.

- The suggested ideal amount of protein is a bit higher. Approximately 1 to 2g of protein per kg of ideal body weight is suggested, especially if weight loss is a goal. There is evidence that we should eat towards 2g of protein per kg of ideal body weight as we age to maintain our muscle. People exercising a lot, and trying to gain muscle, may benefit from up to 3g of protein per kg of ideal body weight.

Enjoy non-starchy vegetables

Non-starchy vegetables typically grow above the ground, as well as some root vegetables. Non-starchy vegetables contain larger amounts of fibre and are low in starch and sugar. Eating a variety of vegetables is likely beneficial. Most people can enjoy as much of these vegetables as they wish.

Enjoy fat as part of whole food

Fat that is part of a whole food should be considered healthy. When fat is eaten as part of a whole food it will usually come naturally packaged with a reasonable amount of protein. In addition there are some essential fats that we must eat, including omega-3. There are also four fat soluble vitamins A, D, E, and K. To be able to get these four vitamins from our diet we have to eat them with fat.

Real food examples of foods that contain fat include oily fish, fatty meat, and nuts.

Ensuring the fat is eaten as part of a whole or real food also means industrial trans-fats are avoided, as well as avoiding industrial seed oils.

The amount of natural fatty foods someone wishes to eat will depend on their needs, preferences, goals, and other dietary habits. Some people can eat more fat, especially those on a very low carbohydrate diet. Whilst others will need to reduce the amount of fattier foods they eat, especially if they are trying to lose weight and not seeing results.

Adapt carbohydrate amount to personal needs and goals

The amount of carbohydrate different people can tolerate varies. People with markers of poor metabolic health will often see health improvement by reducing their carbohydrate intake. People with good metabolic health and with no excess belly fat can typically eat more carbohydrate.

Everyone benefits from ensuring all carbohydrate foods are unrefined and non-sugary.

How much carbohydrate?

For people with poor metabolic health and insulin resistance to improve metabolic health and also to lose excess body fat, a lower level of carbohydrate will typically help. This can mean, for example, minimising starchy foods and sweet fruits. (If measuring carbohydrate amount, then many people with poor metabolic health will find they need less than 130g of carbohydrate per day to achieve their goals, and sometimes much lower, such as under 50g).

People with good metabolic health who do not wish to lose weight may be able to eat a greater amount of carbohydrate, including some sweet fruits and starchy foods without issue.

How much carbohydrate someone can tolerate will be individual to their body needs, other dietary and lifestyle activities, and their goals.

Food Timing - only eat when hungry, stop when full.

When the other Health Results Nutrition Levers are followed most people will be able to simply trust their appetite as a guide of when and how much they should eat. Eating when hungry and stopping when full becomes a natural instinct that is influenced by a variety of hormones that affect the hunger parts of our brain.

Conversely, when people are eating ultra-processed food, sugar, refined carbohydrate, and inadequate protein they will be hungry more often. In addition this pattern of eating will typically lead people to eat more, even when not hungry. Eating these foods can influence our brain and prevent us from feeling full. In addition, sugars and refined carbohydrates can cause our blood glucose to suddenly rise, and then fall low 1-2 hours later. The low blood glucose triggers hunger with a strong desire to eat.

For many years there has been a belief that we must eat always eat regularly. This is sometimes quoted as “eat three meals a day and two snacks”. There is no scientific basis to support this recommendation. In fact, it may be that many people benefit from eating less frequently. 16:8 is a popular approach to food timing now, as is “one-meal-a-day”.

16:8 refers to having a consecutive 16-hour period where no food is eating, and only calorie free drinks are consumed. Thus, all food is eaten within an 8-hour window. For some people this can simply mean skipping breakfast. For others it means having breakfast but not eating any food past mid-afternoon.

One-meal-a-day means just that. People only eat one meal a day, and thus have a 23 hours or longer when they are not eating, or drinking anything that contains calories. These periods of fasting allow the body to use its own fuel stores which helps to improve insulin resistance and metabolic health

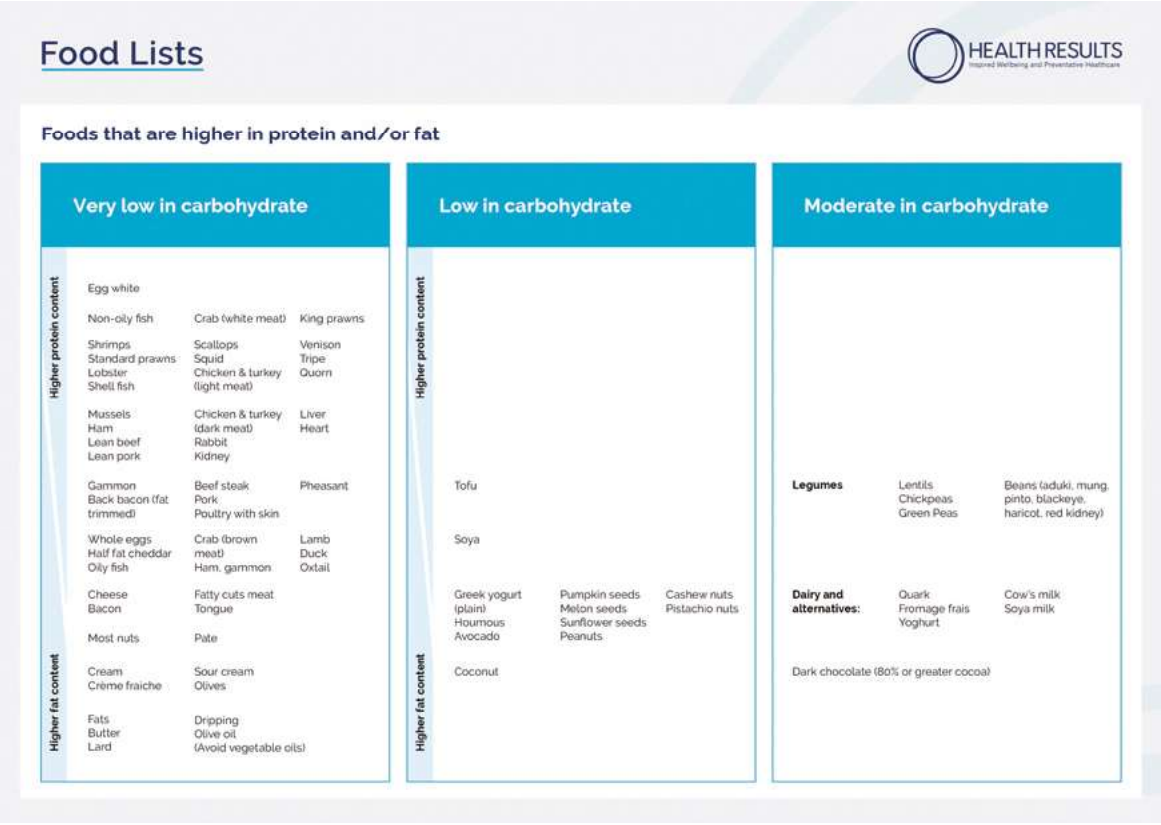
Drink adequate water

How much water we need to drink is very dependent on how much water we are losing in our sweat, urine, and breath. Our body needs to maintain the water balance within a fairly tight range. When the amount of water in our body starts to drop this is sensed in our brain. The brain then releases a hormone to instruct our kidneys to make less urine. Another consequence of dehydration is our bowel extracts more water from our gut, which can lead to harder stools and constipation.

There is no strong evidence base to instruct how much water we should drink. The often quoted 6-8 glasses, or 2 litres of water, are actually just estimates and not founded on any firm science. Generally, we can trust our thirst as an indicator of need to drink. If thirsty we should drink more water. However, sometimes the busyness and distractions of life can lead to us not drinking enough water.

Health Results Food Lists

The Health Results Food Lists were created to support food choices. Use the lists and consider your food preferences and your goals.



Food Lists

HEALTH RESULTS

Foods that are higher in protein and/or fat

	Very low in carbohydrate	Low in carbohydrate	Moderate in carbohydrate
Higher protein content	Egg white Non-oily fish: Crab (white meat), King prawns Shrimps, Standard prawns, Lobster, Shell fish: Scallops, Squid, Chicken & turkey (light meat), Venison, Tripe, Quorn Mussels, Ham, Lean beef, Lean pork: Chicken & turkey (dark meat), Rabbit, Kidney, Liver, Heart Gammon, Back bacon (fat trimmed): Beef steak, Pork, Poultry with skin, Pheasant Whole eggs, Half fat cheddar, Oily fish: Crab (brown meat), Ham, gammon, Lamb, Duck, Oxtail	Tofu Soya Greek yogurt (plain), Houmous, Avocado: Pumpkin seeds, Melon seeds, Sunflower seeds, Peanuts, Cashew nuts, Pistachio nuts	**Legumes**: Lentils, Chickpeas, Green Peas; Beans (aduki, mung, pinto, blackeye, haricot, red kidney)
Higher fat content	Cheese, Bacon: Fatty cuts meat, Tongue Most nuts: Pate Cream, Crème fraiche: Sour cream, Olives Fats, Butter, Lard: Dripping, Olive oil, (Avoid vegetable oils)	Coconut	**Dairy and alternatives:** Quark, Fromage frais, Yoghurt; Cow's milk, Soya milk Dark chocolate (80% or greater cocoa)

Foods that are low or very low in protein
(Amount of carbohydrate per 100g of food is shown)

Carbohydrate content (per 100g food)

Carb 1		Carb 2		Carb 3		Carb 4		Carb 5	
Konjac	<0.1g	Turnip	5g	Melon	7g	Cherries	15g	Whole wheat pasta (cooked)	28g
Mushrooms	0.3g	Grapefruit	5g	Apricots	8g	Grapes	17g	Pearl barley	28g
Celery	1g	Raspberries	5g	Beetroot	8g	Carrots	20g	Yam	28g
Cucumber	1g	Blackcurrants	6g	Peaches	8g	Swede	20g	Plantain	28g
Lettuce	1g	Blackberries	6g	Pomegranate	8g	Potatoes	20g	Rice (all types) cooked	30g
Artichoke	1g	Plums	6g	Onions	8g	Sweet potato	20g	White pasta (cooked)	32g
Kale	1g	Strawberries	6g	Orange	8g	Bananas	20g	Cassava	33g
Pak Choi	2g	Pears	6g	Butternut squash	8g				
Spinach	2g			Sweetcorn	8g			Bread (all types)	50g
Spring greens	2g			Blueberries	9g			Quinoa	55g
Asparagus	2g			Gooseberries	9g			Dried dates	58g
Courgette	2g			Nectarine	10g			Raisins	63g
Aubergine	2g			Apples	10g			Dried fruit	63g
Pumpkin	2g			Pineapple	11g			Crispbread (rye)	63g
Celeriac	2g			Parsnips	12g				
Leeks	3g							Flour (grain, all types)	70g
Broccoli	3g							Porridge	70g
Tomatoes	3g							Sultanas	70g
Cranberries	3g							Currants	70g
Cauliflower	4g								
Brussel sprouts	4g							Breakfast cereals (all types)	80-90g
Mange-tout	4g								
Bell Peppers	4g								
Chillies	4g								
Cabbage	4g								

Carb 6

Foods that are made from flours, refined carbohydrates, or are sugary. All cakes, pastries, biscuits, crackers, sweets, chocolate (with less than 80% cocoa content), ice-creams, breakfast bars, sauces with natural or added sugar, fruit juices, sugar sweetened drinks, honey, jams, syrups.

Movement

“Do enough for health, do more for enjoyment”

Throughout history we have needed to move to find food and water, build shelter, look after our personal needs, avoid danger, and for pure enjoyment. Moving our body is part of life.

When we think about movement we can consider:

- functional movement, how the body moves to carry out tasks
- physical activity and how our entire body adapts and grows to deal with the physical demands

Optimising our functional movement helps us to carry out daily activities and tasks. These abilities include our balance, coordination, flexibility, posture, and strength.

Physical activity leads to improved health through adaptations to our heart, blood vessels, and lungs. Demand on our muscles and bones lead to their growth and maintenance.

Over human history, prior to modern conveniences, the type and amount of movement humans did to simply live their lives would have naturally supported our health. In our modern world this is no longer true. Because we can live without having to move, we must actively build movement into our life. Movement should be enjoyable and should enhance our lives. Know what motivates you to move.

The Health Results Movement Framework MARS covers all aspects our movement for health:

- Move more
- Aerobic
- Resistance
- Stance

The MARS Framework is simple, practical, and can be adapted to your individual needs, preferences, and goals.

Move More

We are built to move. Moving more is a small action that needs no equipment or preparation. It can make a significant difference to our health.

What are the benefits of moving more?
Being in the seated, reclined, or lying position whilst expending little energy for long periods whilst awake, is known as being sedentary. Sedentary behaviour is an independent risk factor for poor metabolic health, increasing our risk of conditions related to poor metabolic health such as type 2 diabetes, heart disease, and some cancers. This means even when all our other lifestyle habits are healthy, being sedentary could have a negative impact on our health. This is likely still true even if we are doing vigorous exercise five or more times a week.
For many people the daily routine can engineer movement out of the day. Commuting to work, sitting at a desk, spending long periods on the sofa at home all contribute to a sedentary lifestyle.

What should we do?
Reducing the amount of time being sedentary can improve our physical health and measures of metabolic health. There is no official agreed maximum safe sedentary time. However, a reasonable approach is to break up sedentary time by moving for at least 1 to 2 minutes every 30 to 60 minutes. The 1 to 2 minutes of activity does not need to be strenuous. It can simply be standing up and pottering around, and getting our arms, legs and the body's big muscles moving.

Where possible we should try to make moving part of our day, or a habit. For some of us this may mean we need to be aware of the activities and routines in our day that encourage us to be sedentary, such as screens (television, mobile phones, computers), long meetings, and transport.

Some ideas to help us move more include:

- Having a standing desk
- Getting up and walking to another room of the home, building, or outside every hour
- Building micro-workout habits throughout the day

Aerobic

People enjoy aerobic activity for all sorts of reasons. Immediate benefits include improving our mood and mental health, socialising, enjoying a sport, and enjoying outdoor space and nature.

What are the benefits of aerobic activity?
The benefits of aerobic activity include reduced risk of health conditions associated with poor metabolic health, such as dementia, high blood pressure, heart disease, and type 2 diabetes. Aerobic physical activity can also improve mental health and mood.
(Note: We should not think of aerobic activity as a way to 'burn calories to lose weight'. Exercise is good for our health, but it is our diet that has the greatest influence on our weight.)

What is aerobic activity?
Aerobic activity, sometimes known as cardiovascular (CV) exercise, is a form of physical activity that involves movement of our big muscles, increase in our heart rate, speeding up of our breathing, and is performed for a longer period of time. The word aerobic means 'using oxygen'. This means aerobic activity is being done at a pace and intensity where oxygen is being used to help metabolise, or 'burn', fuel to release energy to power the activity. Examples of aerobic activity include walking, cycling, swimming, running, dancing, and many other sports. It can also include many daily activities and hobbies such as housework and gardening.

Moderate, Vigorous, and Very Vigorous

Aerobic activity can be classified as moderate, vigorous, and very vigorous. The activities and intensity that fall into each of these three classifications is individual to a person. What is moderate for one person may be vigorous for another, such as a brisk walk or swim.

The Talk Test

The talk-test is a simple measure to determine if an activity is moderate or vigorous intensity.

- **Moderate intensity:** The person can still talk in full sentences. They will have noticed their breathing has increased and they will be getting warmer.
- **Vigorous intensity:** The person will no longer be able to complete a sentence without taking a breath. They will be breathing much harder and they will be hot.

Very vigorous physical activity is short bouts of intense all-out effort. This intensity of activity can only be performed for a very short period, perhaps 30 seconds to a few minutes, before a rest is needed. Types of very vigorous physical activity may include sprinting and high-intensity interval training (HIIT). HIIT only takes a small amount of time and there is growing evidence that HIIT can provide significant health benefits.

Any activity that requires effort needs to be for a reason and ideally enjoyable. For some people knowing the health benefits of aerobic activity will be reason enough. Importantly aerobic activity can be enjoyable and enhance our daily life and mood. Build aerobic activity into the day, make it a habit, and notice the short term benefits.

Do some aerobic activity, ideally every day. Even a few minutes is beneficial.

Some suggestions:

- Brisk walking
- Swimming
- Slow running
- Sprinting
- HIIT routine
- Rowing
- Many sports

Resistance

Resistance activity involves challenging our big muscles so they adapt and grow. One or two bouts of resistance activity a week is enough to achieve significant gains and health benefits. Following a demanding session of resistance activity it can take a few days, and up to a couple of weeks, for muscles to break down and rebuild stronger.

Options for resistance activity include body weight exercises, lifting weights, and using elastic resistance exercise bands. Many daily activities could involve some resistance activity, such as carrying heavy shopping.

What are the benefits of resistance activity?

Resistance activity leads to muscle growth. By challenging our big muscles once or twice a week benefits include improved metabolic health, improved physical function, and bone strength.

Our muscles are the main depositing site when there is too much glucose (sugar) in our blood. Bigger muscles that have recently exercised and used up some of their glucose means there is space to allow glucose in from the blood. This assists in maintaining a normal blood glucose level.

As we age the concept of “use it or lose it” becomes increasingly important. Regular resistance activity helps to preserve muscle size which supports metabolic health and functional ability.

Benefits of resistance activity include:

- Improvement of metabolic health in type 2 diabetes
- Lower blood pressure
- Improved physical function in later life
- Reduced low grade inflammation
- Muscle growth, body composition, and strength
- Bone strength

What is resistance activity?

Resistance activity involves short periods of significant demand on our muscles. The activity leads to the muscles rapidly fatiguing, often to the point where the movement can no longer be repeated.

To gain maximum benefit the type of resistance activity should fatigue the entire muscle. When a muscle has been completely fatigued it enters a cycle of breakdown and repair, growing back bigger and stronger. This cycle of breakdown and repair can take a number of days and up to 2 weeks.

The terms ‘reps’, short for repetitions, and ‘sets’ are sometimes used to quantify resistance activity. For example, 10 press-ups repeated three times with a short rest between would be described as doing 3 sets of 10 reps.

The speed, demand, and number of repetitions and sets of a resistance activity contributes to the fatiguing of the entire muscle. Muscle growth can be maximised by adjusting these factors.

Examples of resistance activity:

- Body weight (press-ups, squats, pull-ups)
- Weights
- Elastic resistance exercise bands
- Heavy gardening and housework

Challenge your arm, leg, and buttock muscles with some form of resistance activity once or twice a week. Adapt the demand, reps, and sets to maximise muscle fatigue and health benefit.

As little as 5 minutes of properly performed resistance training can provide benefits.

Stance

Stance in the Health Results Movement Foundation covers posture, balance, coordination, and flexibility.

Our stance plays an important role in our functional ability, which is our ability to move and perform tasks throughout our day. Posture is important for our musculoskeletal system to help prevent or reduce aches and pains. Balance, coordination, and flexibility can improve our quality of life and support in maintaining our functional movement ability.

What are the benefits of looking after our stance?

Our musculoskeletal system is a chain of connected parts. Our bones meet at joints. Our muscles connect to our bones via tendons. We have a type of tissue called fascia that runs in tracts, or pathways, connecting muscles throughout our body - for example connecting our right leg to our left arm.

Our stance keeps us functionally fit and reduces musculoskeletal aches and pains.

What is stance?

Posture

Our body is made to support itself and meet our daily movement needs. Historically our daily life would have involved a variety of movements and positions throughout the day. Regular movement and change would mean we would not spend prolonged periods in one position. Many people now spend large amounts of time sitting, in relatively stationary positions, such as at a desk, in a car, or watching television.

Core strength

We are built for movement and to exist with gravity. Our weight passes down through our body to our feet when we are standing. As we walk, or move our arms, the forces of movement are passed through our 'core'. Our core is the torso, or trunk, of our body. The strength of our core is dependent on the strength of our abdominal and back muscles. A strong core is important for our balance, including our ability to rapidly adapt to unexpected trips.

Flexibility

Our flexibility refers to how well we can move parts of our body and whether the movement is restricted by shortened, or 'tight', muscles and tendons. For example, spending prolonged periods seated can lead to shortening of our hamstrings, the muscles and tendons at the back of our thighs. Shortened hamstrings can then alter our posture and increase the risk of back pain. In addition, for some people stretching of muscles is needed to combat tightness that can develop from repetitive aerobic and resistance exercises.

Balance and coordination

In older age our reaction time, coordination, and balance can decline if we do not work to maintain them. This risks a vicious cycle as we then do less and increases risk of falls with loss of independence. Purposeful activity to support our stance as we age can help prevent this decline.

Mind

“Let it grow”

Our lifestyle choices affect our metabolic health. Our mind also has a significant influence over our hormones and the functioning of the body. Equally our mind is influenced by our metabolic health. The body and mind should be consider as one.

Purposefully looking after our mind will help us to make helpful choices and will lower our stress response and hormones. This will lead to better metabolic health.

There are multiple aspects to consider, including Hope, Perspective, Learning, Noticing, and Relationships.

Hope

We are often happiest when we have a feeling of control in our lives and a sense of hope that we can improve the things that are important to us. Fulfilment comes when we focus on improving what matters to us.

Perspective

The way we view any situation and the world around us can make a radical difference to how we feel and the choices we make. Our perspective is not fixed. Achieving a helpful perspective on our health and opportunities can make a significant difference to the actions we take. The Health Results One Rule encourages a perspective that will support us to achieve our goals.

Learn

Being open to always learning and trying new things can improve confidence and knowledge and help us to find new solutions. Asking questions, practising new skills and trying new strategies can also increase the growth of neurons in the brain.

Notice

Noticing can help us to discover what works well for our health and life.

We can notice the difference we can make when we take small steps towards our goals. What worked well? What will we do more of? What could we do differently?

Noticing the present moment can also reduce the stress response in the body. Taking time to appreciate the present and not being caught up in past and future 'what if?' scenarios will lower stress. When we take a moment to breathe and focus on the present we signal to the body that all is well, triggering relaxation. This can support helpful choices.

Relationships

The quality of our social support and connections to others has a big impact on our daily mood. Sometimes this gets lost in our busy lives. Connect to others with similar purpose. Giving and gratitude have a positive link to wellbeing.

GRIN

The GRIN model of behaviour change combines some of the features of the Health Results Mind foundation. Following this 4 step process will help you move towards your goals.

Sleep

“Prioritise it (but don’t worry about it)”

We spend around a third of our life asleep. Sleep is part of living. If sleep was not important it would be one of the greatest mistakes in our evolution. Sleep is the time when the body’s repair and recovery systems really come to life. Sleep supports the smooth running of the body and in maintaining homeostasis, including the healthy balance in the body’s hormones and metabolic processes. A good night’s sleep sets us up to be more alert and productive the following day.

In our modern world there is much that may unhelpfully affect our sleep, leading to inadequate sleep. Over time inadequate sleep (less than 7 hours per night) may have an impact throughout our body, including on our cardiovascular, endocrine (hormone), immune, and nervous systems.

Sleep restriction results in metabolic and endocrine alterations, including decreased glucose tolerance, decreased insulin sensitivity, increased evening concentrations of cortisol, increased levels of ghrelin, decreased levels of leptin and increased hunger and appetite.

We should prioritise sleep, though we should not worry about it since worry might stop us sleeping.

The Health Results Sleep Levers are:

- Timing
- Wind down
- Daytime lifestyle
- Sleep space

Timing

Sleep timing considers the number of hours we sleep, together with the timings of when we fall asleep and wake up. There are three key time focused factors to optimise sleep timing:

- allowing the opportunity for 7 to 9 hours of sleep
- aiming to go to sleep at approximately the same time every day
- aiming to wake up at approximately the same time every day

Available research highlights the importance of consistent sleep timing for health. A regular sleep timing routine can assist us in achieving an adequate amount of sleep.

Our body also follows a circadian rhythm with its 24 hour internal body clock.

There are multiple hormonal fluctuations in our body that occur in our body over a 24-hour period. This includes the hormones cortisol and insulin which influence fuel release and storage. Cortisol, which causes fuel to be liberated from body stores, rises at approximately the time we are due to awake, providing us with plentiful fuel to start the day. Conversely insulin tends to peak in the later afternoon and early evening, driving fuel storage. Ensuring our sleep pattern aligns with these hormonal fluctuations can help to optimise our metabolic health.

Waking up naturally without an alarm and feeling refreshed is an indication that we have had adequate sleep and our sleep pattern is aligned with our body clock. Getting to bed at a time to allow adequate sleep is essential.

We probably know the amount of sleep we need to wake up refreshed. The average adult requires 7 to 9 hours of sleep, though for some people 6 hours may be adequate and for others 10 hours may be needed.

By knowing the time we need to be awake and the approximate amount of sleep we need, we can determine our bed time.

Wind down

The wind down period refers to the 30 to 60 minute period prior to going to bed.
During this period the focus is on routines and active support sleep, and minimise activities that create stress and alertness.

Daytime lifestyle

A good sleep is supported by what we do in our day. Getting into daylight early in the morning helps to set our body clock.
Exercise earlier in the day can help our sleep quality. Very strenuous exercise just before bed can have the opposite effect.

Our food and drink can have a significant affect on our sleep. Large meals, alcohol, and caffeine late in the day can have a very significant negative impact on our sleep quality and quantity.

Improving our metabolic health can often improve our sleep. Weight loss associated with improved metabolic health can reduce snoring and a condition called sleep apnoea. In addition better metabolic health will ensure there is no hunger in the evening or the middle of the night.

Sleep space

Setting your bedroom up for good quality sleep includes making the room dark and a temperature of around 18C.

Screens and mobile phones are a common problem. Not only the light from the screen, but also the impulsive use of the phone can impact on sleep. Consider leaving mobile phones out of the bedroom, or at least out of reach.

Environment

"Make it easier, and look after it"

We are connected to the world around us. Our environment has a big influence on our lifestyle choices. Shaping our environment where we can to support our metabolic health is therefore important. In addition we must make sure we look after our environment for ourselves and for future generations. The five Environment Levers are: Surroundings, Sunlight, Natural World, Air Quality, and Community.

Surroundings

Our environment shapes what we do and we can shape our environment. Our behaviour and choices are driven by habits and triggers. Recognising this can help us to create an environment to support the choices we want to make. If we are deciding to eat more of a certain food, or to be more physically active, we can think of ways to make this more likely. For example, by making sure we have the food we want to eat in the fridge or freezer, whilst not bringing the foods into the house that we are trying to avoid.

Our surroundings can also affect our mood. We can't control everything around us and we certainly shouldn't focus on the things we can't change. But we can change some aspects of the world around us – which may be as simple as placing a colour picture on the wall, for example.

Sunlight

We are made to be exposed to natural sunlight. There are at least two benefits of sunlight.

- Natural sunlight on our eyes early in the day instructs our brain that it is wake up time. This helps set our body clock and all the workings of our body for the 24 hour period. Sunlight early in the day may also help us to sleep by setting a 16 hour countdown time until it is time to sleep again.
- Vitamin D. We get some vitamin D from our food. We get a lot more vitamin D from sunlight on our skin. Not getting enough natural sunlight on our skin can lead to a deficiency in vitamin D, which may impact on our metabolic health, and also put us at more risk of some infections.

Natural World

We are probably hard wired to spend some our time in nature. Whether that is around green spaces, trees, water, plants, or simply seeing the sky and clouds. Where we live and daily life can affect the availability we have to the natural world. Finding something to notice in the natural world, big or small, could help wellbeing.

Also importantly we need to look after the natural world. Our health is dependent on the health of our environment. We are part of an ecosystem. Reducing pollution and waste, and supporting sustainable agriculture will pay back for all our health and for future generations.

Air Quality

Very small pollutants in the air, known as PM2.5, can affect our health and increase our risk of lung disease and cardiovascular disease such as heart attacks and also poor metabolic health. Outside air quality can be worsened by the burning of fossil fuels, in cars for example. Whilst tobacco smoking can have the same effect whether directly inhaling or in a smoky environment inside.

Community

When we are trying to change habits it is important to connect with other people trying to achieve the same goals. Our behaviour is highly influenced by those around us. Our community can also make a difference to our environment. Collectively we can make a far bigger difference to the world around us than we can do on our own.