HEALTH BY SCIENCE

EXERCISE AFTER STROKE

THE NHS HELPS PEOPLE SURVIVE; WE HELP PEOPLE THRIVE.

WWW.HEALTHBYSCIENCE.CO.UK

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WELCOME

Health by Science offer Exercise After Stroke to individuals, no matter what age, who have left NHS care and would like to continue their recovery. Meet our coaches here.

We are Scotland’s first Personal Training/Physiotherapy Social Enterprise. This means all our profits go back towards a social cause, which in our case, is subsidising the costs of providing ongoing, not time-limited Exercise After Stroke classes at an affordable rate.

We believe in empowering our Stroke Survivors to master and take control of their health and wellbeing for good, through helping them achieve a clear sense of purpose, autonomy and mastery.

We envision a Personal Training and Physiotherapy service which compliment each other to promote and actively facilitates sustainable behaviour change among the general population and post-traumatic growth among ambulatory stroke survivors in Edinburgh.

HOW MUCH CAN YOU RECOVER FROM YOUR STROKE?

Here are some of the things our stroke survivors have been told since their stroke.

“The first three months are key because you won’t improve beyond that.”

“You will never speak again.”

“You will never walk without a walking aid.”

Are these statements true? Are they based on any evidence?

Of course, this is a complicated topic, but in this blog, we want to shed some light on what the evidence shows at the moment, what it doesn’t show and what stroke survivors can do to maximise their chances of recovery once they’ve been discharged from Physiotherapy in the NHS.

HOW MUCH CAN YOU RECOVER FROM YOUR STROKE?

What does the research say about prognosis after stroke?

A stroke is defined as a neurological condition in which blood supply to the brain is interrupted.

During a stroke, energy-hungry neurons begin to die after only two minutes which ultimately leads to sensory and motor damage.

Over 120,000 stroke survivors are living in Scotland today, who have some of the following difficulties:
- weakness in arms and legs
- problems with speaking, understanding, reading, and writing
- swallowing problems
- losing bowel and bladder control
- pain and headaches
- fatigue – tiredness that does not go away
- problems with memory and thinking
- eyesight problems
- numb skin, and pins and needles

To be blunt, prognosis after stroke, in general, is poor.

HOW MUCH CAN YOU RECOVER FROM YOUR STROKE?

Although studies on the long-term outcome after stroke are few, the current research suggests that most recovery is seen in the first weeks after stroke, with the recovery slope reaching a plateau between three and six months.

However, we know that of the 120,000 stroke survivors in Scotland alone, very few of these stroke survivors use exercise after stroke services, despite 29% of stroke survivors wanting more Physiotherapy once discharged home.

Furthermore, many stroke survivors undergo spontaneous recovery long after their stroke, which can be further facilitated with rehabilitative services.

As they say “every stroke is different” and the amount of variability among the recovery trends of stroke survivors has long frustrated researchers, who have tried to evaluate the recovery process with precision.

There are however relatively reliable predictors of stroke recovery which interact, including:

- The seriousness of the stroke
- The type of stroke (intracerebral haemorrhage (ICH) strokes have a better recovery than cerebral infarction strokes).
- Age
- Access to rehab services

HOW MUCH CAN YOU RECOVER FROM YOUR STROKE?

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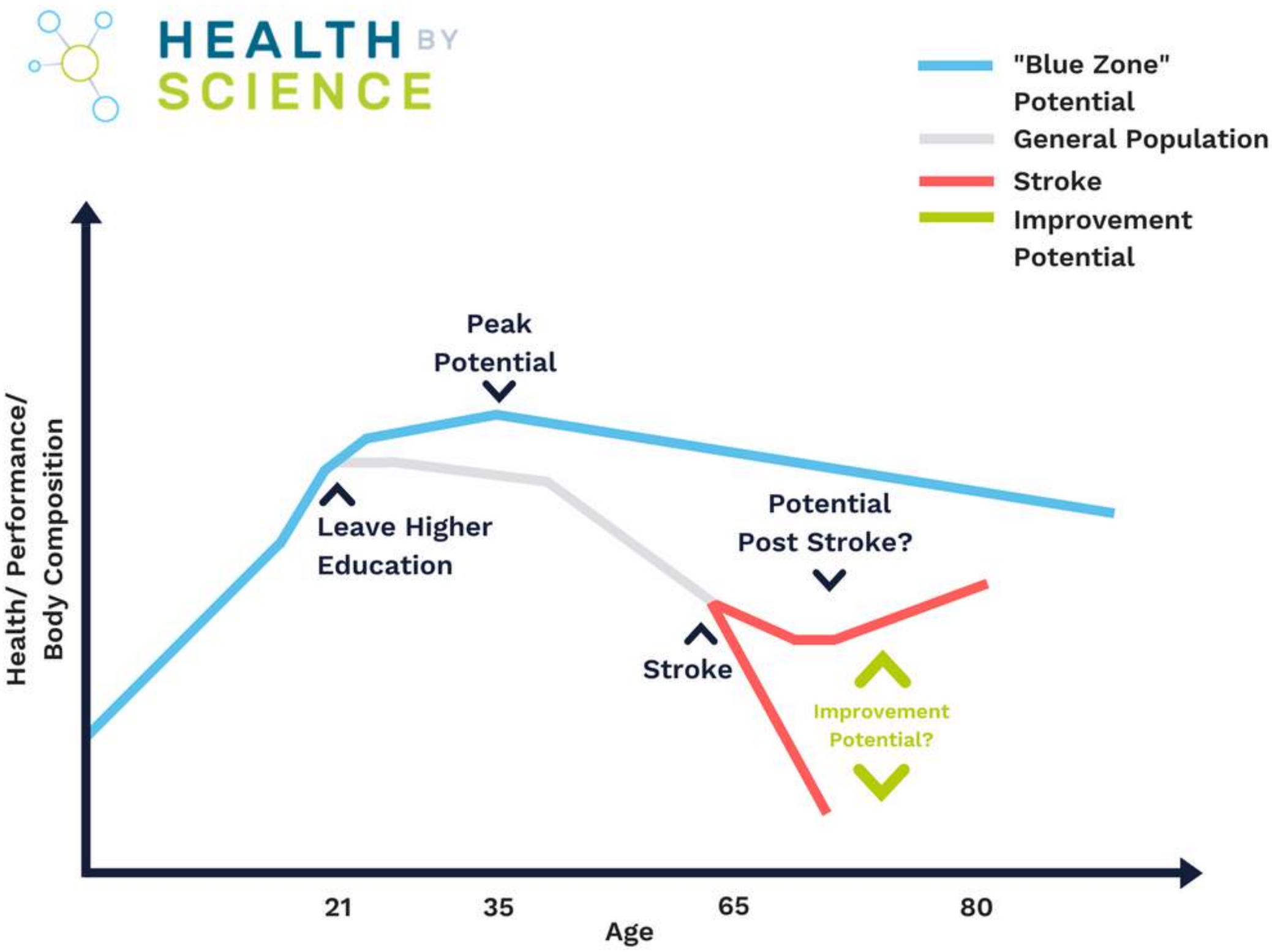


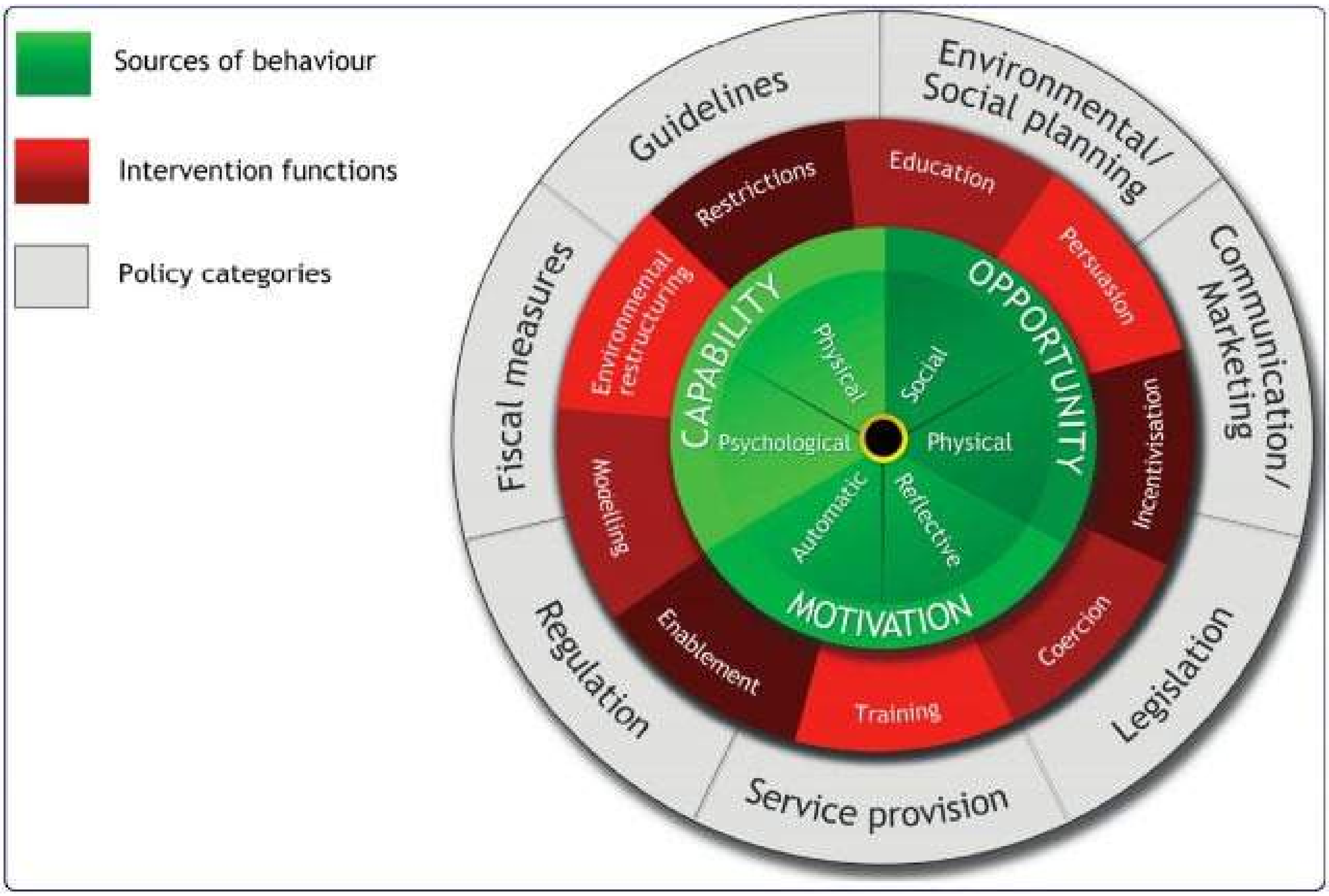
*Blue Zones are areas in which people are more likely to live to above 100 years old with a high quality of life.

While some health variables are out of our control, some of the most significant ones are within our control. With stroke survivors, for example, we know that Exercise After Stroke can be very effective, as well as improving other lifestyle factors such as nutrition, sleep, stress, and mindset.

HOW MUCH CAN YOU RECOVER FROM YOUR STROKE?

Knowing what to do is the easy part, understanding how to do it consistently, to create healthy habits is much more complicated.

To help make sense of why it is so complicated we can look to the Behaviour Change Wheel.



As you can see in the diagram above opportunity, capability and motivation are critical to achieving long-term sustainable health behaviour change.

HOW MUCH CAN YOU RECOVER FROM YOUR STROKE?

Very few people, including stroke survivors, either don’t have the opportunity, motivation or capability to reach their physical activity potential. This may help explain why activity levels in the UK are so low.

At Health by Science, we are trying to provide more opportunity (through Physiotherapy, Personal Training and delivering classes) and increasing the capability and motivation (through our marketing and classes) of stroke survivors, so that they can help themselves.

So how much can you recover after your stroke?

The answer is nobody knows.

Your rehabilitation potential is influenced by some things you can’t control (outlined above), such as your age and the severity of your stroke.

It is often said, your genes are like a loaded gun, but it’s our lifestyle that pulls the trigger.

You will minimise the risk of another stroke and maximise the chances of reaching their rehabilitation potential by focusing on exercise, nutrition, sleep, stress, and mindset, which will maximise your chances of improving your mobility and the overall quality of your life. Health by Science is here to help stroke survivors do just that.

DOES PHYSIOTHERAPY AFTER STROKE WORK?

Spoiler alert. The answer is an absolute Yes for a large proportion of stroke survivors.

Physiotherapy provided 5 -7 days a week for 30 to 60 minutes per day has been shown to result in significant improvements in independence and motor function after stroke when compared to no Physiotherapy.

As a result, national guidelines now recommend that stroke patients receive at least 30 minutes of Physiotherapy a day while a patient is in a hospital. It is also recommended that participation in exercise should be ongoing and not time limited.

In other words, if you don’t use it, you lose it.

Unfortunately, there are very few opportunities for stroke survivors to receive Physiotherapy for 30-60 minutes of training per day 5-7 days a week, once discharged from the NHS.

However, the current research suggests that the benefits of exercise may have a dose-response, regardless of time since your stroke. One day of training is better than no days; two days is better than one, three is better than two, etc.

While there is limited evidence on how to achieve sustainable exercise behaviour change after stroke, several elements have been identified as contributing to enhanced motivation, enjoyment, long-term adherence and reduced dropout in community Exercise After Stroke services.

DOES PHYSIOTHERAPY AFTER STROKE WORK?

What Exercise is Best After Stroke?

Any movement is good, but it’s vital that you enjoy the exercise and challenge yourself so that you improve.

Physiotherapy appears to be most effective when combined with balance training strength training and cardiovascular training. One popular form of delivering this type of exercise after stroke is group circuit class therapy (CCT), which we use at Health by Science.

These circuits focus on the repetitive practice of functional (meaningful) tasks such as walking, sit to stands and other exercises that are continually progressed as you get better and better.

This type of training has been shown to help stroke survivors walk further, faster, with more independence and confidence. What’s more, the study suggests that “the effects may be greater later after the stroke and are of clinical significance”.

Take home message: The more you move, the more you improve.

This type of training has been shown to help improve hemiparetic upper limbs as well as overall mobility (the ability to stand, walk, or run) within a single session.

There is also evidence that increases in walking capacity and ability gained through exercise may translate into positive healthy behaviour change, which in turn significantly reduces the risk of having another stroke.

DOES PHYSIOTHERAPY AFTER STROKE WORK?

How Does Our Physiotherapist Measure Improvement?

The hardest part of any exercise programme is turning up because consistency is the most critical variable. That's why our primary outcome measure is consistency, and we work with our stroke survivors to monitor this.

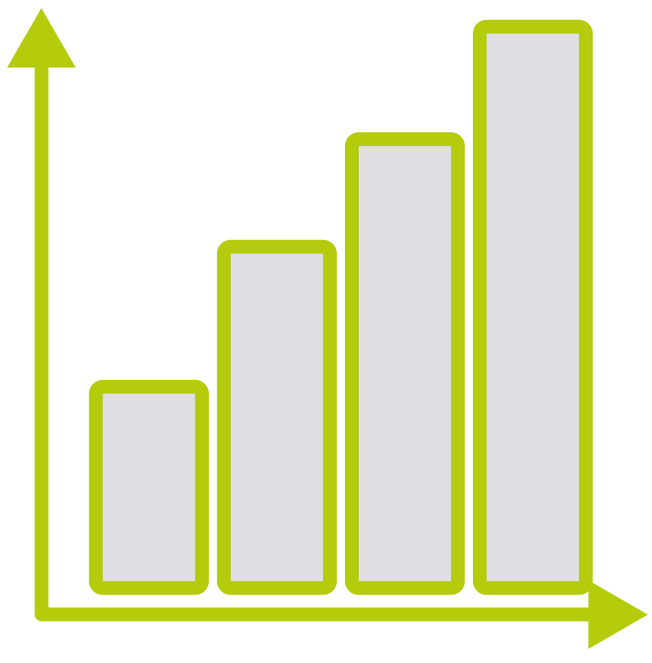
Once you've been coming along for a while, it's essential that you know if you're improving and by how much.

The majority of our stroke survivors notice the benefits immediately whether that be improved mobility (finding it more comfortable to walk) and a general sense of well-being (feeling good about themselves).

To gather objective data on just how much our stroke survivors have improved we keep a personal exercise record of each stroke survivor and provide them with a copy of their exercises so that they can practise at home.

The data we collect each session include:

-The number of repetitions completed during the "best set" of each exercise and with that weight.
-Heart rate



DOES PHYSIOTHERAPY AFTER STROKE WORK?

We also use the following good quality outcome measures every eight weeks, to measure more medium-term goals.

Walking/running and balance ability:

6-minute walk (or modified run) test
Daily steps
Step test
Berg balance test

Psychological measures:

Self-efficacy questio
Stroke impact s test

How Do We Facilitate Self-Management?

To help our stroke survivors track their progress both in and out of the gym, we provide them with a personal exercise record. This includes an individualised exercise programme for class circuit training, as well as a home-based exercise programme. This includes how many repetitions the stroke survivor should aim for, with a video or picture of each exercise.

Within the programmes, we encourage our stroke survivors to record their progress (number of repetitions, time spent training etc.), as well as other personalised outcome measures. This helps the stroke survivors to record and track how much they are improving, which in turn helps improve their self-efficacy and motivation.

DOES PHYSIOTHERAPY AFTER STROKE WORK?

How Do We Facilitate Social Support?

Before the exercise element of the class, we meet with our stroke survivors for 15-20 minutes to discuss stroke rehabilitation as well as lifestyle factors which may help facilitate recoveries such as nutrition, sleep, stress, and mindset.

We also meet after the session for a cup of tea to facilitate opportunities for socialisation among stroke survivors.

What Does a Training Session Look Like?

The exercises individually will vary between stroke survivors depending on their ability and goals. Here are some examples of the exercises we commonly use.

Box Squats – great for improving your ability to go from sit to stand as you do this every day. The stronger you get, the more confident you become, and the more natural you find the task and life in general. More specifically it helps strengthen up the whole of the lower limbs and core. Once strong enough we give our stroke survivors a weight to hold to progress them further.

DOES PHYSIOTHERAPY AFTER STROKE WORK?

Single Leg Balance – One of the more difficult exercises, single leg balance allows us to see what the strength and stability of the affected lower limb are like. As there is a significant carry over to walking ability, this gives us a good indication of how the affected side is recovering and facilitates walking independently and safely. At first stroke survivors may begin by shifting their body weight onto the affected side, working up to balancing on one leg.

Step Ups – A goal for many stroke survivors is to be able to walk up and down stairs independently. Practising step ups allow us to do just this while challenging their balance and lower limb strength in a safe environment.

DOES PHYSIOTHERAPY AFTER STROKE WORK?

Walking – the most popular goal among the majority of our stroke survivors is to improve their walking. This may be to walk without a walking aid or merely to enhance their strength and recovery while walking, in case they were to lose their footing when walking outside.

Weighted Carries – building on the walking exercise, we use weighted carries to help get the affected upper limb more involved with activities and to load the affected side more. This encourages the stroke survivors to put more weight on the affected side, building strength and confidence which transfers well to their walking ability.

At Health by Science, we offer two 60 minute exercise sessions a week for our stroke survivors, as well as 30 minutes of socialising, incorporating the essential elements outlined above which include:

Sessions being at the same time and same place each week.
Same instructors each session.
In-service training is given to all professionals and volunteers using www.strokecompetencies.org.
Peer mentoring and training if and when possible.

WHAT IS NEUROPLASTICITY AND CAN PHYSIOTHERAPY HELP?

Neuroplasticity is defined as the ability of the nervous system to respond to intrinsic or extrinsic stimuli by reorganising its structure, function, and connections (Cramer, 2011).

In other words, your brain is changeable, like plastic, so it can change when you stress it in the right way with Physiotherapy, as summarised in this video. Click here.

The current research highlights the fantastic ability of the human brain to undergo change and help your recovery after stroke.

It’s hard to say how much of your recovery is due to true recovery (repaired neurons) and how much is due to behavioural compensation (creating new neuron pathways) or a combination of the two.

Your motor and sensory pathways are organised into functional maps via neurological pathways, which are highly changeable based on your experience.

In other words, practice makes perfect and the more you move, in a variety of ways, the more you improve.

Although these “maps” of movement are lost after a stroke, they can be “redrawn” with behavioural compensation using the remaining 1,000 trillion unused synapses and newly created pathways or maps.

WHAT IS NEUROPLASTICITY AND CAN PHYSIOTHERAPY HELP?

So recovery refers not to getting back to your pre-stroke state but rather improving your performance for whatever activities you wish to do.

When learning (or re-learning) new skills, there are similarities between motor recovery after stroke and the skill acquisition in young children, although stroke survivors may have change impeding processes such as age or hypertension

Is there a critical period of recovery?

Animal research suggests that there is probably an important period of heightened neuroplasticity during the first three months after a stroke.

Although recovery after stroke is unlikely to be the same to the pre-stroke performance (because of the loss of critical neurons), stroke survivors continue to demonstrate the ability to improve their recovery and performance, many years after their stroke due to spontaneous recovery and exercise rehabilitation.

While some variables are out of your control which can slow down your progress (such as age or genes), you can maximise your chances of a successful recovery by enriching your environment.

For example, we know that Exercise After Stroke is very effective, as well as improving other lifestyle factors such as nutrition, sleep, stress, and mindset.

WHAT IS NEUROPLASTICITY AND CAN PHYSIOTHERAPY HELP?

So the more enriched your environment is, the more improvement you're likely to see.

We would also argue that the true capacity of neuroplasticity is rarely reached when you compare activity levels of most stroke survivors compared with the recommendations.

So in summary, you can improve after your stroke. How much? Nobody knows.

The NHS does a fantastic job of helping stroke survivors get home. This is because they deliver evidence-based exercise rehabilitation on a daily basis.

Once home and adapted to home life, however, the rate of recovery typically declines. We would argue that this may be due to a plateau in training volume.

For example, within the NHS, Physios will challenge and push stroke survivors to stress the body so that it adapts.

This is one of the fundamental principles of any exercise intervention, Overload, also know as SAID (Specific Adaptations to Imposed Demands).

Exercise After Stroke can help improve your recovery by positively stressing the body, in a safe environment guided by professional Physiotherapists.

So while it's impossible to know what you're capable of, you've got nothing to lose by trying to improve and quite possibly a considerable amount to gain, both physically and mentally.

HOW DOES MINDSET AFFECT STROKE RECOVERY

Traditionally, Physiotherapy has focused predominantly on the biomedical factors (blood pressure, cholesterol) for stroke rehabilitation.

With growing research in pain science, neuroscience and health behaviour change, however, more and more Physiotherapists are acknowledging the psychological and sociological factors that play a huge role in recovering from a stroke, especially when it comes to creating an enriched environment to help facilitate neuroplasticity.

As we said in our previous post, the recommended amount of Exercise After Stroke sessions is 3 hours a week.

So the question is, what can be done to facilitate the recovery process in the remaining 165 hours that we don't see our stroke survivors?

HOW DOES MINDSET AFFECT STROKE RECOVERY

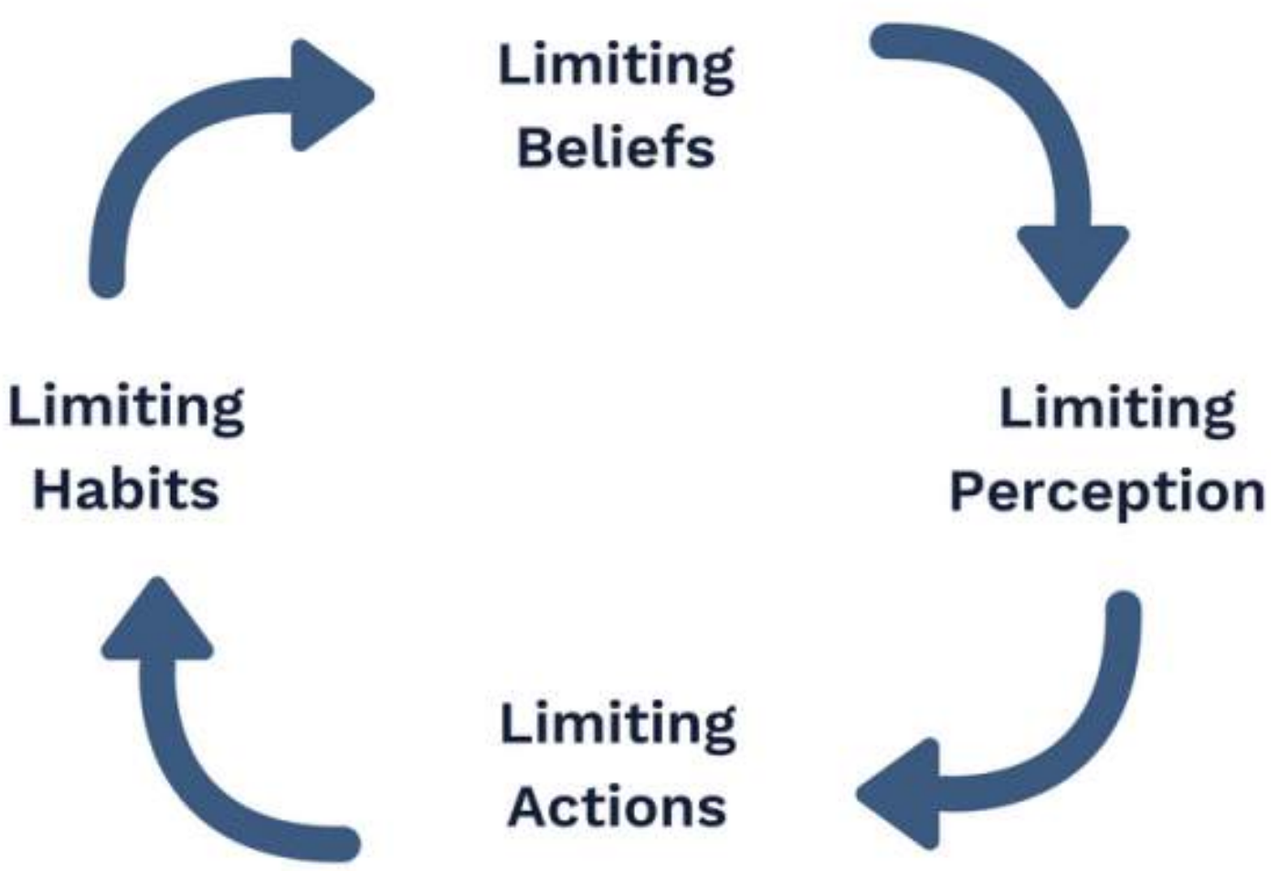
Why mindsets matters

Mindsets are beliefs that shape one's reality, including real physical reactions as well as long-term health, happiness and success.

Your mindset is based on your beliefs which come from your experience through preferences and learned information (factual or non-factual). You can think of your mindset as representing your philosophy, that is, your theory about the way you think the world works.

Research has shown how the media can shape this and influence your beliefs through the human tendency to be susceptible to availability bias.

That is, if you only hear or see one point of view then you are more likely to believe it. For example, that money and fame will make you happy, that the world is getting less safe or that people cannot change.



HOW DOES MINDSET AFFECT STROKE RECOVERY

We release videos of our stroke survivors to challenge assumptions and limiting beliefs about stroke recovery, and positively influence people's beliefs and thus behaviours.

All of these beliefs have the potential to shape how you interpret experiences and make decisions.

When an individual experiences something which may activate a mindset, such as a memory, situation or a remark, it sets off a cascade of thoughts, emotions and preferences that influence how that individual will respond.

For example, if you went to the gym once and didn't enjoy it, it's likely that you've not been back since. However, if you went with different people under some guidance, you could have a completely different more positive experience. Which is what we experience with our stroke survivors.

Interestingly, research in mindset science shows that a single brief intervention, designed to change how one thinks about something can improve an individual's health, happiness and success, even years into the future.

For example, viewing physical labour as exercise can help the body experience the benefits of being active. Viewing a milkshake as a high-calorie indulgence can help the body produce signals of fullness and viewing stress as enhancing can make it so.

Therefore your beliefs and perception can significantly influence your biology and health behaviours.

HOW DOES MINDSET AFFECT STROKE RECOVERY

Improving your mindset also can influence long-term outcomes, including health, memory, happiness and longevity.

The Baltimore Longitudinal Study of Ageing, which tracked adults ages 18-49 for thirty-eight years, found that those who had a more positive view of ageing had an 80 percent lower risk of heart attacks.

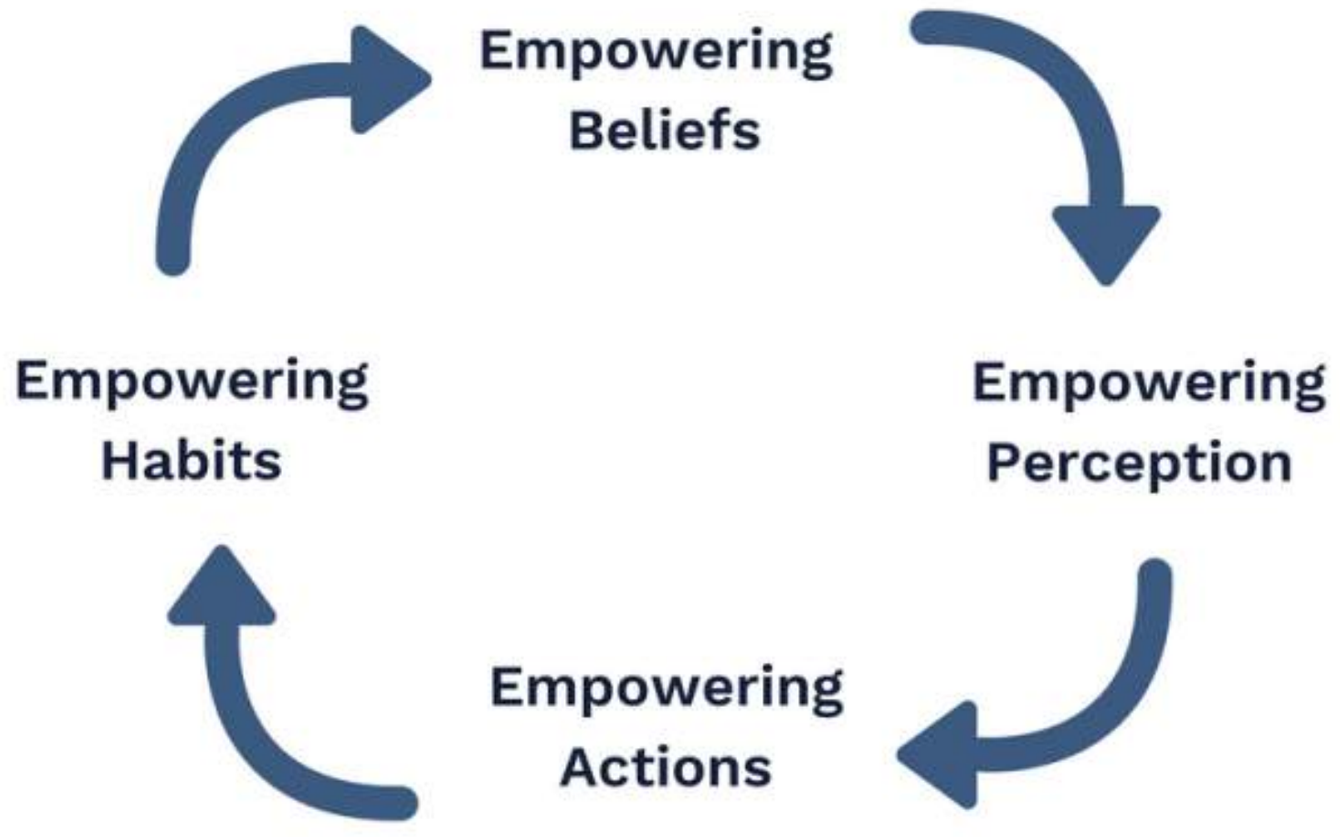
Another study suggests that adults who associated growing older with positive stereotypes such as “wise” and “capable” recovered from a heart attack more quickly than those who endorsed negative stereotypes such as “useless” and “stuck in their ways”.

The same researchers later showed that a favourable view of ageing predicted faster and more complete physical recovery from a debilitating illness or accident. All these studies controlled for relevant confounding variables such as initial health status, depression, and socioeconomic status.

Together these findings suggest that an individual’s recovery from stroke is largely influenced by social stereotypes.

One of the goals of Health by Science is to disrupt and re-design these stereotypes, and we use George’s video (with more on the way!) to influence stereotypes of stroke rehabilitation positively.

HOW DOES MINDSET AFFECT STROKE RECOVERY



How does it work?

A possible explanation is that having a more positive mindset about ageing may promote healthy behaviours and influence one’s priorities.

Importantly, it appears that changing one’s mindset through an intervention designed to improve participants’ mindset can do just that.

Although no research in this area exists for stroke rehabilitation, researchers at the German Centre for Gerontology in Berlin followed older adults over time to examine the impact of a severe illness or accident, such as a broken hip, lung disease or cancer.

They found that individuals responded to the crisis by increasing their commitment to their health when they had more of a growth mindset. As a result, they were more proactive and dedicated to their health, while those with more of a fixed mindset were less likely to take actions to improve their health.

HOW DOES MINDSET AFFECT STROKE RECOVERY

Finally, it appears that, much like media advertisements, subliminal priming can positively and negatively influence stereotypes about ageing.

Researchers tested the effects of beliefs about ageing on the will to live by subliminally priming older adults to make possible medical decisions. After priming the older adults with either positive or negative stereotype, they found that those primed with positive stereotypes were more likely to agree to a life-prolonging intervention for a potentially fatal illness.

Those who were exposed to harmful stereotype priming, however, were more likely to reject treatment.

Overall this area of research from psychology suggests that our mindset, i.e. how we think about ageing, stroke recovery and other aspects of health and wellbeing, affects health and longevity. This is not merely through consciously deciding to think more positively for a short period, but by altering your beliefs to influence your' choices positively, goals and thus behaviour long term.

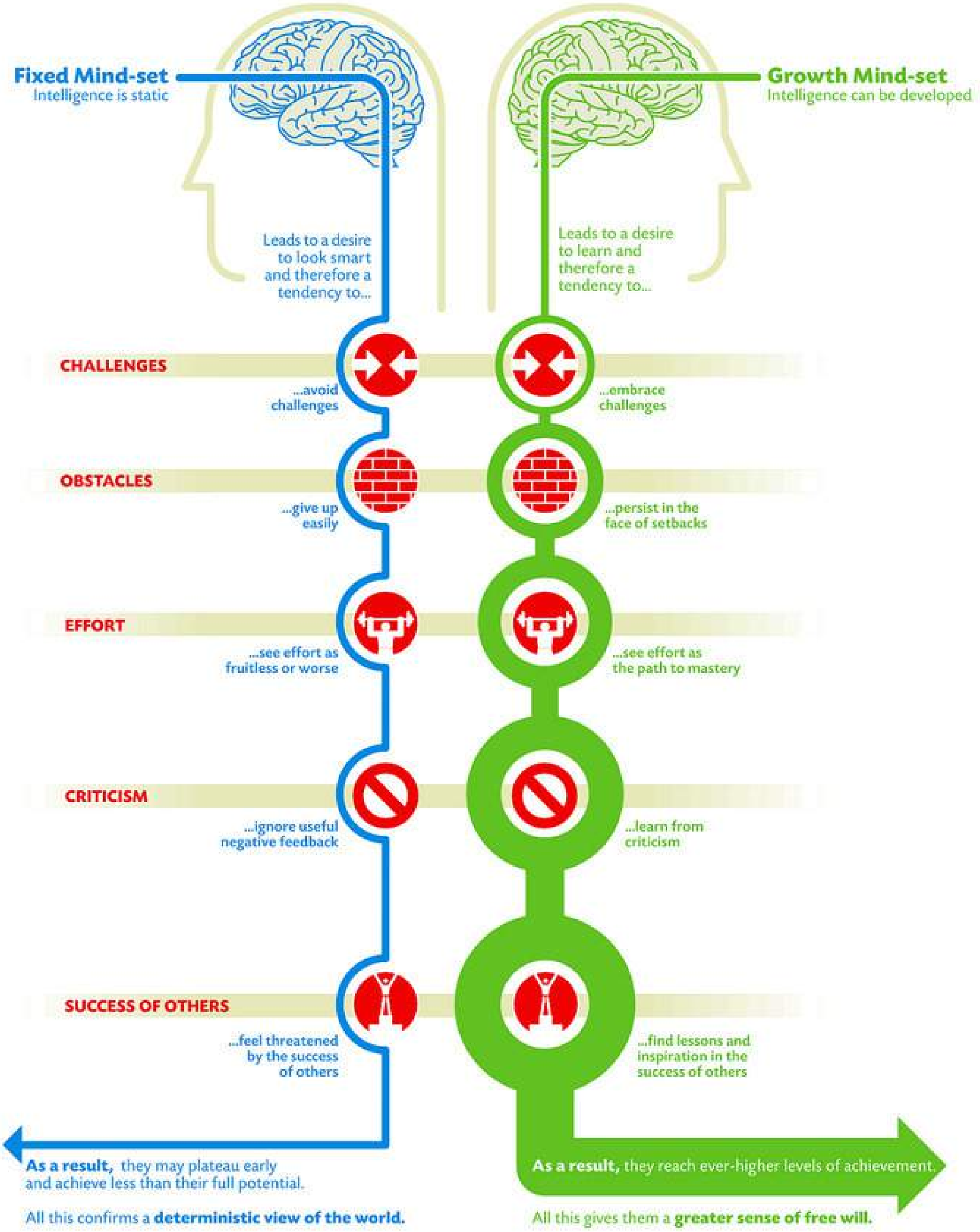
GROWTH MINDSET VS FIXED MINDSET

In her book, Carol Dweck describes how for twenty years, her research has shown some critical differences between those with a “growth mindset” vs those with a “fixed mindset”. The great news is that we can apply the findings outlined below to physiotherapy stroke rehabilitation and everyone has the capacity to change their mindset.

If you have a growth mindset, you’re more likely to believe you can develop yourself. You’re open to accurate information about your current abilities, good or bad, and see this as an opportunity to learn rather than a personal attack on your ego. This ability is critical for learning, as you need to be realistic and honest about your skills right now if you’re to use the most appropriate strategies to move forward.

If you have a fixed mindset, however, things are black and white, good news or bad news and you’re likely to take things more personally. As a result, people with a fixed mindset are likely to distort the facts to suit their desired interpretation. This means that some outcomes are magnified, others explained away and before you know it you don’t know yourself at all.

GROWTH MINDSET VS FIXED MINDSET



GRAPHIC BY NIGEL HOLMES

GROWTH MINDSET VS FIXED MINDSET

It could be argued that the language used by a Physiotherapist or other health professionals, constructs the beliefs and thus health behaviours of stroke survivors.

In one of our previous blogs, we included some quotes from our stroke survivors:

“The first three months are key because you won’t improve beyond that.”

“You will never speak again.”

“You will never walk without a walking aid.”

While the stroke survivors may not have been told this explicitly; they seem to have interpreted it this way.

Either way, it’s essential to provide some locus of control over their destiny to maximise their odds and tempt fate. That they may improve far beyond what they thought was possible.

Developing a growth mindset with a sense of purpose is something which we can all aspire to, chronic health condition or no health condition. The point is you may never reach your goal, but it’s the pursuit of the target, the journey and the enjoyment you take with it, which is the most rewarding thing.

We help develop a growth mindset in our clients, using exercise. They come in with assumptions about what they can and can’t do, often based on what they have been told is possible.

GROWTH MINDSET VS FIXED MINDSET

We challenge limiting beliefs by achieving three fundamental principles of exercise.

Consistency
Technique
Intensity
In other words, turn up and work hard with our professional guidance and measurements.

When clients achieve these behavioural goals, they provide evidence with every session which helps to refute their limiting beliefs. We then use this as an excellent analogy for life and other mental challenges.

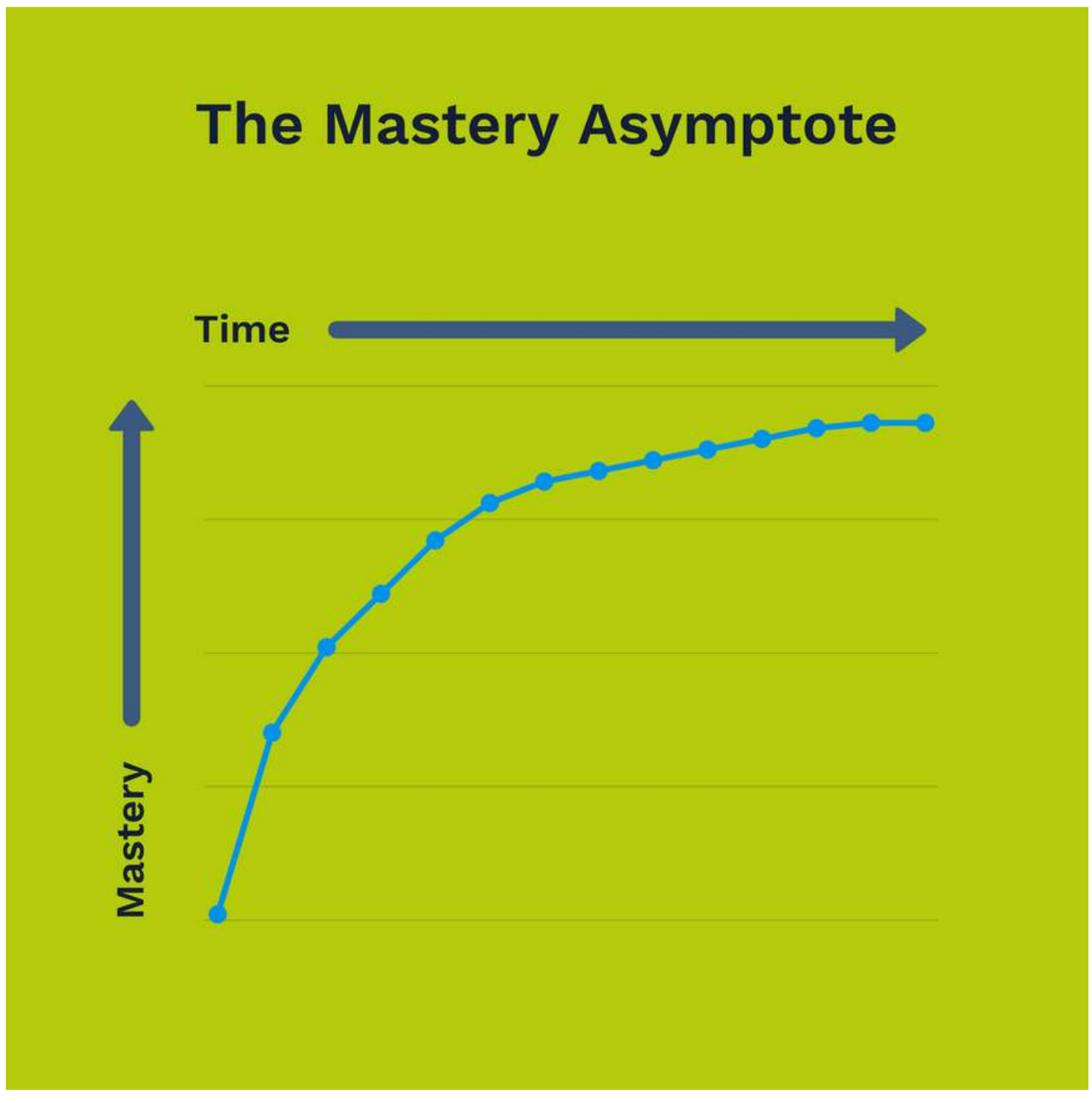
That is that we need stress to adapt. Too little and we decondition and eventually die. Too much and we get ourselves ill. But if we get the right amount in line with the principles of science then we can continually grow, no matter how small or seemingly insignificant.

However, it’s important to measure your progress which is why we use positive feedback loops (link to Does Physiotherapy After Stroke Work?) in our exercise after stroke classes.

Being in this growth mindset is like the pursuit of mastery described by Dan Pink. Click here to watch it.

GROWTH MINDSET VS FIXED MINDSET

There is substantial evidence, which suggests that it is not just the outcome, where the reward lies, but autonomously pursuing mastery with a firm purpose is the critical fuel for motivation in life.



That is the critical difference between outcome goals such as standing up or walking independently and behavioural goals, such as turning up to physiotherapy classes and working hard. It sees the behavioural goals as a gift which allows our stroke survivors to improve their chances of achieving their goals by making small incremental improvements en route to success.

So how can we ensure exercise is a gift and not a chore? See the blog below to find out.

HOW DO WE ENSURE EXERCISE IS A PLEASURE, NOT A CHORE

Motivation can typically be divided into two different types, extrinsic and intrinsic.

Extrinsic motivation typically conveys reasons people consider as a “should” (e.g. doctor’s orders or peer pressure).

Intrinsic motivation, on the other hand, refers to autonomous motives which people consider as enjoyment (e.g. getting fresh air walking outside or playing a game with friends, enjoying an activity).

Having autonomous behaviour, based on intrinsic motivation, for physical activity has been shown to result in better outcomes when it comes to exercising consistently. For example, research has found intrinsic motivation to be better for helping you to self-regulate and sustain your exercise habits, compared with more controlled extrinsic behaviour.

Although extrinsic motivation may be enough to motivate you to begin exercising, they are not as good compared with autonomous, intrinsic motivation when it comes to you exercising long-term and overall enjoyment.

HOW DO WE ENSURE EXERCISE IS A PLEASURE, NOT A CHORE

Outcome Goal Setting

We encourage our stroke survivors to set goals using the principles of motivation. That is, they are the ones who set their goals both long term and short term, with a strong, emotional “why”, autonomy and the desire to continuously improve themselves (the pursuit of mastery).

It is recommended that SMART goals are used in the NICE guidelines as they “help people take goals which are vague and translate them into focused and achievable actions. They are likely to be more manageable and memorable as a result.”

Before we use SMART goals, however, we encourage our stroke survivors to set BHAG goals.

BHAG stands for Big Hairy Audacious Goals and is defined as “a strategic business statement, similar to a vision statement, which is created to focus an organisation on a single medium-long term organization-wide goal which is audacious, likely to be externally questionable, but not internally regarded as impossible.”

Although initially used for business strategists, we believe the same principles apply to our stroke survivors. Therefore a BHAG encourages our stroke survivors to define visionary long-term goals that are more in line with their strong “why” and emotionally compelling.

HOW DO WE ENSURE EXERCISE IS A PLEASURE, NOT A CHORE

These are specific to each of our stroke survivors, for example:

- Ronnie would like to drink a cup of tea with his stroke affected hand.
- George would like to walk across the new Firth of Forth Bridge.
- Andrew would like to get back into employment, helping other people recovering from trauma.
- Ron would like to walk independently without his stick.
- Donna and Peter would like to run 5km.
- Andrew would like to run a half-marathon.
- Graeme would like to take part in a triathlon.

A SMART goal, on the other hand, focuses on short to medium-term goals or what you hope to accomplish over the next days or months. This could be to turn up consistently to the Exercise After Stroke class for example.

Some may criticise this approach for creating false hope. However, we would refute this assumption based on the fact that nothing is promised.

Instead, we would argue that we help them to visualise something significant, personal and emotional which in turn, improves their motivation.

We then set SMART goals with them based on the next step needed in pursuit of their more meaningful long-goal.

For example, let’s imagine that our stroke survivor “Dave” wants to walk the West Highland Way to raise money for charity. Only “Dave” currently uses a four-wheel walking aid to walk outside.

HOW DO WE ENSURE EXERCISE IS A PLEASURE, NOT A CHORE

Statistically speaking, the chances of this happening are slim. However, most people do not use or don't have access to Exercise After Stroke services. If we can provide an enriched environment for "Dave", then we can help break this goal down into the necessary stages, and agree that walking 10m independently is a prerequisite to the larger BHAG.

It is therein the focus lies because it is something tangible which "Dave" can directly influence every day through his daily decision-making. The success of a change effort lies not in the outcome, but in what was learnt during the process. This brings us nicely onto the critical difference between outcome goals and behaviour goals.

Outcome Goals vs Behaviour Goals

So, as we mentioned above, our stroke survivor's outcome goal may be to walk the West Highland Way. However, week to week we prefer to set aside outcome goals and instead focus on behavioural goals.

There is only so much in the world we can control. Activity levels, illness, medication, stress, nutrition, mindset and sleep – all these can have an impact on how fast a person might recover from their stroke.

Aiming to lose a pound of body fat a week or lift heavier weights every session might just not be doable at certain times in our life. A crisis at home might wreak havoc on your plan to walk an extra hundred steps a day. Getting home late with no option but a takeout might cause you to fall short on those seven vegetable servings a day.

HOW DO WE ENSURE EXERCISE IS A PLEASURE, NOT A CHORE

All the above would count as outcome goals.

You can’t always control the outcome. But you can usually control the behaviours which help you get the outcome you want.

A behavioural goal might be to get you to do some Exercise After Stroke exercises twice a week, even if you can only manage 10 minutes of home exercises. Or to go on a trip to the freezer section of your nearest supermarket and stock up on frozen peas and spinach. To make lunches for the week, or plan a shopping list full of ingredients for quick, healthy meals.

Or perhaps just to go outside every day.

Setting behavioural goals means setting commitments to small actionable tasks, increasing our stroke survivors’ sense of power and control.

Just setting outcome goals can mean feeling like a failure if things get out of your control.

Behavioural goals, when achieved with consistency, will lead to success in outcome goals.

And, by focusing on your behaviours instead of those outcomes, our stroke survivors, will feel their whole journey has been a success, no matter how bumpy the road.

HOW DO WE ENSURE EXERCISE IS A PLEASURE, NOT A CHORE

The Pursuit of Mastery

Focusing on behavioural goals chosen by our stroke survivors, allows them to focus on consistent improvement, no matter how small.

It is this pursuit of mastery which increases an individual's self-efficacy, through rewarding their effort rather than just their outcomes. And there is good evidence to support this approach.

For example, research has shown that individuals are more likely to exercise consistently if they have an immediate positive experience (feelings), as people's behavioural choices are motivated by their beliefs about the outcomes of their instant decisions. In contrast, those who have a negative experience are likely to avoid that behaviour in the future.

This also has implications regarding the intensity of the exercise. A systematic review of studies in this area has investigated this area concluding that in general there is an inverse relationship between exercise intensity and effective responses in the general population, unless, however, the intensity or effort is autonomously chosen by the individual.

This is why our stroke survivors auto-regulate their activity by selecting their exercises and intensity with our guidance and encouragement. We also help measure exercise intensity by monitoring their heart rates, to see if they increase their work rate and fitness levels, with the more sessions they attend.

HOW DO WE ENSURE EXERCISE IS A PLEASURE, NOT A CHORE

These findings align with the principles of SDT which recommends that individuals exercise in ways which makes them feel good, to give people complete autonomy over how they exercise. This is why we aim to frame our Exercise After Stroke classes as a strategy to make our stroke survivors feel good while encouraging autonomy and thus a more sustainable approach.

Turning Exercise into a Pleasure Instead of a Chore

Helping to facilitate a positive experience for our stroke survivors, using this autonomous approach to exercise, is also supported by neuroscience research which illustrates the two distinct systems of “wanting” and “liking”.

Liking reflects hedonic, pleasurable feelings whereas wanting relates to desiring a critical reward or action.

These traits are an example of a Pavlovian response, where learning that there is a definite association between a specific behaviour (e.g. exercise) and a reward (i.e. liking) should trigger a “want” to exercise and consistently motivate walking behaviour.

Research has demonstrated this from a 6-week physical activity intervention designed to create sustained participation through having participants identify personally meaningful motives and pleasure-based activities.

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They found that not only were participants able to change their perceptions about physical activity from an obligation (“chore”) to a “gift” that felt good, they also found, on average ten months post-programme, that participants sustained a 65% increase in participation compared to baseline.

This suggests that prescribing activity for pleasure to fuel daily functioning and performance, may help to reframe activity from a competing goal into an autonomous behaviour which individuals actively “want” to do regularly.

In our Exercise After Stroke class, each exercise is selected with a specific purpose aligned with the principles of exercise. This includes specificity so that stroke survivors can see how their exercises directly benefit both their shorter-term SMART goal and longer-term Big Hairy Audacious Goal.

As a result, the stroke survivors who can see this new purpose of movement may be more likely to prioritise time for Exercise After Stroke exercises, both in the gym and at home.