WHITE PAPER

The Neuroplasticity Flaw
Reshaping The Future of Preventative Health

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1. Executive Summary

A '***neuroplasticity flaw***' appears evident in existing nutrition, fitness and wellness protocols that is limiting the effectiveness of the preventative health sector. As these revenues have grown over the decades, so have average waistline sizes, and the scale of the chronic physical and mental health crisis. They aren't producing widespread long-term behaviour change due to their common struggle to achieve enough sustained engagement for the biological neuroplasticity process to sufficiently progress to the point of stabilized connectivity of the new neural pathways. Despite this known lack of success, both public and private sector

health organisations are still promoting these methods (in various forms) as ‘best practice’ to the general population.

In 2019, Neuron Wellness Limited founder, Dr Julia Jones, believed we had reached a critical roadblock in preventative health and launched an extensive R&D examination of this situation in order to:

i) identify the flaw that blocks the success of these recommended approaches
ii) develop a potential new approach to directly address that limitation

In 2024, the following findings emerged from five years of R&D and data gathering exercises across multiple preventative health protocols:

i) **It is not possible to shortcut the cellular neuroplasticity process** – the desired habit must be repeated frequently (preferably daily) and across a prolonged duration (typically several months) to allow the biological neuroplasticity process, the synaptic *long-term potentiation* effect, to sufficiently progress from high-effort Prefrontal Cortex control towards automated activation through stabilised synaptic remodelling
ii) Frequent **human support** (not digital) seems to be a critical component to facilitate this positive neuroplasticity, helping individuals reach and cross the vital neuroplasticity threshold, through prolonged repeat behaviour
iii) Habits should be targeted one at a time (micro) and with the lowest possible friction (**minimal** instruction, information and effort)
iv) Regularly ‘thinking’ about the chosen habit can also deliver valuable neuroplasticity benefits for routine building in early stages

Addressing this ‘*neuroplasticity flaw*’ could enable the preventative health sector to progress into a new era and deliver greater success. Based on these findings a new scalable, human-led, habit-agnostic, neuroplasticity-focused, method (and digital platform) called ‘*Habit Reset*’ was developed and tested in 2023/4.

In 2024, results of several ‘*Habit Reset*’ MVP pilot cohorts demonstrated the potential value of positioning this new approach alongside existing protocols to increase neuroplasticity success and long-term behaviour change for improved mental and physical health. At Week-12, 69% of Habit Reset starters were still regularly engaging with the daily check-ins on WhatsApp sent from their human coach. Crucially, in Q2 2025, 1-year after completion of a

90-day *Habit Reset*, 7 out of 10 of pilot cohort participants confirmed they were still doing the habit they had chosen. This indicates the encouraging potential of this new platform as a support tool that can facilitate the essential sustained behaviour that is non-negotiable for neuroplasticity effects to sufficiently embed long-term health habits.

The Habit Reset platform is designed to increase adherence by affordably scaling human-led accountability. A v1.0 with extended features is under development and proof-of-value pilots with collaborative partners will continue in Q4 2025. Neuron Wellness is carrying out this work through its social impact brand – Holidity – whose mission is to promote this holistic, human-led, low-friction, habit-based, approach through the solidity of lifelong behaviour.

2. Problem Definition / Purpose of the Work

The widely available population data indicates that the existing and well-established diet, fitness and wellness approaches have unfortunately not succeeded in producing the healthy nations that were expected. As revenues have grown in these sectors, so has the scale of the lifestyle-driven, chronic mental and physical health crisis. Their widespread popularity continues to boom after several decades. On paper their scientific underpinnings are solid. If individuals follow these recommendations the related health benefits should occur. So why haven't they worked in the real world and helped the mass populations avoid the health effects of their daily habits?

In 2019, neuroscientist, and sport and exercise scientist, Dr Julia Jones, founded Neuron Wellness to examine and question this critical issue. Her commitment to embark upon an extensive research and development journey was backed by investors who supported this vision.

The purpose of the work was to:

1. Set aside professional beliefs and critically examine the existing nutrition, fitness and wellness models to identify the science-backed limiting factor/s.

2. Attempt to develop an alternative model that could directly target the limiting factor/s that were identified.

During her 35-year career, Jones has built a highly successful multi-million pound health club chain, was closely involved in the development of early NHS exercise referral programmes, and advised Team GB Olympic squads. Like her peers she had been convinced the preventative health industry would successfully produce healthy nations. In 2019, she acknowledged the population data now highlighted that this desired outcome was simply not emerging. Jones dedicated her future work towards establishing the reasons for the failure and encouraging the sector to recognise those limitations and adapt accordingly in order to achieve greater population health success.

During 2019-2023, this R&D project conducted a broad examination of health products and services including: various fitness models, gut testing, blood glucose testing, diet plans, biological age testing, nutritional supplementation, food delivery boxes / fruit and veg box home delivery, virtual learning / coaching, AI fitness machines, wearables, functional foods/drinks and mental and physical health apps. A range of approaches were used: mystery shopper, focus groups, live observations, literature reviews, new product development, surveys, pilot studies and interviews.

3. Main Findings

i) The Neuroplasticity Flaw

The Neuroplasticity Journey is Long, Complex and Critical

The human brain has evolved with an incredible and sophisticated capacity to undergo continuous physical changes based on the environment we are exposed to. It carries out this persistent cellular process subconsciously to keep us safe and alive, but we are also able to step in and harness this effect through intentional effort, decisions, and actions.

This biological process of ‘neuroplasticity’ for learning is highly complex but sufficiently understood to demonstrate why existing preventative health methods have been struggling to produce long-term behaviour change.

Synaptic formation and adaptation is a process requiring regular repeated stimulation over a very prolonged period to strengthen the connection capacity of neurons and automate a habit as a memorized subconscious behaviour. At a cellular level the repeated activation of neurons promotes physical changes in both their structure and functionality. The pre-synaptic neuron

can increase the release of neurochemicals into the synaptic cleft. The post-synaptic neuron can also facilitate various alterations in form and function, extending additional branches of dendrites and relocating proteins from the cell body to the outer membrane of the dendritic field. This migration results in an increase of receptors made available to receive neurochemicals from the pre-synaptic neuron and stimulate post-synaptic electrochemical responses. This process, known as long-term potentiation, cannot be side-stepped or shortened. The stabilization of this synaptic re-modelling requires repeat behaviour over several months.

Additional biochemical mechanisms also feature an array of interactions at a DNA level as gene expression ramps up or dials down these molecular cascades. New research continues to reveal the vast complexity of this process, discovering new hidden pathways, such at enzymatic fatty acid tagging, that appear to play a key role in these memory-building processes.

If the required new behaviour (i.e. a healthy habit) is erratic or discontinued, a reversal effect at the synapse will occur (termed '*long-term depression*'). As transmission of neurochemicals reduces, the now less-activated receptors are removed from the synaptic sites and recycled back into the cell body. Thus, reducing the efficiency of those dendrites to connect with neighbouring neurons and trigger action potentials to continue the neural network stimulation.

In the early stages of attempting to embed a new habit, the Prefrontal Cortex and hippocampal regions of the brain are heavily and intentionally involved in activating the complex synaptic network involved in performing the behaviour. The habit is being activated through forced conscious effort. Repeat effort eventually results in a reduced activation of the Prefrontal Cortex, as the long-term potentiation effect progresses and additional regions such as the Basal Ganglia take on an increasing role in automatically activating the desired behaviour. At this point the habit becomes increasingly able to be activated with less conscious effort and will eventually have the ability to run as a more subconscious activity. Reaching this end point takes time, patience, and repeat behaviour. Despite the many myths that give us the promise of "quick fixes", the truth is there are no shortcuts to this evolutionary biological process.

Existing preventative health protocols lack a key component

Typical (and existing) preventative health approaches over the decades have struggled to engage individuals for long enough for the long-term potentiation effect to sufficiently occur

at the millions of neuronal synapses involved in the activation of the desired behaviour. Consequently, individuals do not experience a lifelong adoption of the habit. They are more likely to drift in and and out of their high-effort habit-change attempts. In biological terms, this facilitates interchanging bouts of long-term potentiation and long-term depression at the synapses. This is the typical ‘fad’ behaviour common in existing preventative health methods. It’s unlikely to enable the neural network to achieve sufficient connectivity to produce long-term automated habit activation.

Long-lived populations in various regions of the world (e.g. the Mediterranean) share an important feature – their lifestyles are low effort, unintentional, and shaped by the culture and environment they are immersed in. They naturally exhibit repeat behaviour in these settings and the brain automates those routines as the default lifestyle.

In contrast, in the UK, the preventative health sector has spent many decades teaching lifestyle habits that are (unfortunately for us) highly intentional and high-effort due to our modern life and environment. These approaches are also often fighting against powerful evolutionary biological drivers. The historic preventative health data clearly shows that most individuals are unlikely to succeed in this challenge using the typical methods that have been used to date.

Typical healthy choices in the UK have to combat several types of associated effort.

Examples:

- The inconvenience of the habit
  - Changing into an outfit and traveling to a gym / class
  - Ignoring the cakes or pastries and finding the fruit in your local stores
  - Leaving home earlier to walk to work
- The financial cost of the habit
  - Fitness memberships or subscriptions
  - Buying supplements or healthy recipe-box food subscriptions
  - Subscriptions to expensive apps or wearable devices
- Overcoming our evolutionary biology
  - Our brain is wired to consume calories when within reach and conserve calories through rest (except when there is a reason for activity such as going in search of food/mates/shelter/safety and fleeing from danger)

- Ignoring our modern environmental triggers and embracing a lifetime of denial (declining the labour saving devices and the ultra-processed foods and drinks that surround us)
- Many of us are also genetically predisposed to suffer more negative effects of these modern environments (e.g. the cellular pathways of appetite regulation and fat storage)

Quite simply, there are extreme levels of effort that have to be overcome over a very prolonged duration in order for the neuroplasticity effect to eventually embed the repeated healthy habit as an automated and ongoing subconscious behaviour.

To complicate matters further, there are typically multiple habits that have to be adjusted in daily life. During this research period, Dr Julia Jones identified 48 separate choices (micro-habits) that could be adjusted in her own daily routine for improved health. Such as walking up the left-hand side of the escalators each day instead of habitually entering and standing on the right, altering eating and fasting times, bedtimes and wake times, choice of coffee, choosing stairs instead of lift etc.

ii) The Irreplaceable Human

Humans need humans

If we acknowledge that:

- the neuroplasticity effect is essential to reach lifelong behaviour change
- the desired behaviour has to be repeated frequently over a prolonged period of many months for the neuroplasticity threshold to be crossed
- most individuals will struggle to reach this neuroplasticity point due to the multiple layers of effort required in the UK culture and environment

Then what is the missing piece of the preventative health puzzle that could help overcome this neuroplasticity flaw that limits the typical approaches?

What key element can help people sustain their habit-change attempt and continue the efforts for long enough for the neuroplasticity effect to permanently embed the behaviour?

The answer lies in the power of human connection. It is well established that individuals who receive human support experience superior results when it comes to tackling and continuing their habit-change efforts.

It is not enough to just provide healthy habit recommendations. Most individuals will not be able to sustain their efforts alone. This fact underpins the well-established ‘fad’ model. History shows us that without human support most individuals commence their high-effort attempts, but fizzle out before the biological neuroplasticity process has been given sufficient time to progress. They will often make several more attempts during a lifetime but are operating in a constant high effort cycle. Sadly, never quite reaching that neuroplasticity ‘tipping point’ that produces a lifelong habit.

There is an undeniable connection between humans that results in higher levels of engagement and motivation that helps sustain behaviour-change efforts.

The challenge over the decades has been the affordability factor. It has proven too expensive to give everyone regular human support over the very prolonged period required to address the multiple habits in daily life that are damaging our health.

But, we cannot ignore the fact that human support is the critical key to success. The effect that occurs between humans cannot be replicated. Crucially, due to the frequency of the habit repetition that is required for long-term potentiation, this support is needed on an almost daily basis.

Digital health has hit a wall

In recent years ‘digital’ has been heralded as the obvious solution and the affordable way to provide ‘support’ at scale.

But, the low retention figures already tell us that this digital replication of human support does not appear to be a solution to the *neuroplasticity flaw*.

In 2024, the health investment panelists at LA Tech Week (experienced investors and funds) all voiced their agreement that we have now entered the new ‘app fatigue era’ in this sector. Individuals have too many apps on their phone and most are disengaging after the first few weeks after download. They are receiving overwhelming volumes of digital notifications

(noise) from various sources, and are increasingly ignoring them due to overload and in an attempt to protect their mental health.

Delivery of a preventative health intervention via a native app effectively results in a doubling of the required effort. The user has to first form a habit of using the app (something they were not already doing) in addition to forming whichever health habit they choose to work on.

It seems unlikely at this point that either digital health apps or AI can address the neuroplasticity flaw. The sector has experienced an overwhelming tidal wave of digital content since the pandemic. Individuals are now saturated with the flood of health and wellness advice on social channels, in the media and in the workplace. The fact that this content is often also contradictory further add to the complexity.

Frequent and prolonged **human** support is required to achieve the levels of sustained habit-change efforts necessary for the habit to be fully embedded at a neural level. Apart from the highly self-motivated (genetically dopamine-blessed) minority, human support appears to be a non-negotiable component of helping individuals survive through the stormy waters of the neuroplasticity threshold and enter the beautiful calm seas of long-term behaviour change success.

4. Practical Applications

Acknowledging the 'Fad' Problem

For several decades the preventative health sector data has demonstrated a tendency towards short-term behaviour. Individuals sign up to a nutrition, fitness or wellness attempt and begin their efforts with good intentions. For various reasons described in earlier sections the effort of this commitment is not sustained and the attempt halts. At a later date the individual is likely to try again – either with the same habit or a different one. This continuous 'fad' cycle lies at the heart of the failure (and financial 'repeat customer' success) of this lucrative nutrition, fitness and wellness industry. By recognizing and accepting that this model does not lead to lifelong behaviour change we are moving closer to an updated model that is more likely to succeed.

Re-engineering Digital Health in the New 'App Fatigue Era'

Human support seems unlikely to be equaled by digital replacements if the objective is prolonged engagement for behaviour change and neuroplasticity effects. Therefore, it is advantageous for digital health models to focus on how to use available technology to affordably scale **human** support, rather than being used to distribute digital support. This may not be welcomed by organisations who have already invested heavily in the development of digital solutions. But these findings suggest that those who adjust their strategy now – to incorporate a simple human-centred component within their delivery model (alongside the existing digital product / service) - will benefit.

5. 'Habit Reset' as a Neuroplasticity-Focused, Human-Led, Support Platform

The research findings heavily pointed to the importance and effectiveness of human-support and simplicity. In response, Neuron Wellness developed the 'Habit Reset' product to test an affordable and scalable human-led model directly targeting the *neuroplasticity flaw* by producing higher engagement durations.

The pilot tests in 2024 included cohorts consisting of consumers and corporate employees. Across the 90-Day pilot period, 69% continued to regularly check-in with the single daily WhatsApp message that was being sent by the Habit Reset accountability partner (Dr Julia Jones). In addition to the 12-week adherence, the pilots demonstrated that 1-year later, 7 out of 10 of those individuals were still continuing their chosen daily habit within their usual routines.

This data indicated the potential for this method to drive prolonged engagement and target the neuroplasticity flaw.

There are specific reasons for the success rates:

1. No app is required (Habit Reset deploys completely via WhatsApp)
2. Very fast and simple on-boarding via WhatsApp – no profile to set up
3. Users choose just 1 habit from a list and focus on it for months
4. They receive just 1 simple daily message from the accountability partner (e.g. Dr Julia Jones) that requires a 2-second response
5. Users just have to:
    i. reply with a Thumbs Up emoji if they did their chosen habit that day

   ii. or reply with a Heart emoji if they didn't do it but their heart is still in the mission (this helps build regular check-in behaviour early to quickly build the act of simply 'showing up')
6. Users receive a weekly check-in score for added gamification
7. They are able to ask questions via WhatsApp if they need to
8. ANY habit can be chosen by the user

Identification of MED (the minimum effective dose of 'human-touch')

The first stage of development focused on an attempt to identify a **minimum effective dose of human-touch (MED)**. In other words the least amount of human input that would produce sustained contact.

The aim was to encourage continued daily (or almost daily) engagement with individuals across several months as they tried to action their chosen habit each day within their usual routines.

The MED was identified in Q1 2024 and was actually a lot lower than expected. It had been assumed that personalization would be a required element. But in practice, checking-in with individuals each day with a relatively light-touch daily message proved to be sufficient. Dr Julia Jones acted as the Accountability Partner and wrote a short, single, daily WhatsApp message, which was sent to every user via the Habit Reset platform. It included a photo or short video message for added visual interest.

This proved to be an important breakthrough as it enables unlimited numbers of individuals to be serviced, by a single message from a single human accountability partner, through this *1-to-many* method. It also enables the individual to use the Habit Reset for **any** habit of their choosing.

Development of a frictionless method of scaling MED

Once the method of the simple daily WhatsApp check-in had been established it was necessary to ascertain a method of scaling that would not sabotage the engagement.

Data has already indicated that apps and tech nudges are struggling to deliver high engagement across prolonged enough periods for neuroplasticity development. So, instead of creating a downloadable app, the 'Habit Reset' was built to deploy completely via WhatsApp.

This also enables it to be easily embedded as a wraparound support tool alongside any existing preventative health programme.

Most individuals are now already using the WhatsApp platform as their common (and often preferred) form of regular communication with friends, family and work colleagues - so they are already spending time inside that app. This helps resolve the 'friction' issue that health and wellness apps are experiencing. WhatsApp delivers a 98% open rate.

The Habit Reset model features minimal content – just ONE single message each day from the human accountability partner containing a small message (and photo or short video message) and asking them to use the 2 emojis to log whether or not they did their chosen habit that day.

The message arrives as a private message chat directly from the Accountability Partner (not in a group chat).

A simple gamification feature also sends them a weekly check-in score.

Adoption of digital and AI for added-value, whilst protecting MED

The preventative health sector has been rapidly moving towards digital and AI over the past decade in attempts to serve (and monetize) the growing audience interest in 'wellness', especially since the pandemic.

Advances in wearable devices, biotechnology, various biological testing services, and digital availability and affordability have driven a surge in interest and investment in this sector. However, the recent rise and fall of several leading brands already signifies the potential limitation of these solutions. As discussed earlier, flooding users with data doesn't seem to produce lifelong behaviour change. This especially seems the case when combined with expensive subscription tiers. Despite the ease of delivering content via digital technologies it's advantageous to recognize that sometimes, LESS content is more effective. Especially when targeting populations who are regularly experiencing 'overwhelm mode' in their daily lives and have perhaps struggled to sustain habit-change efforts in previous attempts.

With this in mind the design of the Habit Reset placed digital and AI firmly backstage, not front-of-house. The human-led focus of the Habit Reset proved to be the powerful component when it came to engagement. Therefore, automated content never replaced the real-life daily

message from the human Accountability Partner. The expanded Habit Reset v2.0, will use AI-agents to **support** the human accountability partner behind the scenes, helping give suggestions of daily content ideas, but never replacing them. Because it is the human-to-human connection that drives engagement and that can never be equaled by technology. The platform also enables batch uploads so the coach can write multiple messages that can be drip-fed daily when required.

6. Conclusion & Recommendations

The preventive health sector has reached a critical junction.

Existing models aren't engaging most individuals long-enough for long-term potentiation to sufficiently occur at a synaptic level (i.e there is a 'neuroplasticity flaw' in these protocols that blocks long-term behaviour change). Daily human support over several months appears to increase the likelihood of sustained effort to extend the neuroplasticity response and formation of the neural networks.

There are now two potential future scenarios within the preventative health sector.

Scenario 1

- Ignore the evident 'neuroplasticity flaw' and continue to promote the existing diet, fitness and wellness models as best practice - despite their low likelihood of long-term behaviour change success

Or Scenario 2

- Acknowledge the neuroplasticity flaw and embrace the essential element of human-led support to directly address the flaw and increase neuroplasticity success for long-term behaviour change

At present both the private and public health sector appear to hold a continued focus on Scenario 1, developing various digital-led versions of those existing core models. Whereas a shift towards Scenario 2 would open a human-led, neuroplasticity-focused, route forward.

Repeating the same compromised models of past decades is unlikely to produce different outcomes. But a new 'neuroplasticity era' in preventative health could unlock the decades-long problem of sustained engagement.

The diet, fitness and wellness sectors are so heavily invested in the traditional protocols so it will require innovators within those corporations to drive sufficient change in that industry in the coming years. Even if those organisations are prepared to suspend their belief enough to acknowledge the neuroplasticity flaw in their behaviour-change programmes, they will be required to adjust their products and plans and commit new financial investment to do so.

The large-scale public health impact (that is urgently needed) may also be achieved by consumer brands in other sectors. Brand power seems to be more successful in driving trends and behaviour change than government campaigns or health brands. Every brand in every sector is now in the business of health, whether they yet realize it or not. Consumers now seek simpler ways to improve their health and are at the same time leaning towards brands who create social impact. January is a prime moment for brands to harness the health interest of their target customers and help them reset a habit.

The pilot users of the Habit-Reset helped shape this new platform:

- They felt part of something bigger happening in real-time (a habit "movement")
- They felt connected to a real-life human story (the accountability partner check-ins)
- They wanted a simple, peaceful, experience - so that's what they were given via WhatsApp
- Personalization was surprisingly not a 'must-have'

This 'Habit Reset' platform offers a route forward as a complementary, human-led, tool supporting individuals who have committed to a habit-change attempt. It's designed to act as a habit-agnostic solution for:

- Fitness and activity
- Weight loss & nutrition
- Mental health
- Medication adherence
- Lifestyle interventions alongside oncology and cardiometabolic therapeutics
- Musculoskeletal rehabilitation programmes
- Workplace stress and productivity

Its agnostic design enables total versatility as a tool that provides daily human-support to help sustain any chosen behaviour. It provides a scalable (1:Many) and affordable human-led platform for behaviour change.

7. Next Steps / Collaborative Partnerships

Neuron Wellness (t/a Holidity) is a London-based, for-profit, social impact company, founded by Dr Julia Jones following her work with the NHS and corporate employers. The company objective is to identify the flaw in the existing preventative health models and build a new solution to help address it. Dr Jones brings 35-years professional experience and a personal mission to move the sector forward.

The R&D work was supported by an EIS investment round in 2021/2 led by Evolutia Venture Partners, FS Ventures and City Alliance.

Neuron Wellness welcomes any companies, organisations or individuals who are interested in collaborating on this mission to advance the preventative health sector and help the nation enjoy many extra years of healthy life through a simplified and more successful approach to behaviour-change.

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