![Changing Health logo]

Changing Health®

Personalisation

The secret ingredient to lasting lifestyle change for people with Type 2 diabetes

Introduction

This white paper has been created by Changing Health, who are currently delivering behaviour change programmes across 17 NHS organisations reaching approximately 250,000 people in England and Wales. These programmes deliver lifestyle coaching and digital structured education covering:

Weight Loss for people with weight management challenges
Type 2 Diabetes Prevention for people at risk of diabetes
Type 2 Diabetes Management for people living with diabetes

Through this paper, we aim to raise awareness of the power of behavioural science as a means of facilitating lifestyle change. An understanding of what determines our intentional and habitual actions, and the distinction between the two, allows healthcare providers to target each of the complex processes that form decision making.

Referencing the very latest behavioural science theories and behaviour change techniques, and data taken from over 900 Changing Health users over six months, the paper illustrates how the application of evidence-based structured education, combined with personalised lifestyle coaching underpinned by behavioural science, has led to a potential 20% reduction in hospital attendance and a 20% increase in medicine adherence.

The data provides clear evidence that a personalised approach to behaviour change empowers people to change their lifestyles and transform their health for good.

Information alone will not solve the health problems facing the nation

John Grumitt
Chief Executive Officer

Are apps alone failing?

Information on how to live a healthy and happy life with a balanced lifestyle has never been easier to obtain. In fact, consumers could choose from a record 325,000 mobile health apps in 2017 - up 75,000 (23%) on the previous year[1].

Despite this surge in availability of information around health and healthy living, in 2018 35% of all adults in England are defined as being above a healthy weight, with a further 26% considered obese[2]. In 2016/17 just 26% of adults and 16% of children ate their recommended 5 or more portions of fruit and vegetables a day[3]. In the same period, 21% of men and 25% of women were classified as inactive (achieving fewer than 30 minutes of physical activity per week)[4]. The implications of mass weight gain for society, in the UK and across the world, are staggering: obesity now has roughly the same global economic impact as armed conflict ($2 trillion)[5].

Clearly, there is an urgent need for healthcare providers, policymakers and innovators to work together to address the underlying psychological drivers that influence our lifestyle choices. While there is always 'an app for that', apps alone will not suffice. We must understand people on an individual and personal level if we hope to facilitate mass behaviour change and reverse the trend of rising obesity.

To understand change, understand human behaviour

Human behaviours are the product of both intentional and automatic actions that are deeply embedded in the social, material and cultural context we live in[6]. What we do in our day-to-day lives can be influenced by a whole host of factors: age, ethnicity, gender, socioeconomic status and educational attainment to name just a few.

Intentional behaviours tend to be underpinned by our attitudes, which are consciously determined by the value we attach to a particular behaviour ("I know I shouldn't drink so much, but it'll be fun")[7]. Habits, on the other hand, are automatic behaviours, frequently undertaken at low levels of awareness and repeated over time - for example, picking the same options for lunch each day[8].

Why is this distinction in type of behaviour so important for healthcare practitioners? Because some behaviours are planned or deliberated on, while others are automatic and unconsidered. To facilitate change effectively, you need to understand which type of behaviour you're trying to influence.

Remember: To help someone make a change, you need to understand the **type** of behaviour you're trying to influence.

To create change, create personal approaches

Psychology has given us a plethora of theories and models to explain what governs our behaviours, but each has one thing in common: a need for a range of behaviour change techniques to operationalise the theory. Each individual is likely to be at a different stage of their behaviour change journey, therefore personalisation is key – the need for specific behaviour change techniques to suit individual needs and preferences and target different behaviours at different times.

Identifying which techniques are appropriate for a particular individual and their circumstances is crucial for efficacy.

On the next page, you'll find a list of 12 techniques[9] that have been associated with effectiveness in behavioural interventions targeting diet and physical activity behaviours.

Techniques should be selected based on the individual, context and desired outcome. It's like baking a cake - balancing the ingredients and timings are key to success!

Professor Mike Trenell
Chief Scientific Officer

Techniques linked with effectiveness in behavioural interventions

Behaviour change technique	Description
1. Provide information on consequences of behaviour in general	Information about the relationship between the behaviour and its possible consequences, usually based on epidemiological data, and not personalised for the individual.
2. Instruction on how to perform the behaviour	Involves telling the person how to perform behaviour or preparatory behaviours, either verbally or in written form.
3. Goal setting (behaviour)	The person is encouraged to make a behavioural resolution (e.g. more exercise next week).
4. Goal setting (outcome)	The person is encouraged to set a general goal that can be achieved by behavioural means but is not defined in terms of behaviour (e.g. to reduce blood pressure or lose/maintain weight).
5. Encourage self-monitoring of behavioural outcome	The person is asked to keep a record of specified measures expected to be influenced by the behaviour change (e.g. blood glucose, weight loss).
6. Feedback on performance	Providing the person with data about their own recorded behaviour or commenting on a person's behavioural performance.

Behaviour change technique	Description
7. Action planning	Involves detailed planning of what the person will do including when, in which situation, and/or where to act.
8. Relapse prevention / coping planning	This relates to planning how to maintain behaviour that has been changed. The person is helped to identify in advance situations in which the changed behaviour may not be maintained and develop strategies to avoid or manage those situations.
9. Teach to use prompts / cues	The person is taught to identify environmental prompts which can be used to remind them to perform the behaviour.
10. Plan social support / social change	Prompting the person to plan how to elicit social support from other people to help them achieve their target behaviour / outcomes.
11. Barrier identification / problem solving	The person is prompted to think about potential barriers and identify ways of overcoming them.
12. Time management	This includes any technique designed to teach a person how to manage their time in order to make time for the target behaviour.

Context is king

An understanding of the contextual influences and frequency in which a behaviour occurs is important when targeting behaviour change techniques. Drinking excessively at a staff party doesn't make you an alcoholic, and completing a marathon to raise money for a charity doesn't make you a runner. This was illustrated in a study into Type 2 diabetes using the Theoretical Domains Framework, that explored which influencers (the context) are effective in promoting, initiating, enacting and maintaining behaviour change[10].

1. **Social influences** (domains)
2. **Social role and identity to peer group**
3. **Intentions and goals**

These 3 domains have been identified as the most prominent influencers in behaviour change for Type 2 diabetes.

4. Reinforcement

5. Knowledge

6. Skills and beliefs about capabilities

7. Behavioural regulation

8. Memory

9. Emotion, attention and decision processes

10. Environmental context and resources

People don't respond to warnings

Healthcare professionals often attempt to encourage their patients to change their lifestyle by warning them of the risks associated with their condition as a result of their current lifestyle. Protection Motivation Theory[11] proposes that four factors can influence us to change our behaviours:

1. The perceived severity of an illness we wish to avoid or prevent from getting worse
2. The perceived probability of us developing the illness or of the illness getting worse
3. The efficacy of the recommended preventative behaviour
4. Perceived self-efficacy (i.e. our confidence to change our behaviour)

However, systematic reviews have found that communicating risk to patients actually results in a lack of impact on behaviour change. Cautioning does not work[12]. Instead, focusing on past successes (identifying and emphasising previous,successful attempts to initiate lifestyle change) has been linked to optimal care consultations and better clinical outcomes[13]. Pairing this with discussions about how to overcome barriers that have occurred in the past, or might come up in the future, enables the patient to think more positively about making a change and this positivity is key.

Remember!
Evidence tells us that explaining the risks associated with a poor lifestyle will **not** change a behaviour

Excuses vs. lifestyle choices

In a study comprising people with Type 2 diabetes, routine situations were often cited for non-adherence to medication, including holidays, irregular shifts, and experiencing stress. Interestingly, the same factors were often described by healthcare professionals as "excuses", demonstrating a disconnect between how patients and healthcare providers view and experience non-adherence[14].

According to Attachment Theory, the quality of our early childhood interpersonal experiences may be responsible for our ability to regulate our emotions and behaviours over the course of our life[15]. Because behavioural control can be rooted by childhood experience, it is important that healthcare professionals recognise that what they perceive as a conscious excuse, may actually be reflection of that person's behavioural control.
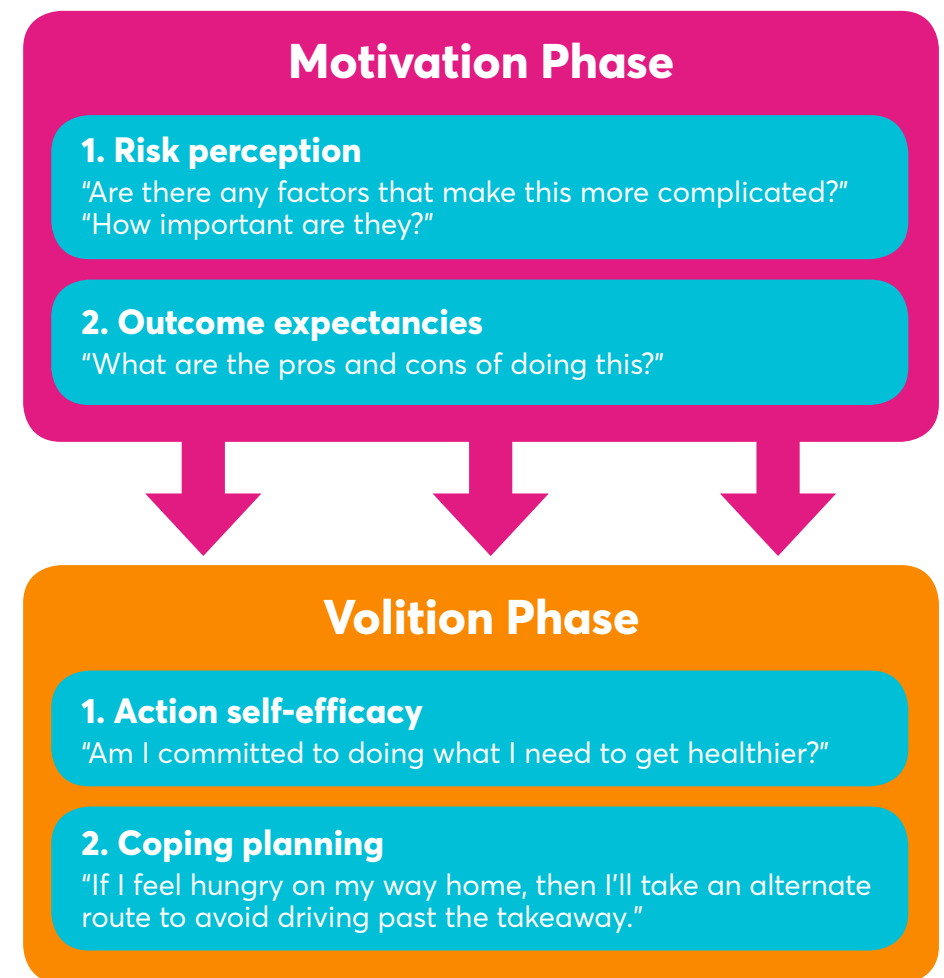
Translating intent into action

Many interventions aim to motivate people to change a particular behaviour, such as increasing physical activity or making healthier dietary choices. Few of them utilise strategies to help turn good intentions (motivation) into action (actual behaviour change).

This is not the case for interventions built upon the Health Action Process Approach or HAPA. The HAPA proposes that engaging in healthy behaviour consists of two processes: forming an intention (motivation phase), followed by action (volition phase)[16]. It also targets motivation first by prompting people to think about making behavioural changes, then focuses on volition (the enactment of goals and plans i.e. actual behaviour change). Furthermore, it promotes a model of maintenance by concentrating on long-term behaviour change using self-regulation techniques such as self-monitoring.

The model proposes that the cognitions shown in the table on the right should be targeted in order to target/increase motivation i.e. to increase motivation for wanting to make a change.

Remember: Interventions based on the HAPA model can effectively target cognitive processes that influence our behaviour

Motivation Phase

1. Risk perception
"Are there any factors that make this more complicated?"
"How important are they?"

2. Outcome expectancies
"What are the pros and cons of doing this?"

Volition Phase

1. Action self-efficacy
"Am I committed to doing what I need to get healthier?"

2. Coping planning
"If I feel hungry on my way home, then I'll take an alternate route to avoid driving past the takeaway."

In summary

Utilising specific behaviour change techniques can increase the likelihood of lasting, positive lifestyle change. There is extensive evidence showing that such behavioural interventions can produce a clinically significant improvement in HbA1c in adults with Type 2 diabetes[17]. The next section illustrates how the NHS is successfully adopting these principles.

To create lasting behaviour changes, remember:

1. Everyone is unique, so should receive personalised support relevant to their needs and preferences.

2. Consider the contextual influences that may impact upon a person's ability to make changes.

3. When discussing risks, do so positively – lifestyle changes can successfully reduce risk.

4. Be patient! Lasting behaviour change won't happen overnight.

Dr Leah Avery
Behaviour Change Lead

Case study

Behaviour change at scale
for Type 2 diabetes

Type 2 diabetes is a significant problem

4.5 million people affected
by diabetes in the UK - that's more than dementia and cancer combined[18].

£1.5m spent per hour, every hour
on diabetes - 10% of total spend, with an estimated £14 billion per year on treating the condition and complications[19].

52 million drugs prescribed
for diabetes at a cost of £983.7 million in 2016/17 (11% of spend on prescriptions in primary care)[20].

8 in 10 people with Type 2 diabetes
are offered the chance to undertake structured education to learn more about managing their condition.

Only 7% of those referred
to structured education on Type 2 diabetes actually start their learning programmes.

Less than 6.3% of those who start
structured Type 2 diabetes education actually go on to complete their learning.

Getting to the root of the problem

This case study provides data and lessons from Changing Health's Diabetes Management programme. The data have been collected from different target groups to illustrate the impact of evidence-based education coupled with personalised, one-to-one behaviour change coaching delivered by telephone.

The first group consists of people diagnosed with Type 2 diabetes referred to the Changing Health Diabetes Management programme to self-manage their condition more effectively. The programme has been adopted across 17 NHS organisations, with referrals from more than 60 GP practices with a diabetes population of almost 250,000.

The second group comprises 148 self-referred participants in a 12 month evaluation of the Changing Health Diabetes Management programme. Although most participants in this group did not have Type 2 diabetes,

89% were overweight or obese, a serious risk factor for Type 2 diabetes and other non-communicable diseases.

The personalised 12 month Diabetes Management programme consists of two distinct but interconnected parts that address the root causes of sub-optimal lifestyle choices, whilst providing the knowledge and tools to create positive, lasting lifestyle changes:
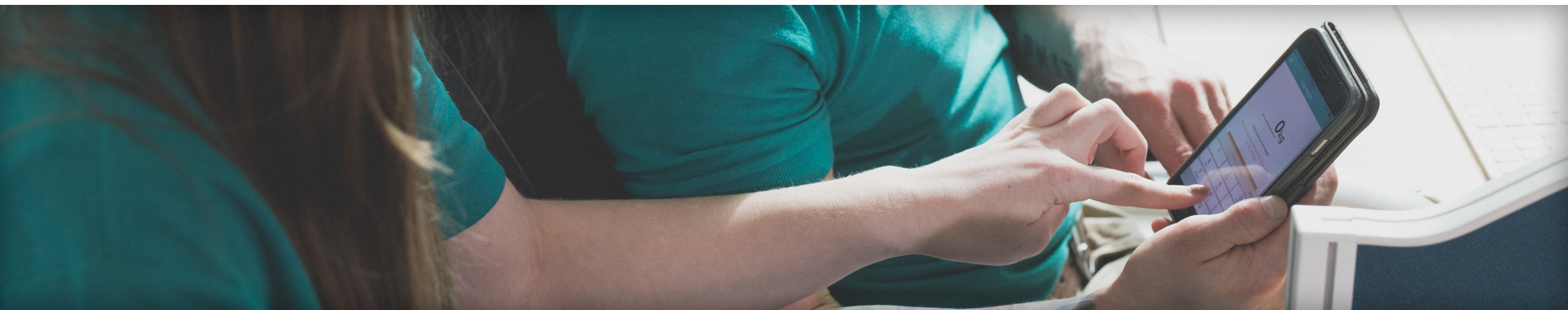
1. Evidence-based structured education
The latest education on Type 2 diabetes, diet and exercise delivered through a digital app that tracks the user's progress through the programme and towards their health goals.

2. Personal lifestyle coach
Each coach is trained in the use of evidence-based behaviour change techniques.

Empowering users from every demographic

Data from our evaluation study revealed that programme users are diverse; the gender split is broadly even, with wide age variation:

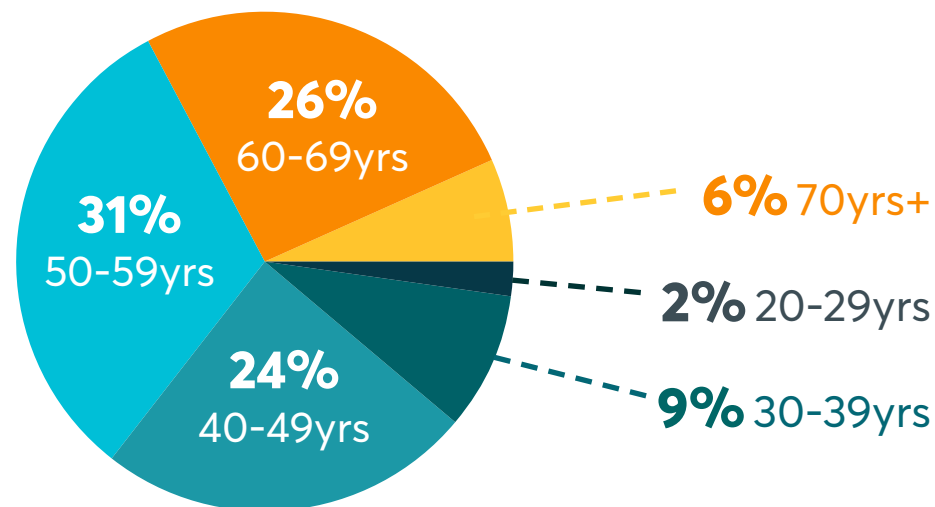**45%** are White or White British

24% are Asian or Asian British

18% are Black, Black British or Caribbean

58% have a degree or professional qualifications

42% completed A levels or below

26% 60-69yrs

6% 70yrs+

2% 20-29yrs

9% 30-39yrs

24% 40-49yrs

31% 50-59yrs

Uptake and completion of the programme

63% of referred users started their education
compared to a national average of only 7%

97% stated that learning content was easy to understand
in an evaluation of the programme

An analysis of our database revealed that of those referred to Changing Health by their GPs, 63% began the education (downloaded the app and started the learning modules). This compares favourably to face-to-face education programmes which, as the the 2017 National Diabetes Audit reported, average just 7% uptake[21].

97% of those participating in an evaluation of the Diabetes Management programme also stated that the learning content was easy to understand.

Key drivers of success

1 Innovative referral and sign-up process removed all barriers and time delays to starting the programme

2 Education made available on demand via an app accessible on desktop, smartphone and tablet

3 Learning content delivered through simple videos, infographics & articles to ensure understanding and continuing engagement

Lifestyle coaches provide truly personalised support

Applying behaviour change techniques from a trusted individual is crucial for the intervention's success. 2018 analysis of data from our evaluation study (n=148) at 4, 8 and 12 weeks revealed that 90% of users were either satisfied or very satisfied with their lifestyle coaches.

I became a lifestyle coach to make a difference in people's lives. Changing Health gives me the opportunity to do that, exploring every user's needs and tailor-making a behaviour change programme to suit them.

Carl Lumsden
Coaching Team Leader

After 12 weeks, participants reportedly felt that their coach was:

Knowledgeable **93%**

Supportive **92%**

Engaging **87%**

Empowering **87%**

Positive **93%**

Inspiring **90%**

Recommendations from coaches delivering behaviour change support

Changing Health lifestyle coaches are trained to target cognitions (see the HAPA model on p11) using behaviour change techniques to secure lasting lifestyle behaviour change. Each programme user is treated as an individual and supported in 6 key areas:

1 Understand the natural consequences of decisions by vocalising outcomes of a behaviour to the individual, without overemphasis on risk or fear.

2 Regular feedback and monitoring:
- Self-monitoring (behaviour) diet and physical activity
- Self-monitoring (outcome) weight lost
- Provide feedback on performance

3 Shaping knowledge through simple instructions on how to perform new and positive behaviours.

4 Understanding how to embrace social circles for ongoing support.

5 Structuring a positive lifestyle through:
- Barrier identification / problem solving
- SMART goal setting for behaviour
- Goal setting for outcomes
- Time management planning
- Relapse prevention
- Action planning: When, where & how? Coach encourages user to write into the app and/or send an email
- Coping planning: What might get in the way & how? How will you stay on track if you encounter these situations?

6 Positive associations through identification of regular prompts and cues.

It's essential to build a rapport with our programme users. People can have all kinds of pressures so I regularly reassess goals with users to make sure they're on track, and use positive reinforcement techniques to encourage them to keep going.

Kirsten Ashley
Lifestyle Coach

Impact of coaching interventions

Participants report very high levels of satisfaction with their lifestyle coaches:

85% say that their lifestyle coach has been important or essential to their success in the Changing Health programme

84% felt their lifestyle coach invested time to learn more about their health and the issues they have been experiencing

81% felt their lifestyle coach helped them set achievable goals

78% felt their lifestyle coach motivated them to achieve their lifestyle goals

NHS
North West London
Collaboration of
Clinical Commissioning Groups

North West London (NWL) CCG data on potential reduction of hospitalisation and increase in medication adherence

Key lessons

1 Personalised support via coaching gave users a higher degree of confidence to tackle their lifestyle change challenges.

2 Access to coaching and content around the user's schedule drove high engagement.

3 Targeting cognitions to increase motivation made goal setting more achievable.

A three-month pilot of Changing Health's Diabetes Management programme with NWL CCG saw Patient Activation Measures (PAM) scores rise by 10 points. Patient activation measures are used to assess a person's attitudes to self-managing their health and engaging with health and healthcare, as opposed to measuring specific behaviours.

PAM measures are the gold standard of assessing patients' suitability for different kinds of interventions and allow healthcare providers and behaviour change coaches to provide customised support. They are uniquely invaluable in that they can reliably predict ER visits, hospital admissions and readmissions and medication adherence.

Each point increase in PAM score correlates to a 2% decrease in hospitalisation and a 2% increase in medication adherence[22].

Diabetes Management programme users began the programme with an average PAM score of 56. After 12 weeks the average PAM score rose to 66 - an increase of 10 points.

Changing Health's Diabetes Management programme is delivering a potential 20% decrease in hospitalisation and a 20% increase in medication adherence.

Patient Reported Outcome Measures (PROMs) remain high

PROM score data from our evaluation study shows the vast majority of users begin to better self-manage their health within 4 weeks of beginning the programme:

Within 2 weeks, I felt fitter. After 4 I was starting to see a difference. After 12 I could feel my ribcage – I realised I had bones!
I enjoy what I'm eating now more than what I ate before, and I've started running as well.
I try to run twice a week if not three times.

Tim B
Changing Health programme user

75% of participants report making healthy diet changes within a month

63% report increasing their physical activity levels in the same period
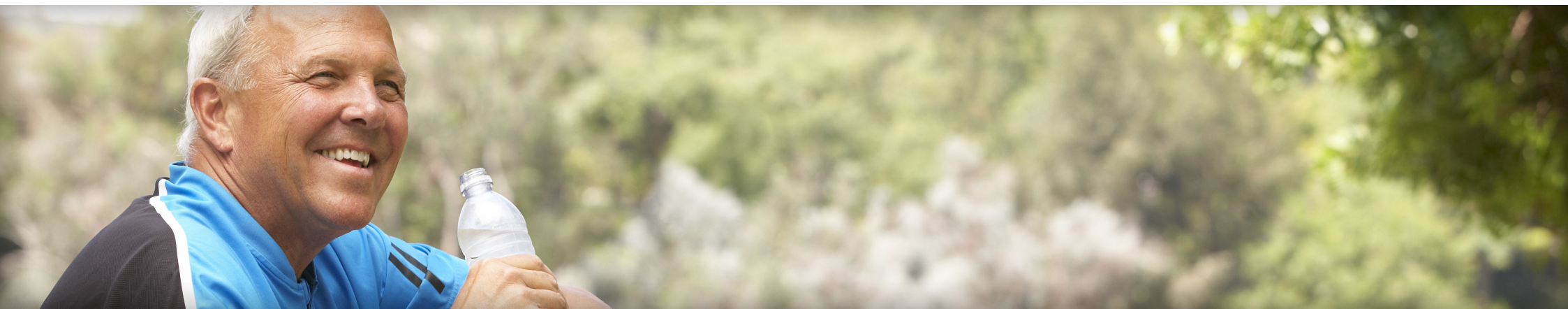
57% see an increase in their energy levels in the first month

51% observe an increase in their ability to concentrate

46% say their quality of sleep improved within a month of starting the programme

Structured education and behaviour change lifestyle coaching works

A sample group of Changing Health's Diabetes Management programme users provided positive outcome data at 3 months.

These data alone are not evidence of a sustained behaviour change, given the time scales - but provide a positive indicator that Changing Health's Diabetes Management programme is taking users in the right direction.

7.4kg
reduction in weight

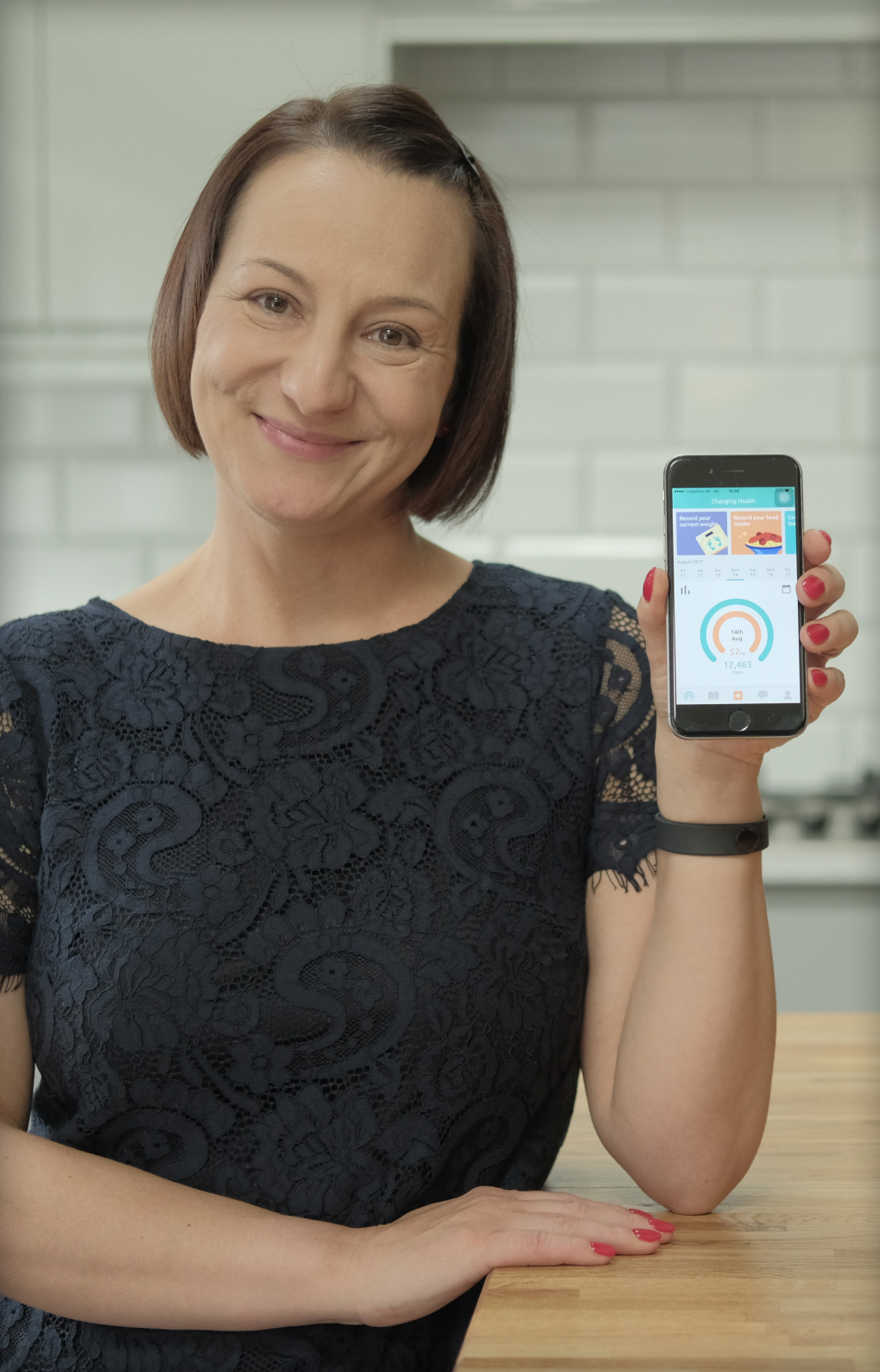with Low Calorie diet

995
less calories consumed per day

6.8
mmol/mol mean reduction in HbA1c

322 mins
increase in moderate to vigorous activity a week

Type 2 diabetes remission achieved in just 12 weeks

Before Changing Health I had to take a lot of medication to manage my diabetes, which made me feel terrible. I didn't know I had the potential to take control of my own health.

Tina C
Changing Health programme user

Conclusions

Operationalising behavioural science is a powerful means of facilitating lifestyle behaviour change. An understanding of what determines our intentions and habits, and the distinction between the two, allows healthcare providers to target each of the complex processes that form decision-making. There are dozens of evidence-based behavioural techniques which, when applied correctly, can support people to make healthier choices more effectively than traditional approaches. People who take part in interventions like these become better engaged with their health and healthcare, see significantly improved clinical outcomes and report very high levels of satisfaction.

This white paper was brought to you by Changing Health. We offer 3 behaviour change programmes to healthcare commissioners and providers:

Weight Loss for people with weight management challenges
Type 2 Diabetes Prevention for people at risk of diabetes
Type 2 Diabetes Management for people living with diabetes

Each programme consists of 2 distinct but connected parts:

1. Evidence based structured education delivered through an app that can be used on a smartphone, tablet or PC providing users with the very latest education on their condition, personal needs, diet and physical activity/exercise programmes.

2. Access by telephone to a personal lifestyle behaviour coach. Each coach is trained in the use of behaviour change techniques that have been tested by Newcastle University in interventions funded by the NIHR. The underpinning behavioural theories of Changing Health and the operationalisation of those theories with the use of behaviour change techniques target action, coping and recovery self-efficacy which are important for motivating people to make a change, enacting their plans and maintaining changes over time.

If delivered at scale these highly personalised, evidence-based interventions rooted in behavioural science could have an enormous social and economic impact, empowering the population to lose weight and lead happier, healthier lives en masse. The possibilities are boundless!

Professor Mike Trenell
Chief Scientific Officer

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Credits

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