

1 Executive Summary

Physical Inactivity is acknowledged as a primary cause of many non-communicable diseases^{1, 2,3} and is estimated to cost the UK economy in excess of £100bn annually^{4,5,6}.

The narrative for promoting physical activity over the past 40 years has in the main been driven by the sport and fitness industries but this approach has failed to engage with those most in-need or deliver sustainable behaviour change for quantifiable health benefits.

We can overcome these deficiencies by establishing Personalised Everyday Physical Activity as an accessible option for effective health improvement and redefine the narrative for exercise and fitness to benefit the majority of the population. Advancements in technology have enabled KiActiv[®] to develop a low-cost and scalable digital intervention that is proven to achieve these goals. Furthermore, our unique methodology (patent pending) allows us to comprehensively evaluate Physical Activity in the context of health and its financial impact.

KiActiv[®] Health is an interactive digital behavioural change platform that uses Personalised Everyday Physical Activity in multiple dimensions for the prevention and treatment of chronic disease. It delivers engagement, motivation and understanding to the individual, empowering personal responsibility and self-management. KiActiv[®] Health is based on established behavioural science and evidence from the Mi-PACT Study with the University of Bath, which proved KiActiv[®] to be effective at delivering meaningful and sustainable behaviour change for Physical Activity. The interactive tools and visualisations give the user an understanding of their own Physical Activity, and show the impact of possible lifestyle changes, enabling authentic choice to support self-endorsed change (Figure 1).



Figure 1. KiActiv[®] Health Programme

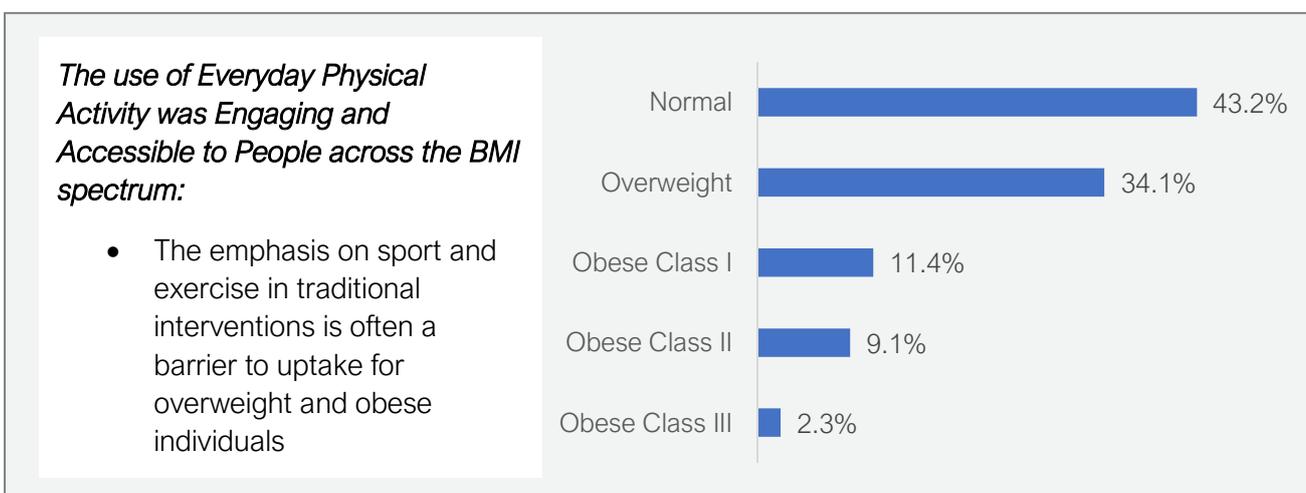
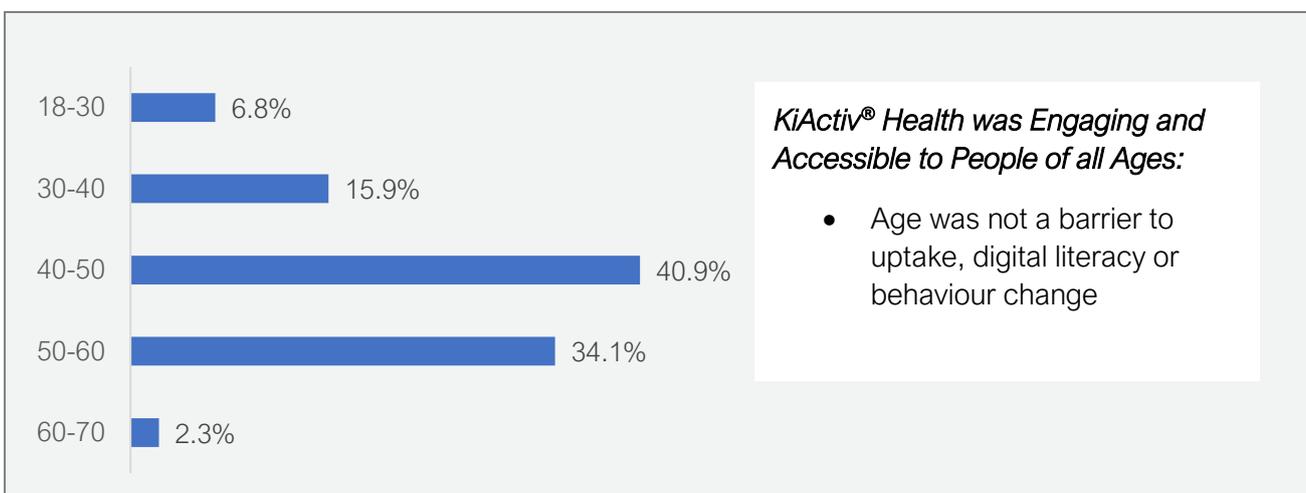
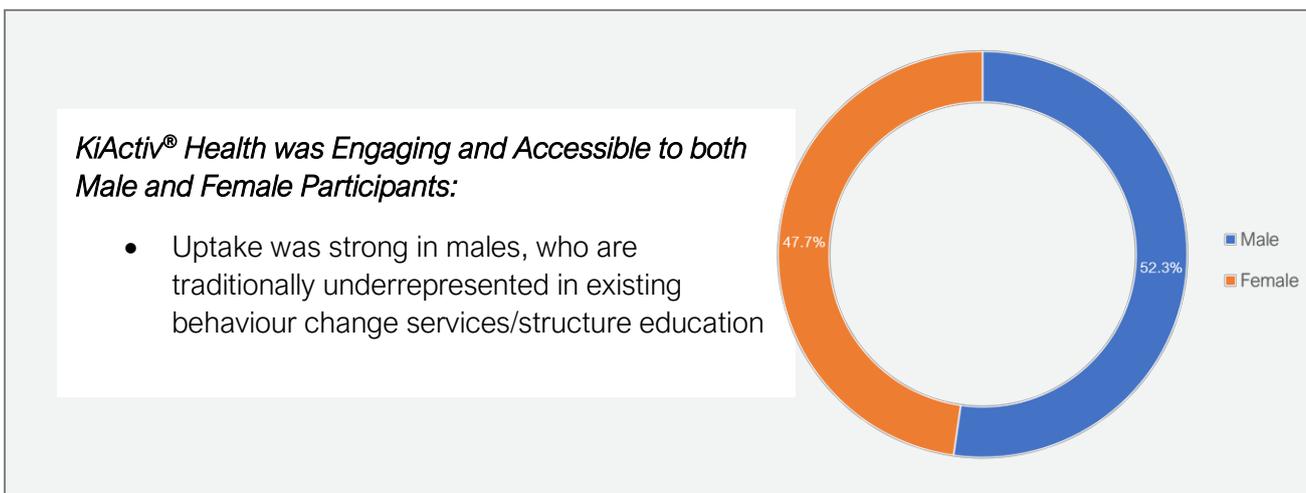
The B&NES Pilot demonstrated the effectiveness of KiActiv[®] Health, as a Digital Behaviour Change Programme for improving the self-management of employee health and wellbeing by empowering a sustainable increase in Everyday Physical Activity levels.

The KiActiv[®] Health programme was used as a SaaS platform and the service was delivered in-house at B&NES by an employee who was trained and accredited as a KiActiv[®] Mentor. All participants were self-selecting and attracted through various methods of internal communication.

Forty-four people enrolled on the programme and completed the KiActiv[®] HealthCheck. One participant completed their programme at this stage and 43 participants continued on to the 11-

week behaviour change programme. Two subsequently ended their programme before the end of 11 weeks.

Demographic Analysis Highlighted the Following Key Points:



100% of participants increased their Physical Activity, with 97.4% improving in 4 or more dimensions; sedentary time, moderate activity, calorie burn, moderate bouts, and vigorous bouts.

In each of the dimensions of Physical Activity, improvements were demonstrated to be statistically significant.

The increases in Physical Activity were further supported by participants' qualitative feedback, which demonstrated an improved understanding of their Physical Activity and greater confidence in the ability to manage it for their health benefit. Furthermore, as a result of their increases in Physical Activity, participants reported experiencing a number of other benefits, which are tied to improvements in quality of life. These include:

- Weight Loss
- Dietary Changes
- Improved Sleep Patterns
- Increased Productivity
- Reduction in Fatigue and More Energised
- Improved Mood
- Reduction in Stress
- Boosted Confidence
- Happier and More Positive
- Feeling Fitter and Healthier
- Increased Social Interactions and Connection with Others

Our method for objectively and comprehensively evaluating Physical Activity in its totality enables us to demonstrate measurable health impact through the existing scientific evidence base. Whilst weight loss is often used as a proxy for health benefit, it doesn't account for the independent impact of Physical Activity on health outcomes, and in particular the reduction of future disease risk. Further to this, other physical activity metrics, such as steps or minutes of exercise, are unable to accurately demonstrate health impact. This is because they only focus on single dimensions, which provide a selective and limited view of behaviours. This narrow focus potentially omits detrimental behaviours and therefore statements regarding their impact are ambiguous at best.

Importantly, we are able to model the economic benefit of the positive behaviour change achieved, accounting for the users' improved health outcomes, reductions in future healthcare costs, and productivity gains. Whilst this analysis is not comprehensive, because a number of health benefits from Physical Activity are unaccounted for, we are able to demonstrate a positive return on investment within a 1-year, 5-year and 10-year time horizon (Figure 2).



Figure 2. 1-year, 5-year and 10-year return on investment.