Professor Aiden Doherty, Professor Heidi Johansen-Berg, Mr Alberto Lazari, Dr Karen Mansfield, Mr Thomas Wassenaar and Dr Catherine Wheatley – Written evidence (NPS0096)

How Can We Lead More Active Lifestyles?
Written Evidence Submission to the House of Lords Committee on a National Plan for Sport and Recreation

Submitted by Dr Catherine Wheatley[1], Mr Thomas Wassenaar[1], Dr Karen Mansfield[2],
Mr Alberto Lazari[1], Professor Aiden Doherty[3], and Professor Heidi Johansen-Berg[1]

[1] Nuffield Department of Clinical Neurosciences, University of Oxford
[2] Department of Psychiatry, University of Oxford
[3] Nuffield Department of Population Health, University of Oxford

Introduction: summary of expertise and reason for submitting evidence

1. We are a team of researchers at the University of Oxford studying physical activity and health. Collectively, our work has more than £100m in funding from the Wellcome Trust, the NIHR, the British Heart Foundation and Health Data Research UK. Our studies investigate relationships between physical activity, cardiovascular health and brain health – a term which covers thinking and learning skills, as well as mental health and wellbeing.

2.In the *Fit to Study* trial, we tested the impact on brain health of high-intensity training during school PE lessons in close to 100 state secondary schools. Using data from *UK Biobank* and the *Oxwell School Survey* project, we have analysed physical activity and health in over half a million people in the UK. In the *RED January* study, we explored the public health potential of a community-based physical activity challenge that attracts over 50,000 people annually.

3.We support a national plan that would encourage people of all ages to become more active, less sedentary and improve their cardiovascular fitness to benefit their physical and brain health. We present responses to three of the Committee's questions.

Q2. *How can children and young people be encouraged to participate in sport and recreation both at school and outside school, and lead an active lifestyle? If possible, share examples of success stories and good practice, and challenges faced.*

4. Creating opportunities for young people to be more active *at school* can contribute to more active lifestyles. Government guidance is that 5-18 year-olds should be active for an hour a day on average, *of which 30 minutes should be in school. Fit to Study*[1] found there is scope to increase moderate-to-vigorous activity during secondary school PE lessons. We measured pupils' activity in 249 lessons during the 2017-18 academic year: on average, pupils spend only around 25% of available lesson time actively moving, compared to a target of 50-80% set by the Association for PE, the subject's representative body. Given that PE is compulsory until age 16, this represents a significant missed opportunity to increase activity in school.

5. The PE curriculum should be changed to prioritise active time during lessons. We identified a conflict between the current PE curriculum aim of developing competence in a broad range of sport and physical activities, and efforts to increase the proportion of active lesson time. During *Fit to Study*, we asked teachers to incorporate simple, high-intensity interval training (HIIT) into their lessons. Most said they would recommend this approach to promote exercise in school and to improve cardiorespiratory fitness and strength. But they also described difficulties implementing HIIT-style training in lessons requiring a lot of equipment or where skill development was a priority[2]. These comments were reflected in our observations, which showed that **around 40% of pupils' PE lesson time was sedentary**, while teachers explained or demonstrated.

6. Encouraging young people to be more active at school – an environment that includes *all* young people, including those from disadvantaged backgrounds – requires school-wide support and commitment. Behaviour change approaches – 'nudging' more young people towards activity by making exercise an easier, more attractive choice – is valuable. So is manipulating the built environment to encourage active travel. Peer influence is another important factor[3]. **But a one-size-fits-all approach to activity promotion in schools, while scalable, is likely to fail.** For example, during *Fit to Study* we noted that some schools – such as those with a high proportion of Muslim families who observed fasting during Ramadan – struggled with HIIT training. During *Fit to Study* teachers suggested that using school assemblies or promotional materials, tailored to suit their own pupils, to explain the benefits of HIIT training, could have proved effective[4]. **We recommend piloting new, tailored approaches to working with schools** to take advantage of the opportunity to increase activity during the school day.

---

[1] Wassenaar, T., Wheatley, C., Beale, N. et al (2019). Effects of a programme of vigorous physical activity during secondary school physical education on academic performance, fitness, cognition, mental health and the brain of adolescents (Fit to Study): study protocol for a cluster-randomised trial. *Trials* 20 (1) 189

[2] Husain, F., Bartasevicus, V., Marshall, L. et al. (2019). Fit to Study: Evaluation Report. https://www.fit-to-study.org/assets/FtS%20Evaluation%20Report_Sept2019.pdf. Downloaded January 2021.

[3] Proestakis, A., di Sorrentino, E.P., Brown, H.E. *et al.* Network interventions for changing physical activity behaviour in preadolescents. *Nature Human Behaviour* **2,** 778–787 (2018)

[4] Wheatley, C., Beale, N., Wassenaar, T., Graham, M., Eldridge, E., Dawes, H., & Johansen-Berg, H. (2020). Fit to Study: Reflections on designing and implementing a large-scale randomized controlled trial in secondary schools. *Trends in Neuroscience and Education*, *20*, 100134.

Q3. How can adults of all ages and backgrounds, particularly those from under-represented groups, including women and girls, ethnic minorities, disabled people, older people, and those from less affluent backgrounds, be encouraged to lead more active lifestyles? If possible, share examples of success stories and good practice, and challenges faced.

7. Community-based physical activity programmes, supported by social media, show potential to encourage adults to lead more active lifestyles. We are exploring the public health potential of a social media campaign called RED January[5], which challenges people to do something active (of their choice) every day for a month to improve their mental health. In 2020, 82% of participants were women and an estimated 40% were from areas of above-average deprivation. Two thirds were active every day during January and another quarter reported being active on between 26 and 30 days. More than 75% said they were either 'much more' or 'more' active than usual. More than half reported less frequent feelings of stress or low mood. *Parkrun* is another community programme that promotes activity and supports wellbeing[6]. **We recommend further funding and evaluation of community-based activity-for-wellbeing initiatives.**

Q4. Sporting Future: A New Strategy for an Active Nation, the Government's 2015 sports strategy, outlines five outcome priorities: physical health, mental health, individual development, social and community development and economic development. Are these the right priorities and how successful has the government been in measuring and delivering these outcomes to date?

8. Physical health outcome priorities. We support outcome priorities of increasing the percentage of the population meeting guidelines for physical activity, and reducing the percentage that is physically inactive. **We suggest an additional outcome priority of increasing the proportion of *young people* achieving a *cardiorespiratory fitness* threshold.** Although more physical activity predicts better health outcomes across the lifespan[7], cardiorespiratory fitness makes an important extra contribution to health and offers additional disease protection[8]. (See *cardiorespiratory fitness measurement,* below).

---

[5] RED January: https://redtogether.co.uk

[6] Reece, L. J., Quirk, H., Wellington, C., Haake, S. J., & Wilson, F. (2019). Bright Spots, physical activity investments that work: Parkrun; a global initiative striving for healthier and happier communities. *British journal of sports medicine*, *53*(6), 326-327.

[7] Ramakrishnan, R., Doherty, A., Smith-Byrne, K. et al. (2021). Accelerometer measured physical activity and the incidence of cardiovascular disease: Evidence from the UK Biobank cohort study. *PLoS medicine*, *18*(1), e1003487.

[8] Clausen, J., Marott, J., Holtermann, A. et al. (2018) ,Midlife Cardiorespiratory Fitness and the Long-Term Risk of Mortality: 46 Years of Follow-Up Journal of the American College of

9. Physical activity measurement. **We recommend including device-based measures of activity, and inactivity, in a random subsample of one or more of the national representative surveys.** The two key population-level measures of physical activity – NHS Digital's Health Survey for England and Sport England's Active Lives Survey and – use different self-reported measures of moderate-to-vigorous activity over the past seven days. Device-based measures of movement over seven days would provide:

i) Objective physical activity measurement to combat bias and subjectivity inherent in self-reported data; and
ii) A more detailed picture of how physical activity is associated with health outcomes and other health behaviours such as sleep and sedentary behaviour

10. **We suggest stating a clear purpose for measuring the proportion of 'fairly active' individuals.** The Chief Medical Officer's guidelines define 'inactive' as less than 150 minutes' moderate intensity activity per week. By contrast, both national surveys define 'inactive' as less than 30 minutes' activity per week and include a 'fairly active' classification of 30-149 minutes per week. **Public health campaigns should emphasise the benefits of moving from 'inactive' to 'fairly active'**. This is because reducing sedentary behaviour and adding small amounts of extra activity through the week can deliver significant health benefits for inactive people.

11. Cardiorespiratory fitness measurement. **We suggest using the 20-metre shuttle run test (or 'beep' test) to provide an objective measure of cardiovascular fitness.** The test is easy to administer in school. The measure also indicates habitual physical activity and captures the impact of other factors, such as obesity and smoking, linked to long-term health outcomes.

12. Mental health outcome priority. **We support the current outcome priority of improving mental wellbeing**. The 2015 national plan for sport and recreation also acknowledges favourable links between physical activity and anxiety. Given the increasing prevalence of anxiety related to the Covid-19 pandemic, especially among low-income individuals[9], **we suggest adding anxiety as a mental health priority**.

13. *Mental health measurement.* Existing mental wellbeing outcome measures (including a single question measuring anxiety) align with Office of National Statistics population measures. **We also recommend a brief and widely-used measure** collected by the ONS**:** the **Short Warwick Edinburgh Mental Wellbeing Scale,** which offers a measure of wellbeing *functioning* as well as *feeling.*

Cardiology 72(9) 987-995

[9] Shevlin, M., McBride, O., Murphy, J., Miller, J. G., Hartman, T. K., Levita, L., ... & Bentall, R. P. (2020). Anxiety, depression, traumatic stress and COVID-19-related anxiety in the UK general population during the COVID-19 pandemic. *BJPsych Open*, *6*(6).

14*. Individual development priorities*. For children and young people, **we recommend adding academic attainment to existing individual development priorities**, based on converging evidence from the fields of neuroscience and education that physical activity and cardiorespiratory fitness are positively related to learning and thinking skills[10].

15*. Individual development measurement.* **We recommend using Key Stage school curriculum test results as measures of academic attainment.**

16. **Careful and appropriate linkage and sharing of existing data between researchers, local authorities and the Department of Health and Social Care could improve understanding patterns of physical activity behaviour and associated outcomes, especially among disadvantaged groups.** Based on our experience of linking large-scale administrative datasets, we believe this would be feasible and we would be happy to provide more details if helpful.

The views expressed are those of the authors and not necessarily those of the Wellcome Trust, the NHS, the NIHR, the British Heart Foundation, Health Data Research UK or the Department of Health & Social Care. The funding bodies had no role in the writing of this manuscript.

29 January 2021

[10] Wassenaar, T. M., Williamson, W., Johansen-Berg, H., Dawes, H., Roberts, N., Foster, C., & Sexton, C. E. (2020). A critical evaluation of systematic reviews assessing the effect of chronic physical activity on academic achievement, cognition and the brain in children and adolescents: a systematic review. *International Journal of Behavioral Nutrition and Physical Activity*, *17*(1), 1-18.