

Behaviour Change: Physical (in)activity

Although the benefits of regular physical activity for physical and mental health are widely accepted, a majority of the population fails to meet the recommended levels of activity. This report provides an outline of the challenge associated with enhancing levels of physical activity and concludes with some recommendations for physical activity promotion in the UK.



The Background

There are many compelling reasons about why, as a nation, we should be more physically active.

- First, physical inactivity is one of the leading causes of non-communicable diseases such as coronary heart disease, diabetes, and certain types of cancer.^{1,2} With technological advances in recent decades serving to create occupations, transportation, and household tasks that require less exertion, this figure is expected to rise.¹
- Second, there is a growing body of evidence suggesting a positive association between physical activity and psychological well-being,³ less depression,⁴ enhanced cognitive function⁵ and a slowing down in the advancement of Alzheimer's disease.⁶
- Third, physical activity is a key determinant of energy balance, and is thus important to weight-control and obesity.⁷ Finally, regular physical activity is associated with both enhanced social⁸ and economic⁹ capital. If as a society we are faced with rising health care and economic costs in part as a result of physical inactivity, individuals, business and government have a collective interest in the promotion of physical activity.

The terms physical activity and exercise are often used interchangeably, but there are subtle differences. Physical activity is used here to describe 'any bodily movement produced by skeletal muscles that results in energy expenditure'¹⁰ and could involve walking, gardening, and stair climbing, for example. In contrast, exercise represents a subset of physical activity that comprises planned, structured, repetitive movements that someone engages in for the purpose of improving or maintaining physical fitness. For many, exercise can be perceived as hard work or unpleasant,¹¹ which has often led to the promotion of 'active living'.¹²

*"The potential benefits of physical activity to health are huge. If a medication existed that had similar effect, it would be regarded as a 'wonder drug' or 'miracle cure'"*¹³

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The Challenge

Most adults are aware of the benefits of engaging in regular exercise, with 70 per cent of adults suggesting that they would like to do more physical activity.¹⁴ Despite knowledge of the advantages associated with engaging in regular physical activity, most people do not take sufficient exercise to accrue the physical and psychological benefits of exercise. For instance, the Health Survey for England (2008)¹⁵ indicated that only 39 per cent of men and 29 per cent of women aged 16 and over met the government's recommendations for physical activity, based on self-report data. In children aged 2 to 15 years, 32 per cent of boys and 24 per cent of girls were classified as meeting government recommendations. In 2013 most individuals (90 per cent) did not know the current guidelines for physical activity in this country (see Table 1).¹⁵ Indeed, awareness and knowledge about the benefits of physical activity are arguably not enough to influence changes in physical activity behaviour. For example, an evaluation of the government's 'Change for Life' campaign suggests an enhanced awareness, but little change in attitudes or behaviour.¹⁶

Table 1: Current guidelines published by the Department of Health (2011) suggest the following recommended levels of physical activity:

- Under-fives: 180 minutes (three hours) each day, once a child is able to walk.
- Children and young people (5–18 year olds): 60 minutes and up to several hours every day of moderate to vigorous intensity physical activity. Three days a week should include vigorous intensity activities that strengthen muscle and bone.
- Adults (19–64 years old) and older people (65+): 150mins (two and half hours) each week of moderate to vigorous intensity physical activity (and adults should aim to do some physical activity every day). Muscle strengthening activity should also be included twice a week.

The Psychology

The initiation and maintenance of physical activity results from a combination of biological, psychological, social, and environmental factors (see Figure 1).¹⁷ Engaging in physical activity is commonly conceptualised as a process,¹⁸ although the phases and stages of that process have been debated.¹⁹ Such a process of course is embedded across the lifespan²⁰ and different social and ecological contexts.²¹ More specifically, the determinants and barriers associated with physical activity can vary across time and situation and obtaining a 'person-environment' fit is likely to be important in bringing about increased levels of physical activity in the population.²²

To this end, theories, often developed in social psychology, have been applied in a physical activity context to provide to examine the efficacy and effectiveness of interventions.²³ There are many theoretical approaches applied to understand the adoption and maintenance of physical activity, often with conceptual overlap, and a significant amount of variance in physical activity behaviour left unexplained.²⁴ Accordingly, there have been calls for theoretical integration, with the promise of reduced complexity, elimination of redundancy and the identification of the variables that do most of the 'work' in explaining behaviour.²³

Parallel to this theoretical impetus, there is often considerable heterogeneity in the reported effectiveness of interventions.²⁵ Accordingly, there have been calls for greater specification about the ‘active components’ of interventions,²⁵ and improved treatment fidelity (that is, the extent to which a treatment is implemented as intended, and the degree to which two or more study arms differ along specific dimensions).²⁶ As an example to illustrate both of these concerns, ‘reflection’ is common to a number of models applied to physical activity (e.g., Self-Regulated Learning,²⁷ Integrated model of Motivation and Coping²⁸), yet is operationalised somewhat differently within each. Being clearer about both the type of reflections underpinning interventions, but also used by individuals within interventions when thinking about their engagement in physical activity, may confer benefits when trying to understand why some individuals sustain, and others relapse from physical activity programmes.²⁹

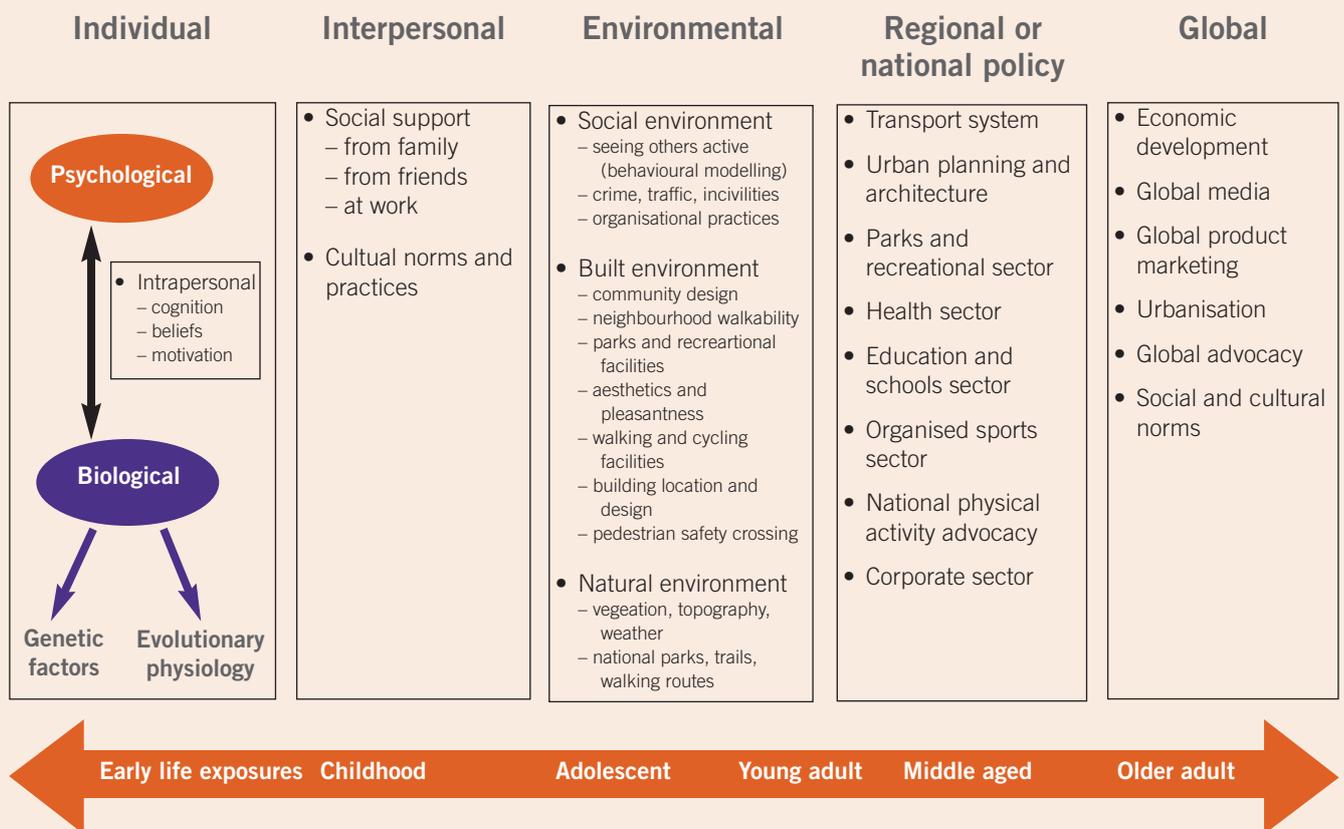


Figure 1: Adapted ecological model of the determinants of physical activity (from Bauman et al, 2012)¹⁷

The science of physical activity intervention development then is at an early and arguably exciting stage,³⁰ which is reflected in the next section.

The Evidence: from nudging to budging

There is an accumulating body of evidence to suggest that a range of individually-tailored and/or self-monitoring interventions such as goal setting, implementation intentions, motivational interviewing and reinforcement are associated with increased levels of physical activity.^{30,31,32}

When examining studies conducted in the UK, there is less conclusive evidence that a range of environmental and workplace interventions may promote physical activity. Consideration of research conducted worldwide, however, suggests this might be a promising avenue for further enquiry.³³

To date, evidence regarding the effectiveness of interventions to enhance physical activity is characterised by several biases.

- First, is the ‘evaluative bias’³⁴ – that is, we know most about the effects of interventions likely to influence the smallest number of people (i.e. individually tailored behaviour change), and least about the effects of interventions likely to influence the largest number of individuals (i.e. population level) interventions.
- Second, is the ‘sustainability bias’ – that is, most of what is known about the effectiveness of psychological interventions concerns relatively short-term changes in physical activity (less than six months) and little about the long-term sustainability and cost-effectiveness of interventions.
- Third is a sampling bias – that is, typically interventions tend to under-represent those of low socio-economic status, black and ethnic minorities and those with disabilities.³⁵ Indeed, these groups are also likely to be less active than other populations.³⁶

Summary and Recommendations

For many, the ‘dose’ of recommended physical activity seems difficult to attain and sustain. Comparatively small changes in behaviour (for example, increasing the number of steps taken daily by 2000) have been advocated in America³⁷ and it remains to be seen whether initial small steps in behaviour change lead to sustainable, larger effects. Indeed, many research designs employ ‘static’ interventions across individuals, and it could be that dynamic ‘adaptive’ interventions that change the dose of activity in response to individual variation in behaviour potentially produce stronger habit formation.^{38,39}

Given (a) the current prevalence of physical inactivity across ages and socio-economic backgrounds, and (b) the predicted decline in physical activity in the decades ahead, there is a need for national coordination involving multiple disciplinary areas to facilitate the planning, promotion and co-ordination of interventions.³³ For example, the Royal College of Physicians (RCP) note a scarcity of referral pathways and concerns regarding the quality assurance of physical-activity based ‘prescriptions’. From this perspective there is the need for well-trained physical activity behaviour change specialists. If this is already believed to be in place (for example, the Health and Care Professions Council regulation of sport and exercise psychologists and/or health psychologists), or could be put in place relatively simply with some additional specifications to the training competencies, there is at a minimum a need to enhance awareness of, training for, and employment opportunities for, such individuals.

There is also the opportunity to intervene at particular life transitions, such as university or pregnancy.⁴⁰ With regards the latter, there is potential for enhancing the mother, father and prospective child's physical activity levels. Indeed, the economic costs of physical inactivity have been estimated to cost the National Health Service between £1 billion and £2 billion a year, and the cost of lost productivity to the wider economy to be around £5.5 billion.⁴¹ Continued research funding for the conduct and dissemination of high-quality research is imperative, particularly if we are to move from 'nudging' to 'budging' levels of physical inactivity.

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