

# A Movement for Movement

## SUMMARY

Screen time, physical activity and sleep:  
a new integrated approach for children

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# Introduction

By the time they finish primary school many children have the highest levels of body fat on record. Rates of child Type 2 diabetes and mental illness are also the highest in our history. Children now sleep less and have the highest level of admissions to NHS hospitals for sleep disorders. At the same time British children are spending the highest ever amount of their discretionary time in front of screens, and young children have never moved so little.

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There is growing evidence that these contemporary observations are not entirely unrelated. Increasingly, interrelationships are being identified between physical activity (PA), free play, sedentary behaviour, discretionary screen time (DST), sleep, mental illness, body fat and type 2 diabetes, with some being *bidirectional* (working both ways).

Yet these health issues are often presented as separate lifestyle factors, with separate bodies of evidence and debates surrounding each one.

The evidence presented in this report points to an urgent need to reconceptualise these behaviours not as separate components but as inextricably linked, joint 24-hour movement behaviours. Parents and local and national policy-makers must now work in tandem to ensure that all of the elements of children's movement behaviours are considered together, rather than being seen as the responsibility of separate government departments and initiatives. This requires a far more muscular and visible public health approach, which may entail telling the public not what they're interested in hearing but what is in their children's best interests.

**This report addresses in particular the relationship between an increasingly screen-based, sedentary, reduced-sleep lifestyle and declining outdoor physical activity, and the implications for children's physical and mental health outcomes. Although this is a complex relationship involving other lifestyle factors such as diet, it is an important yet under recognised relationship of growing concern to child health professionals.**

(PHE 2018a; Candler et al 2018; Children's Commissioner, 2017; NHS Digital 2018; Patalay & Fitzsimons 2017; Ofcom 2017; Childwise 2018; PHE 2018b; Reilly 2015; Tremblay et al 2016b; Dolezal et al 2017; Broussard et al 2016; Al-Abri et al 2017; Skullin et al 2018; Lyall et al 2018; Roberts et al 2014; WHO 2018b)

# Executive Summary

- » British children have high levels of body fat, Type 2 diabetes, mental illness, sleep deprivation and sedentary behaviour.
- » Interrelationships between physical activity, free play, sedentary behaviour, discretionary screen time (DST), sleep, mental illness, body fat and Type 2 diabetes are being increasingly identified with some being bidirectional -working both ways.
- » Scientists increasingly refer to a combination or 'cocktail' of movement behaviours associated with desirable indicators of health. There is an emerging view that children's behaviours, both active and inactive, occur along a 'movement continuum' (i.e., physical activity, sedentary behaviour, DST, sleep).
- » Being insufficiently physically active is not the same health risk as being too sedentary - scientists now believe that each have their own distinct health consequences: a child may engage in an acceptable level of physical activity but at the same time spend an inordinate amount of time sitting.
- » All sedentary behaviours are not equal. There may be some physiological and psychological differences between different types of sedentary behaviours including DST and even between different types of DST.



- » British children are part of a global pandemic of low physical activity, having very poor levels in international terms. More than 90% of British children aged 2-4 years now fail to meet even the bare minimum recommendations.
- » Children are 2 – 3 times more physically active when outdoors than when indoors: they move more, sit less and play for longer. Some research has found that unstructured/'free' play can burn more calories than school and sports programs combined.
- » Outdoor play is associated with better social skills in preschool children, and those aged 7 -14 spending more time outdoors are found to be less likely to have peer relationship problems and have better psychosocial health.



» Playgrounds can fulfil a unique role in improving children's levels of physical activity, social interaction, fitness and physical and mental health.



» There appears to have been a 'rapid and dramatic' change from outdoor to indoor time, with children playing outdoors far less than previous generations.

» Previous explanations for a decline in outdoor play and playground use focussed on the *disincentives*, e.g. parental concerns about children going out. Research is now focussing on the *incentives* and inducements for children to remain indoors. Specifically, 'the new human tendency to focus on sedentary activities involving electronic media.'

» Many health professionals now think that active play, especially in the outdoors, seems to be increasingly replaced by use of electronic screens for entertainment, and consider there to be 'a serious and widespread problem of excess screen viewing'.

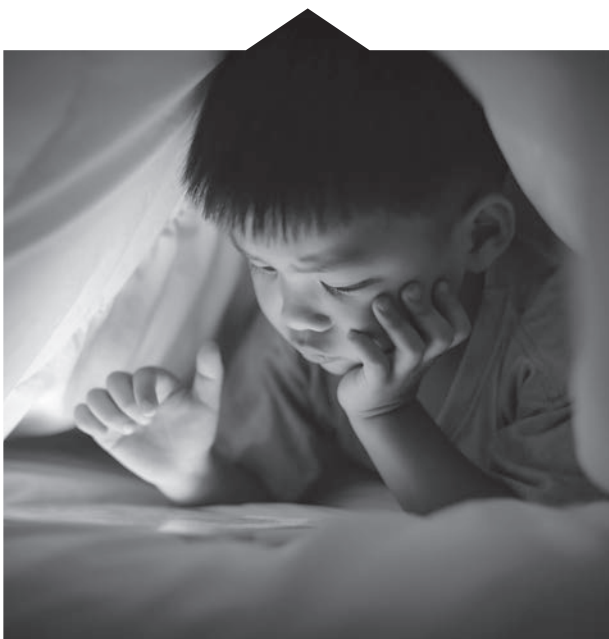
» Children's discretionary screen time (DST) has risen by over 50% in less than a decade and appears to be high by any measure as British children adopt a screen-based lifestyle and at far younger ages than before.

» An average young adolescent using screen devices will spend seventy-six 24-hour days a year on DST. By the age of 8, the average child will have spent nearly one full year of 24-hour days.

» DST and child wellbeing is often misrepresented as an ongoing 'hotly debated' cultural issue reflecting a clash between generations. However, the *disproportionate* use of screens, and screen dependency disorders, are now recognised as formal public health issues by organisations ranging from the World Health Organisation to Public Health England, NICE and the NHS.

» Elevated levels of children's DST are increasingly associated with negative cardiometabolic, psychosocial and other medical outcomes, often exhibiting a dose-response relationship with health and development outcomes ranging from increased body fat, clinical depression, body dissatisfaction and eating pathologies to screen dependency disorders and ADHD. While some of these associations may be the result of what excessive DST is displacing, other associations may be more directly related to excessive DST or a combination of both displacement and excessive exposure.

» Children now sleep less and have the highest level of admissions to NHS hospitals for sleep disorders. Evening exposure to screen technology such as smartphones and tablets is consistently cited as a prominent cause.



» Sleep deprivation and subsequent fatigue may lead to less physical activity and outdoor play. Conversely, physical activity/outdoor play may result in better quality sleep. Sleep deprivation causes increased levels of a hunger hormone called ghrelin and decreased levels of a satiety/fullness hormone called leptin, which could lead to overeating and increased body fat. Sleep deprivation is associated with increased risk of Type 2 diabetes. Sleep deprivation and body clock disruption are now being cited as potential causes of some cases of mental illness through the alteration of neurological functioning. Sleep deprivation is linked with lower school performance while a good night's sleep is linked with higher school performance.

» Physical activity is increasingly found to benefit mental health and there is also strong evidence for an association between elevated DST and depressive symptoms.

» A key obstacle to redressing the imbalance between outdoor play and DST has been the enormous disparity in financial, marketing, lobbying and promotional resources available to the play-related industries when compared to the screen entertainment industries. In the last year alone, the international computer game industry earned approximately 500 times more money than the British playground industry.

» At a time when a high proportion of British parents report that they feel isolated, playgrounds can afford additional benefits, serving as 'mini communities', helping parents to feel less isolated and more supported and connected.

» Screen habits and physical activity habits are cultivated early in a child's life and last for decades and probably for life. Shaping them in a positive direction from an early stage is therefore imperative.

» A variety of recommendations are presented addressing families, schools, local and national policy-makers. Reducing children's DST and increasing the provision and use of accessible playgrounds and play areas must occur in a wider context of public health education: an understanding of *how* and *why* these screen time and physical activity behaviours should be integrated into children's lives from an early age and on a regular basis. Health professionals now advocate early interventions to ensure this happens.

» It is imperative that parents create the time and opportunity - including their own role modelling - for children to develop healthy movement behaviours and media habits in tandem from an early age. Parents must be authoritative and guide their children to a healthy lifestyle.



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