



To: City Development

From: Adrian Davis

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Subject: Essential Evidence on a page: No 43 Child physical activity and effect on body weight

Top line: Public health policies to reduce obesity in children should include strategies to promote higher levels of physical activity, particularly activity that is of moderate intensity and above. Such levels are associated with lower levels of fat mass in early adolescence. The school journey is a key means by which children can achieve the recommended level of at least 1 hour of physical activity per day.

Using data from the Avon Longitudinal Study of Parents and Children (ALSPAC) researchers have been able to objectively measure physical activity levels at age 12 and 14.¹ This included physical activity measured by wearing an accelerometer, body composition, height, and weight. Overall, 4,614 children provided data at one or both time points, which represents 39% of the original sample invited to attend the first clinic. Total activity was lower at age 14 than at 12 for both boys and girls. Total activity at age 12 was lower for girls than boys, with no difference between the sexes in rate of decrease to age 14. Fat mass was higher at age 14 than at 12 for girls and lower for boys, and fat mass at age 12 was higher for girls than boys. Moderate/vigorous physical activity showed a slight increase between age 12 and age 14 for boys and a greater increase for girls.

In a prospective analysis, researchers confirmed previous findings that higher levels of physical activity are strongly and inversely associated with levels of fat mass in 12 year old children. An increase of 15 min/day in moderate-vigorous physical activity at age 12 is associated with around 10% lower fat mass in girls and a 12% lower fat mass in boys at age 14. This percentage difference is equivalent to a reduced fat mass of about 1 kg.

In broad terms, the researchers confirmed a difference in fat mass of about 10% between active and inactive children. At this early stage of the lifespan, this difference is unlikely to be trivial, given that overweight and obesity track over time and levels of body fat increase with age. It should also be noted that 12 year old children in this analysis who meet current health related recommendations of 60 minutes of moderate-vigorous physical activity a day would be expected to have around 4.3 kg less fat mass at age 14 than children who do no moderate-vigorous physical activity.

Overall, the researchers demonstrated in a large, well characterized group of children that physical activity levels at age 12 are strongly and inversely associated with fat mass two years later. Interventions to raise levels of physical activity in children are likely to be important in the fight against obesity. Previous research has shown that children who walk to school are significantly more active than those using motorised transport. Moreover longitudinal changes in travel mode to school are associated with changes in physical activity and cardiorespiratory fitness, supporting the observation that active travel to school may contribute to higher physical activity and cardiovascular fitness in young people.²

¹ Ridloch, C. et al, 2009 Prospective association between objective measures of physical activity and fat mass in 12-14 year old children: the Avon Longitudinal Study of Parents and Children (ALSPAC), *British Medical Journal*, 339: b4544 doi:10.1136/bmj.b4544

² See www.bristol.gov.uk/tpevidencebase Essential Evidence No 16