

Randomised controlled trial

Limiting recreational screen media use increases physical activity among children but not their parents

10.1136/ebnurs-2022-103586

Pernilla Garmy,^{1,2} Annika Norell-Clarke,³ Christina Sandlund^{4,5}

¹Faculty of Health Sciences, Kristianstad University, Kristianstad, Sweden, ²Medical Faculty, Lund University, Lund, Sweden, ³School of Law, Psychology and Social Work, Örebro University, Örebro, Sweden, ⁴Karolinska Institute, Stockholm, Sweden, ⁵Academic Primary Health Care Centre, Region Stockholm, Stockholm, Sweden

Correspondence to: Dr Pernilla Garmy, Faculty of Health Sciences, Kristianstad University, Kristianstad, Sweden; pernila.garmy@hkr.se

Commentary on: Pedersen J, Rasmussen MGB, Sørensen SO, Mortensen SR, Olesen LG, Brønd JC, Brage S, Kristensen PL, Grøntved A. Effects of Limiting Recreational Screen Media Use on Physical Activity and Sleep in Families With Children: A Cluster Randomized Clinical Trial. *JAMA Pediatr.* 2022 Aug 1;176(8):741–749. doi: 10.1001/jamapediatrics.2022.1519

Implications for practice and research

- ▶ Physical activity among children can be increased by reducing screen media usage. Parents and health professionals should support children to use their screen time wisely.
- ▶ Future research must continue to investigate the link between media usage and sleep.

Context

There is a growing body of evidence linking sedentary behaviour with negative health effects.¹ Excessive screen time is associated with obesity² and mental illness,³ but the evidence is weak as to whether there is a causal relationship between screen time and health effects. In this study, Pedersen *et al*⁴ investigate whether reducing screen use in both children and parents affects physical activity and sleep.

Methods

The purpose of the Pedersen *et al* study⁴ was to investigate the outcome of reducing recreational screen time in families on physical activity and sleep in children and adults. They employed a cluster randomised clinical trial with a 2-week follow-up. Out of 1420 families that were assessed for eligibility, 89 were randomised according to either screen media as usual or screen media reduction intervention. Participants in the intervention group were required to hand over their portable devices, for example, their smartphones, during the 2-week intervention period. The participants received a simple, non-smart phone with their SIM card inserted. The outcomes were objectively measured with apps that determined screen time, accelerometers to measure physical activity, and a home-based electroencephalography to measure sleep.

Findings

The children in the intervention group reduced their screen time by an average of 45 min per day, compared with the control group who reduced their screen time by an average of 1 min. The mean difference between the intervention group and the control group of children's non-sedentary time was 45 min favouring the intervention group. No significant differences

were found on adult physical activity. No significant differences for sleep outcomes were found for either children or adults.

Commentary

Although removing screens was enough to increase the children's physical exercise, it had no effect on their parents. This leads to two lines of questions which should be investigated further in future studies: How do adults spend their screen-free time and why? From an exercise perspective, it might have been overly optimistic to expect adults to create new habits during a short period of time and without support. Motivation and access to exercise are significant here. In addition, physical exercise might not have been parents' first choice when faced with screen-free time to fill. They may have engaged in activities that were personally meaningful yet sedentary, such as reading, household chores, meeting friends, creating art and so on. Future studies should investigate how time was spent and evaluate the effects of reduced screen time on parameters of mental health, such as life satisfaction.

No sleep effects were found as a result of limiting recreational screen media usage. This might also be due to the sample, since it was not based on people with sleeping problems, and it is difficult to measure improvements among those who already sleep well. At baseline, objective measures of sleep showed that the children slept for 9 hours on average (\pm 63 min), and adults for 7 hours (\pm 54 min), which is in line with general sleep duration recommendations for adults and school aged children.⁵ For future research, it would be of interest to conduct the same study among people with insomnia and/or subjectively short sleep duration. It would also be of interest to measure subjective ratings of sleep quality, when people's judgement of their sleep quality is often based on feelings of fatigue, and mood on awakening, and during the day.⁶

Competing interests None declared.

Provenance and peer review Commissioned; internally peer reviewed.



OPEN ACCESS

Open access This is an open access article distributed in accordance with the Creative Commons Attribution Non Commercial (CC BY-NC 4.0) license, which permits others to distribute, remix, adapt, build upon this work non-commercially, and license their derivative works on different terms, provided the original work is properly cited, appropriate credit is given, any changes made indicated, and the use is non-commercial. See: <http://creativecommons.org/licenses/by-nc/4.0/>.

© Author(s) (or their employer(s)) 2023. Re-use permitted under CC BY-NC. No commercial re-use. See rights and permissions. Published by BMJ.

References

- 1 World Health Organization. *WHO guidelines on physical activity and sedentary behaviour: web annex: evidence profiles (report no: 9240015116)*. Geneva: World Health Organization, 2020.
- 2 Haghjoo P, Siri G, Soleimani E, *et al*. Screen time increases overweight and obesity risk among adolescents: a systematic review and dose-response meta-analysis. *BMC Prim Care* 2022;23:1–24.
- 3 Twenge JM, Campbell WK. Associations between screen time and lower psychological well-being among children and adolescents: evidence from a population-based study. *Prev Med Rep* 2018;12:271–83.
- 4 Pedersen J, Rasmussen MGB, Sørensen SO, *et al*. Effects of limiting recreational screen media use on physical activity and sleep in families with children: a cluster randomized clinical trial. *JAMA Pediatr* 2022;176:741–9.
- 5 Hirshkowitz M, Whitton K, Albert SM, *et al*. National sleep Foundation's sleep time duration recommendations: methodology and results summary. *Sleep Health* 2015;1:40–3.
- 6 Harvey AG, Stinson K, Whitaker KL, *et al*. The subjective meaning of sleep quality: a comparison of individuals with and without insomnia. *Sleep* 2008;31:383–93.