**Screen time in children and adolescents; is there any evidence to guide parents and policy?**

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The rise of the digital environment is unquestionable. Children and young people (CYP) in developed countries now grow up with computers, tablets and phones intertwined with their normal development and there is no doubt that significantly more time is spent ‘online’ compared to previous generations. There is significant interest in the impact of screen time, social media and digital entertainment on a wide variety of contemporary CYP issues, including child development, obesity and mental health [1,2]. The general perception of screen time is negative, with frequent media reports of the adverse impacts on sleep, diet, social interaction and family life. However the evidence underlying this is limited and often clouded by confounding factors including socioeconomic grouping and negative associated behaviours [3]. Recent guidance from the Royal College of Paediatric and Child Health (RCPCH), based on systematic review of available evidence, provides practical, pragmatic advice and guidance to CYP and parents and concludes that evidence for an absolute screen time limit is weak [4]. The guidance also points out that the seeming adverse effects of screen time can often be attributed (at least in part) to loss of other ‘positive’ activities such as exercise, social contact with friends and good sleep hygiene [4]. They recommend the amount of time CYP spend on devices should be tailored to the individual, with special attention when introducing technology to younger infants/toddlers and practical techniques for healthy and sensible strategies for how to best manage screen time (figure 1).

What is the evidence?

The concept of ‘screen time’ is relatively recent and whilst the major negative focus has been on the impact on CYP, many if not most, adults will now spend many hours at work and home looking at a computer screen, tablet or their phone. A recent review found the major factor in reducing CYP screen time was parents reducing their own screen time [5]. The concept of parenting by example, whilst keeping a certain amount of control of what a child is doing, is not new.

The strongest evidence for an association with screen time is with adiposity and depressive symptoms [3]. However association is not causation; there is strong evidence that screen time is also associated with unhealthy dietary and snacking behaviour (alongside physical inactivity) and this is likely to be a dominant factor in the increase in obesity seen with rising screen time [6]. A similar confounding relationship can be easily imagined with depressive symptoms and the rise of mental health issues in CYP was seen in the 25 years prior to the rapid increase in screen time for our young people [7]. It is vital not to underestimate the importance of protecting CYP from bullying, age-inappropriate/unsuitable content and exploitation, but these are not unique to the online domain and are equally relevant life ‘off-line’.

What is ‘screen time’?

The term ‘screen time’ is misleading and covers multiple technologies. Television is not new but the way CYP digest and receive content has changed. On-demand services, alongside video games, provide a new entertainment concept to many parents, compared to television. Distinguishing between ‘active’ vs ‘passive’ screen time may be useful. Edleson *et al* (2016) found a negative association between physical/functional strength and television viewing but not with computer/video game use [8]. The RCPCH guidance questions the usefulness of the term ‘screen time’ as it incorporates so many potential areas [4].

The American Academy of Pediatrics (AAP) has issued similar guidance to the RCPCH, emphasising the importance of a balance between screen time and other activities [9]. Their report states ‘To promote health and wellness in children and adolescents, it is important to maintain adequate physical activity, healthy nutrition, good sleep hygiene, and a nurturing social environment’, things which are not specific to screen time but to CYP health as a whole [9].

Can screen time be good?

The positive effects of being ‘technology literate’ from a young age are often not included as outcome measures in research on screen time. The unprecedented growth and advance in access to multimedia is pervasive throughout school and home life. The advantages of adapting to such a world must have positive elements; the surge in the need for bioinformaticians, the video gaming economy and access to unprecedented amounts of knowledge and information are just some of the positive associations with technology that the current world offers. However these must been seen in context and evidence is beginning to emerge that increased screen time in younger infants may have adverse effects on development, although whether these reflect other issues, including the loss of other activities sand lack parental control, is up for debate [10]. The long-term follow-up and controlling for confounding variables will be key to interpreting these data.

Conclusions

The practical and pragmatic advice from the RCPCH is very welcome. Caution must be exercised with interpretation of research on the negative effects of screen time, however sensible and realistic implementation of strategies leading to good health for CYP cannot be a bad way forward.

*Figure 1-* Summary of RCPCH guidance and resources

Reducing ‘adverse’ screen time- key points

* Have a plan and stick to it
* Think about their own media use
* Prioritise face-to-face interaction
* Be snack aware
* Protect sleep

Key resources for safe browsing and healthy living

* NSPCC online safety information and NetAware – a comprehensive no-nonsense guide to 38 different social networks, apps and games, including explanation of privacy settings and assessment of suitability for different age groups.
	+ <https://www.nspcc.org.uk/preventing-abuse/keeping-children-safe/online-safety/>
	+ <https://www.net-aware.org.uk/>
* NHS change4life - healthy recipes, nutritional advice, and top tips and activities to help families stay healthy.
	+ <https://www.nhs.uk/Change4Life/>

Full RCPCH guidance

<https://www.rcpch.ac.uk/resources/health-impacts-screen-time-guide-clinicians-parents>

References

1 Marsh S, Ni Mhurchu C, Maddison R. The non-advertising effects of screen-based sedentary activities on acute eating behaviours in children, adolescents, and young adults. A systematic review. *Appetite* 2013;**71**:259–73. doi:10.1016/j.appet.2013.08.017

2 Domingues-Montanari S. Clinical and psychological effects of excessive screen time on children. *J Paediatr Child Health* 2017;**53**:333–8. doi:10.1111/jpc.13462

3 Stiglic N, Viner RM. Effects of screentime on the health and well-being of children and adolescents: a systematic review of reviews. *BMJ Open* 2019;**9**:e023191. doi:10.1136/bmjopen-2018-023191

4 The health impacts of screen time: a guide for clinicians and parents. https://www.rcpch.ac.uk/sites/default/files/2018-12/rcpch\_screen\_time\_guide\_-\_final.pdf (accessed 30 Jan 2019).

5 Xu H, Wen LM, Rissel C. Associations of Parental Influences with Physical Activity and Screen Time among Young Children: A Systematic Review. *J Obes* 2015;**2015**:1–23. doi:10.1155/2015/546925

6 Pearson N, Biddle SJH. Sedentary Behavior and Dietary Intake in Children, Adolescents, and Adults. *Am J Prev Med* 2011;**41**:178–88. doi:10.1016/j.amepre.2011.05.002

7 Collishaw S, Maughan B, Goodman R, *et al.* Time trends in adolescent mental health. *J Child Psychol Psychiatry* 2004;**45**:1350–62. doi:10.1111/j.1469-7610.2004.00842.x

8 Edelson LR, Mathias KC, Fulgoni VL, *et al.* Screen-based sedentary behavior and associations with functional strength in 6-15 year-old children in the United States. *BMC Public Health* 2016;**16**:116. doi:10.1186/s12889-016-2791-9

9 Reid Chassiakos YL, Radesky J, Christakis D, *et al.* Children and Adolescents and Digital Media. *Pediatrics* 2016;**138**:e20162593. doi:10.1542/peds.2016-2593

10 Madigan S, Browne D, Racine N, *et al.* Association Between Screen Time and Children’s Performance on a Developmental Screening Test. *JAMA Pediatr* Published Online First: 28 January 2019. doi:10.1001/jamapediatrics.2018.5056