What is screen time and how does it affect the brain?

The term 'screen time' refers to the amount of time spent in front of an electronic screen. This includes different forms of technology, such as mobile phones, computers, and televisions. Excessive amounts of screen time have been shown to lead to Electronic Screen Syndrome (ESS), which is a term for a combination of problems associated with exposure to electronic screens. These problems include issues with mood, focus, behaviour and sleep patterns.

Staring at a screen for too long overstimulates the nervous system, sending it into stressed mode. However, this stress is not released, as screen time often involves a lot of sitting down, so the stress comes out in disruptive behaviour, irritability, and other unproductive or negative outcomes. In excessive screen time, the brain is overstimulated in certain areas, such as reward pathways, but does not get enough stimulation in other areas, such as the regions of the brain associated with empathy. Over time, this leads to poor social development and a less resilient brain. Studies have found that people with Attention Deficit Hyperactivity Disorder (ADHD) experience worsening symptoms with too much screen time.

Another way in which too much screen time affects the brain is with regard to sleep. Usually, when a person goes to bed at night, the body produces a sleep-signalling hormone called melatonin. However, if a person is using their phone or other screen-based device in bed, the artificial light from the screen tricks the body into thinking it is still daytime, and the body therefore slows down its melatonin production. This results in poor sleep, as well as potential imbalances or disruptions in hormone cycles.

However, it's not just our brain that can suffer from excessive screen time. The time you are spent at a computer, or sat down on your phone is time that you are not exercising or discovering the real world around you. When we exercise, our brain releases dopamine – a feel good chemical - and sport or even just light walking is a great way of releasing dopamine in a healthy and sustainable way. When dopamine is released by computer games, it encourages us to keep playing, to sit down more and gradually, in some cases, become physically less able to be active, become tired more quickly (as we are not used to exercise) and even store excessive weight.

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Are there any benefits of screen time?

Yes! Depending on how that screen time is being used, it can be beneficial for a person's mental health. Factors such as the day of usage (weekday or weekend) and the type of activity (computer games, social interaction on smartphones etc.) can affect the levels of well-being of technology users. Video watching and computer use can promote positive mental well-being for longer than smartphones and video games, which have shown to cause users to feel negative effects more quickly in scientific studies. One recent large-scale study of over 100,00 British teenagers found that the optimal amount of screen time on a weekday was 4 hours and 17 minutes. (The distinction between weekdays and weekends is important because on weekdays, screen-based activities can often disrupt learning and social interaction more than on weekends).

4 hours and 17 minutes may sound like a lot, but this is a figure for optimal screen time across all devices. When you think of how many devices many children have available to them in their everyday lives – phones, TVs, family computers, laptop computers, school computers – this doesn't really amount to much time spent on each device.

So what can I do to make sure I'm not harming my brain with too much screen time?

Make plans to see friends regularly, in real life, and actually talk to each other rather than playing on your phones.

At dinner time, leave your phone somewhere you can't be distracted by it. Try not to eat dinner in front of the TV.

Don't sleep with your phone next to you. If you can, leave it out of your bedroom altogether when you go to bed at night. Read a book before you go to bed in order to help you get to sleep.

Limit your watching of TV and other platforms to the weekend.

Take regular breaks from your screen-based activity to stand up (if you are able), stretch your arms, legs, hands and anywhere else that aches.