Health Effects of Technology

Technology is everywhere, and its use can affect a person’s physical and mental health. Some of these effects may appear only when using the device, but others may be permanent. Nurses can play a big part in teaching patients the importance of using technology in moderation and how to avoid its negative impact. “Because nurses are often patients’ first contact in the healthcare arena, [they] can be pivotal in assessing the effects of technology on a person’s health as part of [their] health assessment” (Murphy, 2016, p. 44).

The physical health effects of technology are most often seen in individuals that have a sedentary lifestyle, and they can experience sleep problems, eyestrain, hearing loss, neck/back strain, and “text thumb” as a result of technology use. Knowing what the issues are and providing ways to help patients avoid them is important for quality patient care.

• Sedentary Lifestyle
A person who works at a computer all day and then uses some form of technology in the evening is especially at risk for health issues. According to Murphy (2016), the longer a person sits in front of a TV, computer, or video game, the more likely he or she will die at a younger age. Exercise of any kind can help balance the negative effects of extended technology use.

What You Can Do to Help Your Patients
Encourage your patients to move their legs and arms and stretch when sitting; have them get up to a standing position and move around if possible. Explain that for each hour they use technology they should complete one hour of an alternative activity involving exercise when able to do so (Murphy, 2016).

• Sleep Problems
According to the National Sleep Foundation (n.d.), cell phones, computers, tablets, and televisions produce blue wavelength light which inhibits the production of melatonin, a hormone that makes it harder to fall and stay asleep. Additionally, when you’re worrying about missing a call or text, waking up to reply to a text or call, or staying up late to use electronic devices, you can’t get a good night’s sleep (Murphy, 2016).

What You Can Do to Help Your Patients
It’s important to talk to your patients about limiting the use of smartphones and other light-emitting devices before going to bed. A good night’s sleep is very important, so tell your patients about the benefits of sleep and why your body needs it (Murphy, 2016).

• Vision Problems
Americans report experiencing the following visual symptoms due to digital eye strain: dry eyes, headaches, and blurred vision (The Vision Council, n.d.). Handheld devices require users to position themselves close to the device, straining eye muscles to focus. Even worse, the emitted blue wavelength light can penetrate deep into the eye causing damage to retinal cells and may lead to macular degeneration (Murphy, 2016).

What You Can Do to Help Your Patients
According to The Vision Council (n.d.), you can teach your patients to use the 20-20-20 rule to help decrease eyestrain; take a 20 second break every 20 minutes to look at something 20 feet away. Changing the background color of their device to cool gray from bright white will also help as will adjusting the screen so that it’s slightly below eye level, directly in front of their face, and an arm’s length away, the appropriate distance from their eyes to the screen. Finally, they should blink more often to prevent their eyes from becoming dry (Murphy, 2016).
**Hearing Problems**
Using ear buds or headphones with personal audio devices can cause hearing loss. Murphy (2016) reports that “studies indicate that almost 50% of individuals age 12 to 25 are exposed to unsafe levels of sound while using personal audio devices” (p. 46). According to the World Health Organization (WHO), “unsafe sound levels can occur with an exposure in excess of 85 decibels for 8 hours or 100 decibels for 15 minutes” (as cited in Murphy, 2016, p. 46). People who work in high levels of noise and then go home and listen to a personal audio device may be unaware of these unsafe levels.

**What You Can Do to Help Your Patients**
Teach your patients to prevent hearing loss by limiting the amount of time they use personal audio devices, lowering the volume, and using noise cancelling ear buds or headphones. Ask about their exposure to noise at work, and discuss how to minimize this as well. Suggest smartphone apps which assist with monitoring safe listening levels and adjusting use accordingly (Murphy, 2016).

**Neck and Back Strain**
The constant bending of the neck when looking at smartphones, computers, tablets, and other devices can cause neck strain; because the tissue is stretched for a long period of time, inflammation and damage may occur. Headaches and back strain can also result, and over time, this poor posture can lead to early degeneration of the spine (Murphy, 2016).

**What You Can Do to Help Your Patients**
Neck strain can be avoided by looking down at a smartphone without bending the neck. Inform your patients that doing neck range-of-motion exercises periodically can help decrease the strain; limiting the amount of time using these devices will also help (Murphy, 2016).

**Text Thumb**
According to Murphy (2016), text thumb can result from inflammation in the tendon and its protective synovial sheath; this is known as tenosynovitis. It’s caused by repetitive gripping motions used while texting or gaming and results in constriction of the flexor tendon in the thumb. Text thumb can cause pain on movement and sometimes results in the thumb being locked in a curled position. Repetitive motions can lead to a painful, weakened grip and degeneration, causing permanent tendon damage (Murphy, 2016).

Prolonged use of technology can damage other joints as well. Murphy (2016) also points out that “Too much time holding a cellphone to the ear, resting elbows on a desk, or keeping arms bent in an acute angle can contribute to cubital tunnel syndrome or increased tension in the tunnel through which the ulnar nerve passes in the elbow. Symptoms include numbness or tingling in the hand or fingers and soreness of the elbow or forearm” (p. 47).

**What You Can Do to Help Your Patients**
The article “What Is Texting Thumb” (2013) says to alleviate muscle tension, patients can gently massage the thumb and do stretches to improve flexibility and reduce soreness. Reducing muscle tension will minimize stress on the tendons and avoid the development of tendinitis. Instruct patients to change positions frequently, use both hands to limit the burden on one hand, take time between texts, and use Bluetooth options to decrease time holding a phone to prevent these health problems. When patients start to feel pain, they should take a break, make a phone call instead, and spread out the activity throughout the day (“What is texting thumb,” 2013).

Continued and excessive use of technology can negatively affect your physical health, and it can have negative mental health effects as well. “Mentally, technology can shorten attention spans, contribute to increased anxiety and narcissism, decrease capacity for emotional intelligence, and lessen solitary time” (Murphy, 2016, p. 48). To find out more about the mental issues associated with the use of technology, including internet addiction, please read the article by Murphy referenced below.

As nurses, you are in a unique position to evaluate your patients’ use of technology when assessing their health. Determining how much technology affects a patient’s life can help you assist him or her in striking a balance between the time they spend using technology and the time they spend doing other activities (Murphy, 2016). Offering your patients easy-to-use interventions will allow them to lead healthier lifestyles. If you follow them yourself, it will be beneficial to your health too.

**References:**

