



Limit Your Smartphone Use and Stay Healthy

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Introduction

Today, studies have shown that non-ionizing EMF radiation, such as that emitted by cell phones, can cause insomnia, decreased bone density in the pelvis, infertility in men, and can affect brain activity. And that is not all as excessive exposure can even damage our cells and DNA, potentially causing burns, sickness, even cancer or neurodegenerative diseases and other chronic diseases [1]. In fact, at this point, the increased risk from using cellphones, especially smartphones, are well established, and hundreds of studies have already been published [1-3].

Electromagnetic Fields and Radiation damage the Circadian Rhythm

The circadian rhythm is how the sleep and wake hormones – mainly Melatonin and Cortisol – cycle throughout the day. It controls the daily ups and downs of biological patterns like body temperature, blood pressure or release of hormones. Electromagnetic fields and radiation disrupt melatonin and cortisol levels. Circadian dysrhythmia causes insomnia and in the long run becomes a high-risk factor for most chronic non-communicable diseases. Many recent studies show that daily occupational EMF exposure is positively associated with poor sleep quality. EMFs exposure damages human (deep) sleep quality rather than sleep duration. Deep sleep is a significant predictor of health [4-6].

Smartphone Addiction raises Level of Cortisol – High Risk Factor for Chronic Diseases

Regardless the danger of excessive EMF radiation exposure, there may be another threat. Today, many people spend too much time staring at their phone and as a consequence raising levels of the stress-related hormone cortisol threaten our long-term health. An increasing body of evidence suggests that the time we spend on our smartphones is interfering with our sleep, relationships, memory, creativity, productivity and problem-solving and decision-making skills [7].

But there is another reason for us to rethink our relationships with our devices. By chronically raising levels of cortisol, the body's main stress hormone, our phones may be threatening our health and shortening our lives, becoming a high-risk factor for most of the chronic non-communicable diseases like heart disease, diabetes, cancer and even Alzheimer's [8]

Until now, most discussions of phones' biochemical effects have focused on dopamine, a brain chemical that helps us form habits and addictions [9]. Like slot machines, smartphones and apps are explicitly designed to trigger dopamine's release, with the goal of making our devices difficult to put down. This manipulation of our dopamine systems is why many experts believe that we are developing behavioral addictions to our phones. But our phones' effects on cortisol are potentially even more alarming [10]

Cortisol is our primary fight-or-flight hormone [11]. Its release triggers physiological changes, such as spikes in blood pressure, heart rate and blood sugar, that help us react to and survive acute physical threats. These effects can be lifesaving if we are actually in physical danger -like being charged by a wild animal. But our bodies also release cortisol in response to emotional stressors where an increased heart rate isn't going to do much good, such as checking your phone to find an angry [12].

If they happened only occasionally, phone-induced cortisol spikes might not matter. But today, people, especially young people, spend up to four hours a day staring at their smartphone and keeps it within arm's reach nearly all the time, according to a tracking app called Moment. The result, as has been noted in a report by Google, is that mobile devices loaded with social media, email and news apps create a constant sense of obligation, generating unintended personal stress. In fact, our cortisol levels are elevated when our phone is in sight or nearby, or when we hear it or even think we hear it. It's a stress response, and it feels unpleasant, and the body's

natural response is to want to check the phone to make the stress go away [13]

But while doing so might relax us for a second, it probably will make things worse in the long run. Any time we check our phone, we are likely to find something else stressful waiting for us, leading to another spike in cortisol and another craving to check our phone to make our anxiety go away. This cycle, when continuously reinforced, leads to chronically elevated cortisol levels. And chronically elevated cortisol levels have been tied to an increased risk of serious health problems, including depression, obesity, metabolic syndrome, Type 2 diabetes, fertility issues, high blood pressure, heart attack, dementia and stroke. Every chronic disease we know of is exacerbated by stress and our phones are contributing to this [7,14,15]

In addition to its potential long-term health consequences, smartphone-induced stress affects us in more immediately life-threatening ways. Elevated cortisol levels impair the prefrontal cortex, an area of the brain critical for decision-making and rational thought. Impairment of the prefrontal cortex decreases self-control. When coupled with a powerful desire to allay our anxiety, this can lead us to do things that may be stress-relieving in the moment but may become potentially fatal, such as texting while driving our car for [13,15]

The effects of stress can be amplified even further if we are constantly worrying that something bad is about to happen, whether it's a physical attack or an infuriating comment on social media. Everything that we do, everything we experience, can influence our physiology and change circuits in our brain in ways that make us more or less reactive to stress. Our baseline cortisol levels ebb and flow in a regular 24-hour cycle that is thrown out of whack if we get less than seven to eight hours of sleep a night, which is all too easy to do if we are in the habit of checking your phone before bed. This in turn leaves our bodies less resilient to stress and increases our risk of all the stress-related health conditions. Put this all together, and the hours we spend compulsively checking our phones may add up too much more than a waste of time. If we are able to break this anxiety-driven cycle, we can reduce our cortisol levels, which in turn may both improve our short-term judgment and lower our risks for long-term stress-related health problems. It's even possible to retrain our brains so that our stress responses are no longer on such a hair-trigger to begin with [16].

Ways to a Healthy Smartphone Use

If we want to make our phone less stressful, we have to start by turning off all notifications except for the ones we actually want to receive. And, we pay attention to how individual apps make us feel when we use them. Which do we check out of anxiety? Which leave our feeling stressed? Hiding these apps in a folder off our home screen. Or, better yet, we delete them for a few days and see how it feels. And while we are at it, we start paying attention to

how individual apps affect us physically, too. If we're not aware of our physical sensations, we are not going to change our behaviors. Stress and anxiety often manifest as a feeling of contraction in the chest [17]

Regular breaks can also be an effective way to rebalance our body's chemistry and regain our sense of control. A 24-hour "digital break" can be surprisingly soothing – once the initial twitchiness subsides – but even just leaving our phone behind when we go for lunch is a step in the right direction [17]. And finally, we ban our smartphone from our bedroom. And we try to notice what anxiety-induced phone cravings feel like in our brain and body – without immediately giving in to them. If we practice noticing what is happening inside us, we will realize that we can choose how to respond. We don't have to be at the mercy of algorithms that are promoting the fear of missing out [18]. Unfortunately, it isn't easy to create healthy boundaries with devices that are deliberately designed to discourage them. But by reducing our stress levels, doing so won't just make us feel better day-to-day, but it might actually help us to stay healthy and lengthen our lives.

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