# Being at work is not working

Was one of your New Year's resolutions as an employer to give employees more vacation time? You may have been onto something.

In the *Seinfeld* episode “The Caddy,” George Costanza locks his keys in his car, so he leaves the car at his office (Yankee Stadium) for three days. Believing he’s putting in extra hours, his bosses, Wilhelm and Steinbrenner, put him in line for a big promotion. Of course, George doesn’t actually deserve this promotion, which he admits when he decides to go out of town despite being on the verge of it, saying, “My presence, in that office, can only hurt my chances.” Why? Well, because it's funny. But also because Wilhelm and Steinbrenner believe the pervasive myth that more hours worked equals more productivity. Science and experience, however, have shown this myth to be wrong, even if it's still prevalent in the workplace. What's even funnier is that, from the looks of it, George had the right idea.

Eric Roberts, a computer science professor at Stanford, proposed an elegantly simple mathematical inequality to model why productivity decreases as hours increase:

$$60xP_{60} < 40xP_{40}$$

In this example, the productivity of someone working 60 hours a week ($P_{60}$) is so much lower than the productivity of someone working 40 hours a week ($P_{40}$) that there ends up being a net loss of productivity despite the additional 20 hours of work. In other words, someone accomplishes less per hour when working 60 hours than when working only 40 hours. This model is reminiscent of a well- known law of economics: the law of diminishing returns. It states:

> *“When increasing amounts of one factor of production are employed in production along with a fixed amount of some other production factor, after some point, the resulting increases in output of product become smaller and smaller.”*

Put differently, as work hours increase, the ability of those work hours to have an effect on productivity decreases. This is due in part to the depletion of mental resources, resulting in a condition known as Directed Attention Fatigue (DAF). Directed attention involves voluntarily attending to and focusing on

something despite distractions from the environment or from competing thoughts (e.g., daydreaming about an impending vacation). Directed attention is effortful, so it's

exhausting. DAF symptoms are well- known to anyone who has longed for Friday and include: irritability, impulsivity, inhibited critical thinking, and impatience.

There's no coincidence in the ubiquity of Latin prefixes meaning “not” or "the opposite of" in that list of symptoms — DAF results in less, not more. It reduces one’s mental effectiveness and lessens one’s ability to make and follow a plan, solve problems without obvious solutions, avoid tempting distractions; overall, it encourages one to focus on short-term pleasures. For example, someone may be at the office at 10 p.m., sitting in front of his computer looking productive, but in reality he's depleted his directed attention. So each moment of work he does is lessened by many moments of non-work, such as browsing the Internet, chatting with a significant other, daydreaming, or planning the weekend. This is a waste of time and resources, even if it's not particularly harmful. But in some professions, this fatigue has much more serious implications.

**The dangers of overwork**

For parole board judges, decision fatigue leads them to rule more favorably on cases early in the day and immediately after lunch than on those immediately preceding lunch or falling later in the day, times when fatigue is greatest. Even more serious are the implications of decision fatigue in the medical industry. In a study of the effects of fatigue on medical errors within the ICU, medical interns were put into two groups: one following a traditional schedule of 77 — 81 hours a week and one following a reduced schedule of only 63 hours a week. Interns following the traditional schedule committed 35.9% more errors than interns who worked a reduced schedule.

Interns' working too many hours affected not only the patients' health but likely the doctors’ health, too. Researchers at the Center for Health Policy & Research, University of Massachusetts, analyzed responses of 10,793 American workers to evaluate the effects of long hours on occupational injury and illness. Their findings suggest that working in jobs with extended hours increased occupational injury and illness. The cuplrit? Increased stress. A separate study in 1997 reviewed a series of articles on the relationship between hours worked and health, and found that overall, working long hours is detrimental to one’s health and can promote maladaptive coping behaviors like drinking and smoking.

**How employers are part of the problem — and how they can help**

Despite so much research pointing to the problems stemming from long hours, their positive image is still supported and rewarded in the workplace. Brett and Stroh (2003) investigated the reasons managers work 61 or more hours per week and found that economic incentives were a principal cause. In that light, employers bear at least partial responsibility for this culture by encouraging or expecting employees to work longer hours and rewarding them more to do so.

Instead, encourage employees to take vacations and weekends that are fully detached from work. In two different studies (2005 and 2006), Fritz and Sonnentag demonstrated that recovery during the weekend and vacations can result in increased job

performance, reduction in burnout symptoms, and enhanced well-being. It’s important, though, not just to encourage but to properly plan for these breaks. A worker who takes a break only to return to a high workload could actually impair the positive impacts of that vacation. Similar problems could result if workers dwell on the idea of an employer that stigmatizes them for taking a long vacation, or even a whole weekend, off.

George Costanza's stunt may not be the best model of healthy, productive work behavior...but his decision to take a vacation during a stressful time on the verge of a big promotion is actually what science would recommend.