

Literature Review: Get Up & Move! (GUM)

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A preponderance of evidence shows that sitting too much contributes significantly to disease and is a cofactor in workplace injury. Get Up & Move! (GUM) is an activity program that helps people move more, especially if they have a desk job, spend a lot of time on screens, or tend to sit more than four hours in any given day. GUM is made up of six 5-minute segments each illustrating a different kind of activity. Taken together, the segments amount to 30 minutes of mild to moderate exercise which is meant to be spread throughout a work day. If done in its entirety each day, in 5-minute segments between bouts of sedentary activity five days a week, it will meet the Center for Disease Control and Prevention (CDC)'s minimum recommendation of 150 minutes of exercise a week (CDC, 2020). Of course, more exercise is better, and getting some aerobic and weight bearing exercises is also an important element.

In a meta-analysis of 47 articles (selected from nearly 21,000 studies related to the topic), Biswas (2015), an associate scientist at the Institute for Work & Health in Toronto, Canada, found that there is a significant correlation between prolonged sedentary behavior and comorbidity factors for cardiovascular disease, diabetes, obesity, musculoskeletal disorders, and several other disabling conditions. Even considering publication biases, there is compelling evidence that sitting less than an hour at a time and fewer than four hours throughout the work-day significantly decreases associated comorbidity factors. Additionally, by simply standing and changing posture while working at a desk, one can increase caloric burn by up to 2Kcal/min through Non-Exercise Activity Thermogenesis (Levine, 2004). Biswas concluded that exercising after work will not significantly reverse the damage caused by sitting too much throughout the day. Therefore, just getting in the CDC recommendation for exercise in a week, or even that much in a day does not counteract the negative effects of sitting more than one hour at a time

without getting up and moving a bit, or four or more hours in a day without movement every hour or so. The exercises done before or after any extended sedentary period, effectively will not sufficiently mitigate the damage done by the inactivity (Biswas, 2015).

But there is good news; the simple act of standing up and moving around within the workspace for a few minutes every half-hour to hour can minimize many of the harmful effects of sitting (Buckly, 2015). Moving more and therefore sitting less, or even just standing some of the time when one is working at a desk not only mitigates damage done by an hour or more span of sedentary behavior, but increases productivity, and reduces sickness and absenteeism. This may require some workspace modifications like installing a standing desk, but it is well worth the effort.

In an article in the *British Journal of Sports Medicine* (Buckly, 2015), an international group of experts offers guidance to employers on the dangers of maintaining a sedentary workforce. Based on evidence from long-term epidemiological and interventional studies of sedentary workers who were encouraged to stand and move more frequently, their recommendation is that, “Desk based workers should aim to initially progress towards accumulating 2 h/day of standing and light activity (light walking) during working hours, eventually progressing to a total accumulation of 4 h/day (prorated to part-time hours).” This expert recommendation went further to encourage employers to promote other healthier habits, and discourage dangerous habits with respect to diet, smoking, and stress. Encouraging simple and attainable behavioral changes in the habits of sedentary workers promotes a decrease in the risk of cardiometabolic diseases and premature mortality.

The challenge is not necessarily teaching people how to stand up and move more: it is to convince people that they need to move more. In fact, their very lives depend on simply getting

their acetabulum out of their chair as much as possible. From a physical health perspective in the United States, “Americans spend the majority of their time in behaviors that expend very little energy” (Matthews, 2003-2004). At the time of Matthews’ study, only about half of non-sleeping sedentary time was attributed to media use. As an expert in the field, I have observed that since the turn of this century there is even less activity among people I teach and interact with due to an increase in the time spent using media.

A research review by Gardner, et. al, found that some interventions worked better than others with respect to successful change in behavior (Gardner, 2016). This review is the closest thing found so far to an instructional technology driven approach to the solution for sitting too much. In the review, 26 studies were considered investigating 36 different interventions. It was found that placing an emphasis on the dangers of sedentary behavior was much more effective than focusing on encouraging an increase of exercise. The reviewers found that “self-monitoring, problem solving, and restructuring the social or physical environment (setting up a standing desk) were particularly promising behaviour change techniques.” This study focused on trying to find the most successful interventions that have been objectively tested. As a review, it was fairly unique in scope as it made an effort to cobble together best practices for getting people on their feet and moving more often throughout the day. These data show the value of the motivational information on behavioral modifications fundamental to GUM!.

From a mental health perspective, Hammer (2012) found that the impact of even mild to moderate exercise on mood, mental health, stress, and other psychosocial factors has not only been shown to reduce the detrimental effects of a sedentary behavior, but there is a marked increase in productivity and long-term economic rewards shown among businesses where employers encourage less sitting. This effect may partially be due to the anti-inflammatory

effects of movement. Although more research is necessary to identify the exact causes the findings, it is clear that regular movement while at work is an effective way to minimize the deadly dangers of a sedentary work environment. Furthermore, exercise has been shown to help alleviate the symptoms and maybe even some of the underlying causes of mental health disorders (Sharma, Madaan & Petty, 2006). It is recommended that it be an integral part of psychiatric and psychological treatment regiments.

The literature cited above are only a sample of the vast resources in support of the value of exercise and its relationship to sedentary behavior. These studies support the key idea in GUM! that exercising a bit here and a bit there is considerably more valuable than just blocking out time in the morning, mid-day, or evening to work out. The key takeaway here is the avoidance of extended sedentary behavior, not necessarily the increase in exercise. In order to avoid being sedentary, it is necessary to do something other than being sedentary, ergo GUM. Fitting bouts of movement, or at least standing, in between hours of desk work or other sedentary behavior is the key to mitigating the damage that lack of movement causes. And offering a particular type of movement that is well documented and proven to be healthful, as well as standing that includes meditation, another known beneficial behavior, is the key to GUM!'s efficacy.

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