Supercharging the "Booster Break"

A Few Small Changes That Could Make a Big Impact

Patrick Campbell

Introduction

Americans are not getting enough exercise. According to a 2018 review by the Department of Health and Human Services, nearly 80% of adults in the United States are not meeting the Physical Activity Guidelines for Americans key guidelines for both aerobic and muscle-strengthening activity.[1] As a consequence, Americans are more susceptible to chronic illness and premature death. Currently, about half of American adults (117 million people) are estimated to have one or more chronic diseases, a large portion of which could have been prevented through regular physical activity.[2]

This lack of exercise translates to major costs for both individuals as well as for society. Health care spending per capita in the United States is higher than any other developed nation besides Switzerland–$1,045 per year on average in addition to premiums, adding up to approximately 7% of the median income.[2] At the national level, the U.S. spends 16.9% of its GDP on health care, almost twice that spent in the U.K.[2]

Contributing Factors

There are a number of potential psychological, cognitive, and social factors that might prevent people from getting the amount of exercise they need. One major cognitive factor is that people drastically underestimate the risks of death by chronic, preventable disease. As the authors of the report "Irrationally Healthy: Increasing Employee Health & Wellbeing in the Workplace with Behavioral Economics" explain, "As a species, we struggle to assess true risk to ourselves, which is perhaps why high blood pressure, smoking and high cholesterol (the top killers) don't sound as scary as alcohol abuse or murder…It's much easier to

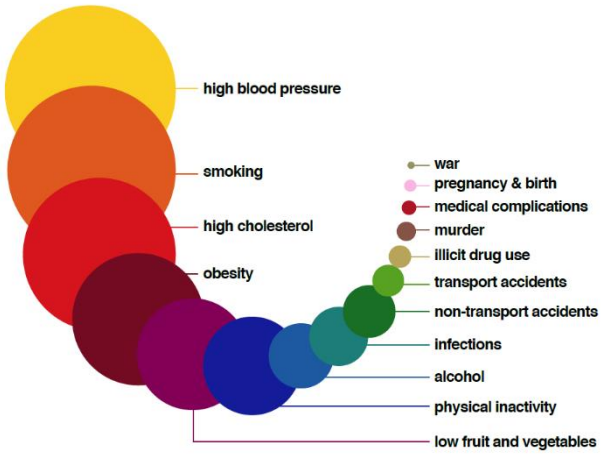

Figure 1. Risks leading to death in perspective.

[1] "Physical Activity Guidelines for Americans." U.S. Department of Health and Human Services. https://www.hhs.gov/fitness/be-active/physical-activity-guidelines-for-americans/index.html.

[2] "Irrationally Healthy: Increasing Employee Health & Wellbeing in the Workplace with Behavioral Economics," Irrational Labs, Amplify Health, and Benz Communications.

fear the sharks that kill dozens than the mosquitos that kill millions. Heart disease is the mosquito."[3]

This tendency to underestimate the risks of chronic disease results from a phenomenon known as the availability heuristic, whereby people evaluate the risk of something happening based on how readily they can call an instance of that thing to mind. The more gruesome and sensational the event, the stronger the impression it leaves on our minds. The news media knows this well and takes advantage by airing a disproportionate number of these stories, increasing our perception of their frequency, and consequently, the risk of those things happening to *us*. As a result, few of us ever develop strong feelings about the things that are most likely to harm us.

Without the requisite cues provided by our emotional and motivational systems, people simply have less incentive to change their behavior. This lack of motivation with respect to the negative consequences of physical inactivity means that people are more easily deterred by the most common barriers to physical activity such as lack of time, concerns about neighborhood safety, lack of social support, and the monetary cost of equipment, workout attire, and gym fees.[4]

Lack of time–whether real or imagined–poses an especially difficult problem for those looking to motivate themselves to exercise more. Because the benefits of exercise accumulate slowly over long periods but the costs are incurred in the present, many people find it difficult to justify exercising once without some assurance that they will be able to maintain the practice far enough into the future to reap its benefits. As the authors of the Irrationally Healthy report note, "taking an action repeatedly is more difficult than just doing it once. Regular exercise involves not only creating the habit of being physically active, but also intentionally overcoming an existing habit of being sedentary." Such habits, they explain, are "triggered by cues in our environment," making them especially difficult to change.[5]

The Importance of the Work Environment for Adult Health

Many of the factors identified above are strongly influenced by people's work environment, making the workplace an optimal setting in which to increase physical activity. People living in the US spend about one-third of their adult lives at work.[6] For many professions, a substantial portion of this time is spent in sitting at a desk in front of a computer with minimal opportunity for physical activity. A 2016 survey by the Bureau of Labor Statistics found that across all civilian jobs, workers spent an average of 39% of the workday sitting and 61% of the

[3] "Irrationally Healthy," Irrational Labs, Amplify Health, and Benz Communications.
[4] Wendell C. Taylor and Timothy F. Page, "Behavioral Economic Approaches to Increase Workplace Physical Activity from Research to Reality," *Health Econ Outcome Res* 2017 3: 134, Vol 3(3).
[5] "Irrationally Healthy," Irrational Labs, Amplify Health, and Benz Communications.
[6] Ibid.

workday standing or walking.[7] The same survey showed that certain professions involved a much higher proportion of sitting time to standing or walking time (see Figure 2).

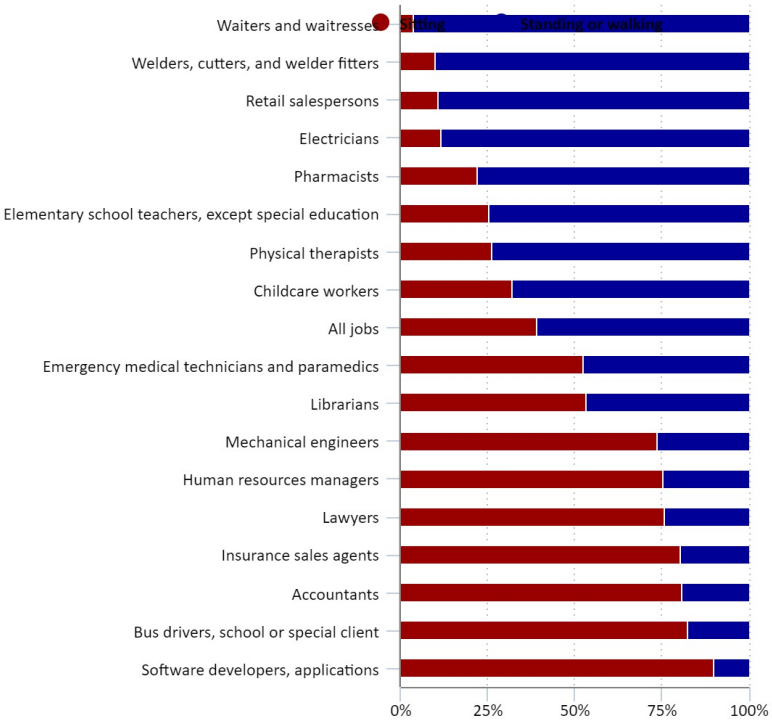

Figure 2. Percent of workday spent standing or walking versus sitting, selected occupations, 2016.

At the same time, many of the costs incurred by Americans' poor exercise habits are borne by their employers. Of the 272 million non-institutional people under age 65 in 2016, approximately 57% (155 million) of them obtained their coverage from employer-based sources.[8] In order to keep these costs as low as possible and to reap the other benefits of a healthier, more active workforce (including fewer sick days, increased worker satisfaction, and higher productivity), many employers have started offering workplace wellness programs. Driven in large part by incentives in the Affordable Care Act, 82% of large firms and 53% of small firms now offer a program in at least one of the following areas: smoking cessation, weight management, and behavioral or lifestyle change.[9]

Despite these vast investments by employers, however, results have been underwhelming. Researchers from the University of Illinois examined the impact of a wellness program they designed and implemented on their own campus and concluded that the workplace wellness program did not reduce health care costs or change health behaviors.[10] While there are many reasons that such programs may fail to produce the desired result, one especially common one is employers ignorance of many of the factors discussed above and failure to integrate these psychological and behavioral insights into the design of their programs.

One notable exception to this rule is the Booster Break program, a group-based physical activity session designed for the 15-min work break and led by a trained co-worker. According to its designers, "the program reduces the impact of the aforementioned barriers to physical activity by embedding physical activity as part of the employee workday, which removes the barriers of time, cost, and unsafe environments. Attending one Booster Break session each workday would accumulate 75 min of physical activity each week; attending two Booster Break sessions each

[7] "Standing or walking versus sitting on the job in 2016." U.S. Bureau of Labor Statistics." March 1, 2017. https://www.bls.gov/opub/ted/2017/standing-or-walking-versus-sitting-on-the-job-in-2016.htm.
[8] "Federal Subsidies for Health Insurance Coverage for People Under Age 65," CBO, March 24, 2016.
[9] Julie Appleby, "How Well Do Workplace Wellness Programs Work?" NPR, April 16, 2019.
[10] Ibid.

workday would accumulate 150 min of physical activity, meeting the Centers for Disease Control and Prevention's physical activity recommendations."[11]

However, the program was not effective in achieving all its objectives. While the Booster Break program demonstrated successful health improvements among those who attended regularly, maintaining high attendance levels while keeping the program voluntary proved to be a challenge.[12] Moreover, the program did not benefit all worker segments equally–participation was consistently higher among already healthy and more motivated employees.[13] The intervention elaborated in the following section, which I've named Booster Break *Plus*, aims to enhance the Booster Break program by specifically addressing these shortcomings.

Intervention Design

The Booster Break Plus program will be implemented as a two-arm randomized controlled trial (RCT) aimed at addressing the following causal question: *What is the effect of participating in either the Booster Break or Booster Break Plus program relative to not participating in either program (i.e., having regular breaks) on the average minutes of exercise per week logged by employees of companies in Maryland?* Maryland was selected because it most closely matched the national average of 22.9% for age-adjusted percentage of adults aged 18-64 who met both aerobic and muscle-strengthening federal guidelines through leisure time physical activity from 2010-2015 (see Figure 3). The unit of randomization will be the companies themselves and averages will include exercise logged by all employees regardless of their direct participation in either program.

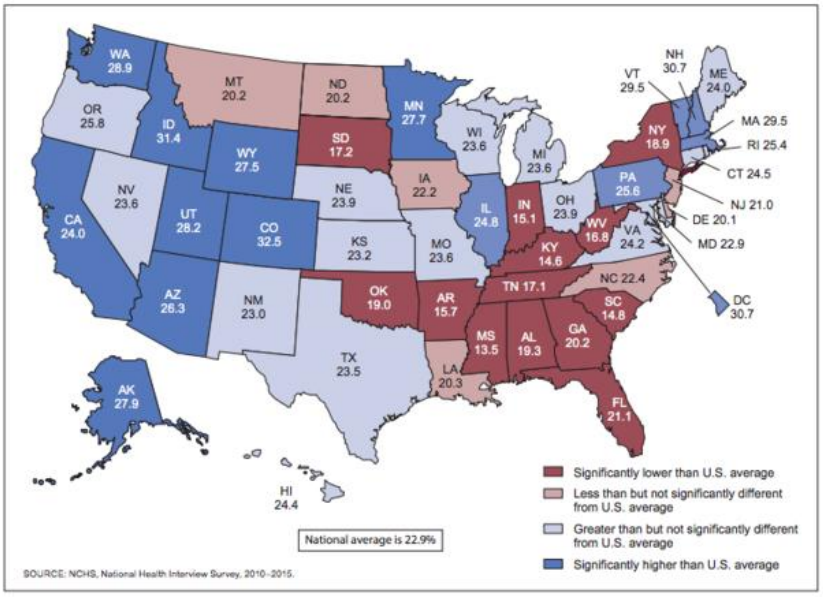

Figure 3. Age-adjusted percentages of adults aged 18-64 who met both aerobic and muscle-strengthening federal guidelines through leisure-time physical activity, by State: United States, 2010-2015.

In the first arm of the study, the original Booster Break program will be implemented with all the same features as were outlined above. In the second arm of the study, the Booster Break Plus program will be implemented with the following additions/revisions. First, an incentive plan will be introduced to encourage participation from those worker segments within

[11] Wendell C. Taylor and Timothy F. Page, "Behavioral Economic Approaches to Increase Workplace Physical Activity from Research to Reality," *Health Econ Outcome Res* 2017 3: 134, Vol 3(3).
[12] Ibid.
[13] Julie Appleby, "How Well Do Workplace Wellness Programs Work?" NPR, April 16, 2019.

which the health risks and costs described above are most concentrated, especially overweight and obese employees. The incentive plan will progress through a series of stages designed to slowly transition participants from external to intrinsic sources of motivation, a factor which research has shown to be strongly predictive of long-term exercise adherence.[14]

A recent article by Patel et al. found that financial incentives were effective in promoting physical activity among overweight and obese adults, and that a loss incentive (where participants were allocated $42 at the beginning of the month and then had $1.40 deducted for each day they did not meet the goal) was more effective than either a gain or lottery incentive.[15] Accordingly, in the first stage of the program (weeks 1-8), a deposit of a pre-determined amount will be deposited in a specially designated account for every employee upon registration for the program, which will be automatic. A small portion of the deposit will be deducted for every missed session and the remainder released at the end of the period.

In weeks 9-16, those who have logged at least 50% of the target number of minutes (average 75/week) at the first level will be graduated to the second level where financial incentives will be replaced by social incentives. Each employee will be assigned to a team so that individual efforts are tied to group achievements. This stage capitalizes on social norms, widely recognized as one of the most powerful human motivators, to help shift employee's motivation toward more natural, lower cost incentives.[16]

Finally, in weeks 17 and beyond, those teams in which no member has logged fewer than 50% of the target minutes at the second level will be advanced to a final maintenance stage in which the groups become eligible for a variety of "stimulus incentives"–one-off events and reward opportunities designed to keep participants engaged and prevent attrition, like stoking a low-burning fire. To remain eligible for these opportunities, teams must maintain output above the 50% cutoff. This final feature relies on the irregularity and variety of the incentives to prevent participants from reverting to dependency on external motivations.

Policy Evaluation

To test whether the policy works, the average minutes of exercise logged by employees in the two treatment groups (Booster Break and Booster Break Plus) should be measured and compared to one another and against the control (regular break) condition to determine if there is a statistically significant difference. Because assignment of the treatments was randomized among companies within a single state, we should expect no systematic differences between the three groups to confound the results. Internal validity should therefore be strong. However, the choice to limit the experiment to a single state may impair the external validity of our results, since the particular state will likely have features that don't generalize to the larger population–

[14] Strohacker, Kelley, Omar Galarraga, and David M. Williams. "The Impact of Incentives on Exercise Behavior: A Systematic Review of Randomized Controlled Trials." Ann Behav Med. 48(1). August 2014: 92–99.
[15] Wendell C. Taylor and Timothy F. Page, "Behavioral Economic Approaches to Increase Workplace Physical Activity from Research to Reality," *Health Econ Outcome Res* 2017 3: 134, Vol 3(3).
[16] David A. Asch and Kevin G. Volpp, "Use Behavioral Economics to Achieve Wellness Goals," *Harvard Business Review*, December 1, 2014.

although this concern is mitigated somewhat by the fact that Maryland is most representative among all states in terms of the variable of interest. Nonetheless, the experiment should eventually be repeated in additional states to better evaluate the generalizability of the effect.

Expected Costs and Benefits

Expected benefits of the Booster Break Plus program include, first of all, all of those benefits claimed for the original Booster Break program, including reduction in workplace stress, increase in workplace enjoyment, enhanced health awareness, increase in health-related behavior change, and improved workplace social interaction.[17] Other benefits expected to derive specifically from the additional features described above include:

- An overall increase in the proportion of workers who meet both aerobic and muscle-strengthening federal guidelines for physical activity
- Greater uniformity in the distribution of benefits among different worker segments, especially toward overweight, obese, and unmotivated employees
- A decrease in health-related expenses and losses, especially related to health care, sick days, and depressed productivity

Potential costs of the program include increased expenses related to payout of program incentives during the first stage. Other potential limitations and challenges include disruptions to current funding sources through changes to the ACA, crowding out effects among intrinsically motivated employees during the program's first stage, and issues of practicality for certain professions where regular 15-breaks are less common (teachers, service techs, warehouse workers, etc.).

Conclusion

Americans are not getting enough exercise, but employers stand in a unique position to help. The responsibilities that employers have to provide environments that are conducive to the long-term health and wellbeing of their workers are fortuitously well-aligned with companies' own interests in lowering health care costs, improving worker productivity, and attracting and retaining the best talent. The Booster Break Plus program offers a promising vehicle for realizing these opportunities by helping to direct more of the benefits of the original Booster Break program to the worker segments at greatest risk, namely the most overweight, obese, and unmotivated employees.

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[17] Carrie Steckl, "Booster Breaks at Work: Hit or Bust?" Gulf Bend MHMR Center Blogs, May 7, 2013, https://www.gulfbend.org/poc/view_index.php?idx=119&d=1&w=518&e=50338.

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