

# **Annotated Bibliography**

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Biswas, A., Oh P.I., Faulkner, G.E., Bajaj, R.R., Silver, M.A., Mitchell, M.S., Alter, DA. (2015, Jan 20).

Sedentary time and its association with risk for disease incidence, mortality, and hospitalization in adults: a systematic review and meta-analysis. *Annals of Intern Medicine*, 162(2),123-32. doi: 10.7326/M14-1651. PMID: 25599350

<http://www.unm.edu/~lkravitz/Sports%20Physiology/SedentaryLifestyle.pdf>

- Qualifications of author(s)

Dr. Aviroop Biswas is an associate scientist at the Institute for Work & Health. He is also an assistant professor in social and behavioural health sciences at the University of Toronto's Dalla Lana School of Public Health.

- Purpose/scope

The purpose of this paper is to “quantify the association between sedentary time and hospitalizations, all-cause mortality, cardiovascular disease, diabetes, and cancer in adults independent of physical activity.”

- Audience and level of reading difficulty

This paper is an advanced data synthesis written for professionals, government officials and researchers.

- Bias or standpoint of author

Not only has Biswas, et al., avoided bias in their reporting, they have analyzed their sources for publication bias and noted how they guarded against reproducing any bias they may have found in their synthesis.

- Relationship to other works in the field

This is a foundational literature review, synthesis, and analysis that identifies “the magnitude, consistency, and manner of association between sedentary time and outcomes independent of physical activity.”

- Findings, results, and conclusions if available, and format/special features

Biswas and his colleagues found that sitting too long was clearly associated with a negative impact on one’s health. The results were statistically significant and did not change even if study subjects exercised a lot after long periods of sedentary time.

- How does this article support your research and topic

This article lends validity to and supports my thesis that too much sitting is dangerous to one’s health.

Gardner, B., Smith, L., Lorencatto, F., Hamer, M., & Biddle, S. J. (2016). How to reduce sitting time?

A review of behaviour change strategies used in sedentary behaviour reduction interventions among adults. *Health psychology review*, 10(1), 89–112.

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4743603/>

- Qualifications of author(s)

The authors are from reputable universities and institutions in the UK, except for Biddle who is from Australia. The publication is well regarded and prominent in the field of psychology.

- Purpose/scope

The authors define sedentary behavior as either sitting or lying down during waking hours. The review was done to describe some of the best strategies used to get people to sit less. They reviewed 26 studies which investigated 38 different interventions, more than half of which (53%) were workplace based. The most effective interventions put the emphasis and focus on sedentary behavior rather than physical activity. The reviewers found that “self-monitoring, problem solving, and restructuring the social or physical environment were particularly promising behaviour change techniques.” Rather than just trying to get people to exercise more, the most successful interventions addressed environmental restructuring, persuasion and education in order to motivate people to meaningfully transform their habits of sedentary behavior.

- Audience and level of reading difficulty

This article is dense with data and discussions of analysis, procedures and study comparisons. It is not light reading (having a degree in psychobiology helped me a lot in understanding and sorting through concepts and principles).

- Bias or standpoint of author

In order to avoid bias, all studies in the review used adult (over 18 years of age) subjects from the general population who were not specifically associated with a clinical group (i.e., diagnosed with diabetes, etc.). Clinical obesity, however, was not considered an exclusionary diagnosis. In all, over 10,000 participants were recruited for the 26 studies reviewed. The reviewers did note that although PRISMA guidelines were followed, more data from controlled studies would be helpful for more definitive objective results.

- Relationship to other works in the field

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 in an effort to cobble together best practices for getting people on their feet and moving more often throughout the day.

- Findings, results, and conclusions if available, and format/special features

Evidence presented showed that successfully persuading people to change necessitates educating them about the dangers of sedentary behavior and teaching them self-regulatory techniques. The most effective behavioral activities are ones that are implemented throughout the day that break up sedentary behavior. Increased activity emerges from those techniques designed to target and reduce sedentary behavior, rather than making the focus on exercise.

- How does this article support your research and topic

This article is particularly pertinent to “Get Up and Move!” because it gives substantial support to the concepts that are employed by my capstone project. In fact, it is one of the articles that helped me decide to create the program and implement it in six, 5-minute increments spaced throughout the day instead of one 1/2-hour exercise routine.

Buckley, John & Hedge, Alan & Yates, Thomas & Copeland, Robert & Loosemore, Michael & Hamer, Mark & Bradley, Gavin & Dunstan, D.. (2015). The sedentary office: An expert statement on the growing case for change towards better health and productivity. *British Journal of Sports Medicine*. 49. 1357-1362. 10.1136/bjsports2015094618.

[https://www.researchgate.net/publication/283847435\\_The\\_sedentary\\_office\\_An\\_expert\\_statement\\_on\\_the\\_growing\\_case\\_for\\_change\\_towards\\_better\\_health\\_and\\_productivity](https://www.researchgate.net/publication/283847435_The_sedentary_office_An_expert_statement_on_the_growing_case_for_change_towards_better_health_and_productivity)

- Qualifications of author(s)

This expert statement was published in a 2015 article in the *British Journal of Sports Medicine*, a highly respected and well vetted publication. The authors are an international group of highly recognized experts.

- Purpose/scope

The statement was prepared to educate and persuade employers on the dangers of maintaining a sedentary workforce. The statement provided evidence that encouraging people to stand and move more, and therefore sit less, not only mitigates the damage done by too much sedentary behavior, but increases productivity, and reduces sickness and absenteeism.

- Audience and level of reading difficulty

This statement was written for executives, managers and human resource professionals with a focus on evidentially supported assertions that have been scientifically investigated.

- Bias or standpoint of author

This statement is intended to convince management to get their employees moving more, based on objectively arrived at evidence. It includes recommendations that go further to encourage employers to promote other more healthy 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.

- Relationship to other works in the field

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)."

- Findings, results, and conclusions if available, and format/special features

The authors squarely place the burden on the employers to evaluate ways to help their employees sit less. They offer guidelines and recommendations as to how to do that. And they provide multiple sources to not only substantiate their assertions, but to shed further light on the issues related to sitting too much and how to overcome those issues.

- How does this article support your research and topic

This is the article which gave me the 4-hour a day target for sitting that is used in my capstone project as a goal. It also offers many good suggestions for persuasive arguments, and elucidates evidence for educating people as to the dangers of sitting too much. And just what is too much? That is the "more than four hours a day" figure that they establish.

Sharma, A., Madaan, V., & Petty, F. D. (2006). Exercise for mental health. *Primary care companion to the Journal of clinical psychiatry*, 8(2), 106. <https://doi.org/10.4088/pcc.v08n0208a>

- Qualifications of author(s)

These are three doctors from university hospitals in Nebraska, USA. Their letter to the editor has been accepted in a highly vetted and reputable publication.

- Purpose/scope

The purpose of the letter is to persuade readers that a sedentary lifestyle is detrimental and contributes to mental health disease.

- Audience and level of reading difficulty

The level of reading is fairly main stream and user friendly. The magazine is often found in doctors offices for general reading.

- Bias or standpoint of author

The authors are focused on encouraging exercise to help alleviate the symptoms and maybe even some of the underlying causes of mental health. It is a persuasive letter intended to show a particular point of view, and supported by substantial evidence.

- Relationship to other works in the field

This letter cites several studies done that identify exercises as a viable and optimal intervention to treat and mitigate mental health conditions and disorders. It acknowledges the prevalence of sedentary behavior among those suffering from mild to severe mental health illness. And it lays out evidence that more activity and even mild exercise has been shown to help mitigate the effects of mental illness.



- Findings, results, and conclusions if available, and format/special features

The authors conclude that therapists can and should offer effective, evidence-based exercises interventions to people suffering from a range of mental health conditions.

- How does this article support your research and topic

“Get Up and Move!” not only offers specific movement modalities and time frames, it discourages sedentary behavior for the sake of physical, emotional and mental health benefits.

This letter provides references to several studies that support the assertion that movement benefits mental health in addition to all its other benefits.

Bull FC, Al-Ansari SS, Biddle S, et al. World Health Organization 2020 guidelines on physical activity and sedentary behaviour. *British Journal of Sports Medicine* 2020;54:1451-1462.

<https://bjsm.bmj.com/content/54/24/1451>

- Qualifications of author(s)

World Health Organization (WHO) guidelines.

- Purpose/scope

This WHO document guides people all over the world as to the dangers of sedentary behavior and ways to avoid it. This edition (2020) updates guidelines established in 2010. From schools to prisons, institutions depend on WHO guidelines for their policy decisions. This examination of sedentary behavior and minimum exercise guidelines is quintessential to implementation of optimal exercise activity in the civilized world.

- Audience and level of reading difficulty

The writing is very accessible. The recommendation is written for all moderate level readers and provides enough evidence to satisfy more discriminating professionals.

- Bias or standpoint of author

The WHO is mission-driven to be one of the most respected sources for health related evidence in the world. Bias is avoided by grading each aspect of the guideline according to how certain the evidence is. As comprehensive as the guidelines are, more targeted evidence is needed to refine minimum effective doses and maximum safety thresholds for activity levels across diverse population sub-groups.

- Relationship to other works in the field

The WHO guidelines often serve as the foundation for other work in the field of health research and recommendations.

- Findings, results, and conclusions if available, and format/special features

This version of the WHO guidelines on sedentary behavior and activity are substantially different from past iterations. In particular, key populations and sub-groups that have been underrepresented in the past are considered more now. And now there is even stronger evidence demonstrating broad ranging benefits for “the interconnected social, economic and environmental impacts of more physically active populations.”

- How does this article support your research and topic

My goal is to get people to move. To do that I have to convince them of why it is essential on many levels to heed this wisdom. Not only does their sedentary behavior effect themselves, it effects their employers, families, and society as a whole. Convincing someone to do something rather than nothing is hard enough as it is, but when that something requires major and lasting transformation, it is virtually impossible to get people to form new more beneficial habits. Citing WHO guidelines and providing evidence from WHO sources is a meaningful, legitimate and effective way to lend credence and impart magnitude to my message.

Susan A. Carlson, Janet E. Fulton, Michael Pratt, Zhou Yang, E. Kathleen Adams,

Inadequate Physical Activity and Health Care Expenditures in the United States,

Progress in Cardiovascular Diseases,

Volume 57, Issue 4,

2015,

Pages 315-323,

ISSN 0033-0620,

<https://doi.org/10.1016/j.pcad.2014.08.002>.

(<http://www.sciencedirect.com/science/article/pii/S0033062014001236>)

**Abstract:** This study estimates the percentage of health care expenditures in the non-institutionalized United States (U.S.) adult population associated with levels of physical activity inadequate to meet current guidelines. Leisure-time physical activity data from the National Health Interview Survey (2004–2010) were merged with health care expenditure data from the Medical Expenditure Panel Survey (2006–2011). Health care expenditures for inactive (i.e., no physical activity) and insufficiently active adults (i.e., some physical activity but not enough to meet guidelines) were compared with active adults (i.e.,  $\geq 150$  minutes/week moderate-intensity equivalent activity) using an econometric model. Overall, 11.1% (95% CI: 7.3, 14.9) of aggregate health care expenditures were associated with inadequate physical activity (i.e., inactive and insufficiently active levels). When adults with any reported difficulty walking due to a health problem were excluded, 8.7% (95% CI: 5.2, 12.3) of aggregate health care expenditures were associated with inadequate physical activity. Increasing adults' physical activity to meet guidelines may reduce U.S. health care expenditures.

**Keywords:** BMI; MEPS; NHIS; U.S.; Physical activity; Exercise; Health expenditures; Health care

