

Healthy E-mail Service



The Question

Is "sitting disease" affecting your health?



A Closer Look

Welcome back to another academic year at MSU. Most would agree that we have had a "Pure Michigan" summer full of fun and relaxation which may have included gardening, playing ball, water sports or family yard games. But as we settle into a more scheduled time of year, beware of "sitting disease". "Sitting disease" is an unofficial term assigned to the potential negative health effects from prolonged sitting.

As researchers continue to study the relationship between body movement, the body's use of energy, and how that relates to disease, it is becoming clear that prolonged sitting may have negative effects on health; even when individuals exercise regularly.

Advancements in technology have affected home life, work life, communication, transportation, and entertainment. These advances may have made life easier however; it also has unintentionally made us more sedentary. The human body is designed to move. Think about how much time in a day is spent being sedentary, sitting.

- commuting to and from work;
- sitting at a desk working at a computer;
- driving through fast food restaurants, coffee shops and pharmacies;
- viewing television and DVR pre-recorded shows;
- reading, shopping or keeping up with friends and family.

And this **does not** include time spent sleeping!

A study done in 2008 estimated that Americans spend 55% of waking time, 7.7 hours a day, in sedentary behavior. Technology in the work place has resulted in many workers sitting in excess of 6 hours/day which can **lower** the body's energy needs by more than 300 calories per day.

The problem

Until recently, it was thought that being sedentary was simply the "low end" of the activity scale, but researchers are now considering that being sedentary may be a risk factor for cardiovascular disease separate from physical inactivity.

- A 2010 study reported that prolonged sitting (>4 hours) counteracted the daily health benefits gained from structured "exercise" *even when adults met the minimum physical activity guidelines* (30 min per day).
- A second study showed that taking regular movement breaks from sitting resulted in improved blood fat and blood sugar levels.
- Another study suggested that an increase in sitting time is associated with an increased rate of death from all causes, including cardiovascular disease.

For many individuals, prolonged sitting is a habit that has developed as a result of technology. Habits die hard. Rethinking and restructuring "sitting" time may be easier

than it appears at first glance. Consider incorporating some of these suggestions into your identifiable periods of prolonged sitting.

- Change from sitting to standing positions while performing your work;
 - Stand while talking on the phone or reading emails and hard copy material.
- Take a 5-10 minute movement break every hour.
 - Walk down the hall to discuss work matters with a co-worker in person rather than sending an e-mail.
 - Use the restroom at the other end of the building from your office space
 - Do stretches at your desk. Visit the Mayo clinic to view desk stretches at: <http://www.mayoclinic.com/health/office-stretches/MY00921>.
- When taking a scheduled work break, stretch or walk for 10 minutes.
- When watching television, get up to change the channels and move during commercial breaks.

Although simply increasing body movement is not “exercise”, it does contribute to the body’s basic daily energy requirements.

These requirements have been referred to as **NEAT** (*non-exercise activity thermogenesis*); defined as the energy expended for everything we do that is not sleeping, eating or sports-like exercise. It ranges from the energy expended walking to work, typing, performing yard work, undertaking agricultural tasks and fidgeting. Even trivial physical activities increase metabolic rate substantially... 2002, Endocrine Research Unit, Mayo Clinic, Rochester, MN 55905, USA. *Non-exercise activity thermogenesis (NEAT).*
Levine JA

Don’t let your seat lower your NEAT!

How reliable is this information?

(Seasoned Healthy E-Mail readers will know to ask this question.)

“Sitting disease” is not a real diagnosis, but sedentary behavior is a real problem. The research in this area is considered “emerging evidence”. Researchers all agree on one thing: more research needs to be done to determine the full impact of prolonged sitting on health and disease. Until additional research provides an answer, move a little. It won’t hurt, and it just might help!



Take Home Message

Take a “stand” against “sitting” disease. Be aware, be creative and incorporate movement regularly throughout your day in addition to continuing intentional exercise activities.



Editorial Comment

Adding more movement into your day does not replace the need for regular exercise. If you have an ongoing medical condition, discuss appropriate exercise options with your health care provider.

The CDC’s *minimum* physical activity recommendations for adults ages 18-64 years are:

	2 hours and 30 minutes (150 minutes) of <u>moderate-intensity aerobic activity</u> (i.e., brisk walking) every week and
	<u>muscle-strengthening activities</u> on 2 or more days a week that work all major muscle groups (legs, hips, back, abdomen, chest, shoulders, and arms).

OR

	1 hour and 15 minutes (75 minutes) of <u>vigorous-intensity aerobic activity</u> (i.e., jogging or running) every week and
	<u>muscle-strengthening activities</u> on 2 or more days a week that work all major muscle groups (legs, hips, back, abdomen, chest, shoulders, and arms).

OR

 	An equivalent mix of moderate- and vigorous-intensity <u>aerobic activity</u> and
	<u>muscle-strengthening activities</u> on 2 or more days a week that work all major muscle groups (legs, hips, back, abdomen, chest, shoulders, and arms).

10 minutes at a time is fine.

We know 150 minutes each week sounds like a lot of time, but you don't have to do it all at once. Not only is it best to **spread your activity out during the week**, but you can **break it up into smaller chunks of time during the day**. As long as you're doing your activity at a moderate or vigorous effort for **at least 10 minutes at a time**.

<http://www.cdc.gov/physicalactivity/everyone/guidelines/adults.htm>

For more formal exercise options, check out the exercise options through

- Health4U Active Stretching class
http://health4u.msu.edu/classes/active_stretching.html
- MSU Recreational Sports and Fitness Services <http://recsports.msu.edu/>
- MSU Campus Walking loops <https://prod.gis.msu.edu/loops/>
- University Club Fitness Center



Research Quality Grade: 3 = C



Reference and Further Reading

Ford ES, Caspersen CJ. **Sedentary behaviour and cardiovascular disease: a review of prospective studies**. Division of Population Health, National Center for Chronic Disease Prevention and Health Promotion, Centers for Disease Control and Prevention, Atlanta, GA 30341, USA. eford@cdc.gov Int J Epidemiol. 2012 Oct;41(5):1338-53. doi: 10.1093/ije/dys078. Epub 2012 May 26.

[Neville Owen](#), PhD, [Phillip B. Sparling](#), EdD, [Geneviève N. Healy](#), PhD, [David W. Dunstan](#), PhD, and [Charles E. Matthews](#), PhD; **Sedentary Behavior: Emerging Evidence for a New Health Risk**; Mayo Clin Proc. 2010 December; 85(12): 1138–1141. <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2996155/>

[Dean Cooley](#) and [Scott Pedersen](#) J Environ Public Health. 2013; 2013: 128376. **Pilot Study of Increasing Nonpurposeful Movement Breaks at Work as a Means of Reducing Prolonged Sitting**; Published online 2013 April 3. doi: [10.1155/2013/128376](http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3649663/). <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3649663/>

Desk stretches: Back to the desk, back to school.

Risk of being sedentary: <http://www.mayoclinic.com/health/office-stretches/MY00921>

Do You Have Sitting Disease?

<http://www.webmd.com/fitness-exercise/features/do-you-have-sitting-disease>

The information contained in the abstracts is not a personal health recommendation. You should consult your own healthcare provider about decisions involved in your care.

Research Quality Grades: (1) = A+, (2) = A-, (3) = B, (4) = C, (5) = D *

***Quality of Evidence**

- (1) I: Evidence obtained from at least one properly randomized controlled trial. Well-designed and well-conducted meta-analyses were also considered, and were graded according to the quality of the studies on which the analyses were based (e.g., Grade I if the meta-analysis pooled properly randomized controlled trials). Please also note: occasionally randomized controlled trial studies may be given a lower grade due to other issues in the research design.
- (2) II-1: Evidence obtained from well-designed controlled trials without randomization.
- (3) II-2: Evidence obtained from well-designed cohort or case-control analytic studies, preferably from more than one center or research group.
- (4) II-3: Evidence obtained from multiple time series with or without the intervention. Dramatic results in uncontrolled experiments (such as the results of the introduction of penicillin treatment in the 1940s) could also be regarded as this type of evidence.
- (5) III: Opinions of respected authorities, based on clinical experience; descriptive studies and case reports; or reports of expert committees.



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