Reducing office workers’ sitting time: The ‘Stand Up UQ’ Study

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Acknowledgements

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Advisors: Prof Elizabeth Eakin, Dr Genevieve Healy, Prof David Dunstan, Prof Neville Owen
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“Sitting Disease”
by the numbers

Our modern sedentary lifestyles, both at home and in the workplace, are costly for us and for our employers.

Average hours of seated commute
+ average hours of seated homelife = too much sitting!

= 7.7 hours

A 2008 Vanderbilt University study of 6,300 people published in the American Journal of Epidemiology estimated that the average American spends 55% of waking time (7.7 hours per day) in sedentary behaviors such as sitting.

94% more likely to die

The 2010 American Cancer Society study published in the American Journal of Epidemiology followed 123,316 individuals (68,776 women and 54,540 men) from 1993–2006. The startling results:

- Women who were inactive and sat over 6 hours a day were 94% more likely to die during the time period studied than those who were physically active and sat less than 3 hours a day.
- Men who were inactive and sat over 6 hours daily were 48% more likely to die than their standing counterparts.

Findings were independent of physical activity levels (the negative effects of sitting were just as strong in people who exercised regularly).

A January 2010 British Journal of Sports Medicine article suggests that people who sit for long periods of time have an increased risk of disease.

In 2010 the University of Queensland, Australia, School of Population Health reported: “Even when adults meet physical activity guidelines, sitting for prolonged periods can compromise metabolic health.”


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Full-Time Employees of Large Companies
Wish They Didn’t Spend Most of Their Working Hours Sitting (based study)

67% of U.S. office workers with their employers offered them desks that could be adjusted so they could work either seated or standing, does shift

Medical experts have started referring to long periods of physical inactivity and its negative consequences as “sitting disease.”

Sitting Epidemic:

We are sitting up to 13 hours a day and research suggests it’s wreaking havoc on our health.

In a large sitting disease study, daily exercise is no longer to counteract an hour’s extra sitting. How much sitting you do in a day correlates with your risk for chronic diseases more than exercise does.

Americans Hate Sitting So Much, They Would Rather:

- Drink their own urine
- Eat dirt
- Change their job
- Have sex with a stranger

The Top 5 Most Common Excuses For Breaks:

- Going to the bathroom 22%
- Getting a drink 14%
- Stretching 14%
- Going to the printer 11%
- Getting food 10%

The remedy: Sit less. Stand more. Start now.

Standing a little more each day tones muscles, improves posture, increases blood flow, ramps up metabolism and burns extra calories.

Join the Uprising at www.juststand.org
HOW SITTING WRECKS YOUR BODY

As Soon As You Sit:
- Electrical activity in the leg muscles shuts off
- Calories burning drops to 1 per minute
- Enzymes that help break down fat drop 90%

After 2 Hours:
- Good cholesterol drops 20%

After 24 Hours:
- Insulin effectiveness drops 24% and risk of diabetes rises

HOW TO GET OUT OF YOUR CHAIR ALIVE

For many of us, sitting for 8 hours a day at our job is inevitable. But it's the extra sitting outside of work that turns a serious problem deadly.

The recommended 30 minutes of activity per day is not enough. Interrupt sitting whenever you can:
- Stretching
- Walking/Marching In Place
- Jumping Jacks

Walking burns 3-5 times the calories that sitting does. Take every opportunity to walk around the office.

GET OFF THE COUCH

Those who sit 3 hours or more per day watching TV have 7% higher risk of dying.

Warning: Sitting Too Much Is Killing You

People with sitting jobs have twice the rate of cardiovascular disease as people with standing jobs.

CarlaGardiner.com

SITTING IS THE NEW SMOKING

"Since prolonged physical inactivity can have devastating effects on the body all by itself, it should be considered a disease."

Dr. Michael Joyner, Mayo Clinic

don’t let it fool you. it’s a death trap.
Incidence of Coronary Heart Disease per 1000 p.a.

**Drivers 2.7**

**Conductors 1.9**

**Civil Servants 2.4**

**Postal Workers 1.8**

Age for age, drivers of double-decker buses — who sat still for 90 per cent of their shift — had substantially more attacks than the conductors, who would typically pound up and down as many as 750 steps to and from the top deck every working day.
Too much sitting:

A population health concern

• Musculoskeletal Symptoms\(^1\)
• Cardiovascular Disease\(^2, 3\)
• Overweight & Obesity\(^4, 5\)
• Type 2 Diabetes\(^6, 7\)
• Cancer\(^8, 9, 10\)
• All-cause Mortality\(^11, 12\)

\(^1\) Gerr et al., 2002
\(^2\) Healy et al., 2008;
\(^3\) Thorp et al., 2010;
\(^4\) Hu et al., 2003;
\(^5\) Proper et al., 2007;
\(^6\) Hu et al., 2003;
\(^7\) Healy et al., 2007;
\(^8\) Boyle et al., 2010;
\(^9\) Gierach et al., 2009;
\(^10\) Howard et al., 2008;
\(^11\) Katzmarzyk et al., 2009;
\(^12\) Dunstan et al., 2010
Breaks in sedentary time

*Results from the AusDiab Study 2004/05

YOUR daily routine?
Even if you are ACTIVE, you may be SITTING TOO MUCH!
Office Workers

- Sitting: 75%
- Standing: 21%
- Moving: 4%

Office workers as intervention target

- Australians spend most of their adult life in the workplace\(^1\)
- Increased white-collar dominated economy in developed countries\(^2\)
- Largest occupational sector (12%)\(^3\)
- Increasing sedentary time in this occupational group\(^4\)

\(^1\) Baxter, 2008; \(^2\) ABS, 2012; \(^3\) Wood, 2012; \(^4\) Straker & Matthiassen, 2009
Office workers as intervention target

*Objectively measured results from the Stand Up Australia Study; Thorp et al., in press
Strategies to reduce workplace sitting

**Individual instruction to increase number of breaks:**

→ Most studies successful, but **does not substantially reduce overall sitting time** (e.g. Bernaards et al., 2007)
Strategies to reduce workplace sitting

Environmental: Installation of height-adjustable desks

→ Most studies successful, however, substantial differences in reported sitting time reductions → clinical meaningfulness questionable
Strategies to reduce workplace sitting

Organisational?
Strategies to reduce workplace sitting

Multiple components?

Owen et al., 2011; Noblet & LaMontagne, 2009
Strategies to reduce workplace sitting
Stand Up Australia Intervention
Stand Up Australia Intervention

Individual

Workplace sitting

Environment

Organisation

www.ergotron.com
Stand Up Australia Intervention

- Management consultation
- Staff information session
- Management emails to staff
Stand Up Australia Intervention

- Staff information session
- Written material
- Individual Coaching
- Support Phone Calls
- Self-monitoring tools

Intervention Messages

- **Stand Up**
  - At least every 30 min!

- **Sit Less**
  - Use your workstation!

- **Move More**
  - Throughout the day!
Intervention Messages

Work hours

- Sitting: 45%
- Standing: 45%
- Moving: 10%

Per 8-hour workday:
- Sitting: 3.5 hours
- Standing: 3.5 hours
- Moving: 1 hour (8min/hr)
Does it work?

→ Stand Up Comcare:

**DESIGN:** Intervention: Stand Up Australia Intervention (n=18)
Control: assessment only (n=18)

**PARTICIPANTS:** Comcare staff

**2 ASSESSMENTS:** Baseline, 4 weeks
Does it work?

→ Stand Up Comcare Results

- Similar sitting times at baseline between control and intervention group
- Control group: no change

Workplace sitting reduced by >2 hrs

Multi-component interventions are more effective than environmental changes only.

Comcare staff are very motivated to reduce their sitting time.

The particular height-adjustable workstation used is the key…

But are multi-component interventions more effective than height-adjustable desks alone?
Stand Up • Sit Less • Move More
**Aim:** To assess the efficacy of a multicomponent intervention in comparison to height-adjustable workstations only to reduce workplace sitting.
Participants

UQ admin staff (N=44)

- n = 16
- Multi-component intervention group

- n = 14
- Height-adjustable workstations only

- n = 14
- Control group
# Measuring intervention efficacy

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Stand Up UQ: Results

Control

Baseline
- Sitting: 76%
- Standing: 16%
- Stepping: 8%

3 months
- Sitting: 74%
- Standing: 18%
- Stepping: 9%

12 months
- Sitting: 71%
- Standing: 18%
- Stepping: 11%

Workplace environment

Individual

Organisational
Conclusions

• Evidence on the feasibility and efficacy of height-adjustable workstations in reducing and breaking-up sedentary time in office workers

• Multicomponent intervention strategies important for more substantial sitting time reductions

• Relevance to workplace policies and OH&S guidelines
Qualitative feedback: participants

• … just having the option to sit or stand was great

• … everyone now more aware of sitting/standing; everyone still walking to colleagues to talk; there is more standing in meetings (when prompted) [Multicomponent participant]

• …. The manager emails were very useful, bringing everyone onto the same page and encourage to try things (tips of the week), reinforcing support; thinks if [manager] did that again it would help her group to get into better habits again [Multicomponent participant]

• …
Challenges

- “Do we have to wear that monitor again?”

- Lots of feedback regarding improvements of workstation design (e.g. takes up too much space on desk, computer screen distance to eyes not adjustable, not enough space for the mouse etc.)

- Drop-out
What happened since?

Study groups
- Workstation only group purchased workstations
- Multicomponent: looking to refurbish

UQ wide
- Working with OHS: prolonged sitting as part of risk assessment training
- Enabling height adjustable desks to be an option as part of a refurbishment / replacement
- Gradual dissemination of practice
STRATEGIES TO HELP YOU
STAND UP, SIT LESS, MOVE MORE

> Walk over and talk to colleagues instead of emailing them.
> Remove bins and/or printers from your office and use central ones.
> Dispose of waste and/or collect printing more frequently.
> Drink more water so you have to go to the water cooler (and bathroom) more often.
> Use a bathroom that is further away.
> Step outside for fresh air.
> Use the stairs instead of the lift.
> Use an active way of commuting to work (walk or ride a bike, stand up in the train, or stand up to wait for your train/bus).
> Park your car further away from your workplace and have a short walk, or park in short-term parking so you have to walk back to move your car.
> Have lunch away from your desk.
> Walk laps of the floor at regular intervals to break up the day.
> Walk around the neighbourhood at lunch. You can mark out two or three timed walking routes to fit into your working day and promote variety.
A plug…

Website: http://www.uq.edu.au/cprc/
Take home message

• **Stand up** regularly to get rid of prolonged sitting bouts! (The best posture is the next posture!)
  → Identify prompts

• **Sit less** throughout the day!
  → When/how do you accrue high volumes of sitting time?

• **Move more** whenever you can!
  → light/incidental PA + MVPA
Time to GET UP!
Thank you for listening

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Strategies to stand up regularly

FIND PROMPTS AT WORK:

• When the phone rings
• When s/o enters the office
• After completing a task
• When you get tired
• When you feel discomfort in your back/neck/ shoulders
• During meetings/ presentations
• ...

THE UNIVERSITY OF QUEENSLAND
AUSTRALIA
Strategies to sit less

FIND PROMPTS AT WORK:

• When talking on the phone
• When s/o enters the office
• During meetings/ presentations
• Height-adjustable desks
Strategies to Move More

- iMails (walk over and talk) instead of eMails
- Remove bins/printers from your office and use a central one
- Dispose of waste/collect printing more frequently
- Use a bathroom that is further away
- Step outside for fresh air
- Use the stairs instead of the lift
- Use an active way of commuting to work (walk or ride your bike; stand up in train; stand up to wait for your train/bus; ...)
- Park your car further away from your workplace and have a short walk or park in short term parking
- Have walking meetings (in particular when the meetings are short and you do not need to use the computer)
Stand Up, Sit Less, Move More at Home

- Get up during TV ads
- Choose more active ways of commuting
- Stand up to wait for the bus/train and stand up in the train
- Park your car further away from your destination
- Stand up and walk around while talking on the phone (headset?)
- When sitting down while reading a book, get up every few pages.
- Stand up while reading the morning newspaper, mail, or email
- Walk to visit neighbours instead of calling them
- Wash your car by hand instead of using a drive-through car wash
- Break up sitting time with little jobs, instead of working straight for longer periods then sitting for longer periods
- …