

TO SIT OR NOT TO SIT: *THAT IS THE QUESTION*

Presented by:

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Sitting: a “head to toe” problem

- **Compromised brain function**
 - Lack of blood & oxygen gets pumped
 - Release of brain & mood **enhancing** chemicals is slowed down (results in “foggy brain”)
- **Strained neck/shoulders**
 - Awkward neck postures increase strain on cervical vertebrae
 - “hunched over” keyboard / desk work
 - Cradling of telephone
 - Static muscle contraction leads to stiffness / pain
 - particularly in trapezius muscles

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What Has Been Said ...

“Sitting is the new smoking, and it’s time to quit”
The Globe and Mail (Apr. 13.2014)

“Sitting for too long can kill you, even if you exercise”
CBC News (Jan. 19.2015)

“Sitting will kill you, even if you exercise”
CNN (Jan. 22.2015)

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Sitting: a “head to toe” problem

- **Low back issues**
 - Spine becomes inflexible
 - Hardening of collagen around supporting tendons & ligaments
 - Uneven force distribution across lumbar discs
 - Increased risk for disc herniation
 - More susceptible to damage in mundane activities
 - Reaching / bending / twisting
- **Muscle Degeneration & Imbalances**
 - Slouching = weak abdominals + tight back muscles
 - Tight hips & weak glutes
 - Hip flexor muscles don’t get extended
 - Leads to poor balance and stability (falls in the elderly)

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Sitting: a “head to toe” problem

What exactly goes wrong in our bodies?



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Sitting: a “head to toe” problem

- **Heart disease**
 - Muscles burn less fat & blood flow is reduced
 - Allows fatty acids to clog the heart
 - Researchers have linked prolonged sitting to:
 - High blood pressure, elevated cholesterol
 - Twice the risk of cardiovascular disease
- **Over productive pancreas**
 - Pancreas produces insulin (carries glucose for energy)
 - But idle muscles don’t respond as readily to insulin
 - So the pancreas produces more and more
 - Twice the risk of type-II diabetes

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Sitting: a "head to toe" problem

- 24% increased risk of colon cancer
- 32% increased risk of endometrial cancer
- 21% increased risk of lung cancer

Journal of the National Cancer Institute

Theories as to how:

- Excess insulin encourages cell growth
- Regular mov't boosts natural antioxidants that kill cell damaging free radicals

- **Leg disorders**
 - Poor circulation & pooling of fluid in legs
 - Swollen ankles, varicose veins, blood clots (thrombosis)

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Individual SIT times

- Calculate your SIT time
- Let technology do it for you
 - Fitness Trackers & software
 - More than just an exercise tool



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Sitting: a "head to toe" problem

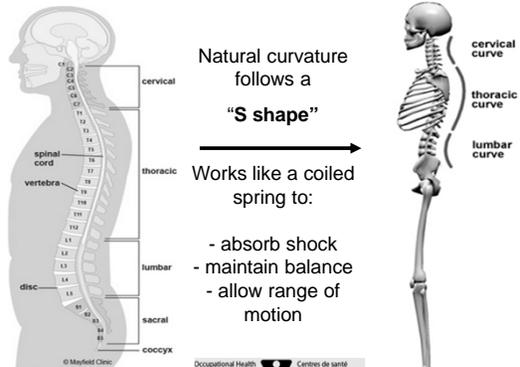
Prolonged sitting causes the body to go into a type of

SLEEP MODE

Metabolic activity & caloric consumption slows down
1 calorie/min (approx. 70% less than walking)

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Biomechanics Overview



Natural curvature follows a "S shape"

Works like a coiled spring to:

- absorb shock
- maintain balance
- allow range of motion

© Mayfield Clinic

How long do we really sit for ?

Activity	Sit Time (hrs)
Breakfast	(15min) = 0.25
Travel to work *Stats Canada*	(25.4min) = 0.4
Office Workday	(80% of 8hrs) = 6.4
Lunch	(30min) = 0.5
Travel home *Stats Canada*	(25.4min) = 0.4
Dinner	(30min) = 0.5
"Leisure" time	1
TOTAL	9.45 HRS

*** Stats Canada Avg. 9.7 hrs ***
Adults (20-79yrs) spend 69% of their waking hrs sedentary

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Biomechanics Cont.

Importance of Maintaining our Natural Curvature

**** a.k.a. PROPER POSTURE ****

- Keeps bones and joints in correct alignment
- Decrease abnormal wearing of joint surfaces
- Decreases stress on ligaments
- Ensures that muscles are being used most efficiently
- Prevents fatigue
 - muscles are being used efficiently, allowing the body to use less energy

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What Happens Next ...

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Lumbar Support

Common "flat back" chair

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- Supports the upper body, easing neck tension and offering relief for the vertebral disks.
- Supports each vertebral disk in the lumbar region, providing relief for the spinal column and relaxation of back muscles.
- Supports the pelvis and provides balance for the spinal column.

What Happens Next ...

- Sitting causes *immediate flexion* in the spine
- Forward curvature of the lumbar section is gone
 - Muscles are forced to stabilize
 - Lack of movement results in static muscle contractions
 - Leads to tense / sore muscles & low back pain
- Remember gravity is always pushing down
 - Discs are being compressed while in an unnatural and static position

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Sitting While Driving

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Making the Best of the Worst

- Ensure "Good Sitting Posture"
 - 3 natural curves are present
 - Elbows at the sides and shoulders are relaxed
 - Avoid slouching
 - sit all the way back in your chair
 - "relax" into your chair
- Must have LUMBAR SUPPORT
 - And must be adjustable
 - Use the "rocker" feature (office chairs)

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Additional Points on Sitting

- Did you know:**
 - Spine stability is compromised following prolonged sitting
 - Strenuous exertions (such as lifting) should be avoided following prolonged sitting
 - Need to incorporate "stand time" or "dynamic time"
 - Delivery and/or irregular MMH jobs
- Did you notice:**
 - Workers recovering from back injuries are often placed on "light duties" that commonly involve prolonged sitting
 - Why do we associate "sitting" with "light duty" ??

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TAKE A STAND Against Sitting

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Workplace Change

- Change the type of desks we use
 - Individual sit/stand options
 - Standing height tables for meetings



Example:
Sit / Stand desk



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Taking a Stand

- Not saying
 - “Never sit down” ... or that “standing all day is the answer”
- Understand that **POSTURAL VARIETY** is key
 - No single, ideal sitting posture exists
 - Changing lumbar postures shifts the load from one tissue to another
 - Only way to minimize the risk of tissue overload
- Must develop strategies to ensure **VARIETY**
 - Sit, stand, walk how can we incorporate all of these?
 - Workload Planning
 - Workplace Change
 - Purposeful Breaks

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Workplace Change



Example:
Individual “pop-up” style

Sit or Stand in seconds!
18" instant height adjustability with pneumatic-assist



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Workload Planning

- What tasks can we do “**on the move**”?
 - phone / conference calls (wireless headset)
 - use face-to-face dialogue instead of email
- Job rotation ... think “task rotation”
 - between sedentary & non-sedentary task

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Workplace Change

- Office meetings ...
 - Why do we have to sit and what are we sitting in?
 - “fancy” leather chairs = ZERO lumbar support



– Why not stand?



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Workplace Change

- Think about your proximity to ...
 - Office equipment
 - printers / photocopiers / shredder
 - Personal items
 - water / snacks / restrooms
 - Do we need everything “within arm’s reach” ?
 - Further is better ... forces us to get up and move
- Stairwell access
 - Do people use the stairs? If not ... ask why?

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Resources

- Sitting “a head to toe problem” (summary chart)
www.washingtonpost.com/wp-srv/special/health/sitting/Sitting.pdf
- Free downloadable rest reminders
www.workrave.org
www.davidevitelar.com/software/breaker/
www.dejal.com/timeout/
- Sit / Stand Office Desks / Devices
www.ergonow.com
www.myupdesk.com
- Ergonomic Seating
www.ergocentric.com

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Purposeful Breaks

- A true “rest break” consists of the **OPPOSITE** activity to reduce the imposed stressors
- For sedentary or stationary individuals, the emphasis should be on a **DYNAMIC** break not **REST** break
- Recommendations:
 - Periodic posture breaks (set reminders if needed)
 - Develop a “walking group” with coworkers

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Dynamic Break

- **STAND & STRETCH** when tired
*** make this automatic every time you yawn ***
- Stand up ... maintain a relaxed standing posture for 10–20 sec.
- Raise both arms & push towards the ceiling
- Inhale deeply & slowly
- What have you done?
 - Physically:
extended your low back through a **gentle** and **progressive** lumbar extension
 - Mentally:
fired neurons in the brain that enhance alertness (actually increased your productivity)

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