

Minnesota Safety Conference May 10th, 2018



Is Sitting the Next Smoking?

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Is Sitting the Next Smoking?

- ▶ We recognize the negative impact of smoking!
- ▶ Is the impact of our sedentary society (sitting) comparable to the negative effects of smoking?



Course Logistics

- ▶ **Handouts**
 - www.ergosystemsconsulting.com
 - Resources Section
- ▶ **Course Schedule**
 - Starting/ending times
- ▶ **Rest rooms**
- ▶ **Fire exits**
- ▶ **Telephones**



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Brief Overview – Smoking

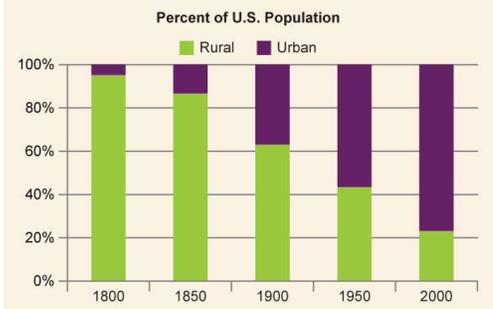
- ▶ **Tobacco use leads to disease and disability**
 - Smoking causes cancer, heart disease, stroke, and lung diseases (including emphysema, bronchitis, and chronic airway obstruction).^{1,2}
 - For every person who dies from smoking-related disease, 20 more people suffer with at least one serious illness from smoking.³
- ▶ **Tobacco use is leading preventable cause of death**
 - Worldwide, tobacco use causes more than 5 million deaths per year, and current trends show that tobacco use will cause more than 8 million deaths annually by 2030.⁴
 - Cigarette smoking is responsible for about one in five deaths annually (i.e., more than 440,000 deaths per year, and an estimated 49,000 of these smoking-related deaths are the result of secondhand smoke exposure).^{1,2}
 - On average, smokers die 10 years earlier than nonsmokers.⁵
- ▶ **Tobacco use costs United States billions of dollars each year**
 - In 2000–2004, cigarette smoking cost more than \$193 billion (i.e., \$97 billion in lost productivity plus \$96 billion in health care expenditures).¹
 - Information published in 2005 documented that secondhand smoke costs more than \$10 billion (i.e., health care expenditures, morbidity, and mortality).⁷

Historical perspective – Changes from 1800 to 2000

- ▶ In 1800 where did most Americans live?
 - Rural or Urban?
- ▶ How about in 2000?
 - Rural or Urban?

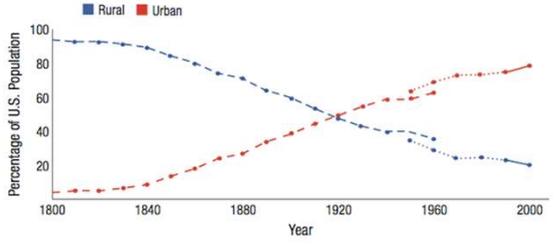


Where we Live – Rural vs. Urban?



United States Census Bureau

Historical perspective – Changes from 1800 to 2000



"The Changing Psychology of Culture From 1800 Through 2000" by P. Greenfield in *Psychological Science*. Note: Census Bureau used two different definitions for "urban population" in 1950 and 1960.

Activity Level – Rural vs. Urban

Calorie Burning Activity ^{1, 2}	1 hour
<small>*Based on body weight of 175 lbs Sources: CalorieLab, Inc., http://calorielab.com/burned/</small>	
Farming	
Farming, baling hay, cleaning barn, poultry work, vigorous effort	?
Farming, chasing cattle, non-strenuous (walking), moderate effort	?
Farming, chasing cattle or other livestock on horseback, moderate effort	?
Farming, feeding cattle, horses	?
Farming, hauling water for animals, general hauling water	?
Farming, taking care of animals	?
Grooming, branding, shearing sheep, assisting with birthing, medical care, branding	?
Farming, taking straw bales, cleaning corral or barn, vigorous effort	?
Farming, milking by hand, moderate effort	?
Farming, milking by machine, light effort	?
Farming, slow-moving gain, moderate effort	?
Manufacturing	
Machine tooling, machining, working sheet metal	?
Machine tooling, operating lathe	?
Machine tooling, operating punch press	?
Machine tooling, tapping and drilling	?
Machine tooling, welding	?
Office - Sitting	
Sitting on the job	?
Including light office work, general (chemistry lab work, light use of hand tools, watch repair or minor assembly, light assembly repair), sitting, reading, driving at work	?
Sitting in meetings, general	?
Including with talking involved or eating at a business meeting	?
Standing	
Standing on the job, light	?
Including in reading, store clerk, assembling, filing, duplicating, putting up a Christmas tree, standing and talking at work, changing clothes when tea-ching physical education	?
Standing occupation, light to moderate	?
Assembly or repair of heavy parts, welding, stocking, auto repair, packing boxes for moving, patient care (a in nursing)	?
Walking	
Walking on job, less than 2.0 mph (in office or lab area), very slow	?
Walking on job, 3.0 mph, in office, moderate speed, not carrying anything	?
Walking on job, 3.2 mph, in office, brisk speed, not carrying anything	?

Activity Level – Rural vs. Urban

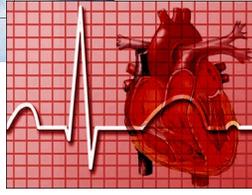
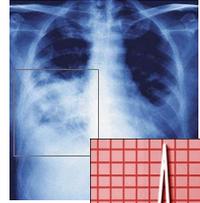
Calorie Burning Activity ¹ 1 hour	
Farming	
Farming, halting hay, cleaning barn, poultry work, vigorous effort	557
Farming, cleaning cattle, non-intensive milking, moderate effort	199
Farming, cleaning cattle or other livestock on horseback, moderate effort	239
Farming, cleaning cattle or other livestock, driving, light effort	87
Farming, driving tractor	119
Farming, feeding cattle, horses	278
Farming, hatching water for animals, general hauling water	274
Farming, taking care of animals	998
Caring for, feeding, cleaning sheep, assisting with birthing, medical care, branding	
Farming, forking straw bales, cleaning corrals or barn, vigorous effort	557
Farming, milking by hand, moderate effort	159
Farming, milking by machine, light effort	40
Farming, shearing grain, moderate effort	358
Manufacturing	
Machine tooling, machining, working sheet metal	119
Machine tooling, operating lathe	159
Machine tooling, operating punch press	318
Machine tooling, tapping and drilling	239
Machine tooling, welding	159
Office - Sitting	
Sitting on the job	
Including light office work, general (chemistry) lab work, light use of hand tools, watch repair or micro-assembly, light assembly/repair, sitting, reading, driving at work	40
Sitting in meetings, general	40
Including with talking involved or eating at a business meeting	
Standing	
Standing on the job, light	
Including handling, steel chd, assembling, filing, duplicating, printing a Christmas tree, smoking and talking at work, changing clothes when teaching physical education	103
Standing occupation, light to moderate	
Assembly or repair of heavy parts, wedding, stocking, auto repair, packing boxes for moving, patient care (as in morning)	159
Walking	
Walking on job, less than 2.0 mph (in office or job pool), very slow	60
Walking on job, 2.0 mph, in office, moderate speed, not carrying anything	183
Walking on job, 3.5 mph, in office, brisk speed, not carrying anything	223

¹Based on body weight of 175 lbs
²Source: CalorieLab, Inc. <http://calorielab.com/home/>

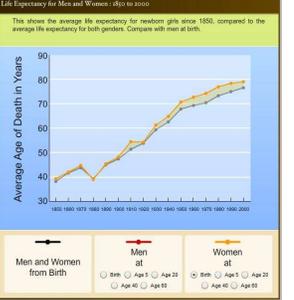
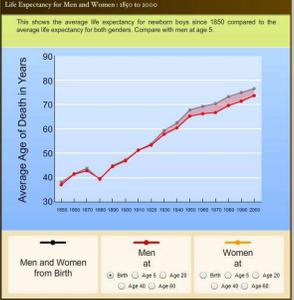
How We Die – 1800 vs. 2000?

Acute Illness/Injury (1800) vs. Chronic Diseases (2000)

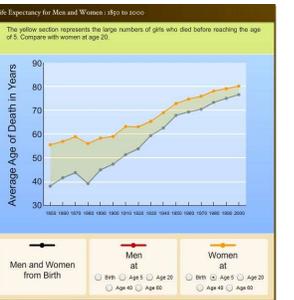
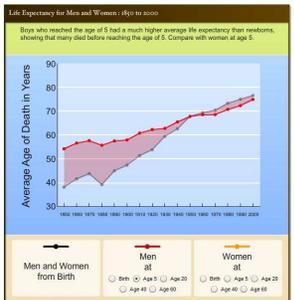
- Acute Illness/Injury
 - Pneumonia
 - Tuberculosis
 - Diarrhea related
 - Childhood diseases
 - Accidents
- Chronic Disease
 - Heart disease
 - Cancer
 - Strokes
 - Diabetes
 - Respiratory
 - Arthritis



How Long We Live (1850 vs. 2000)?



How We Die – 1850 vs. 2000?



Big Changes since 1800!

- ▶ Where we live – *Urban*
- ▶ Activity level – *Much more sedentary*
- ▶ How long we live – *Longer*
- ▶ How we die – *Chronic disease*



Audience Survey

▶ Categorize YOUR typical day

- Sit
- Stand
- Walk
- Recumbent



Impact of Sitting

- ▶ What about the impact of excessive sitting (evidenced by sedentary lifestyles)?
- ▶ How much do we really sit?
- ▶ In other words . . . how sedentary are we?



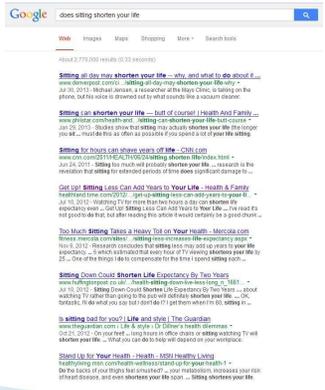
How much do we sit?

- ▶ Researchers reported people spent average of:
 - 64 hours a week sitting
 - 28 hours standing
 - 11 hours milling about (non-exercise walking)
- *International Journal of Behavioral Nutrition and Physical Activity, 2012*



Impact of Sitting?

- ▶ Do a Google search and you will find . . .
- ▶ Can sitting really have that level of impact?
 - What do you think?



Brief Overview of the literature

- ▶ **Diabetes, Cardiovascular events (Meta-analysis of 18 studies)**
 - Diabetologia, November 2012 analyzed results of 18 studies with total of nearly 800,000 participants
 - Compared people who spent most time sitting with those who spent least time, researchers found increases in risks of:
 - Diabetes (112%)
 - Cardiovascular events (147%)
 - Death from cardiovascular causes (90%)
 - Death from all causes (49%)

Brief Overview of the literature

- ▶ **Mortality**
 - 123,216 people's health outcomes during a 14-year period
 - Women who sit for more than six hours/day were about 40% more likely to die during course of study than those who sat fewer than three hours/day
 - Men were about 20% more likely to die
 - American Cancer Society
- ▶ **Cancer**
 - Worker at a sedentary job have almost twice risk of a specific type of colon cancer
 - The American Journal of Epidemiology

Underlying factors

- ▶ **Obesity**
 - "There is debate as to whether it is the chair or the knife and fork that have caused the increase in obesity rates,"
 - James Levine, MD, PhD, Mayo Clinic, 2012
 - Sedentary life styles contribute to obesity



Underlying factors

▶ **Metabolism**

- "Your body is designed to move. Sitting for an extended period of time causes your body to shut down at the metabolic level. When your muscles, especially certain leg muscles, are immobile, your circulation slows.
- So you use less of your blood sugar and you burn less fat, which increases your risk of heart disease and diabetes.
- Indeed, a study of 3,757 women found that for every two hours they sat in a given work day, their risk for developing diabetes went up seven percent, which means their risk is 56 percent higher on days they sit for eight hours."
 - *Marc Hamilton, Ph.D., Professor and Director of the Inactivity Physiology Department at Pennington Biomedical Research Center*

Underlying factors

▶ **Depression**

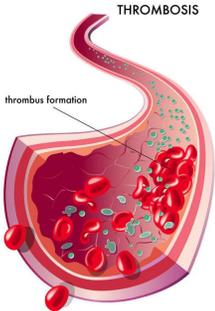
- 2013 survey of nearly 30,000 women
- Those who sat nine or more hours a day more likely to be depressed than those who sat fewer than six hours a day
- Prolonged sitting reduces circulation, causing fewer feel-good hormones to reach brain



Underlying factors

▶ **Enzyme production**

- Key gene (called lipid phosphate phosphatase-1 or LPP1)
- Helps prevent blood clotting and inflammation to keep cardiovascular system healthy
- Significantly suppressed with sitting for few hours



Bottom Line – *Is sitting the new smoking?*

"Sitting disease is getting much publicity lately—and for good reason. The scientific evidence is mounting that being idle for long stretches, day in and day out, may be the root of our nation's poor state of health, contributing to not only back pain and obesity but type 2 diabetes, heart disease and even certain types of colon and other cancers.

It's important to keep in mind that in many ways the verdict is still out on whether we really are sitting ourselves to death.

Lots of data confirm that smoking causes cancer and a slew of other health problems.

The research on prolonged periods of inactivity, on the other hand, mostly shows an association with ill health.

The distinction has caused some commentators to declare the sitting issue another oversimplification of healthcare research overhyped by the media.

Although headlines are meant to draw in readers, there is valid research showing that the human body functions best when it stays in motion."

Kelly Casey, Pittsburgh Quarterly, Summer 2012

What can we do?

► Mindset

- You have all heard this expression . . .
 - *If you don't use it . . . you will _____!*
- How about this one . . .
 - *The more you do the _____ you can do!*
 - *The less you do the _____ you can do!*
- For 30 years have preached the 30/30/30 Rule!

Look for as many opportunities as possible to incorporate movement into our lives!

At Home and Out and About!

- Ice cream lovers. Do not bring it into the house! Walk to the store, buy a single serving and walk as you eat it!
- Take the stairs!
- Walk the dog (or the neighbor's dog)!
- Walk with a friend.
- Try the 10,000 step per day approach!
- Watch TV standing up and stepping in place.
- Stand or step in place when talking on the phone.
- Limit screen time for yourself and family members.
- Set-up movement reminders – apps are available.
- Walk at the Mall during inclement weather.
- Work on walking faster when you do walk.
- Dance!
- Play a musical instrument when standing – even air guitar!
- Add a 15 minute walk at lunch time.
- Use a rake instead of a leaf blower.
- Park farther from the door at the Mall.
- Ride your bike or walk to run errands.
- Keep track of your activities and give yourself a suitable reward.
- Figure out what works for you and go for it!

At home and work – Ideas?



At work

- No email for a day . . . get up and say what you need to in person!
- Walk with a friend at break time.
- Take the stairs.
- Drink a lot of water . . . A LOT OF WATER!
- Stand or step in place when talking on the phone.
- Take the sit-down tables out of conference rooms.
- Have walking meetings rather than gathering in conference rooms.
- Set-up movement reminders – apps are available.
- Build purposeful movement into the work process that promotes regular movement.
- Add a 15 minute walk at lunch time.
- Work on walking faster when you do walk.
- Park on the perimeter of the parking lot – not the closest space.
- Set up Sit/Stand workstations – lots of options!

Let's Talk about Sit/Stand Workstations

▶ Audience Survey

- 10 years ago who had a sit/stand workstation? _____
- 5 years ago who had a sit/stand workstation? _____
- Today who has a sit/stand workstation? _____



Basic Tenets for Sit/Stand Workstations

- ▶ Correct worksurface heights (seated and standing)
- ▶ Good footwear
- ▶ Anti-fatigue foot mat may be beneficial – however it is difficult to roll chairs on mats
- ▶ Foot rest if needed to eliminate dangling legs
- ▶ Remember time will be needed to allow accommodation to sit/stand routine
- ▶ Start with a specific schedule for first week (e.g. 30 minute stand – 30 to 60 second walk – 30 minute seated - 30 to 60 second walk and repeat) AND then modify based on unique response. Remember the mantra . . . **“Don't wait until it's too late!”**

Sit/Stand Workstations

▶ Current trend in office environments is sit/stand workstations

- Not a fad – here to stay

▶ Recommendation

- *Have a policy in place how you will handle requests for sit/stand workstations*

▶ Many configuration options



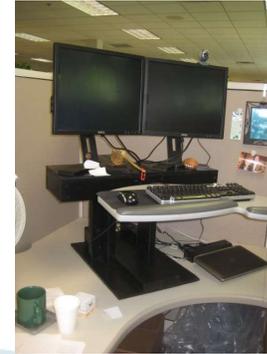
Podium on Desk



**Fixed Height Split:
(Seated and Standing)**



Fixed height: Add-on



**Fixed Height:
(Standing with Stool and Footrest)**



Adjustable Height: Add-on



Adjustable Height Worksurface



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Treadmill Desk



Final Thoughts

Take the 30/30/30 Rule to heart!
MOVE!
MOVE!
MOVE!



Thanks!

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