


The Future of Office Ergonomics


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Changing Trends in Office Ergonomics

Going to work in 1940's



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Changing Trends in Office Ergonomics


Going to work in 1970's



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Changing Trends in Office Ergonomics

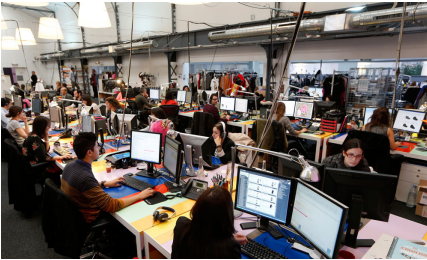
Going to work in 1990's



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Going to work today



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Changing Trends in Office Ergonomics

Going to work in the future




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To figure out the future of Ergonomics, you have to look at what the future of WORK looks like.




- **Shift in Demographics**
 - Millennials and Boomers
- **Pace of Technology**
 - Keeping up with new and future technology
- **Where 'work' is being done**

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To figure out the future of Ergonomics, you have to look at what the future of WORK looks like.




Shift in DEMOGRAPHICS

- **MILLENNIALS**
 - Where technology, task and person are ONE
 - Up to date on latest technology
 - Bad habits
 - Job: Love it or Leave it, attracting/retaining
- **BOOMERS (By 2020, 1 in 4 will be over 55)**
 - Aging process / limited mobility / cumulative
 - Chronic Conditions
 - Medications, Limitations, Accommodations

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To figure out the future of Ergonomics, you have to look at what the future of WORK looks like.




PACE OF TECHNOLOGY


- **Keeping up with new and future technology**
 - Augmented and virtual reality, gestures, pens, touch tables, wearables, exoskeletons
- **Work with IT on future technology coming**
- **Work with HR on work assignments that match employee capabilities and future technologies**



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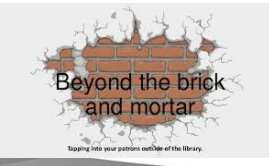


To figure out the future of Ergonomics, you have to look at what the future of **WORK** looks like.



WHERE WORK IS BEING DONE

- Gone beyond the 'brick and mortar' building
- No 'off' at 5pm
- Mobile technology
- Work done at a variety of locations
- Bullpens
- Man Cave/She-shed
- Variety of devices
- At all hours



Beyond the brick and mortar
Trapping into your pattern outside of the library.

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Keeping Ahead of:


- Devices
- Habits



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Office Workstations are Where You Are

- Keep equipment close
...and your coffee closer!
- Your job
 - Provide ergo education
 - Help them understand issues with current set up
 - Allow employee to make changes... ownership
- It's personal
 - Give them some control
 - Let them lay it out the way they want to
 - Let employees try/play with different devices



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Create an Ergo Closet

Take and Try or 'Demo Days'

- Don't make them get an MD note
 - Mice & Keyboards
 - Device stands & holders
 - Tools for mobile computing

←←←

You can do ANYTHING.

→→→

You can't do EVERYTHING.

←←←

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→ Focus ←

- **Excessive STATIC Postures**
 - Get them to move more! (i.e. Apple Watch, smaller water bottles)
- **With Multiple Risk Factors, focus on:**
 - **Wrists** - Separate keyboard and screen. Don't 'hold' device (i.e. Wingo, Cricket, etc)
 - **Neck** - Become a touch typist, get devices UP
 - **Thumbs** - Pop outs to hold, talk to text
 - **Lower Back**
 - Inadequate lumbar support (i.e. quality chairs)
 - Back Buddy

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You can do ANYTHING.

→→→

You can't do EVERYTHING.

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The 'Remote Life' Can Be a Lonely Life

- Companies have to work 25% harder to make remote employees feel included.
 - Once a week call-in huddle
 - Keep them informed
 - Invite to lunch/potlucks




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The Future of Back Pain in the Office

60% experience health problems related to the use of technology or sitting at a desk


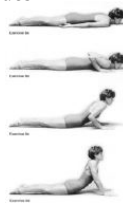
24%	Headaches
36%	Eye Strain
27%	Neck Pain
30%	Back Pain
12%	Upper Back Pain
24%	Lower Back Pain
21%	Wrist Pain
11%	Carpel Tunnel Syndrome
9%	Insomnia
2%	Other



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Future of Back Pain

- Most goes away on its own within 6 weeks
 - With or without treatment
- Medical tests are done to 'rule out' serious issues
- Largely genetic
- 3 'knowns' that influence outcome
 - McKenzie Extensions
 - Be nice to your back right after you get out of bed
 - Stay active and keep moving


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The Burden of Back Pain

- Up to 84% of population gets BP sometime in life
- 12% have “activity limiting” BP at any time
- ¼ to 1/3 of all WC claims are back related
- BP is often accompanied by depression
- \$90 Billion to \$600 Billion is spent on BP annually
- Back pain is 3 times the cost of all forms of cancer combined

Definition of Lower Back Pain: “subjective” perception of pain in lower back, buttocks, or leg (sciatica)




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The CAUSE of Back Pain

- **No one really knows**
 - Natural aging of the disc
 - Genetics
 - Body’s response to proteoglycans/neural wind up
- **Twin Studies** (Battie, 2009)
 - Genetics trumped activity level
 - Those with heavy job tasks had higher bone density, healthier discs
- **Herniated discs** occur in 20 to 70% of people *without* lower back pain. (Snook, 2004)

SO WHAT IS CAUSING BACK PAIN?



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Research on Back Pain

Pre – 1980’s: Never arch your back!

1980’s: Robin McKinzie (McKinzie Extensions)

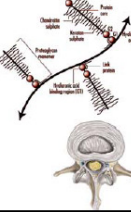


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Today's Research on Back Pain

Proteoglycans – No early morning bending

- “Acidic” bristly sponge inside disc that can inflame other tissues (pain), if they get out
- At night, fluid goes into disc when we sleep, which is why we are taller in the morning
- First thing in morning, outer ridge of disc is more porous and fluid leaks out more easily



Early morning bending pushes fluid with proteoglycans out of disk


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Research on Back Pain

PROTEOGLYCANS – NO EARLY MORNING BENDING

- **Neuronal wind up** – one triggers pain, that triggers the next, then the next... example is a muscle spasm or sciatica.
- **Genetically**, some are more sensitive to proteoglycans
- **Aging** increases degeneration of discs
- **Theory:**
 - Disc firms up after a few hours out of bed
 - Bending forces fluids (proteoglycans) out of disk
 - Limit early morning bending to keep proteoglycans inside disc
 - Minimum 2 hours (no sitting, prep AM activity night before, go for walk, stand at counter to read paper)



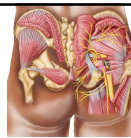

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DORMANT BUTT SYNDROME

Knee pain? Hip tightness? Low back issues?

- **Cause:** Excessive sitting
- **Muscular imbalances**
 - Weak buttocks and tight hip flexors
- **Hip extension exercises**
 - This is the movement that results from bringing your thigh bone backwards in space behind your pelvis.
- **Gluteus muscle strengthening**

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DORMANT BUTT SYNDROME

Sciatic & Piriformis Muscle




Figure A

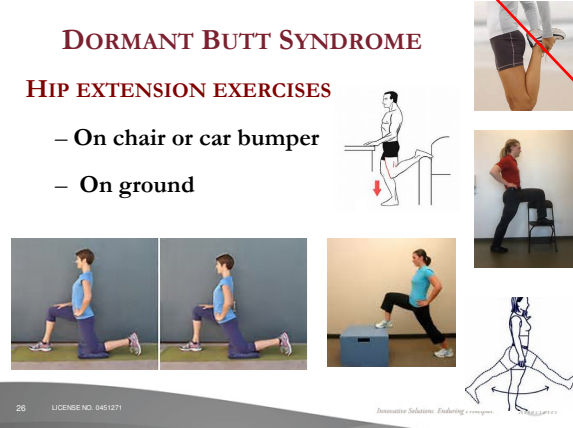
Figure B

Piriformis Syndrome

DORMANT BUTT SYNDROME

HIP EXTENSION EXERCISES

- On chair or car bumper
- On ground



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DORMANT BUTT SYNDROME

Gluteus muscle strengthening

- Planks (face down/face up)
- Floor swimming
- Gluteal Bridge (hip lifts)



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MOST BACK PAIN RESOLVES ON ITS OWN
 (Engers, 2008 / Deyo, 1998)



- Keep Moving – maintain activity level
- Control early morning forward bending
- Over the counter analgesics
- McKenzie Extensions (Ask MD if okay to do them)
- Mindset (Waddell, 2004 / Costa, 2011)
 - Doctor, help me! I am dependent on you...
 - Doctor, teach me to help myself. I accept responsibility for my pain

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What's Trending for Office Ergonomics?
 #TRENDING NOW

TRENDING IN OFFICE ERGONOMICS

- **Minimizing Early Morning Bending**
 - Snook, et al., 1998
 - Brogmus, UCLA (2015)
- **FIDGETING**
 - Early research shows it may be a protective factor with excessive sitting
 - www.futurity.org/fidgeting-leg-arteries

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TRENDING IN OFFICE ERGONOMICS

ROLE OF THE SUPERVISOR IN RESPONDING TO WORKER INJURIES

» Shaw, et al., 2006

Think of a job you LOVE. Think of a job you HATED. What made you hate it? Supervisor?

People don't leave jobs, they leave their supervisor.





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TRENDING IN OFFICE ERGONOMICS

ROLE OF THE SUPERVISOR IN RESPONDING TO WORKER INJURIES

- Length of disability of MSD claim is not related to the medical severity of claim but to the **RELATIONSHIP BETWEEN THE EMPLOYEE AND THEIR SUPERVISOR.** (Shaw, et al., 2006)
- 4 hour training on empathy, communication, respect AND ergonomic accommodations.
 - 47% reduction in new lost time claims
 - 18% reduction in existing claims
 - 80% reduction in W/C



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TRENDING IN OFFICE ERGONOMICS

- **USE OF AI** to take over mundane office tasks
 - Boomerang, Brain FM (gaming music)
- **Wearable ergonomic technology**
- **SMART furniture**








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FUTURE OF ERGONOMICS AS A CAREER 

Survey of Ergonomists (HFES)

- 72% feel the job market for Ergonomists will rise
- US Dept of Labor workforce Predictions: Industries with growth that will hire ergonomists:
 - Healthcare (Older care givers, Older MDs, Older patients)
 - Biotechnology
 - Universities and Colleges
 - Government
 - Office Environments
 - Nanotechnology
 - Forensics



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 **FUTURE OF ERGONOMICS**

ERGONOMICS HAS TWO GOALS


- Social goal (employee well being)
- Economic goal (Injury prevention, W/C)

ERGONOMICS CONSIDERATIONS MUST INCLUDE:

- Physical aspects of the job (matching workstation to worker)
- Psychological aspects (human emotions, EQ, relationships)



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