



WELLPATH'S HEALTHY BACK CHALLENGE

LIFTING, PULLING & LEVERS

ANDY WELLER
WELLPATH PROGRAM SUPERVISOR



WELLPATH'S HEALTHY BACK CHALLENGE

Back pain and conditions are crazy common

- 8 of 10 of us will have a bout significant back pain.
 - Medications
 - Seek treatment from healthcare providers
 - Miss work
- 2nd most common cause of physician's visit.
- Survey says: >25% of us have experienced back pain in the last 3-months.
- Leading reason for SL, STD and LTD and worker's comp.



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Back pain and conditions are Preventable & Treatable

- Lifestyle
- Exercise, including therapy
- Avoiding risky behaviors – **lifting technique** (up to 80% of work-related back injuries happen during lifting)
- Know your risk – mitigate your risk
- Posture
- Ergonomics
- Body Composition



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Risk factors

- **Age:** 1st attack 3rd – 5th decade of life and more common as we age
 - Loss of bone strength & osteoporosis
 - Decreased muscle elasticity
 - Atrophy of intervertebral discs – loss of fluid & flexibility
 - Loss of flexibility
 - Loss of strength
 - Unfavorable changes in body composition
 - Abnormalities to the spine (stenosis, bone spurs, etc.)
 - Increased sedentary time.



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Risk factors

- **Body Composition :**
 - Creeping obesity: losing muscle mass and gaining body fat: weight stability
 - Inactive body mass increases the weight of every lift
 - Inactive body mass increases stress on spine with every lift
 - Increased abdominal adiposity can decrease flexibility of the spine
 - Increased body weight inversely related to aerobic fitness
 - Increased body weight inversely related to balance



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Risk factors

- **Backpack overload:**
 - Backpacks can reach > 15% - 20% of children's body weight.
 - Cheap backpacks and bags do not disperse load evenly.
 - Backpacks and briefcases fall into the category of long-duration lifting and carrying.
 - Can foster poor posture.



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Risk factors

- **Occupational risk factors:**
 - Heavy lifting, pushing, or pulling (some involves twisting, turning or vibrating)
 - Repetitious tasks – time-dependent tasks
 - Inactive jobs – long periods of time in any posture
 - Poorly designed workstations
 - Moving weight away from the midline of the body
 - Dress codes not specific to tasks
 - Lack of a worksite wellness program with a Healthy Back Challenge



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"Give me a lever long enough, and a fulcrum on which to place it, and I shall move the world"

• Archimedes

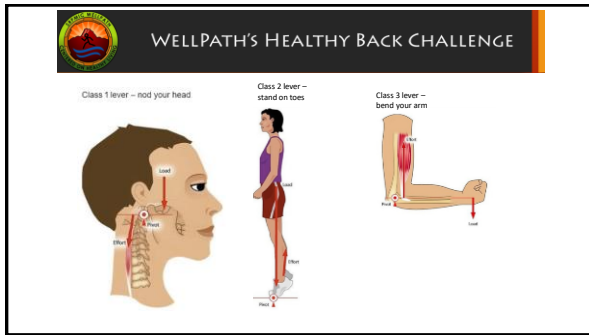


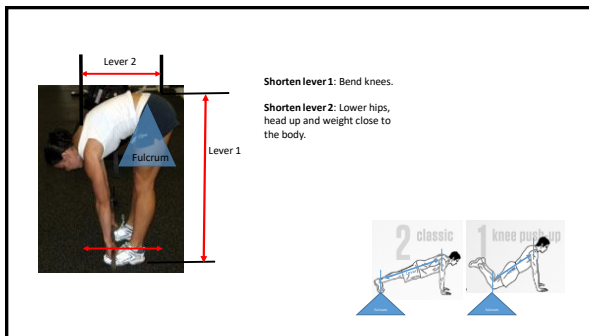


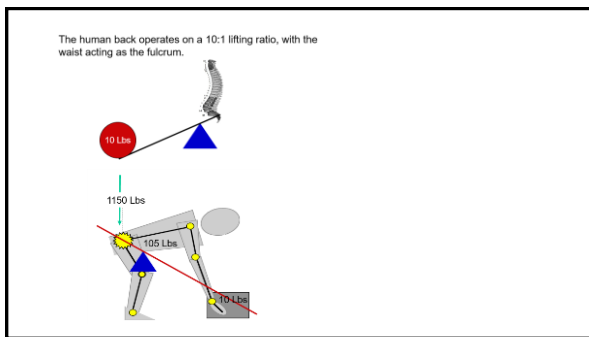
WELLPATH'S HEALTHY BACK CHALLENGE

Levers can be used to magnify force applied. In our bodies, bones act as lever arms, joints as pivots and fulcrums, and muscles and objects provide force.

- Bones act as lever arms
- Joints act as pivots and fulcrums
- Load forces include bodyweight + object
- Levers give us a strength advantage or movement advantage
 - Not both simultaneously



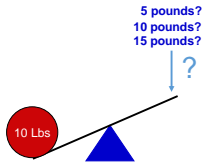




Physical Stress on Skeletal System

The Forces Involved:

Imagine your back as a lever. With the fulcrum in the center of the lever, how many pounds would it take to lift a 10 pound object?

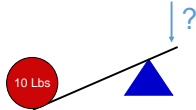


Physical Stress on Skeletal System

The Forces Involved:

It takes 10 pounds of pressure to lift a 10 pound object.

Will it take more or less force to lift the same 10 pound object with the fulcrum shifted away from the object?

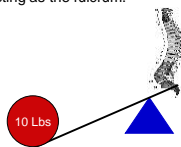


Physical Stress on Skeletal System

The Forces Involved:

With the fulcrum shifted away from the object, it takes more force to lift the object.

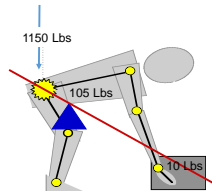
The human back operates on a 10:1 lifting ratio, with the waist acting as the fulcrum.



Physical Stress on Skeletal System

The Forces Involved:

When you add in the 105 pounds of the average human upper torso, lifting a 10 pound object puts 1,150 pounds of pressure on the human back.

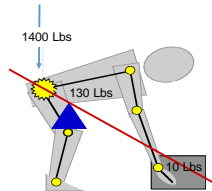


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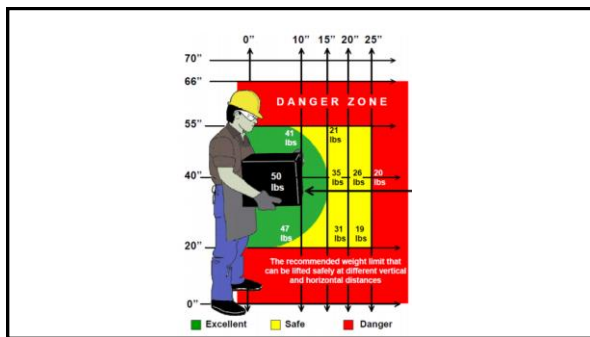
Physical Stress on Skeletal System

The Forces Involved:

If you were 25 pounds overweight, it would put an additional 250 pounds of pressure on your back every time you bend over.



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Preventing Back Injuries: Lifting Safety Check List

- **Have you checked the object before you try to lift it?**
 - Test every load before you lift by pushing the object lightly with your hands or feet to see how easily it moves.
 - Remember, a small size does not always mean a light load.
- **Is the load you want to lift packed right?**
 - Make sure the weight is balanced and packed so it won't move around.
 - Loose pieces inside a box can cause accidents if the box becomes unbalanced.
- **Is it easy to grip this load?**
 - Have a tight grip on the object.
- **Is it easy to reach this load?**
 - You can be injured if you arch your back when lifting a load over your head.
 - To avoid hurting your back, use a ladder when you're lifting something over your head.



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Preventing Back Injuries: Avoid lifting and bending whenever you can....

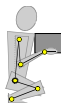
- If you must lift, the best zone for lifting is between your shoulders and your waist.
- Place objects up off the floor so you won't have to reach down to get them.
- Always use a dolly or a forklift if you can.
- Pushing an object is better than pulling the object.
- Don't overdo it - if you have to strain to carry the load, it's too heavy for you.
- Make sure you have enough room to lift safely.
- Look around before you lift and know where you are going to put down the load.
- Avoid walking on slippery and uneven surfaces while carrying something.



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Preventing Back Injuries: Use proper lifting procedure

- **Plan your move**
 - Size up the load and make sure your path is clear.
 - Get help as needed.
 - Use handles or straps.
 - Use a dolly or other materials handling equipment if possible.
- Use a wide, balanced stance with one foot slightly ahead of the other and with your heels on the floor.
- Get as close to the load as possible.
- Use your palms, not just your fingers to grasp the load.
- Tighten your stomach muscles as the lift begins.
- Keep your lower back in its normal arched position.
- Pivot to turn – Don't twist your back.
- Lower the load slowly, maintaining the curve in your lower back.







Lifting Lab Form: Use this form (page2) to do a self-assessment of your lifting technique.

Now, as you will be demonstrating your lifting technique to your partner for this self-assessment, ask yourself the following questions:

1. Have I warmed up?
2. Am I wearing appropriate shoes?
3. Do I have any back pain currently?
4. Have I caused back pain the past by lifting?
5. Review the checklist from Ergo-plus "Before You Lift" on page one.

Choose an empty box, laundry basket or something very light to lift. Demonstrate lifting technique on a variety of objects. Have one or two partners evaluate your lifting techniques using the following criteria and place a V or N in the blank. Alternatively, you can place a number 1-10 for the quality of the movement, 1=low and 10=high.

- ☐ Did lifter sit close to the object or possible?
- ☐ Did lifter use an appropriate stride when lifting to shoulder length-arms?
- ☐ Did lifter use a staggered stance with one foot forward of the other and to the side of the object?
- ☐ Did lifter keep back straight throughout the lifting movement?
- ☐ Did lifter use by bending knees and hips, keeping load high?
- ☐ When possible, did the lifter place their hands diagonal, on opposite corners of the box/object?
- ☐ Did lifter tighten core muscles prior to lifting (was he to ask lifter)?
- ☐ Did the lifter keep the load close to their body in the safety zone (see picture)?
- ☐ Did lifter use the technique to maintain body alignment while twisting?
- ☐ Did lifter use the above principles when placing down the load?
- ☐ Did lifter maintain some normal breathing patterns?
- ☐ Was lifter's power coming from legs and not back or arms?
- ☐ Did lifter avoid contraction of core when carrying?

Review the items from the assessment that can be improved upon performance. Practice lifting and demonstrating proper form such that you earn a "Yes" or "10" (perfect rating) on each item of the assessment.

http://www.wellpathinfo/uploads/5/7/3/3/57337331/lifting_lab_form_final.pdf

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