



ERGONOMICS

**CREATING THE SAFE WORKING SPACE
& TRAINING THOSE AROUND YOU**

Ergonomics is fitting the work to the worker in order to reduce risk of injury/discomfort

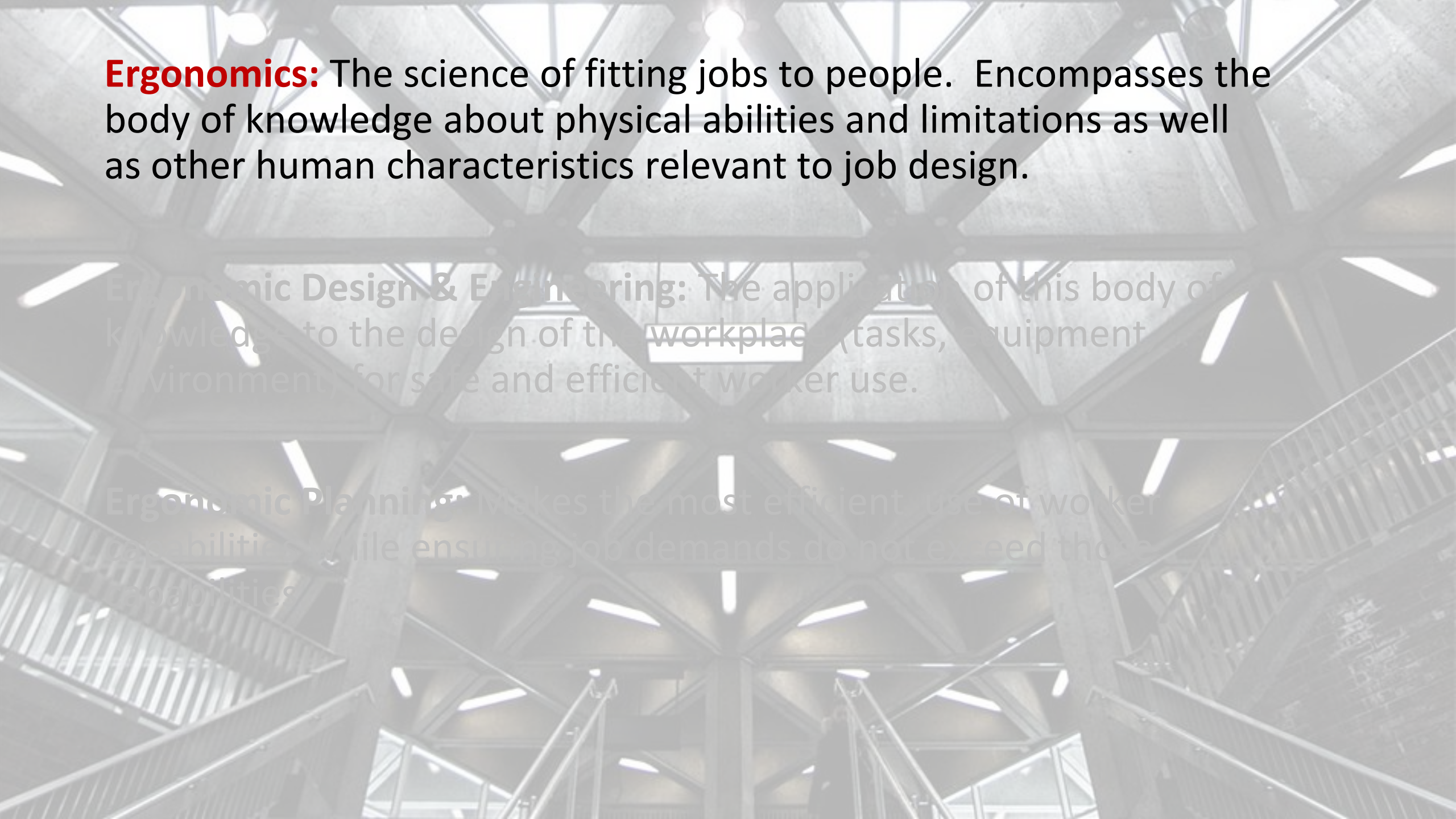


Exposure to more than one risk factor increases the chances of experiencing discomfort.

Ergonomics is about “fit”. The fit between a person and what they do, the objects they use and the environments in which they work. If good fit is achieved, the stresses on people are reduced. They become comfortable, can do things efficiently and productively without discomfort.

An ergonomic evaluator will look for specific risk factors that may indicate a “poor” fit, and then make recommendations to reduce these risks

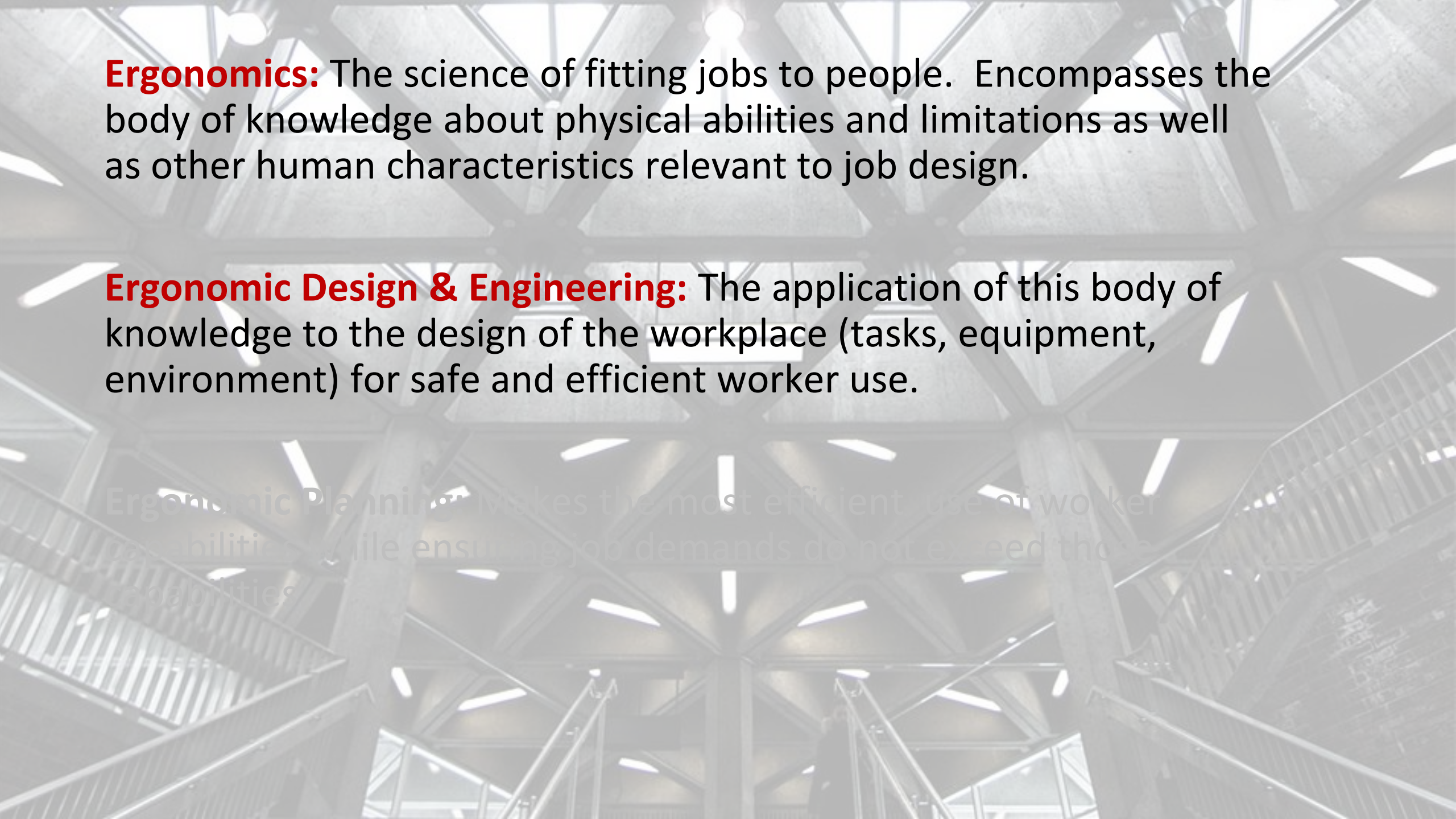
Know



Ergonomics: The science of fitting jobs to people. Encompasses the body of knowledge about physical abilities and limitations as well as other human characteristics relevant to job design.

Ergonomic Design & Engineering: The application of this body of knowledge to the design of the workplace (tasks, equipment, environment) for safe and efficient worker use.

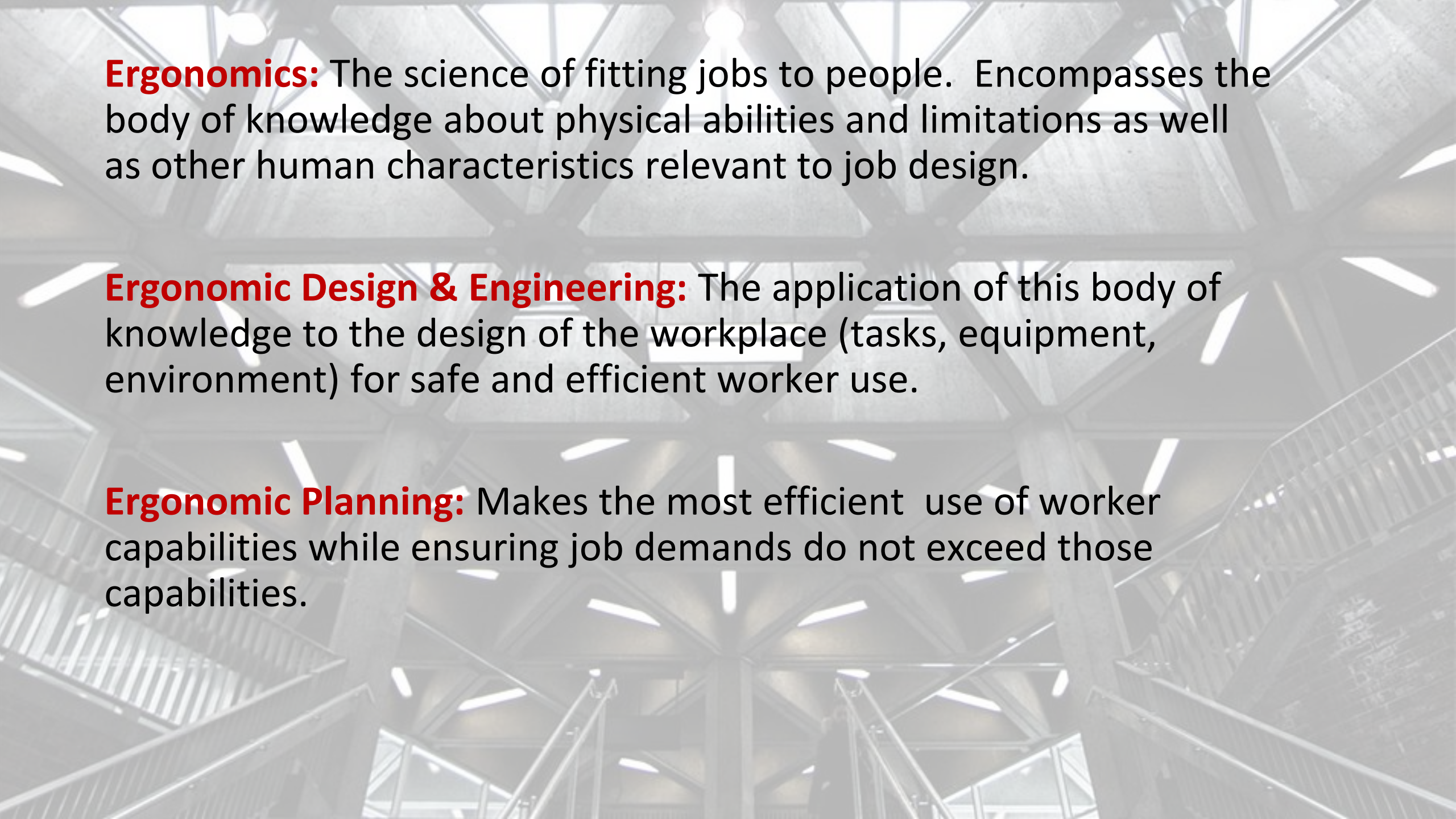
Ergonomic Planning: Makes the most efficient use of worker capabilities while ensuring job demands do not exceed those capabilities.



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ROOT CAUSE OF INJURY

Force & Exertion = Forceful exertions place higher loads on the muscles, tendons, ligaments, and joints

Factors:

- Weight of load or tool
- Bulkiness of load or tool
- Posture during
- Speed of movement

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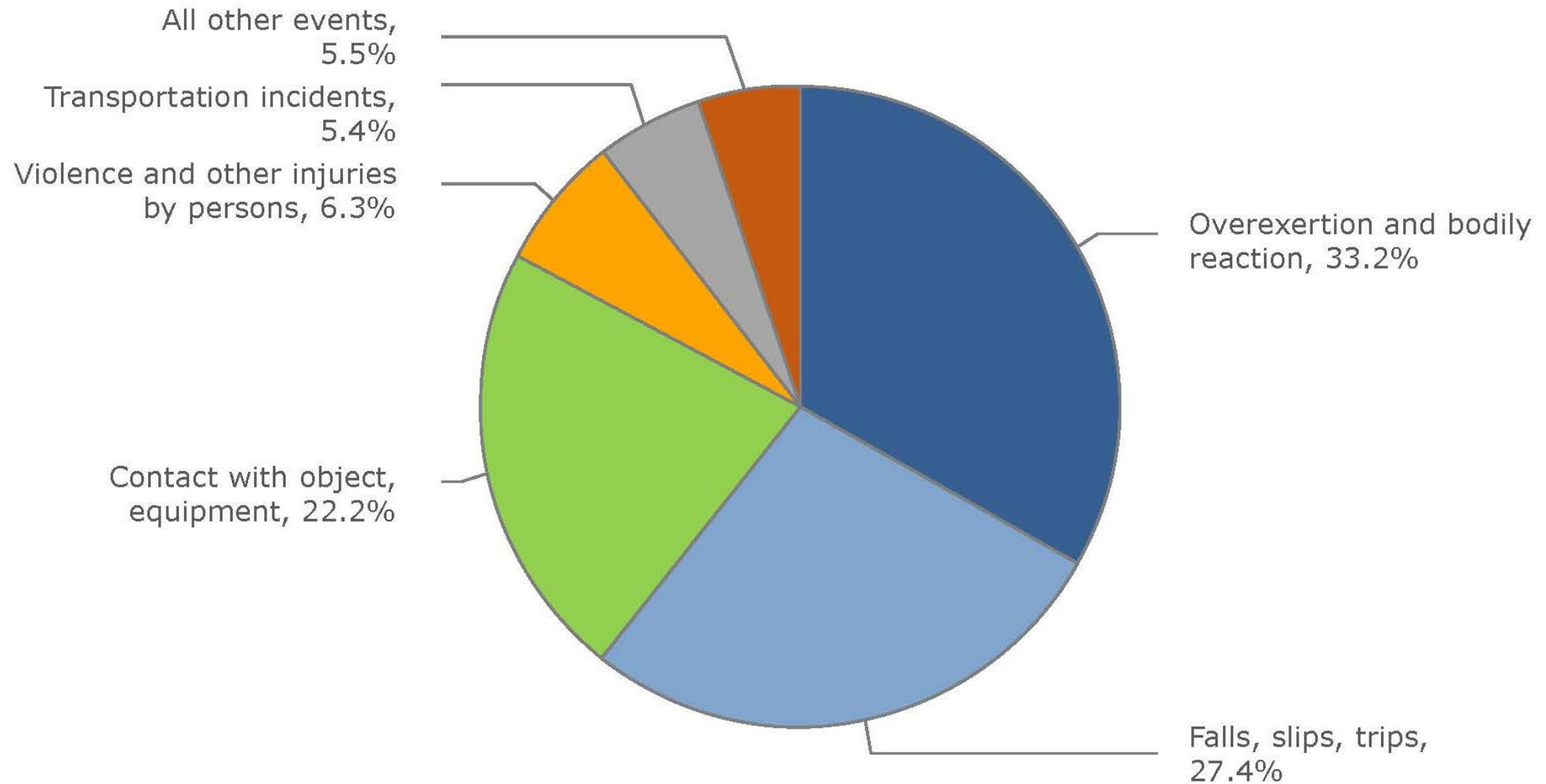
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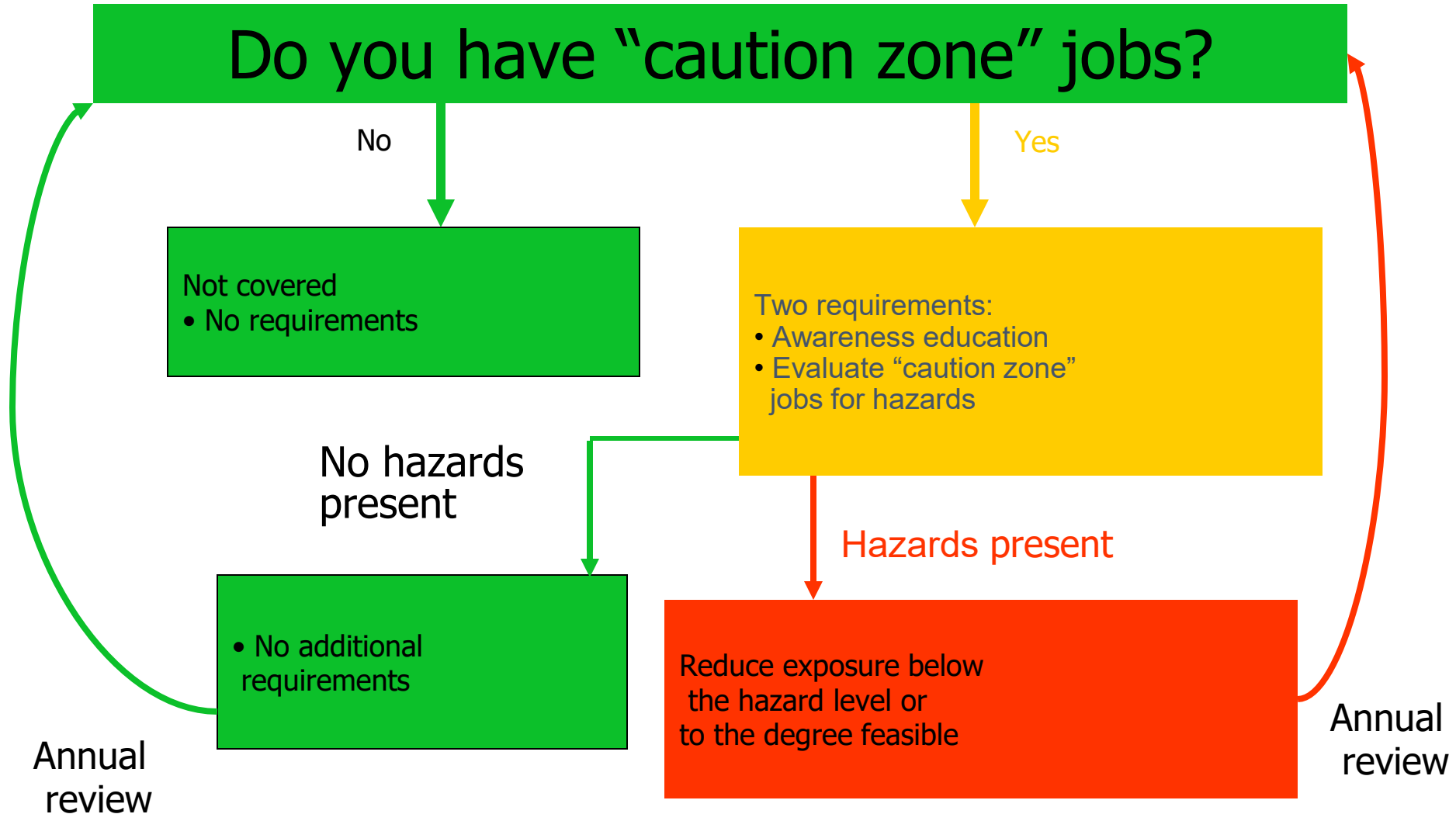
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**Which of the Factors do you
(employee or employer) control?**

Distribution of injuries and illnesses by event or exposure



“Caution Zone” Jobs Require Action



"Caution Zone"



What is a
"Caution Zone" job?

"Caution Zone"

Look for These Indicators:

- **Awkward Postures**
- **High Hand Force**
- **Highly Repetitive Motion**
- **Repeated Impact**
- **Heavy, Frequent or Awkward Lifting**
- **Moderate to High Hand-Arm Vibration**





Awkward Postures

**Being in these work positions for
more than 2 hours total per day**

- Hands above head
- Elbow above shoulder
- Back bent forward more than 30 degrees
- Neck bent more than 30 degrees
- Squatting
- Kneeling

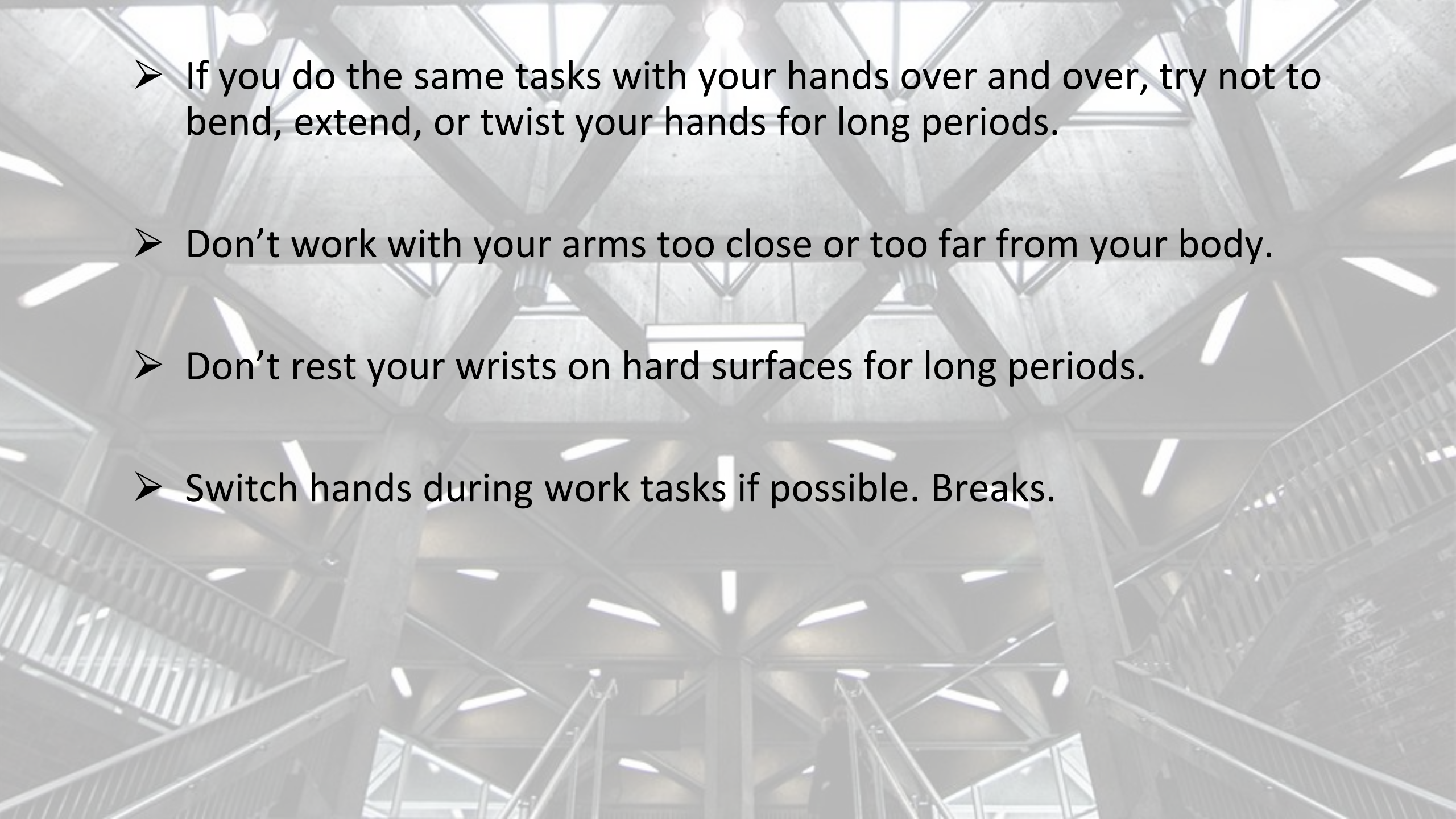
"Caution Zone"

Musculoskeletal disorders (MSD's) are injuries or illnesses to soft body tissue such as:

- Muscles
- Nerves
- Tendons
- Ligaments
- Joints
- Cartilage
- Spinal Discs



HANDS & ARMS

- 
- If you do the same tasks with your hands over and over, try not to bend, extend, or twist your hands for long periods.
 - Don't work with your arms too close or too far from your body.
 - Don't rest your wrists on hard surfaces for long periods.
 - Switch hands during work tasks if possible. Breaks.

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BACK INJURIES

ROOT CAUSES

- Heavy lifting from above the shoulders.
- Heavy lifting from below the knees.
- Twisting while lifting/carrying.
- Bending over at the waist.
- Carrying objects to one side.

- 
- Heavy lifting from above the shoulders.

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- Twisting while lifting/carrying.
- Bending over at the waist.
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LIFTING & MATERIAL HANDLING

Stage pieces are often awkward, heavy, or oddly shaped, which makes them difficult to lift properly.

Ask yourself these questions before lifting your load:

1. Is it too large or heavy for one person to lift?
2. Do you need a mechanical aid or partner?
3. Are there any tripping hazards on your route?
4. Will you be able to get through doorways or corridors?

***Remember to wear supportive non-slip closed-toe shoes to help avoid a fall while carrying your load.**

LIFTING & MATERIAL HANDLING

1. Stand close to the load

Carrying an object as close to your body as possible will reduce the strain on your back and help maintain balance.

2. Lift with your legs

Using your leg muscles helps keep your back better aligned, which will reduce the load on your lower back.

3. Grip the load securely

Get a good handle on the load before you lift to avoid slipping.
If the load starts to fall, let it go.

4. Lowering the load

Make sure you keep the load close to you, and use your legs while lowering the load to the floor.

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OTHER HELPFUL TIPS & HINTS & Q'S TO PONDER

Avoid:

- Winged elbows
- Leaning forward
- Correct working height work surface
- Overreaching
- Rolled shoulders
- Stepping backwards
- Locking your knees
- What is your loading dock situation?
- What is the grip situation?
- What mechanical advantage can you get?
- Carrying things over one shoulder
- Long periods of kneeling (even with knee pads)

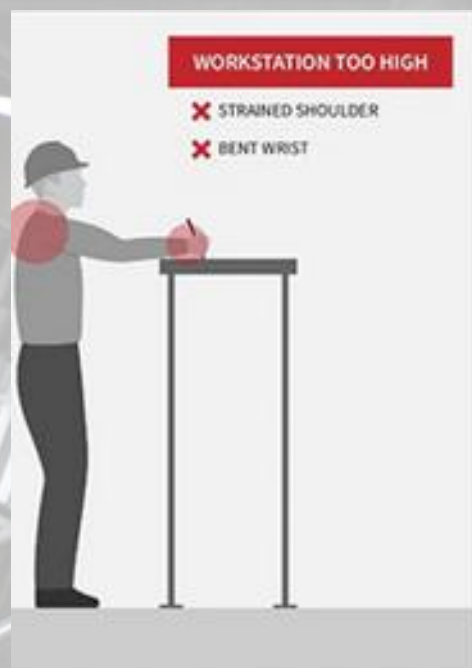
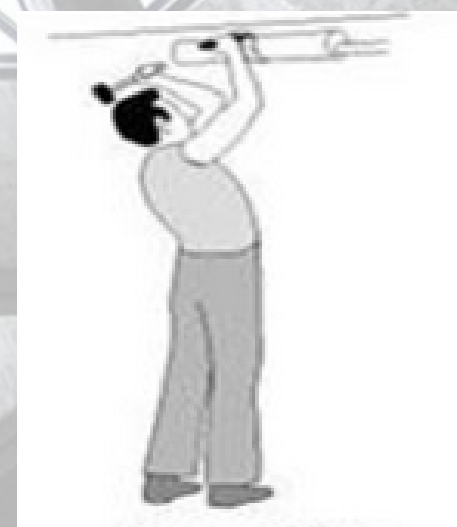
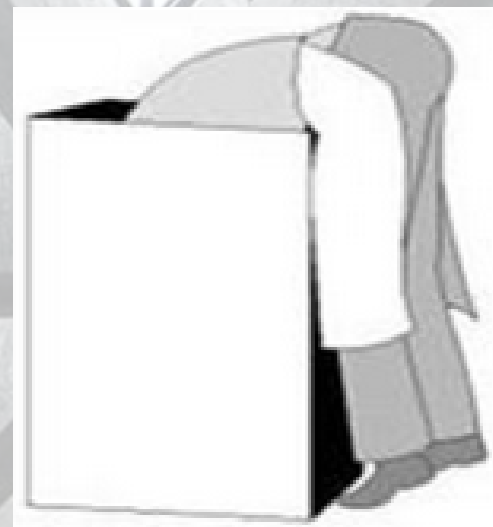
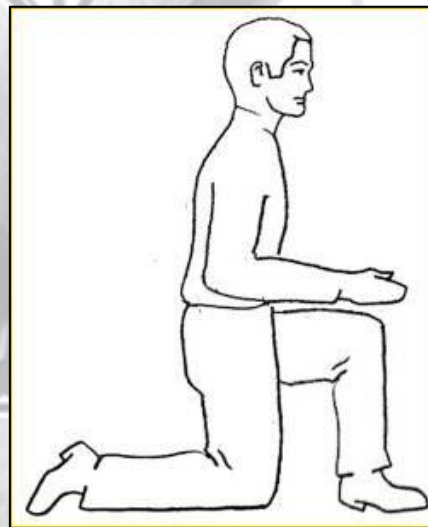
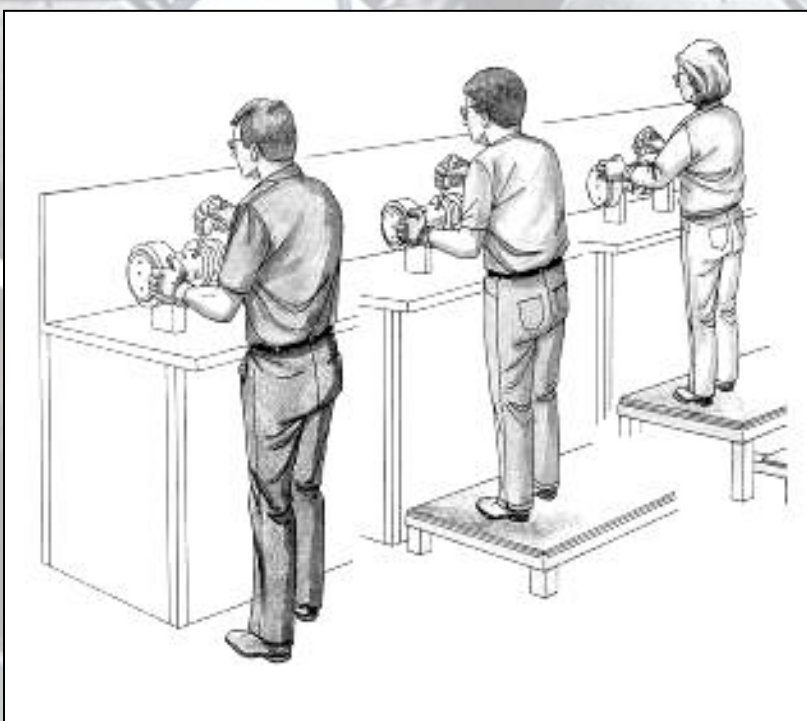
HAZARDS OF LOW LIGHT

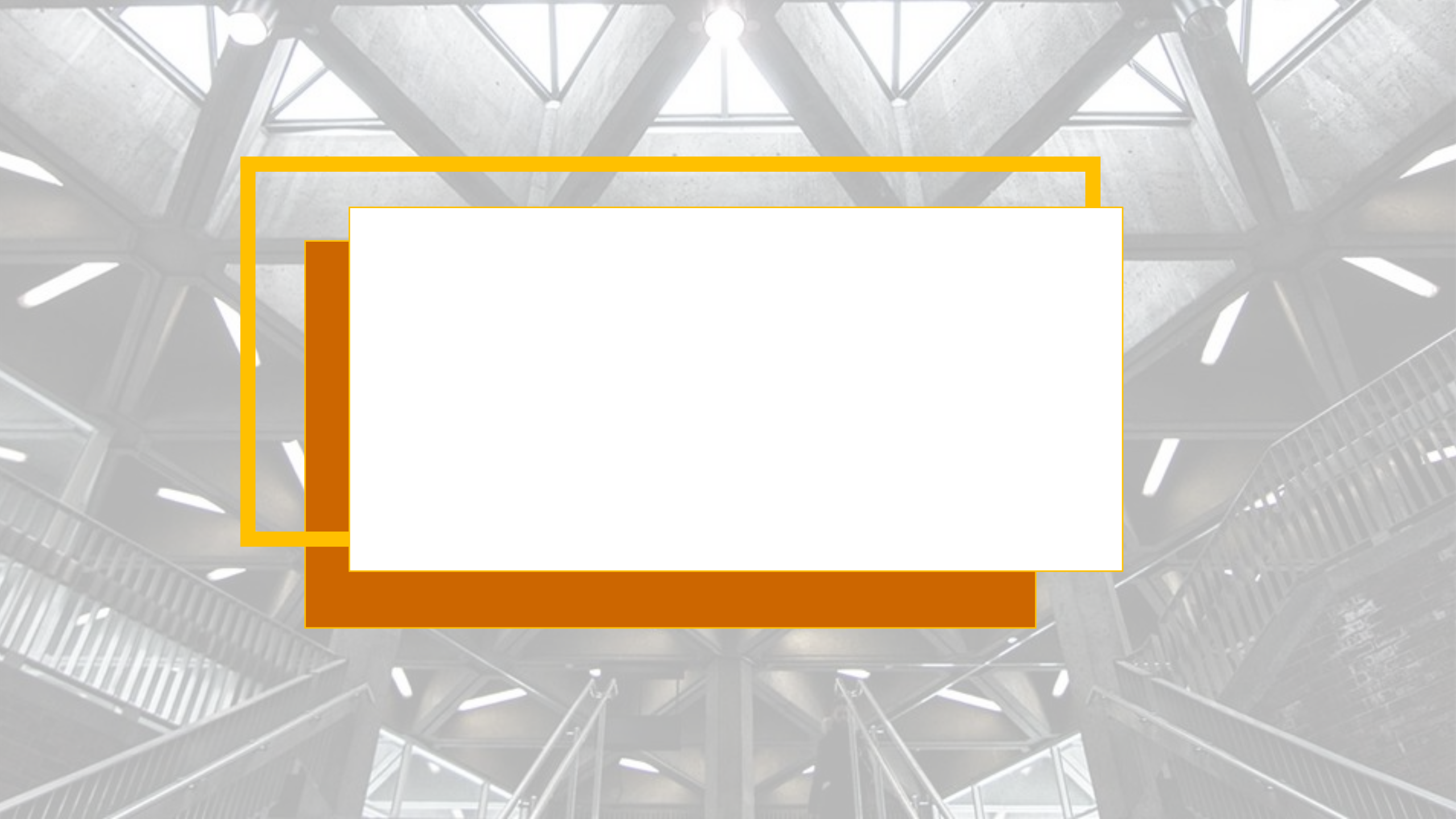
- Awkward postures
- Muscle fatigue
- Eye strain
- Mental fatigue
- Do the wrong thing!

ENGINEERING CONTROLS

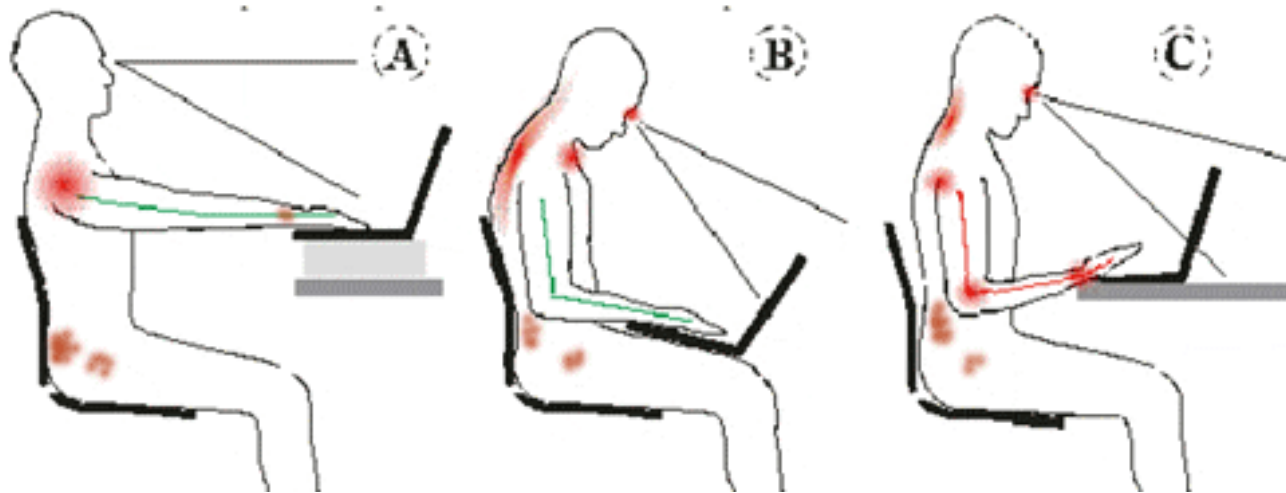
- Make physical changes to tasks.
- Act on the source of the hazard.
- Control employee behavior and practice. (Training!)
- Do not require “self-protective” action.
- Modify or redesign the work areas/stations/shops
- Rotate jobs/positions
- Add more people to a task

(Labor/Time/Money/Space/Resources)





Laptop only



Head up, but arms up
causing shoulder pain and
overreach

Arms down, but head
down causing neck and
upper back tension

Head up and arms
lower, now resting on
table cutting circulation
off to hands

No Ideal position for long term use of laptop. If at all possible, limit duration of use to 1 hour or less

Why



EXERCISES, WARM-UPS, & TEAM BONDING



Benefits of ergonomics include:

- safer jobs with fewer injuries**
- increased efficiency and productivity**
- improved quality and fewer errors**
- improved morale**