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Situational Awareness

For a Healthy and Safe Place to Work!

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Ever had this happen?



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Why did this happen?

- ▶ **Used steps many times**
- ▶ **This time floor was wet**
 - Assumed it was dry
 - And why not, it had been dry before!
- ▶ **Complacency had set it!**
 - Repetition leads to lack of awareness
 - It had become common place!



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How to prevent this from happening?

- ▶ **Situational Awareness**
 - Situational awareness is being aware of what is happening around you in terms of where you are, where you are supposed to be, and whether anything around you is a threat to your health and safety



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Situational Awareness

- ▶ **Four Steps**
 - **Stop**
 - **Look**
 - **Identify**
 - **Manage**



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Who best to use Situational Awareness?

- ▶ **People who are the Experts in the job!**



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What are the FACTORS?

- › Things we do or we don't do that result in a healthy and safe place to work?



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Fatigue Control and Recovery

- › Prevent fatigue in the workplace?
- › NO!
 - Fatigue is natural part of cycle of life!
- › Learn strategies to control fatigue
- › Learn strategies to recover from fatigue to get ready for the next shift or other activities



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Ergonomics

- › Does design of tools, equipment and workstations have impact on injuries?
- › Professional carpenter spend how much on tools and why?
 - Safer
 - Quicker
 - More productive



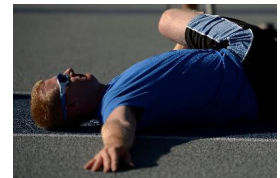
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Stretching/Warm-up

- › Does stretching/ warm-up prior to, during and after physical activity have an impact on injuries?
- › Do athletes warm up/cool down and why?
- › Yes!
 - Otherwise increase risk of injury
 - Able to compete at a higher level



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Body Mechanics/Work Techniques

- › Do body mechanics and work techniques have impact on injuries?
- › Ask professional weightlifters – what is more important: STRENGTH or TECHNIQUE?
- › **TECHNIQUE!**



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Physical Fitness

- › Does level of physical fitness (strength, flexibility, aerobic capacity) have impact on injuries?
- › Is your work physically demanding?!?!
- › But does work provide all physical fitness you need?



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Health and Wellness

▶ **Does general health and wellness have an impact?**

- Diet and nutrition
- Body weight control
- Stress management
- Smoking cessation
- Blood pressure control
- Adequate rest/sleep
- Fluid intake - don't get dehydrated

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Health and Safety Factors

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How to Recognize Fatigue

▶ **Physical fatigue**

- Physically demanding
 - Highly repetitive
 - Result in muscle fatigue
 - Decreased hand-eye coordination

▶ **Mental fatigue**

- Long periods of vigilance
 - Highly repetitive
 - Tight deadlines
 - Making mistakes

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Control Fatigue at Work

▶ **Job rotation!**

- Provides both physical and mental task variety
- Give the body and mind a change of pace

▶ **Take breaks!**

- Use breaks as recovery time (both physical and mental)
- Get away from the workstation – change of scenery

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Control Fatigue at Work

▶ **Hydration!**

- Maintains blood pressure and blood flow to vital organs of body
- Proper fluid concentration levels
 - Sodium, potassium and calcium for healthy cellular activity
 - e.g. reduces muscle cramping
- Hydration tips
 - Water
 - Try to avoid caffeinated/sugared drinks
 - How much?
 - 30 to 40% of body weight in ounces/day
 - Weigh 180#, drink 54 to 72 ounces/day
 - Listen to your body
 - Urine color - pale

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Control Fatigue at Work

▶ **Nutrition – we are what we eat!**

- Regular consistent consumption
- Don't skip breakfast!

▶ **Combination of complex and simple carbohydrates**

- Carbohydrates are sugars that break down into glucose (fuel for body)
 - Complex slow burning carbohydrates provide energy over time
 - Whole grains, potatoes, squash, pumpkin and carrots
 - Simple fast burning carbohydrates provide more immediate source of energy
 - Fruits, vegetables and honey
- Simple sugars found in candy bars, soft drinks and cookies provide quick boost, but then a **big letdown afterward!**

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Control Fatigue at Work

- ▶ **Nutrition!**
 - Add in proteins
 - Meat, poultry, fish, eggs, beans, nuts, soy, and low-fat dairy products
 - Healthy fats
 - Unsaturated fats: found in foods like olive oil, avocados, nuts, and canola oil
- ▶ **Balanced nutrition is the goal!**



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Recover from Fatigue at Home

- ▶ **Rest**
 - 7 to 8 hours sleep
 - Adequate mattress
 - Darkened room
 - Sleep mask with ear plugs
- ▶ **Nutrition/Fluid**
 - Same as at work
- ▶ **Personal/Family time**
- ▶ **Physical Fitness**
- ▶ **Health and Wellness**



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Health and Safety Factors



- ▶ Fatigue control and recovery
- ▶ **Ergonomics**
- ▶ Stretching/Warm-up
- ▶ Body Mechanics/Techniques
- ▶ Physical Fitness
- ▶ Health and Wellness

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What is Ergonomics?

- ▶ **Ergonomics is working smarter not harder!**



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Ergonomics Principles




- ▶ Promote effective work processes
- ▶ Position and support body in neutral
- ▶ Work in power zone
- ▶ Provide correct tools, equipment and facilities

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Promote effective WORK PROCESSES

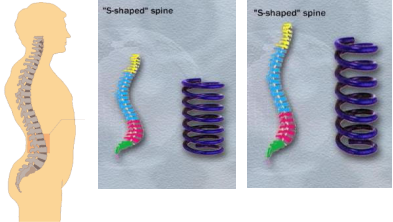
- ▶ Take step back and really examine why something is done as it is
- ▶ If answer is... *'Because it has always been done that way!'*
- ▶ Take fresh look
- ▶ Is there better way to get it done?



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Position and support BODY IN NEUTRAL

- ▶ **Spine neutral position**
 - S-shape
- ▶ **Spring like**
 - Straight rod
 - Spring



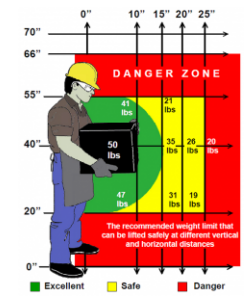
Two models of a spine are shown: one as a straight rod and one as a spring. Both are labeled '*S-shaped* spine'.

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Work in POWER ZONE

- ▶ Stature and arm's length determine Power Zone
- ▶ Determine individual reach and set up workstation to promote work in that zone



The diagram shows a worker at a workstation. A chart indicates the 'DANGER ZONE' for lifting weights. The vertical axis shows heights from 0" to 70". The horizontal axis shows distances from 0" to 25". The chart is divided into three zones: Excellent (green), Safe (yellow), and Danger (red). The recommended weight limits for each zone are as follows:

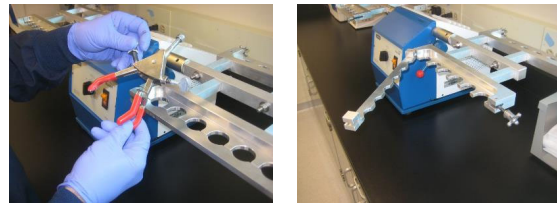
| Vertical Distance (ft) | Horizontal Distance (ft) | Weight Limit (lbs) | Zone |
|------------------------|--------------------------|--------------------|-----------|
| 0 - 20 | 0 - 10 | 50 | Excellent |
| 0 - 20 | 10 - 15 | 47 | Excellent |
| 0 - 20 | 15 - 20 | 41 | Excellent |
| 0 - 20 | 20 - 25 | 35 | Excellent |
| 20 - 40 | 0 - 10 | 35 | Safe |
| 20 - 40 | 10 - 15 | 31 | Safe |
| 20 - 40 | 15 - 20 | 26 | Safe |
| 20 - 40 | 20 - 25 | 21 | Safe |
| 40 - 55 | 0 - 10 | 21 | Danger |
| 40 - 55 | 10 - 15 | 19 | Danger |
| 40 - 55 | 15 - 20 | 15 | Danger |
| 40 - 55 | 20 - 25 | 11 | Danger |
| 55 - 66 | 0 - 10 | 11 | Danger |
| 55 - 66 | 10 - 15 | 7 | Danger |
| 55 - 66 | 15 - 20 | 5 | Danger |
| 55 - 66 | 20 - 25 | 3 | Danger |

The recommended weight limit that can be lifted safely at different vertical and horizontal distances.

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Provide Correct TOOLS, EQUIPMENT and MATERIALS



Two photos showing hands using tools on a workbench.

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Office/Lab Ergonomics Set-up



Four photos showing different ergonomic setups in an office/lab environment.

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Office/Lab Components

- ▶ **Chair**
 - Adjust for support
- ▶ **Foot support**
 - Floor or footrest
- ▶ **Computer**
 - Monitor
 - Keyboard
 - Mouse
- ▶ **Worksurface**
 - Relationship
 - Adjust
- ▶ **Equipment**
 - Position
 - Correct use



Six photos showing various ergonomic components and setups.

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Health and Safety Factors



A clipboard with a checklist of health and safety factors.

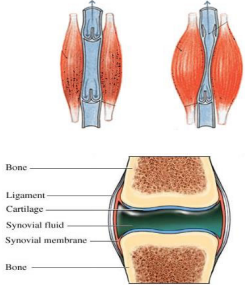
- ▶ Fatigue control and recovery
- ▶ Ergonomics
- ▶ **Stretching/ Warm-up**
- ▶ Body Mechanics/ Techniques
- ▶ Physical Fitness
- ▶ Health and Wellness

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Stretching: What's it all about?

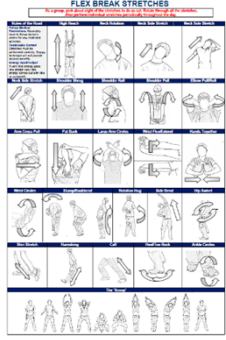
- ▶ **Oxygen**
 - Helps heart because muscles act like pumps
 - Increased blood flow
 - More oxygen and nutrition
- ▶ **Joint Lubrication**
 - Movement stimulates production of joint lubricating fluid
 - Improve joint health



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Stretching Guidelines


- ▶ Absolutely have to follow Doctor's orders for any restricted activities
- ▶ Technically correct
- ▶ Energy Input/output
- ▶ Neutral position
- ▶ Joint noises
- ▶ Don't hold breath
- ▶ Regular and consistent
- ▶ Intensity/controlled stretching



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Stretches - Demonstration


- ▶ **Back Bend**
- ▶ **Elbow Pull**
- ▶ **High Reach**
- ▶ **Large Arm Circles**



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Bottom Line . . . Why Stretch?

- ▶ Alertness levels
- ▶ Help prevent injuries
- ▶ Control stress
- ▶ Reduce muscle tension
- ▶ Increase flexibility
- ▶ Develop body awareness
- ▶ **IT FEELS GOOD!**



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Health and Safety Factors



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Body Mechanics/Work Techniques


- ▶ What do we lift everyday?
- ▶ How important are work techniques?



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Lifting Techniques Basics

- ▶ **Planning**
 - Think lift through
 - Know where load will end up
 - Decide if manual or power equipment
- ▶ **Get help if needed**
 - Good communication
 - Partner: Lift in unison




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Power Lift Basics

- ▶ Feet wide
- ▶ Maintain neutral spine
- ▶ Tighten stomach muscles
- ▶ Keep load close
- ▶ Build a bridge
- ▶ Good grip
- ▶ **LOOK UP!**



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Power Lift Basics

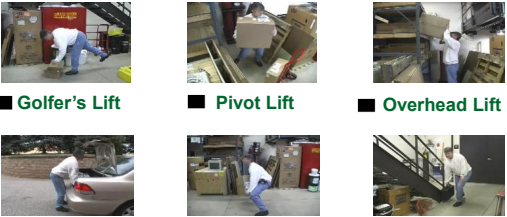
LOOK DOWN **LOOK UP**



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Lifting Techniques



- Golfer's Lift
- Pivot Lift
- Overhead Lift
- Straight Leg Lift
- Power Lift
- Partial Squat Lift

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Health and Safety Factors




- ▶ Fatigue control and recovery
- ▶ Ergonomics
- ▶ Stretching/Warm-up
- ▶ Body Mechanics/Techniques
- ▶ **Physical Fitness**
- ▶ Health and Wellness

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Physical Fitness




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Physical Fitness

- ▶ **Basic Guidelines**
 - Medical check
 - Start slow and easy
 - Reasonable expectations
 - Buddy system
 - Commit for 6 months



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Examples

| | | |
|--|---|---|
|  |  |  |
| Strength | Flexibility | Heart/lung fitness |

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Strength/Endurance

- ▶ How much do you need?
- ▶ Does your work provide what you need?
- ▶ Is your strength balanced?
- ▶ **Basic program**
 - 3 to 4 times per week
 - 5 to 10 repetitions
 - 2 to 3 sets of each exercise



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Flexibility

- ▶ How much do you need?
- ▶ Does your work provide what you need?
- ▶ Is your flexibility balanced?
- ▶ **Basic program**
 - 3 to 4 times per week
 - hold for count of 10 to 15
 - 2 to 3 repetitions

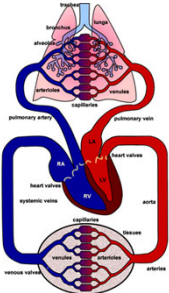


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Fitness/Aerobic Capacity

- ▶ **Measure of body's ability to bring air into lungs**
 - Transfer to red blood cells
 - Supply body with oxygen through the circulatory system
- ▶ **Guidelines**
 - 20 to 30 minutes at moderate intensity
 - 3 to 4 times per week



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Examples

- ▶ Treadmill
- ▶ Bicycle
- ▶ Swimming
- ▶ Park at some distance at destination and walk
- ▶ Take stairs
- ▶ Take dog for a walk
- ▶ You get the point!



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Health and Safety Factors



- ▶ Fatigue control and recovery
- ▶ Ergonomics
- ▶ Stretching/Warm-up
- ▶ Body Mechanics/Techniques
- ▶ Physical Fitness
- ▶ **Health and Wellness**

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Health and Wellness

▶ Does general health and wellness have impact?

- Diet and nutrition
- Body weight control
- Stress management
- Smoking cessation
- Blood pressure control
- Adequate rest/sleep
- Fluid intake - don't get dehydrated



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Personal Self-Assessment Strategies

▶ **Health and Wellness**

- Do you know what your **blood pressure** is?
- Elevated blood pressure:
 - Heart attack
 - Stroke
 - Heart failure
 - Kidney disease/failure
 - Vision loss
 - Sexual dysfunction
 - Angina
 - Peripheral artery disease

| BLOOD PRESSURE CATEGORY | SYSTOLIC mm Hg (upper number) | and | DIASTOLIC mm Hg (lower number) |
|---|-------------------------------|--------|--------------------------------|
| NORMAL | LESS THAN 120 | and | LESS THAN 80 |
| ELEVATED | 120 - 129 | and | LESS THAN 80 |
| HIGH BLOOD PRESSURE (HYPERTENSION) STAGE 1 | 130 - 139 | or | 80 - 89 |
| HIGH BLOOD PRESSURE (HYPERTENSION) STAGE 2 | 140 OR HIGHER | or | 90 OR HIGHER |
| HYPERTENSIVE CRISIS (consult your doctor immediately) | HIGHER THAN 180 | and/or | HIGHER THAN 120 |

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Personal Self-Assessment Strategies

▶ **Health and Wellness**

- Do you know what your **cholesterol levels** are?
- Elevated cholesterol levels:
 - Chest pain
 - Heart attack
 - Stroke

| | National Cholesterol Education Program Cholesterol Guidelines | | |
|--|---|-----------------|----------------|
| | Desirable | Borderline High | High |
| Total Cholesterol | Less than 200 | 200 - 239 | 240 and higher |
| LDL Cholesterol (the "bad" cholesterol) | Less than 130 | 130 - 159 | 160 and higher |
| HDL Cholesterol (the "good" cholesterol) | 30 and higher | 40 - 49 | Less than 40 |
| Triglycerides | Less than 200 | 200 - 399 | 400 and higher |

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Personal Self Assessment Strategies

▶ **Health and Wellness**

- Do you know what your **blood sugar levels** are?
- Elevated blood sugar levels:
 - Heart disease
 - Heart attack
 - Stroke
 - Kidney damage
 - Nerve damage
 - Eye damage
 - Skin problems

| Target Blood Sugar Levels for Diabetes | |
|--|---------------------------------|
| Age 20+ | |
| Fasting | less than 100 |
| Before Meal | 70 - 130 |
| After Meal (1-2hrs) | less than 180 |
| Before Exercise | if taking insulin, at least 100 |
| Bedtime | 100 - 140 |
| Amount shown above mg/dL | |
| A1c | less than or around 7.0% |

These are general medical guidelines. Please follow your doctor's instructions.

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Health and Safety Factors



- ▶ Fatigue control and recovery
- ▶ Ergonomics
- ▶ Stretching/Warm-up
- ▶ Body Mechanics/Techniques
- ▶ Physical Fitness
- ▶ **Health and Wellness**

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Situational Awareness

- ▶ Four Steps
 - Stop
 - Look
 - Identify
 - Manage




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Summary and Close

- ▶ Situational Awareness for a healthy and safe workplace!
- ▶ Integrate strategies into day-to-day routine!



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Thanks!

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Situational Awareness

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Menu

- ▶ Title Slide
- ▶ Situational Awareness
- ▶ Factors
- ▶ Fatigue Control
- ▶ Ergonomics
- ▶ Stretching
- ▶ Body Mechanics
- ▶ Physical Fitness
- ▶ Health and Wellness
- ▶ Close
- ▶ Menu



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