

# Ergonomics Awareness for Crew Members

## Deck & Engine



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**Sailing towards...**

**“A WORKPLACE WHERE NO ONE GETS HURT”**





# Outline

- What is ergonomics?
- What are cumulative trauma disorders?
- Royal Caribbean's **Ergonomics Process**
  - The Ergonomics “Hit List”
- Practice





# Definition of Ergonomics



**Fitting The  
Job  
To The  
Person**





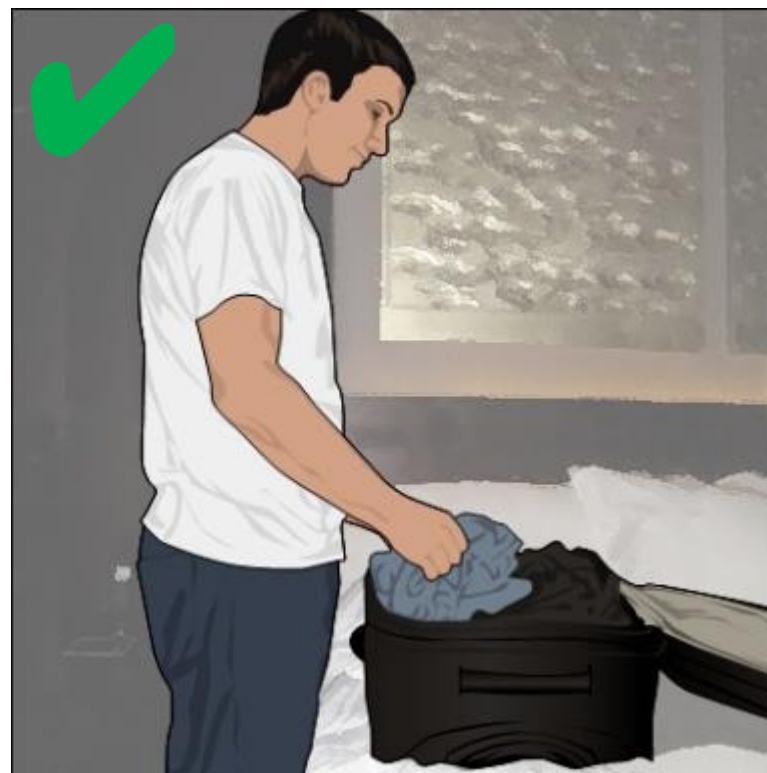
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# The Wrong Tool or Setup



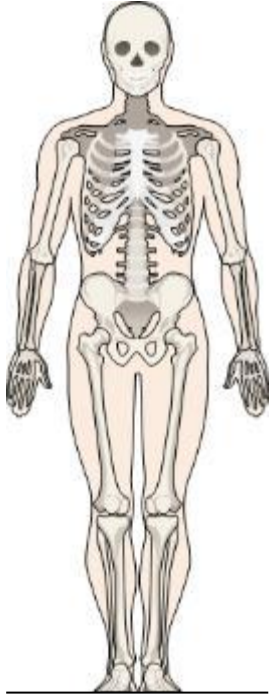


# The Wrong Tool or Setup





## The Problem – CTDs



# Cumulative Trauma Disorders

Problematic injuries that occur over time





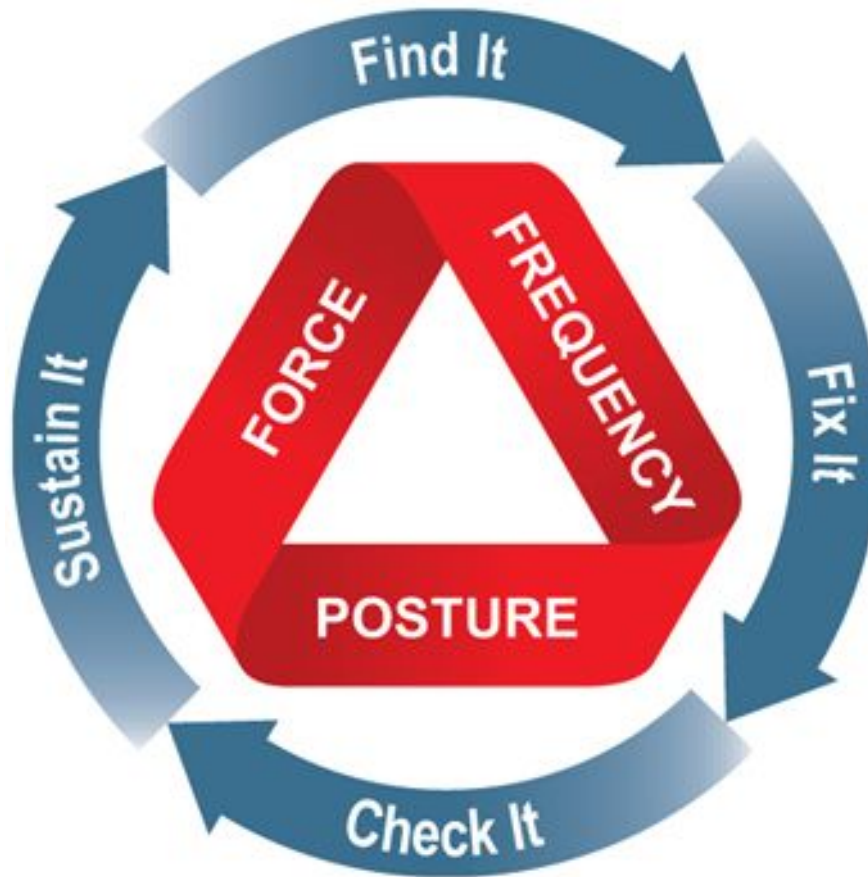
# Symptoms of CTDs








# Preventing CTDs with an Ergonomics Process





# The Ergonomics Hit List

- Identifying Hit List items



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## ERGONOMICS HIT LIST®

Work Doesn't Need To Be A Pain!®  
Would you do it this way?

Find It

- Butts Up
- Contact
- Elbows Out
- High Force
- Shoulder Too High
- Twist and Shout

Ask the Operator™

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# Ergonomics Hit List



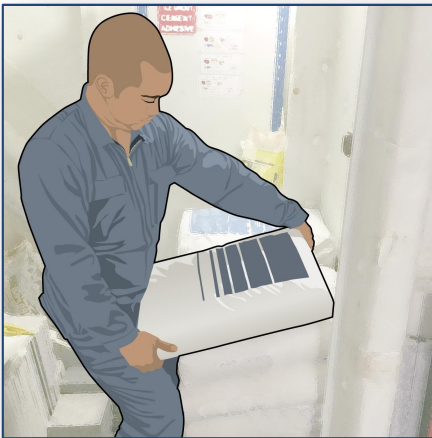
Butts Up



Contact



Elbows Out



High Force



Shoulder Too High



Twist and Shout





# Butts Up



**Butts Up:** bending over to complete a task that is too low

- Flexion at the back





## Butts Up – Cement Repair Example

- Root cause = reaching too low to pick up cement mix





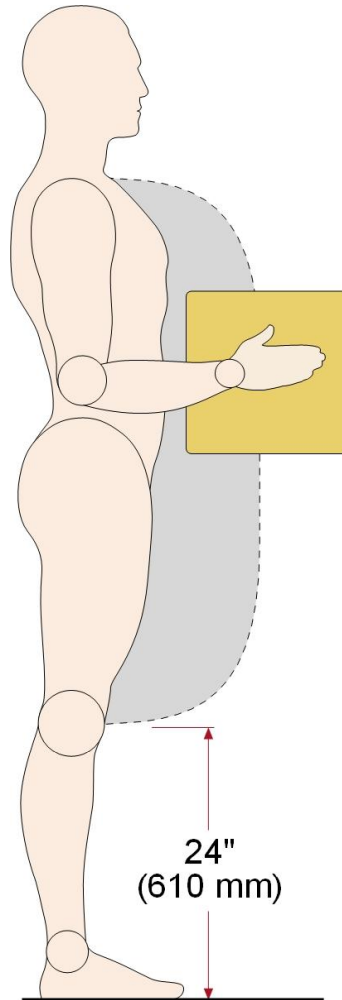
## Butts Up – Cement Repair Example

- Provide a lift table





# Keep Work Above the Knees





# Contact



**Contact:** occurs when leaning or kneeling against a hard or sharp surface

- Blood flow is reduced under compression







## Contact – Mineralizer Tank Example

- Root cause = reaching across over hard ledge





# Contact – Mineralizer Tank Example

- Use a taller ladder





# Elbows Out



**Elbows Out:** working with your elbows away from your body

- Extended reaches in any direction beyond normal reach





## Elbows Out – Coffee Machine Repair Example

- Root cause = reaching too high over coffee machine





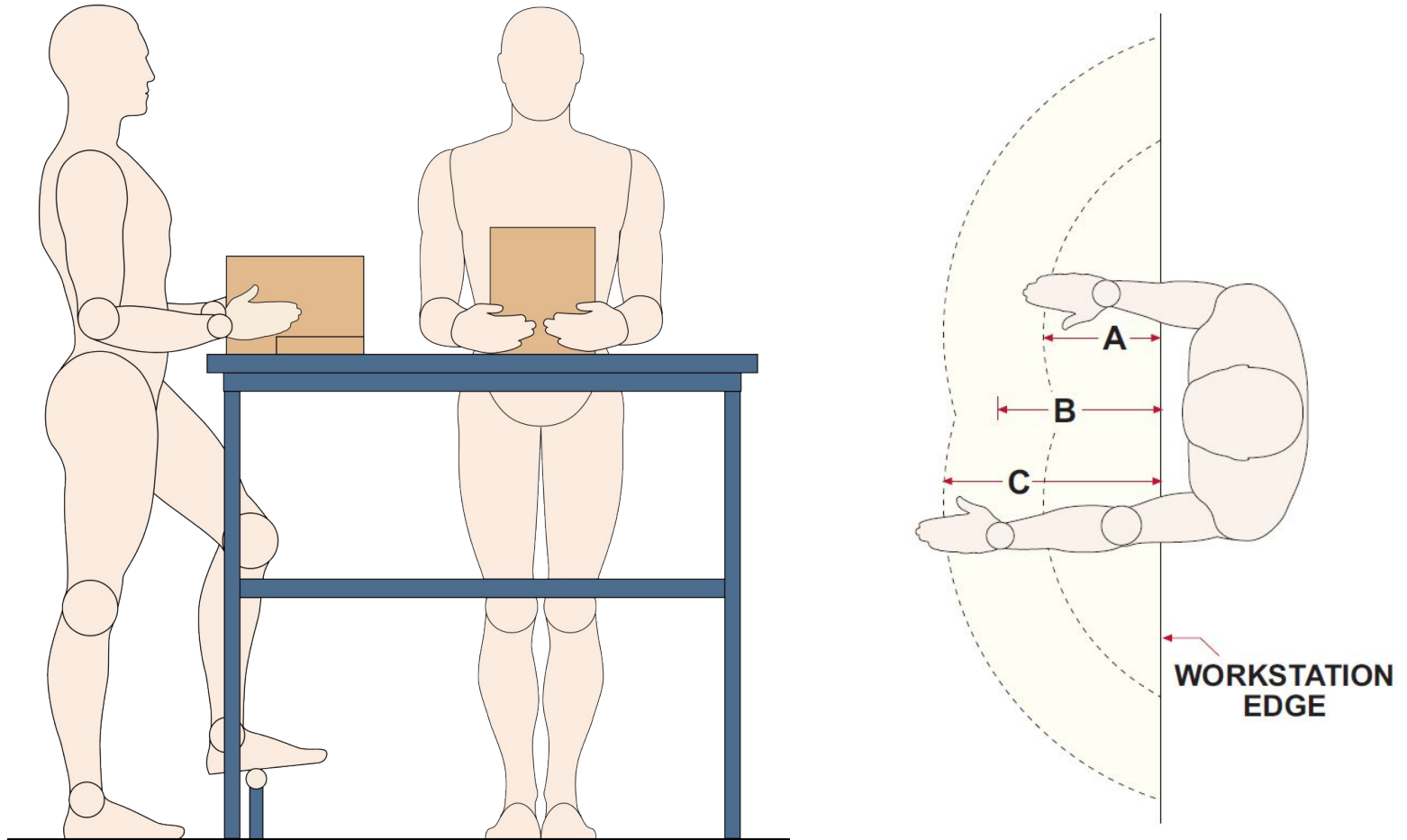
# Elbows Out – Coffee Machine Repair Example

- Use a taller ladder



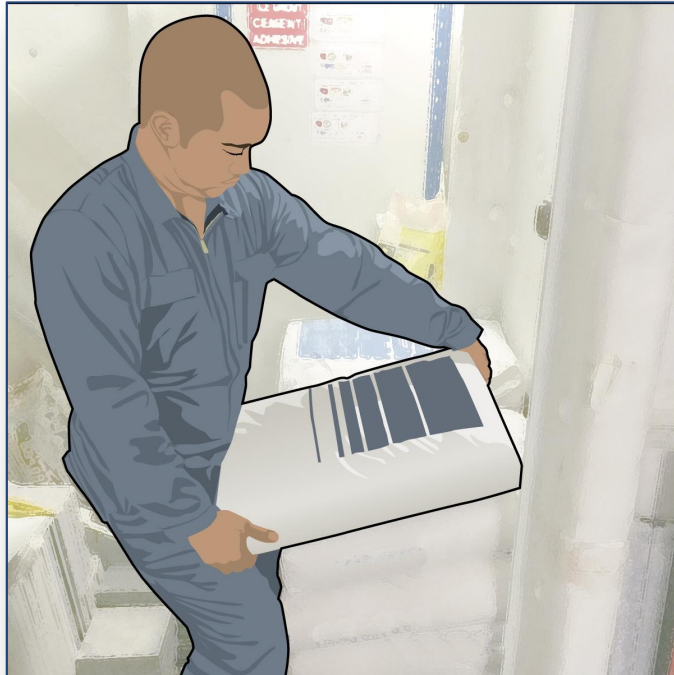


# Work with Elbows at the Sides





# High Force



**High Force:** exerting an effort beyond safe limits

- Lifting heavy objects and applying high grip forces



## High Force – Security Example

- Root cause = the cart is too heavy

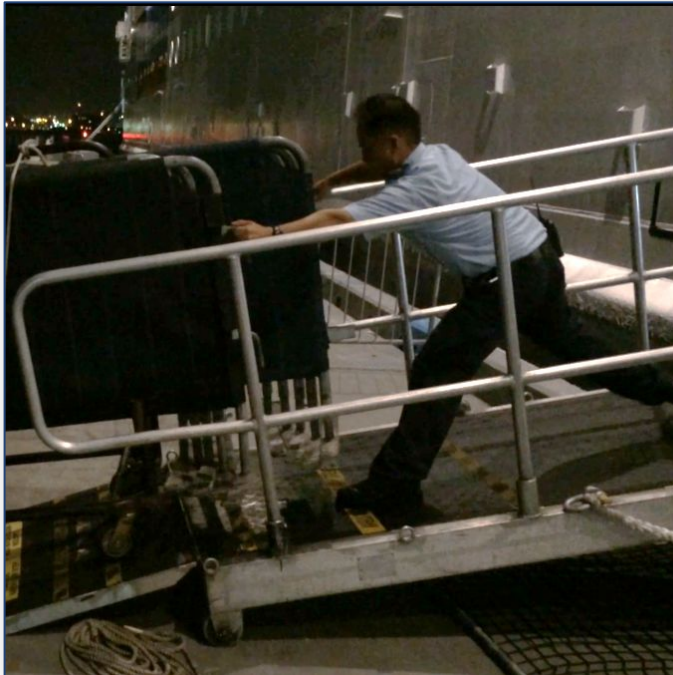






## High Force – Security Example

- Use a powered mover to help move heavy cargo





# Shoulder Too High



**Shoulder Too High:** reaching too high to perform task

- Working above shoulder height





## Shoulder Too High – Green Room Example

- Root cause = reaching too high to dump the bin





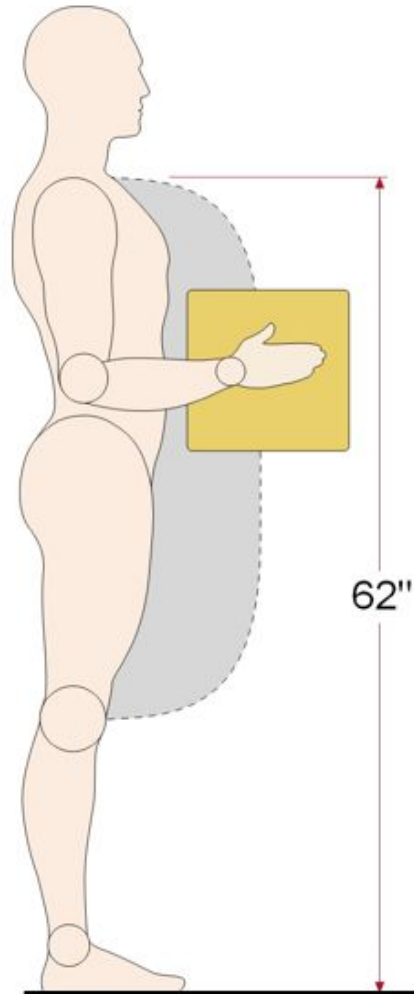
# Shoulder Too High – Green Room Example

- Use a bin lifter





# Work Below the Shoulders





# Twist and Shout



**Twist and Shout:** twisting at the torso while working

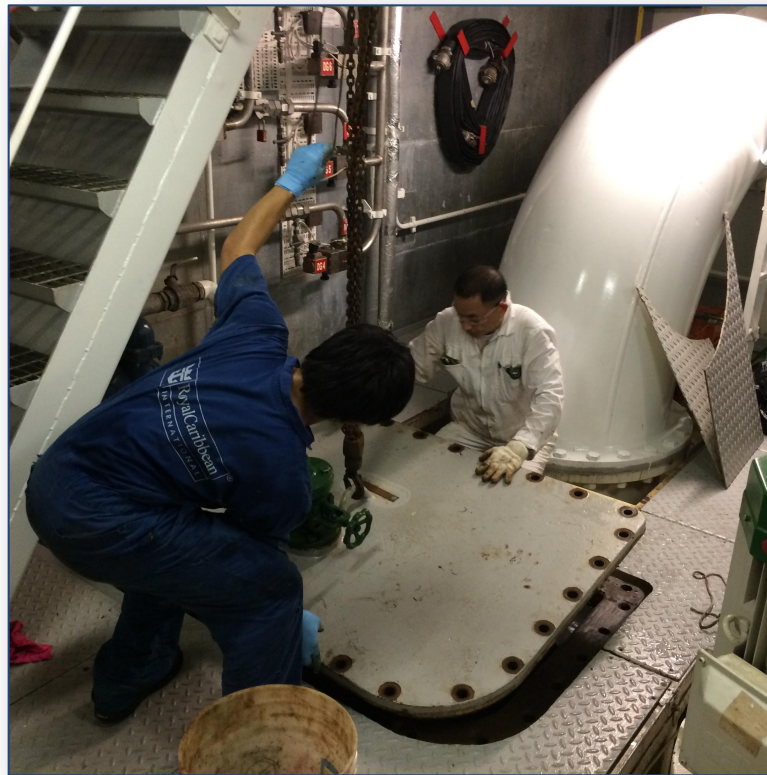
- Not moving your feet and twisting so that your feet, hips, and shoulders are misaligned.





## Twist and Shout – Sea Chest Example

- Root cause = The controls are too high





## Twist and Shout – Sea Chest Example

- Extend the control so it's accessible at lower heights

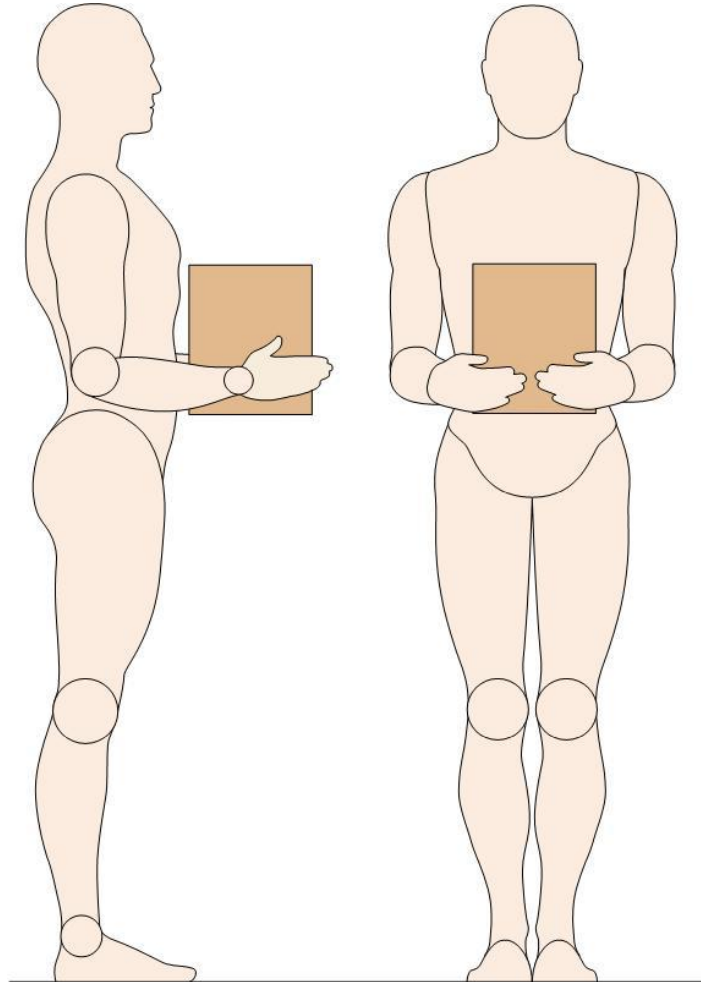






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# Don't Twist, Move Your Feet





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# What Do You See?





# What Do You See?



**Shoulder  
Too High**

**Butts Up**





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# What Do You See?





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# What Do You See?



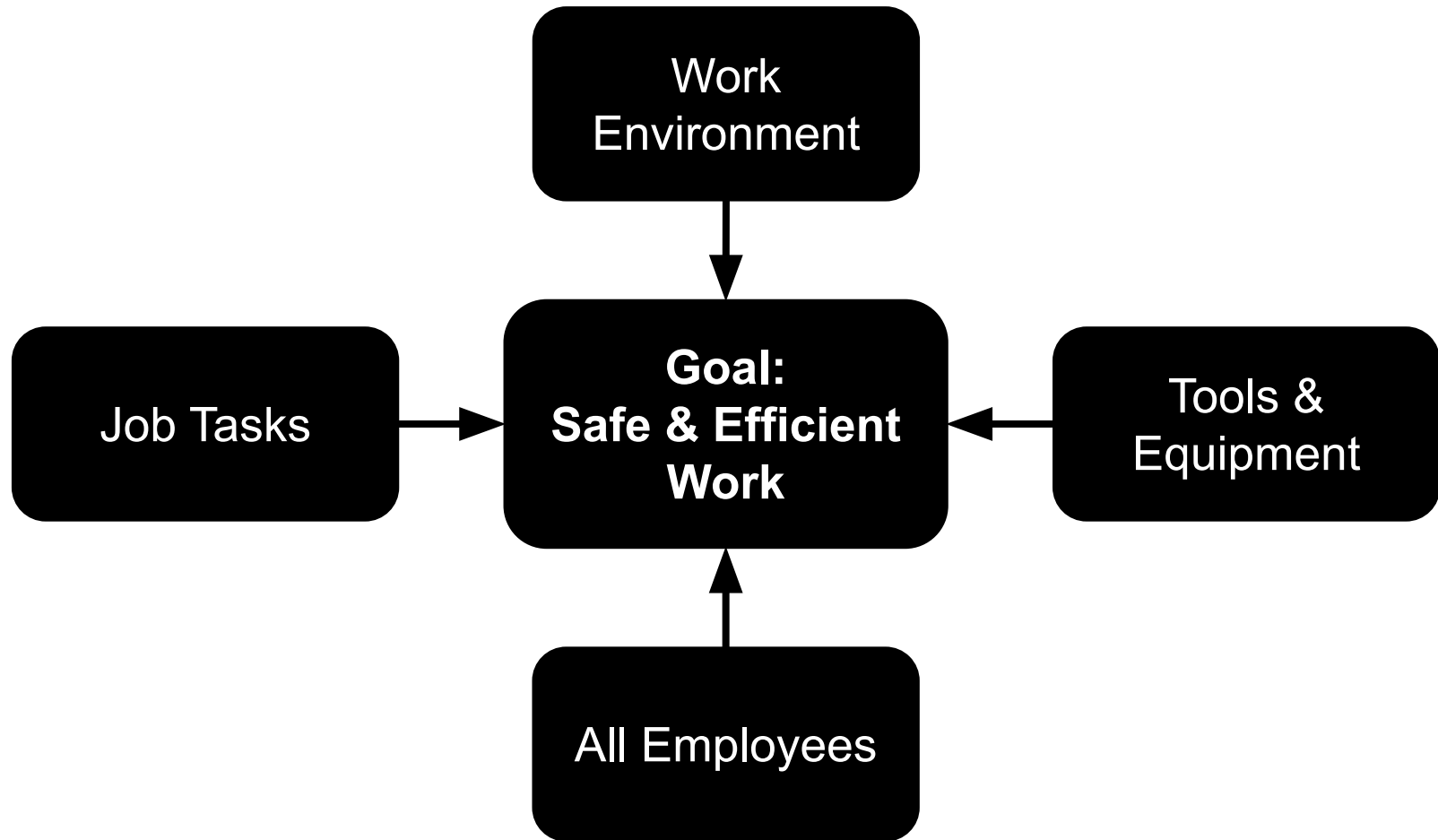
**Twist  
and Shout**

**Contact**





# What Do We All Want?





# Questions?





**People make productivity happen**



This is  
The Ergonomics  
Process

**human<sub>tech</sub>**<sup>®</sup>  
The 30-Inch View<sup>®</sup>