Brewery Ergonomics and Safety

How to stay safe in your brewery
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Learning Objectives

- Describe the current literature regarding musculoskeletal injuries within breweries
- Discuss work related stress in breweries
- Recommendations to:
  - Improve health and wellness of brewers and employees
  - How to lift correctly
  - Promote range of motion and core stability to prevent back injury
- Provide creative ideas on how to implement exercise programs in your brewery
- Provide basic guidelines for ergonomic setup and design
### Background Literature

<table>
<thead>
<tr>
<th>Injury Rates: Manufacturing</th>
<th>Common injuries</th>
<th>Breweries</th>
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<tbody>
<tr>
<td>Bureau of Labor and Statistics (BLS) reports (2019)</td>
<td>Leads to risk of musculoskeletal disorders</td>
<td>Since 2006 injury and illness rates ranged from 3.6/100 cases (full time) to high of 5.8/100 cases in 2014 (Delainy and Hanes, 2014)</td>
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<tr>
<td>• 32,470 days away from work due to sprains, strains and tears</td>
<td>• Improper lifting</td>
<td>• 2019 BLS reports 3.5/100 = steady rates of injury</td>
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<td>• 16,790 cases of pain</td>
<td>• Repetitive work patterns</td>
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<tr>
<td>• Manufacturing accounts of 15% of injury and illness</td>
<td>• Awkward body postures</td>
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Why Safety Matters:

Will you risk it?
Things to consider

We work HARD! How do stress, fatigue and inactivity affect your brewery

We are getting OLDER, not younger….yes you….

Some of you work multiple jobs in and out of your brewery...this leads to fatigue, lack of sleep, reduced attention and reduced productivity

We are not as healthy as we think we are or want to be….yes... beer has calories...

Impact

• Average cost per lost time due to injury in a manufacturing industry is $32, 527

• AFTER WORKERS COMP
Occur when workers are exposed to repeated and prolonged work-related activities such as:

Tasks that require increased force
- Moving/pushing/pulling/mashing

Abnormal movements and postures;
- Bottling/canning/kegging

Twisting/rotating
- Keg washers

Repetitive lifting (+35lbs)
- Grain 55lbs; hops 44lbs

Contact stress
- Standing too long in 1 place

Overexposure to vibration
- Loud sounds

Musculoskeletal disorders (MSDs) are injuries and disorders from muscles, nerves, tendons, ligaments, joints, cartilage, and spinal discs.

MSDs cause significant damage to the body resulting in pain and discomfort which can impact participation in the workforce.
Brewery Safety and Ergonomic Study Demographics

- Over 3,887 surveys sent out
  - 670 surveys opened
    - 207 surveys completed
    - 191 surveys included in study (20%)
- 43 states represented
- Average age is 40.67 years old
- 77% identified as male
- 60% are the owners
Stress in the workplace

- Report Stress: 84
- Report no stress: 16
66% reported that work related stress has affected their work life

82% reported that work related stress has affected their home life
Pain Vs Injury Rates

69% Report pain since employment

37% Report injury since employment
**HOW**

1. Repetitive Motion (22)
2. Bending (22)
3. Twisting (29)
4. Lifting (62)
PPE and Safety Training

- 69% reported having some type of workplace safety training
- 76% reported having received training on how to properly manually lift equipment/materials;
- 38% reported having concerns for their long-term physical and/or mental condition as they age in their brewery
- 53% reported feeling that they should be using/wearing certain PPEs that they are not currently using/wearing
Apply and Learn

Educate Yourself!
Safe Lifting & Back Injury

- Highly prevalent in brewing industry
- Anatomy is key!
- Humans can be lazy, like to cheat!
- Awkward Positions and Weights
- Don’t do it yourself, ask for help
- Train for specific muscles & movements
TECHNIQUE

Buddy up

Keg lifter

Self Stacking kegs

Nope
Key Lifting Concepts

- Loading hips, hamstrings and glutes
- Keep back straight (Neutral Spine)
- Posterior weight shift
- Bend at hips
- Engage Core - “Butt and Gutt”
Other good lifting options

Beer pick up

• Spine stays neutral
• Easy
• Low weight objects
MOBILITY
Range of motion & Stretching

Beer Cooler Stretches
Do these stretches 3 times before stocking the cooler.
DEVELOPING MOBILITY
Stretching

Key areas for low back
1. Hamstrings
2. Quads
3. Gluteals
4. Spine - flex, ext, rotation
5. Shoulders

Other
1. Wrist
2. Elbow

15-20 secs each = 5 mins
Stretching - Hamstrings and Gluteals

**Standing Hamstring Stretch**
Connected to pelvis/lower spine
Can affect mobility

Glutes are the Power House for Lifting
Stretching – Quads and Hip Flexors

Standing Quad Stretch/Additional Pec Stretch

Half kneeling stretch
Push hip forward
Spine Mobility

**Sidebending**

**Flexion**

**Extension**
Spine Mobility

Extension

Side flexion

Rotation
Wrist & Shoulders
STABILITY
Strength & Endurance
Planks
Rows
Hip Abductors and Squats
Back Extensions

Single leg Deadlifts

TOES POINTING DOWN
Don’t allow the rear toes to rotate outwards keep them pointing towards the floor

MAINTAIN A FLAT BACK
Pivot at the hips and keep the rear leg and back in straight alignment throughout the movement

DON’T HUNCH THE SHOULDER
Draw the shoulder into its socket but keep the shoulder down away from the ear

ALLOW SOFT KNEES
Don’t lock out the leg, keep the knee slightly bent

DRIVE THROUGH THE HEEL
Use the hamstrings and buttocks to lift the kettlebell

ENGAGE THE CORE
Draw the belly button in towards the spine and brace during the lift

ENGAGE THE GLUTES
At the top of the movement squeeze the buttocks tight

TIGHT GRIP
A strong grip will activate the shoulder correctly

#CraftBrewersCon
Some useful tools for your tool belt
Small changes to your routine!

- Show up 10 minutes early to stretch
- Stretch or strengthen after mash in
- Create stations around the brewery (like circuit training)
- When you hear your favorite song, stretch/do push ups etc!
- 5 mins before and after packaging
- During keg cleaning

When do we actually have time for this??

#CraftBrewersCon
Try these!

Yoga/Pilates (At your brewery)
Daily morning stretches/core exercises
Signs around brewery - eg team help to lift kegs
Fitness clubs
Adequate Hydration!!! (Beer not included)
Breathing and Relaxation for stress management
Meditation
Brewery Ideas:

- Good lighting matters!
- Use hazard warning tape or bright paint to highlight tripping hazards

Brewing and Milling:

- Place materials at appropriate levels
- Pool noodles can block hot piping
- Place Mill in the basement/or create a stable pallet platform to prevent overhead lifting

Packaging:

- Tables/conveyors should be waist height
- Place bottles and cans to the sides not behind
- Use extra pallets or a pallet jack to bring bottles/cans to waist height
Finally!

- Micro breaks every 30 minutes OR rotate positions every 2 hours
- Train your crew!
  https://www.brewersassociation.org/edu/trainings-workshops/#tab-safety
- Create a safety program in your brewery (Bootcamp)
- Join State Guilds
- Go to conferences
- Talk to your insurance companies
  - Incentives for safety!!
THANK YOU!

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QUESTIONS