



SPRAINS & STRAINS

*Why Your Prevention Efforts
Aren't Working!*

Our Webinar will begin shortly...





SPRAINS & STRAINS

*Why Your Prevention Efforts
Aren't Working!*

Welcome To the Webinar!



TODAY'S PRESENTER

Brian Piñon

Risk Management
Technical Specialist
ICW Group



TODAY'S TOPICS

- Myths vs. Facts
- ICW Group's Risk Framework
- 5 Tips to Reduce Sprain/Strain Risk
- ICW Group's Risk Reduction Tool



MYTHS vs. FACTS

What you think is **FACT**
may actually be a
MYTH!

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MYTHS VS FACTS

icwgroup Insurance Companies

Some will surprise you!

MYTH #1 Injuries caused by sprains and strains are very low

FACT: Sprains and strains commonly cost **86%** more than any other injury

MYTH #2 Training workers how to lift properly is very effective at lowering back injuries

FACT: Studies show **training is ineffective** at impacting injury rates associated with manual lifting

MYTH #3 Back belts help eliminate injuries caused by lifting

FACT: While back belts reduce back bending during lifting, they **don't reduce repetitive injuries**

MYTH #4 Using the squat technique when lifting greatly reduces back injuries

FACT: Spinal compression forces are estimated to be **equal or higher** in squat lifting

MYTH #5 Investing in mechanical lift aids isn't worth the expense

FACT: Mechanical lifts can be great investments, considering an average **low back injury costs \$18K+**

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1

Sprains & Strains are not a problem

Fact:

- 28% of all lost time claims
- #1 injury type for agriculture, construction, manufacturing & warehousing
- 337,000 lost time claims in 2020

SPRAINS & STRAINS MYTHS VS FACTS Some will surprise you!

ICW GROUP Insurance Companies

MYTH #1 Injuries caused by Manual Material Handling is very low
FACT: Manual Material Handling injuries cost **86%** more than any other injury

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Our customers....
5-Year Total

\$558M in claim costs

31% of overall claim costs

30% of claim count

2

Training workers how to lift properly is effective at preventing sprains and strains

Fact:

- Studies show training has no impact on manual lifting injury rates

SPRAINS & STRAINS **MYTHS VS FACTS** **icwGROUP Insurance Companies**
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Training...

5 ½ year study of 3000+ postal workers found no reduction of:

- *median cost per injury*
- *time off from work per injury*
- *back & related musculoskeletal injuries*
- *rate of repeated injury after return to work*

Only the subjects' knowledge of safe behavior was increased by the training!

“A Controlled Trial of an Educational Program to Prevent Low Back Injuries”,
The New England Journal of Medicine; National Institutes of Health



#3

Back belts prevent injuries caused by lifting

Fact:

- Studies show back belts, while reducing back bending during lifting, don't reduce incidence of back injury claims or low back pain

SPRAINS & STRAINS **MYTHS VS FACTS** **icwGROUP Insurance Companies**
Some will surprise you!

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Back Belts

Case Study

160 Retail Stores

89 Required Back Belts

6311 workers surveyed



Back Belts

“In the largest prospective cohort study of back belt use..., neither frequent back belt use nor a store policy that required belt use

was associated with reduced incidence of back injury claims or low back pain. ”

#4

Using the squat lifting technique helps prevent back injuries

Fact:

- Spinal compression forces are estimated to be equal or higher in squat lifting

SPRAINS & STRAINS **MYTHS VS FACTS** **icwGROUP Insurance Companies**
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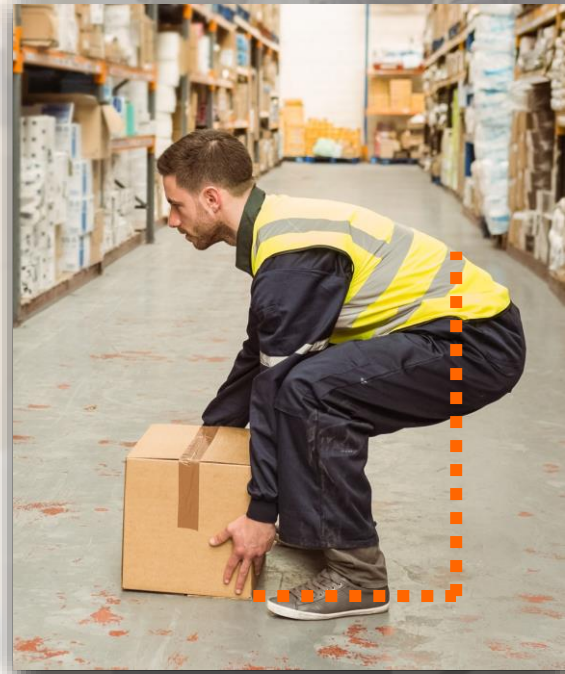
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Stoop vs Squat Lifting

Which is safer?



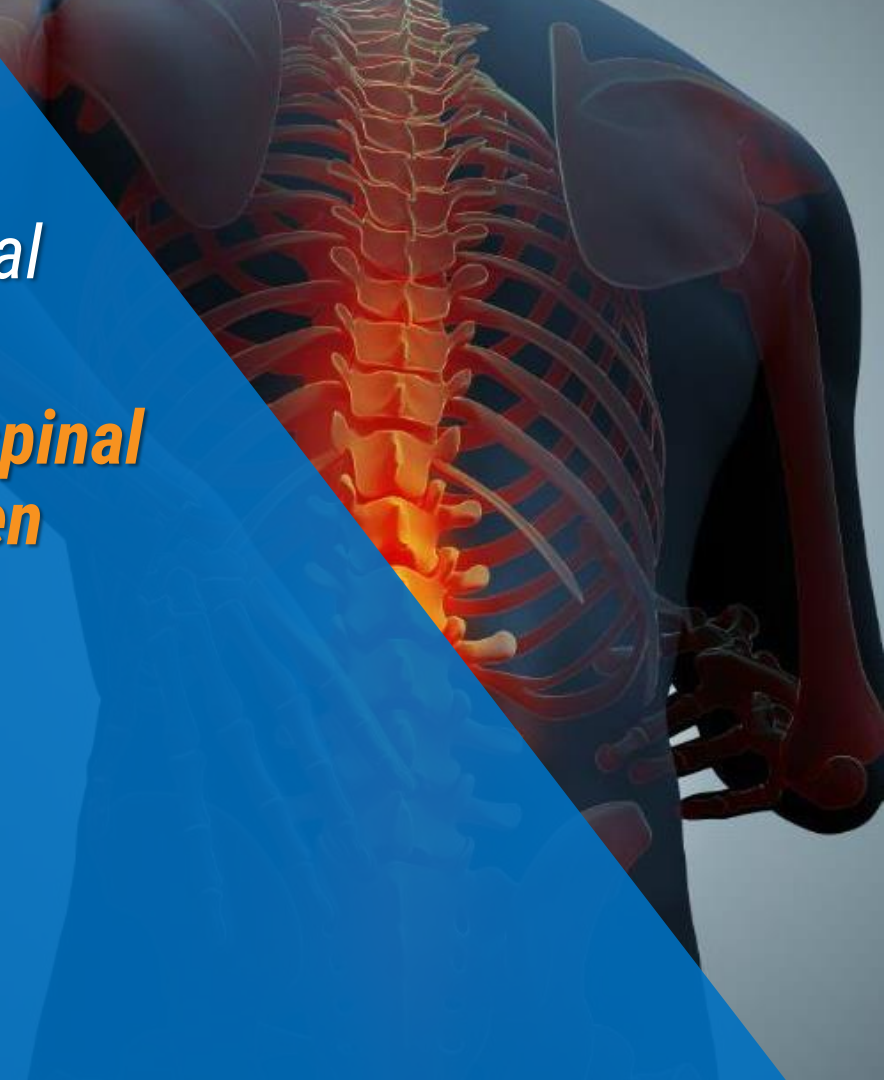
?



Stoop vs Squat Lifting

“The current in vivo biomechanical study...

does not provide evidence that spinal loads differ substantially between stoop and squat lifting.”



Stoop vs Squat Lifting

“...joint moments and powers in the back were found not to be significantly different between lifting techniques,

therefore, imposing similar musculoskeletal loading on the back during squat and stoop lifting.”



Stoop vs Squat Lifting

“In conclusion, this work showed that stoop lifting produced lower total and compressive lumbar loads than squat lifting.”

“The findings of this study provide further support to the notion that there is no one-size-fits-all approach.”



Stoop vs Squat Lifting

- Encourage workers to lift using the posture they find most comfortable



VS.



#5

Investing in mechanical lift aids isn't worth the expense

Fact:

- Mechanical lifts can result in a great ROI – considering a single sprain / strain injury costs ...

\$18,000+ average cost

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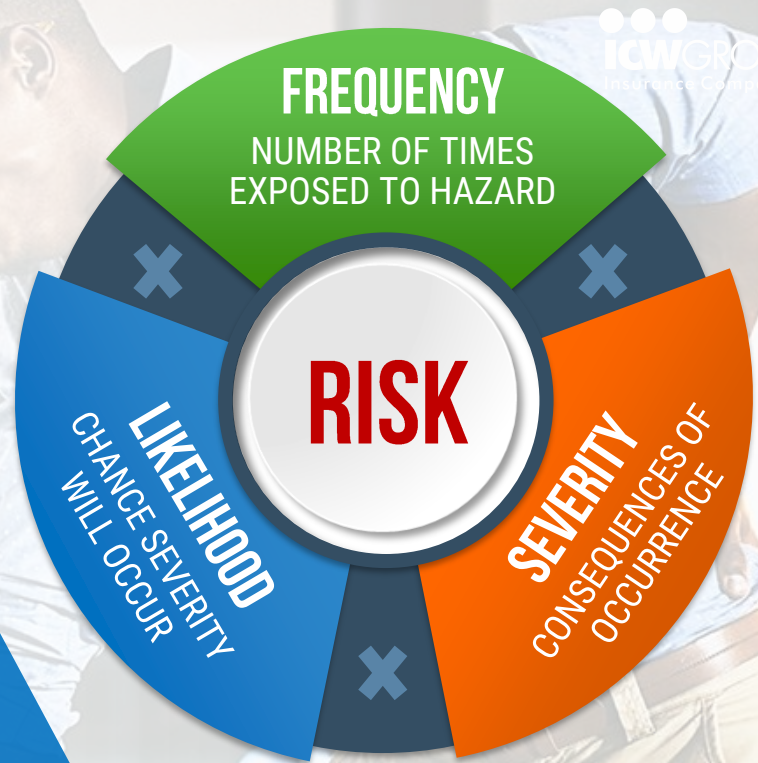
Traditional Approaches

- Body Mechanics Training
- Back Belts
- Get Workers to Keep their Backs Straight



The ICW Group Risk Framework

The Traditional
Approaches Give Way to
New Methods



The ICW Group Risk Framework

FREQUENCY

NUMBER OF TIMES
EXPOSED TO HAZARD

- Number of lifts / pushes / pulls required for tasks

LIKELIHOOD

CHANCE SEVERITY
WILL OCCUR

- Torso twisting
- Below-the-knee lifts
- Over-the-shoulder lifts
- Extended arm lifts
- Load weight
- Force push / pulls
- Task duration
- Quality of grip points

SEVERITY

CONSEQUENCES OF
OCCURRENCE

- Prior injuries
- Health of the worker
- Availability of modified duty

5 Practical Tips to Reduce Sprains & Strains



5 TIPS
To Reduce Sprains & Strains

1 Decrease number and duration of lifts, pushes & pulls required

- Improve process flow
- Use robotic palletizers
- Employ vacuum lifters
- Consider conveyors
- Apply powered tuggers

2 Reduce weight or force required for push & pulls

- Package materials in smaller quantities
- Use smaller containers
- Increase cart wheel diameters
- Replace cart wheels with harder material

3 Avoid "lift & twist" torso strain

- Move lift destination further from origin

4 Limit lifts needing arms extended

- Remove barriers obstructing workers
- Store items on tilted shelves
- Eliminate lifting wide items from below knee

5 Minimize below-knee & over-shoulder lifts

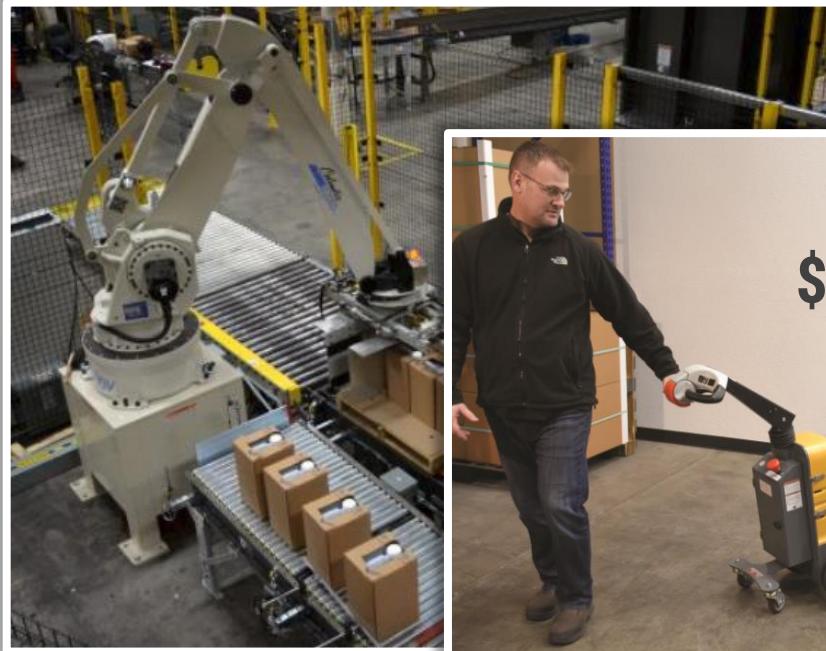
- Store heavier items between knees & chest
- Avoid low & high shelving
- Add bottom shelf to racks
- Elevate pallets
- Use portable lift tables

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- Improve process flows
- Use robotic palletizers
- Employ vacuum lifters
- Consider conveyors
- Apply powered tuggers



1 Decrease number and duration of lifts, pushes or pulls required



\$15,000-\$30,000

\$3,000-\$10,000



1 Decrease number and duration of lifts, pushes or pulls required

- Package materials in smaller quantities
- Use smaller containers
- Increase cart wheel size
- Replace cart wheels with wheels made of harder material



2 Reduce weight or force required for push & pulls

Cost of Reducing Weight Lifted

- Local Hardware Store Pricing on concrete mix:
 - 80 lbs bag: 6.3¢ per lbs
 - 50 lbs bag: 7.8¢ per lbs (24% more expensive)
- Contractor using 8,000lbs/mth switches to smaller bags = \$1428 increased cost per year

\$18,000 avg. cost of just one sprain/strain claim

12.5 years it would take to reach this cost!

2 Reduce weight or force required for push & pulls

Cart Push/Pull Forces

- Doubling wheel diameter halves the force required to get moving and keep moving
- Replacing hard rubber wheels with harder material, like polyurethane...

...can reduce required forces over 80%

2 Reduce weight or force required for push & pulls

Cost of Replacing Cart Wheels

- 6" light-medium duty polyurethane = \$200 per cart
- 15 carts = \$3000
- Wheel maintenance comparable to hard rubber wheels

\$18,000 avg. cost of just one
sprain/strain claim

2 Reduce weight or force
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5 TIPS
To Reduce Sprains & Strains

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- Remove barriers obstructing workers
- Store items on tilted shelves
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5 Minimize below-knee & over-shoulder lifts

- Store heavier items between knees & chest
- Avoid low & high shelving
- Add bottom shelf to racks
- Elevate pallets
- Use portable lift tables

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3 Modify lifts that encourage torso twisting

- Remove barriers obstructing workers
- Store items on tilted shelves
- Eliminate lifting wide items from below knee height



4 Limit lifts needing arms extended

- Store heavier items between knees & chest
- Avoid low & high shelving
- Elevate pallets
- Use portable lift tables



5 Minimize below-knee & over-shoulder lifts



\$250 - \$800



\$2K - \$10K

5 Minimize below-knee & over-shoulder lifts



5 Minimize below-knee & over-shoulder lifts

1. Decrease number and duration of lifts, pushes & pulls required
2. Reduce weight or force required for push & pulls
3. Modify lifts that prompt torso twisting
4. Limit lifts needing arms extended
5. Minimize below-knee & over-shoulder lifts

5 TIPS

To Reduce Sprains & Strains

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To Reduce **Sprains & Strains**

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Sprains & Strains Risk Reduction Tool

Assess tasks

Identify risk factors

Identify practical solutions

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Risk Reduction Evaluation Form

Use this form to assess tasks that commonly cause Sprains & Strains, including lifting, pushing and pulling, and to identify opportunities to reduce the risk of injuries!

Assessment completed by:

Date of assessment:

Sprains & Strains Loss Review – Identify the frequency and costs of claims related to sprains & strains, to define the scope of issues and to justify interventions.

Period considered for loss review	# Related injuries	Work comp claims costs	% Claims	% Claims costs

Manual Lifting (ML) – Describe related tasks, risk of injuries and possible solutions to help overcome the risks.

ML Task	Task description	Weight	Lifts per min / hour	Lifting session duration	Torso twisting	Load held out from body	Lifting over shoulders	Lifting below knees	Sub-optimal grip points
ML Task 1: Risk Factors									
ML Task 1: Possible Solutions									
ML Task 2: Risk Factors									

Sprains & Strains Risk Reduction Tool



Loss Review Section

Loss Review – Complete this section to identify the frequency and costs of MMH claims. This can be used to define the scope of issues and help justify interventions.

Period considered for loss review	# MMH injuries	MMH work comp claims costs	% MMH claims	% MMH claims costs
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Loss Review – Complete this section to identify the frequency and costs of MMH claims. This can be used to define the scope of issues and help justify interventions.

Period considered for loss review	# MMH injuries	MMH work comp claims costs	% MMH claims	% MMH claims costs
8/2014 – 8/2019	8	\$144,000	42%	60%

Sprains & Strains Risk Reduction Tool



Manual Lifting Section

Manual Lifting (ML) – Complete this section by describing related tasks, risk of injuries, and possible solutions to help overcome the risks.

Manual Lifting	ML Task	Task description	Weight	Lifts per min / hour	Lifting session duration	Torso twisting	Load held out from body	Lifting over shoulders	Lifting below knees	Sub-optimal grip points
ML Task 1: Risk Factors	ML Task 1: Risk Factors	Workers repetitively lift bags from a waist-high conveyor onto an adjacent pallet at ground level	20-50 lbs	1 lift per minute	Workers rotate out of the task every 2 hours	Occasional twisting between the end of the conveyor and the pallet	Workers extend the arms to set bags down on the far side of the pallet	No	The first few layers of bags on the pallet are below the knee	No
ML Task 1: Possible Solutions	ML Task 1: Possible Solutions					Place pallet far enough away from conveyor so workers are forced to take a few steps and straighten out their body before setting bags down	Invest in a pallet lifter that rotates and prohibit workers from extending arms to set down bags on the far end of the pallet		Place spare pallets under the one being worked from, or invest in a spring loaded pallet lifter	

Sprains & Strains Risk Reduction Tool



Manual Pushing/Pulling Section

Manual Pushing/Pulling (MPP) – Continue completing this section by describing related tasks, risk of injuries, and possible solutions to help overcome the risks.

Man MPP	MPP Task	Task description	Subjective sense of force required	Frequency of push/pull	Duration (min/sec)	Optimal grip points for applying force	Pushing/pulling over the shoulders	Pushing/pulling below the knees
MPP 1: Ri Facto	MPP Task 1: Risk Factors	Workers push heavy carts 50 feet across the facility throughout day	Workers must lean heavily into cart to get it moving and travel slower than average walking pace	Once every 10 minutes	60 seconds	Yes	No	No
MPP 1: Po Solu	MPP Task 1: Possible Solutions		Consider replacing cart wheels with those of a larger diameter or harder material	Consider investing in a powered tugger	Consider how rearranging workstation layout could result in a smaller travel distance			

Sprains & Strains Risk Reduction Tool



Next Steps Section

Next Steps – Prioritize the Manual Lifting and Manual Pushing/Pulling tasks you’ve identified. Which will you work on first? Add your next steps and proposed date for improving the risk for these tasks. If you have questions or need assistance with your plan, contact your ICW Group Risk Management Consultant – we’re here to help!

Priority #	Task identified (from above)	Describe your next steps	Proposed date	Completed?
1	ML Task 2 – Replace 80 lb concrete bags	Discuss with buyer to procure concrete in 50 pound bags. This should be fairly easy as our first step.	6/14/2019	Yes
2	MMP Task 1 – Replace cart wheels	Check with manufacturer on replacing cart wheels with those of a larger diameter or harder material.	7/29/2019	Yes
3	MMP Task 1 – Invest in power tugger	Observed 4 carts typically being used at same time. Create request for procurement to get quotes on 4 power tuggers. Get these by 3 rd quarter.	9/9/2019	No



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RESOURCES

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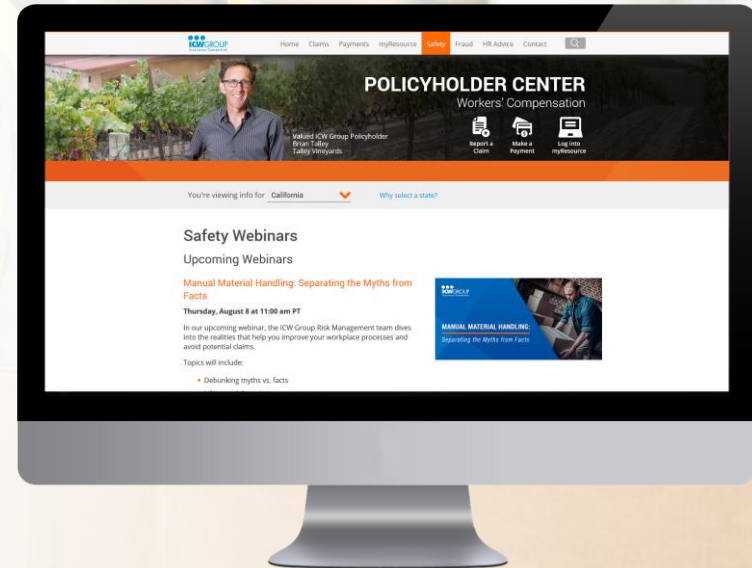
POLICYHOLDER WEBSITE



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POLICYHOLDER CENTER

- Our Safety services
- Safety resources
- Webinars & materials

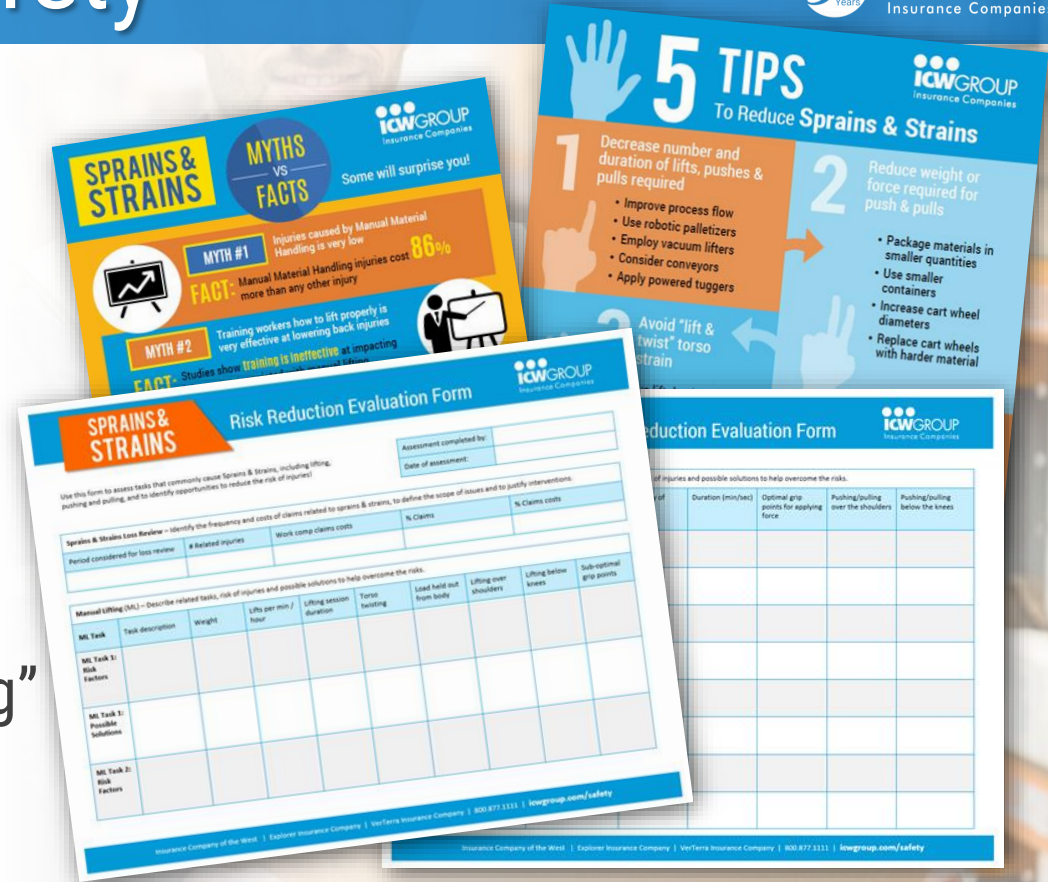


Sprains & Strains

- Workplace posters
- Risk Reduction tool
- Webinar on demand

Safety OnDemand

- Log into **myResource**
- Search for “material handling”

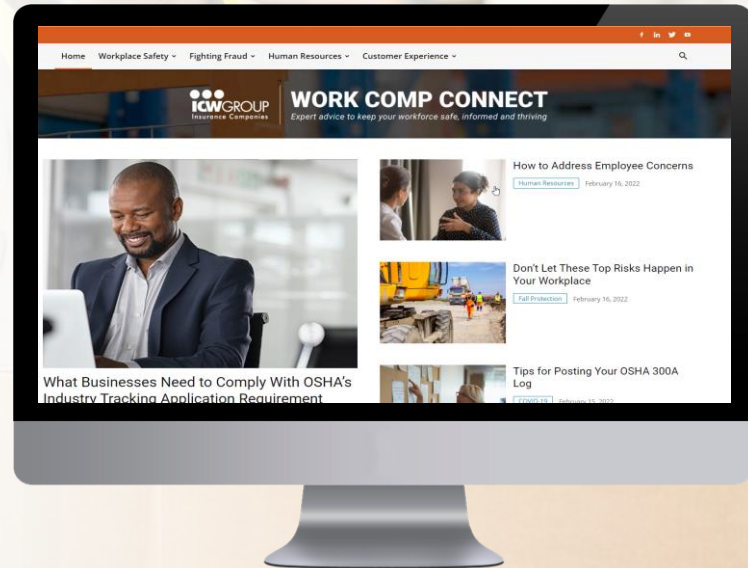


WORK COMP CONNECT BLOG



blog.icwgroup.com

- Advice on timely safety topics
- Fraud and HR resources
- New blogs posted often





QUESTIONS?

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THANK YOU!

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