

ACHING BACK? SORE NECK? ARM & WRIST PAIN?  
THEN YOU NEED TO READ THIS COMIC BOOK!!!

# PAIN IS OPTIONAL

## FOR CARPENTERS



actsafe★

## Acknowledgements

Actsafes would like to thank Dan Robinson, PhD. CCPE RK of Robinson Ergonomics Inc., who provided the information on which this publication is based. For further information: [Dan Robinson](#).

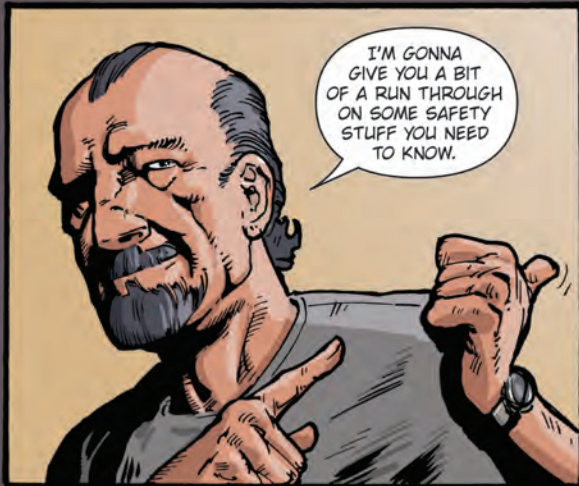
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Produced by Ed Brisson.

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HOW MUCH DO YOU KNOW ABOUT MUSCULO-SKELETAL INJURIES?

MUSCO-WHAT?



## Musculoskeletal Injury (MSI):

"An injury or disorder of the muscles, tendons, ligaments, joints, nerves, blood vessels or related soft tissues - including a sprain, strain and inflammation - that may be caused or aggravated by work."

(WorkSafeBC, OHS Regulations, Section 4.46)



THERE ARE TWO TYPES OF MSI INJURIES.

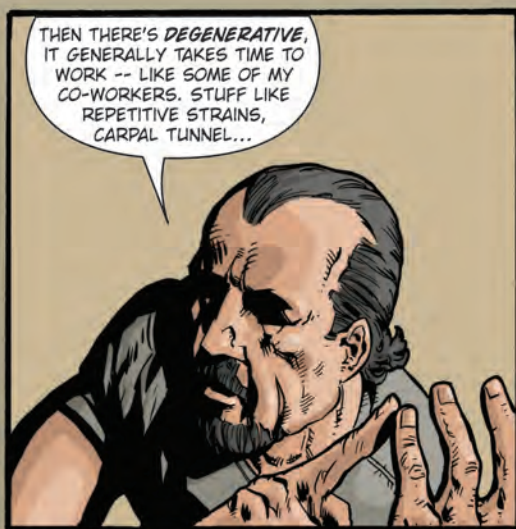
FIRST, YOU'VE GOT YOUR **TRAUMATIC MSI**. WHICH IS AN INJURY TIED TO AN EVENT. LIKE A STRAIN, SPRAIN, CUT, SLIP, ETC...



BAM!

IT HAPPENS JUST LIKE THAT!

SMACK SMACK



THEN THERE'S **DEGENERATIVE**. IT GENERALLY TAKES TIME TO WORK -- LIKE SOME OF MY CO-WORKERS. STUFF LIKE REPETITIVE STRAINS, CARPAL TUNNEL...



...**SORE BACKS**. WHICH IS SOMETHING I KNOW A LITTLE ABOUT.



DEGENERATIVE MSI - REPETITIVE STRAIN

WITH DEGENERATIVE MSI, THE DEMAND OF WORKING ALL DAY STARTS TO WEAR US DOWN, RESULTING IN TISSUE DAMAGE WITHIN THE TENDON OR MUSCLE.

Time

DEGENERATIVE MSI - REPETITIVE STRAIN

THIS REDUCES OUR TISSUE TOLERANCE, WHICH MAKES US WEAKER. IF WE CONTINUE TO DO THE SAME THING THROUGH THE DAY, WE CONTINUE TO GET WEAKER.

IF WE DON'T HAVE PROPER REST AFTERWARDS, THEN WE DON'T RECOVER TO FULL STRENGTH AND START THE NEXT DAY WITH MORE DIFFICULTY THAN WE'D PREVIOUSLY HAD DOING THE SAME TASKS.

Force

Strength

Little lifts

Time

Injury  
Tissue got weaker

IF WE CONTINUE THIS TREND, OUR TOLERANCE FOR LIFTING WILL BECOME SO LOW, THAT OUR REGULAR LOADS WILL BE TOO MUCH FOR US AND WE'LL GET AN INJURY.

Tissue

IT'S NOT THE WORK LOAD THAT'S CHANGED, IT'S OUR OWN ABILITY TO PERFORM IT BECAUSE WE'VE ACCUMULATED TISSUE DAMAGE OVER TIME THAT MAKES THE WORK HARDER ON OUR BODIES.

THIS IS THE TYPE OF INJURY THAT MOST OF US ARE GOING TO SUFFER IF WE'RE NOT CAREFUL AND DON'T PAY ATTENTION TO THE WARNING SIGNS.



## STAGE ONE

IT'S LIKE THIS:  
AT FIRST YOU MIGHT  
GET SYMPTOMS LIKE  
MUSCLE TENSION, FATIGUE  
AND ACHING. YOU GET  
BETTER WHEN YOU REST,  
IF YOU REST.

YOU MIGHT  
THINK IT'S NORMAL,  
BECAUSE WE WORK HARD,  
BUT IT COULD BE THE  
START OF SOMETHING  
WORSE.

## STAGE TWO

IF THINGS GET  
WORSE, THE SYMPTOMS  
START TO GET MORE INTENSE:  
PAIN, NUMBNESS AND TINGLING.  
YOU CAN REST UP, BUT IT  
DOESN'T HELP ANYMORE.  
YOU MIGHT NOT BE ABLE  
TO SLEEP PROPERLY.

IF YOU DON'T  
CHANGE THINGS NOW,  
THINGS ARE GOING TO  
GET **WORSE** AND  
FIXING THE ISSUE IS  
ONLY GOING TO GET  
TOUGHER.

## STAGE THREE

IF YOU IGNORE  
SYMPTOMS, LIKE BACK  
PAIN, AND JUST KEPT ON  
WORKING THROUGH IT,  
YOU END UP AT THE  
BOTTOM! **BOOM!**  
THE DAMAGE IS  
**DONE!**

## STAGE FOUR

YOU NEED TO  
GET YOURSELF TO  
A DOCTOR. HOWEVER,  
CHANCES ARE THAT  
AT THIS POINT YOU'RE  
NOT GOING TO FULLY  
RECOVER.

THAT'S WHY  
YOU NEED TO PAY  
ATTENTION TO EARLY  
SIGNS AND SYMPTOMS  
AND LOOK AT HOW YOU  
CAN ELIMINATE WHATEVER  
IS CAUSING YOU PAIN.



THERE ARE SEVERAL FACTORS THAT CAN MAKE YOU MORE SUSCEPTIBLE TO RECEIVING AN INJURY.

MORE THAN ONE OF THESE FACTORS AT ONCE DRAMATICALLY INCREASES YOUR RISK OF INJURY.

SOME OF THESE FACTORS INCLUDE...



STAYING IN THE SAME POSITION, WITH BARELY ANY MOVEMENT.



CONTACT STRESS: KNEELING OR LEANING ON AN EDGE WITH YOUR HAND OR ARM.

THIS CAN ALSO INCLUDE CARRYING SOMETHING HEAVY WITH A NARROW HANDLE.



REPETITION: DOING THE SAME THING REPEATEDLY, WITH LITTLE TO NO REST.



COLD TENDS TO MAKE OTHER FACTORS WORSE.

REDUCED BLOOD FLOW AND STRENGTH IN THE COLD INCREASES EFFORT NEEDED AND MAKES US TIRE FASTER.



THE WORST TWO FACTORS, THOUGH, ARE FORCE AND BAD POSTURE.

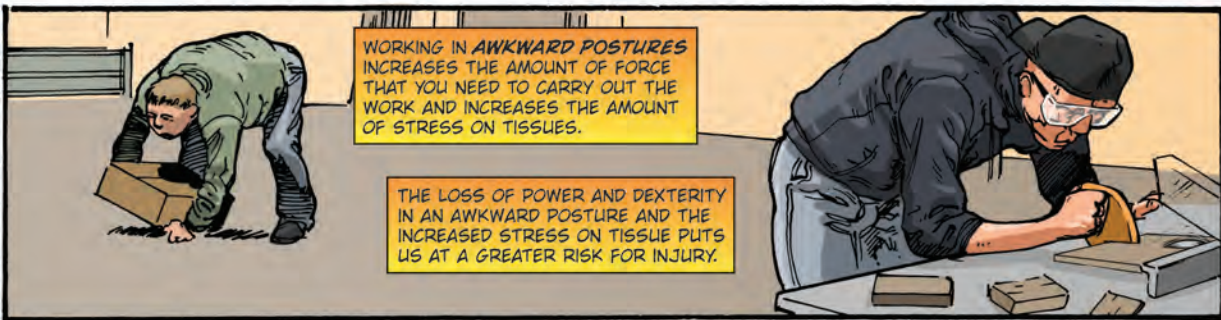






OVER EXERTING YOURSELF ON A LIFT, PUSH, PULL OR WHEN CARRYING A LARGE LOAD CAN DO DAMAGE.

AND WHAT A "LARGE LOAD" IS FOR ONE PERSON, MIGHT BE DIFFERENT FOR ANOTHER.



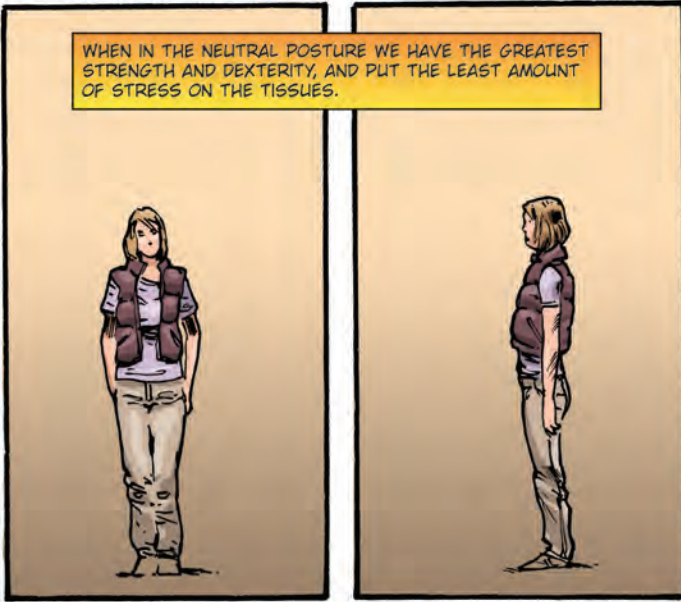
WORKING IN **AWKWARD POSTURES** INCREASES THE AMOUNT OF FORCE THAT YOU NEED TO CARRY OUT THE WORK AND INCREASES THE AMOUNT OF STRESS ON TISSUES.

THE LOSS OF POWER AND DEXTERITY IN AN AWKWARD POSTURE AND THE INCREASED STRESS ON TISSUE PUTS US AT A GREATER RISK FOR INJURY.

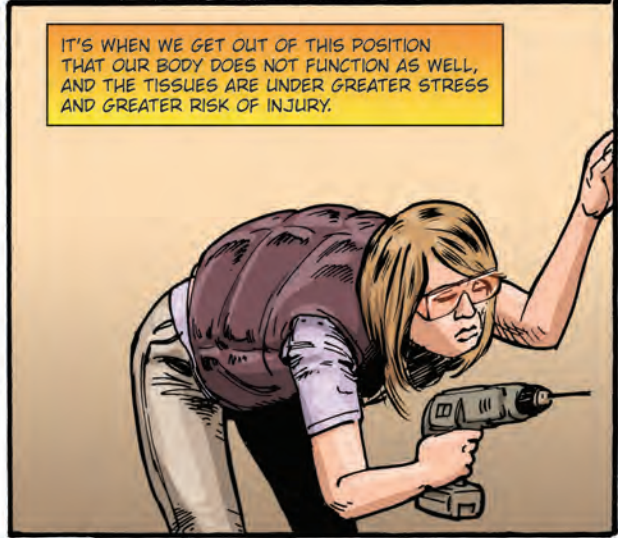


AS MUCH AS POSSIBLE, YOU WANT TO MAINTAIN A NEUTRAL POSTURE...

...AMY, CAN I BORROW YOU FOR A MOMENT?  
SURE.



WHEN IN THE NEUTRAL POSTURE WE HAVE THE GREATEST STRENGTH AND DEXTERITY, AND PUT THE LEAST AMOUNT OF STRESS ON THE TISSUES.



IT'S WHEN WE GET OUT OF THIS POSITION THAT OUR BODY DOES NOT FUNCTION AS WELL, AND THE TISSUES ARE UNDER GREATER STRESS AND GREATER RISK OF INJURY.



THANKS AMY!

NO PROB.



TENDONS IN BOTH YOUR FOREARM AND HAND CAN GET INJURED EASILY BECAUSE THEY'RE LONG AND THEY CROSS SEVERAL JOINTS.

MOST FINGER AND HAND MOVEMENTS ARE CONTROLLED BY MUSCLES CLOSE TO YOUR ELBOW AND WITH EACH MOVEMENT, THE TENDON SLIDES BACK AND FORTH ACROSS THE WRIST JOINT.

IT'S LIKE THIS ROPE.



WHEN YOUR WRIST IS STRAIGHT, YOUR TENDON MOVES BACK AND FORTH QUITE EASILY, LIKE SO.

THERE MIGHT BE A LITTLE FRICTION, BUT NOT MUCH.

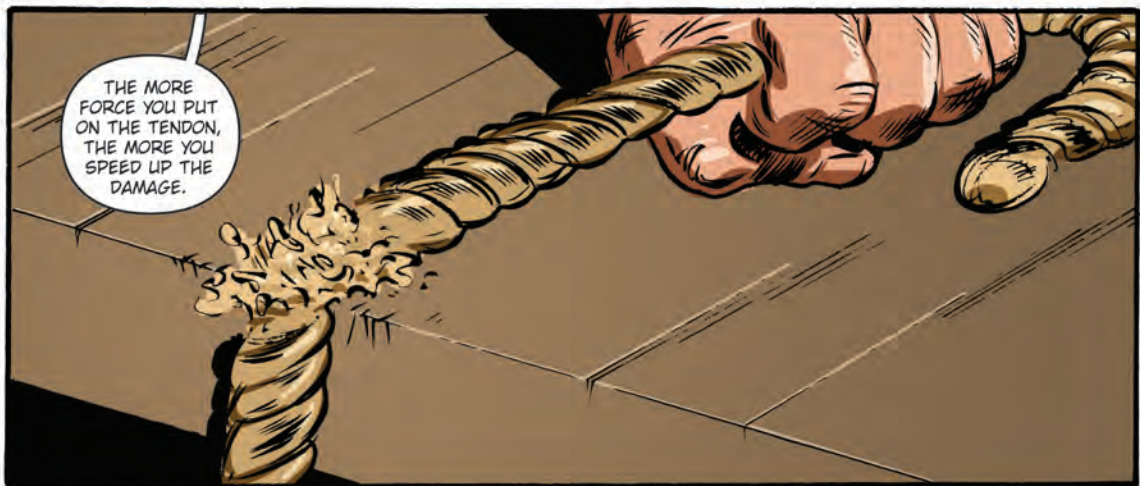


**BUT!** WHEN YOUR WRIST IS BENT, IT'S KIND OF LIKE SLIDING THIS ROPE BACK AND FORTH ALONG AN EDGE.

THE ROPE STARTS TO FRAY WHERE THERE IS PRESSURE.



THE MORE FORCE YOU PUT ON THE TENDON, THE MORE YOU SPEED UP THE DAMAGE.





IN ADDITION  
TO THE DAMAGE  
YOU'RE DOING TO  
YOUR WRISTS...

...YOU'RE  
POTENTIALLY REDUCING  
YOUR GRIP STRENGTH BY  
ABOUT 60% WHEN IN AN  
AWKWARD POSTURE,  
WHICH MAKES YOUR  
MUSCLES WORK HARDER  
AND STRAIN.



SO, WATCH  
FOR THINGS LIKE  
AWKWARD WRIST  
POSTURE, REPETITION  
AND FORCEFUL  
GRIPPING.



PROTECT  
YOUR WRIST  
AND ARM!



KEEP TOOLS IN GOOD REPAIR  
AND SHARP TO MINIMIZE THE  
FORCE AND VIBRATION.

USE ANTI-VIBRATION GLOVES  
WHEN WORKING WITH TOOLS  
THAT HAVE STRONG VIBRATION.

LET THE TOOL DO THE  
WORK. GUIDE IT, DON'T  
FORCE IT.

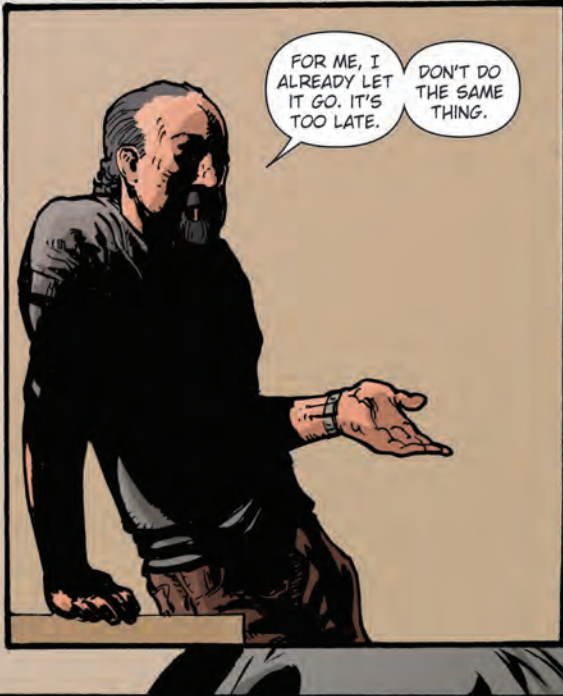
POSITION YOURSELF AND YOUR  
WORK TO ALLOW FOR A STRAIGHT  
WRIST. WORK HEIGHT AND ANGLE  
ARE IMPORTANT.

USE POWER TOOLS FOR REPETITIVE TASKS  
LIKE NAILING, SCREWING OR BOLTING.

SELECT TOOLS THAT ALLOW FOR  
NEUTRAL WRIST POSTURE; PISTOL  
GRIP FOR WORKING FORWARD AND  
STRAIGHT GRIP FOR BENCH LEVEL WORK.

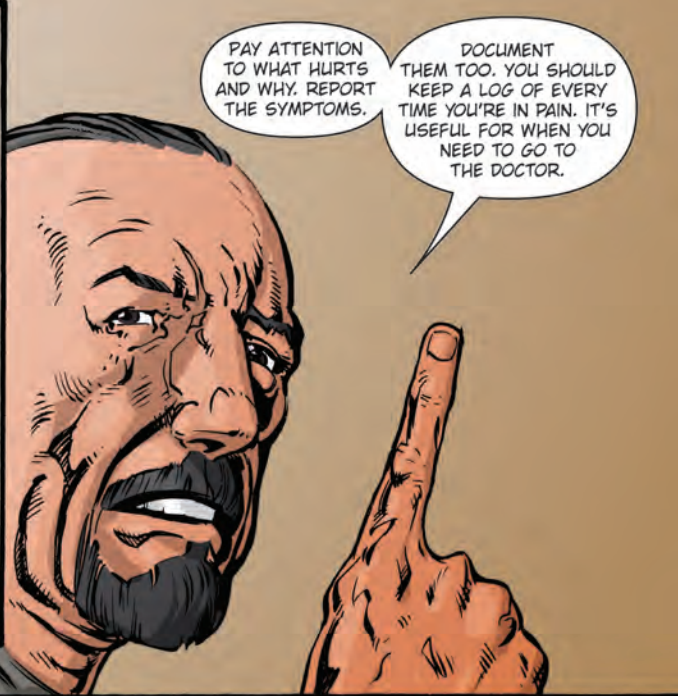






FOR ME, I  
ALREADY LET  
IT GO. IT'S  
TOO LATE.

DON'T DO  
THE SAME  
THING.



PAY ATTENTION  
TO WHAT HURTS  
AND WHY. REPORT  
THE SYMPTOMS.

DOCUMENT  
THEM TOO. YOU SHOULD  
KEEP A LOG OF EVERY  
TIME YOU'RE IN PAIN. IT'S  
USEFUL FOR WHEN YOU  
NEED TO GO TO  
THE DOCTOR.



FOR SHORT  
TERM RELIEF, YOU  
CAN USE OVER-THE-  
COUNTER, NON-STEROIDAL,  
ANTI-INFLAMMATORY  
DRUGS, LIKE  
IBUPROFEN.

IF YOU'RE  
USING THEM EVERY  
DAY, THEN YOU NEED  
TO LOOK AT WHAT'S  
CAUSING THE PAIN AND  
GET YOUR BUTT TO  
A DOCTOR!

IF YOU DO GET A SPRAIN, WHAT YOU NEED TO DO IS USE **THE RICE METHOD** (REST, ICE, COMPRESSION AND ELEVATION) TO KEEP DOWN INFLAMMATION AND CONTROL THE SYMPTOMS.

**REST** THE INJURY UNTIL THE PAIN DECREASES. IF YOU DON'T REST THE INJURY, YOU'RE JUST GONNA DO MORE DAMAGE TO IT.

**ICE** IS THE BEST THING FOR REDUCING INFLAMMATION, PAIN AND SWELLING. KEEP IT ON FOR ABOUT 20 MINUTES (10-15 FOR KIDS) EVERY TWO TO THREE HOURS. BEST THING IS TO USE CRUSHED ICE IN A PLASTIC BAG, WRAPPED IN A MOIST TOWEL.



**COMPRESS** BETWEEN ICINGS BY WRAPPING THE INJURY WITH A BANDAGE TO CONTROL THE SWELLING AND PROVIDE SUPPORT. DON'T SLEEP WITH THE WRAP ON OR WRAP IT TOO TIGHTLY. IF THE WRAP BEGINS TO CAUSE PAIN, THEN IT'S ON TOO TIGHT!

**ELEVATE** THE INJURED AREA SO IT'S ABOVE YOUR HEART. THIS LETS GRAVITY DO ITS THING AND REDUCE SWELLING BY DRAINING EXCESS FLUID. WHEN YOU SLEEP, PUT A PILLOW UNDER THE AREA TO SUPPORT AND RAISE IT.









MY WAY IS  
**FASTER.**

AT FIRST, MAYBE.  
BUT MINE IS BETTER  
AND PUTS LESS STRAIN  
ON YOU, WHICH MEANS  
YOU CAN WORK LONGER  
AT THAT SAME PACE AND  
GET MORE DONE.



BEFORE YOU  
LIFT ANYTHING  
THOUGH: TEST  
THE LOAD.

IF IT'S HEAVIER  
THAN YOU THINK IT'S  
GONNA BE, YOU CAN WRENCH  
YOUR BACK. SAME WITH THINGS  
THAT ARE LIGHTER. YOU  
NEED TO ADJUST YOUR  
LIFT FOR THE WEIGHT.



IF AN ITEM  
IS TOO HEAVY.  
DON'T BE AFRAID  
TO ASK FOR HELP  
LIFTING IT.



YOU DON'T  
**ALWAYS** HAVE TO  
CARRY THINGS, EITHER.  
USE A CART OR DOLLY.  
IT'S EASIER AND **MUCH**  
FASTER.



NOW, WHEN  
YOU GOT THE BOXES  
ON THE CARTS, OR DOLLY  
OR WHATEVER, YOU WANT  
TO PUSH IT, NOT PULL. IT  
REQUIRES LESS FORCE TO  
PUSH THAN IT DOES  
TO PULL.

TRY TO  
KEEP YOUR HANDS  
AT APPROXIMATELY  
BELLY BUTTON LEVEL  
WHEN PUSHING  
OR PULLING.







LOOKING FOR  
WAYS TO WORK  
SAFELY SHOULD  
BE A ROUTINE  
PART OF YOUR  
WORK.

IF SOMETHING  
IS UNSAFE, FIRST  
YOU WANT TO LOOK AT  
IF IT CAN BE SUBSTITUTED  
WITH ANOTHER, **SAFER**,  
PROCESS OR JUST  
ELIMINATED ALL  
TOGETHER.

IF THAT'S NOT  
POSSIBLE...



...THEN YOU WANT TO LOOK AT  
ENGINEERING CONTROLS. THE  
EQUIPMENT, THE SPACE AND  
THE SET-UP.



IS THERE A WAY THAT YOUR  
WORKSTATION CAN BE BETTER  
SET UP? ARE THERE BETTER  
TOOLS FOR THE JOB?

USE PLATFORMS, WHEELS AND  
LIFT ASSISTS WHERE POSSIBLE.



WHEN THAT  
IS NOT POSSIBLE,  
YOU WANT TO LOOK  
TO **ADMINISTRATIVE  
STRATEGIES**.

THIS INVOLVES  
THE SPECIFIC TECHNIQUES,  
BODY MECHANICS AND  
WORK PATTERNS.

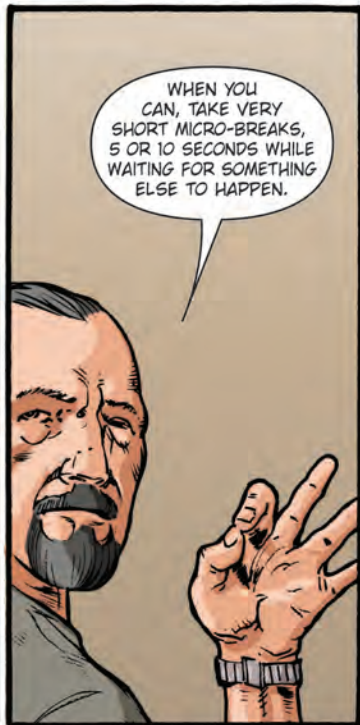


THROUGHOUT THE DAY,  
TRY TO VARY THE WORK  
THAT YOU'RE DOING.

THIS PROVIDES REST FOR SOME  
MUSCLES WHILE STILL KEEPING  
YOU PRODUCTIVE AND ACTIVE. IT'S  
LIKE GETTING ACTIVE REST.









ONE OF THE MOST IMPORTANT THINGS YOU NEED TO REMEMBER IS THAT YOU HAVE THE **RIGHT** TO **REFUSE** ANY WORK THAT YOU THINK IS LIKELY TO HARM YOU OR SOMEONE ELSE.



IF YOU'RE ASKED TO DO SOMETHING OR IF YOU SEE SOMETHING THAT IS NOT SAFE - REPORT IT TO YOUR SUPERVISOR OR EMPLOYER.

THEY'RE REQUIRED TO LOOK INTO THE ISSUE AND EITHER FIX THE PROBLEM OR LET YOU KNOW IF THEY DON'T THINK IT'S AN ISSUE.



IF YOU FEEL IT'S STILL AN ISSUE, CONTINUE TO REFUSE TO DO THE WORK.

THE SUPERVISOR MUST CONTINUE TO INVESTIGATE, WITH YOU AND ANOTHER WORKER FROM THE HEALTH & SAFETY COMMITTEE, UNION OR SOMEONE OF YOUR CHOICE.



IF THERE'S STILL NO RESOLUTION, KEEP REFUSING THE WORK.

BOTH YOU AND THE EMPLOYER MUST NOW CONTACT WORKSAFEBC FOR FURTHER INVESTIGATION.



THE MOST IMPORTANT THING TO REMEMBER IS...

...YOU CAN'T BE **FIRED** OR **DISCIPLINED** FOR REFUSING **UNSAFE** WORK.





TO  
RECAP...



...PAY ATTENTION  
TO HOW YOUR BODY  
FEELS AT THE END  
OF THE DAY. WHAT  
HURTS? WHY?



KEEP AN  
EYE OUT FOR  
POTENTIAL HAZARDS  
AND DO SOMETHING  
ABOUT THEM BEFORE  
THEY BECOME A  
PROBLEM.

ALWAYS TAKE  
A MOMENT TO THINK  
ABOUT WHAT YOU'RE  
DOING. IS IT SAFE? HOW'S  
MY POSTURE? IS THIS THE  
RIGHT EQUIPMENT FOR  
THE JOB? IS THERE A  
BETTER WAY TO  
DO THIS?



ON TOP OF  
REPORTING ISSUES,  
LET PEOPLE KNOW OF  
ANY SOLUTIONS THAT  
YOU'VE COME UP WITH.  
SHARING IDEAS AND  
SOLUTIONS HELPS  
EVERYONE.



TAKE THIS  
KNOWLEDGE AND USE  
IT AT HOME. YOU CAN  
JUST AS EASILY GET  
YOURSELF HURT AT  
HOME AS YOU CAN  
AT WORK.



ALRIGHT  
KID. OFF YOU GO,  
THE REST IS UP  
TO YOU.





# Want more information?

For further information on MSI, please refer to the below documents, all available, free of charge, from the Actsafe online library located at [www.actsafe.ca](http://www.actsafe.ca).

## Understanding the Risks of Musculoskeletal Injury (MSI): An Educational Guide for Workers on Sprains, Strains, and other MSIs

This guide is an educational booklet arising from the WorkSafeBC regulation on prevention of MSI. It provides information to help workers, employers, and joint health and safety committees to recognize the signs and symptoms of MSI; understand the potential health effects of MSI; and identify the factors that place workers at risk for MSI.

## Preventing Musculoskeletal Injury (MSI) For Musicians And Dancers: A Resource Guide

Performers such as musicians and dancers are at risk of occupational health problems that can significantly interfere with their ability to perform. If not recognized and properly treated, many of these health problems can limit, interrupt, or even end an individual's performing career.

This resource guide provides information and resources for the prevention of musculoskeletal injury (MSI) in performers. Other terms used to describe MSI include: overuse problems; repetitive strain injury; cumulative trauma disorder; work-related musculoskeletal disorder and activity-related soft tissue disorder.

Actsafes has also developed a series of four infosheets, based upon Preventing Musculoskeletal Injury (MSI) For Musicians And Dancers: A Resource Guide:

- Dancers and MSI: Symptoms, Contributing Factors, and Types of Injuries
- Dancers and MSI: Prevention and Treatment
- Musicians and MSI: Symptoms and Types of Injuries
- Musicians and MSI: Prevention and Treatment

## Other Web Resources

[WorkSafeBC Ergonomics Information](#)

[Canadian Centre for Occupational Health & Safety \(CCOHS\) Ergonomics](#)

## Consultation

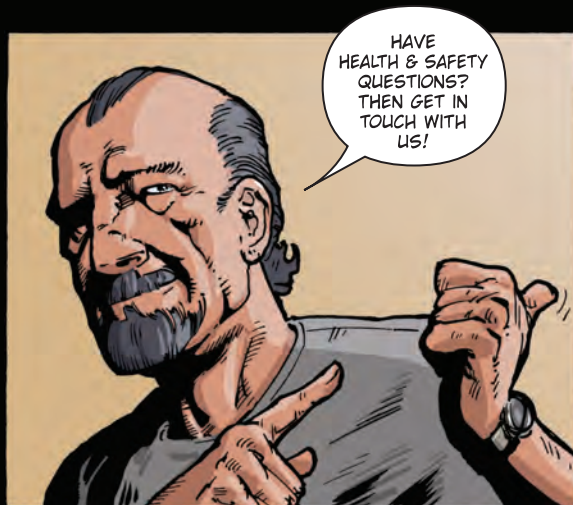
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## What is Actsafe?

Our mission is to serve British Columbia's motion picture and performing arts sectors by providing health and safety training, education and resources for employers and workers.

Actsafesafe is governed by the industries it represents. We operate through two standing committees that represent the motion picture and performing arts communities respectively. Membership in these committees includes both employer and worker representatives.

Contact Actsafesafe for free copies of this publication.