

Occupational Risk Factors



Upper Extremity

- Highly Repetitive Movements
- Awkward Postures
- Excessive Forces
- Vibration
- Cold Temperatures
- Gloves





Risk Factors for Hand & Wrist Injuries

FORCE

REPETITION

POSTURE

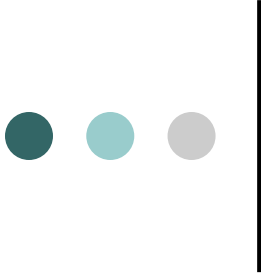
WORK PACE

VIBRATION

GLOVES

Examples

- Forceful gripping of tools
- Repeated and/or awkward wrist postures
- Use of vibrating tools (chainsaws, jackhammers, rotary grinders)
- Use of inappropriate gloves
- Highly repetitive tasks, lack of recovery time



Risk Factors for Shoulder/Neck

FORCE

POSTURE

REPETITION

Examples

- Overhead assembly (welders, painters, auto repair)
- Sewers and cutters (repetitive shoulder flexion)
- Packing (prolonged load on shoulders)
- Lumber/construction (repetitive throwing of heavy loads)
- Letter carriers (prolonged load on shoulders)

Lower Extremity

- Heavy Physical Work
- Lifting and Forceful Movements
- Bending and Twisting (Awkward Postures)
- Whole Body Vibration (WBV)
- Static Work Postures





Risk Factors for Back Injuries

LIFTING

PUSHING

CARRYING

LOWERING

PULLING

TWISTING

Examples

- Lifting heavy or awkward shaped equipment
- Carrying carpet
- Moving furniture
- Twisting at the waist while lifting or holding a heavy load
- Reaching and lifting over your head, across a table, or out the back of a truck or car



Risk Factors for Knee Injuries

POSTURE

CONTACT
TRAUMA

LIFTING

S/T/F

CLIMBING
STAIRS

LOWERING

Examples

- Repetitive kneeling
- Contact trauma with the floor
- Contact trauma with the knee kicker
- Lifting/lowering heavy or awkward shaped equipment

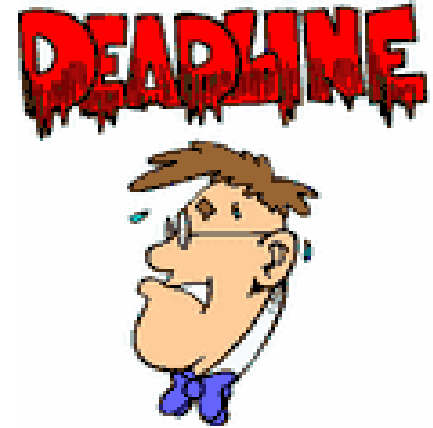
Non-Occupational Risk Factors

- Certain Medications/Therapies
- Age
- Gender
- Wrist Size/Wrist Structural Variations
- Worker Strength and Fitness
- Hobbies
- Alcohol Consumption
- Smoking



Psychosocial Factors

- Job Demands
- Job Content
- Job Control
- Social Interactions
- Job Future and Career Issues
- Technology Issues
- Organizational and Management Issues



The Risk

Risk is increased by industry
and occupation

Risk is increased by length of
time in the job

Risk may be increased by
employee behavior





MSD Symptoms

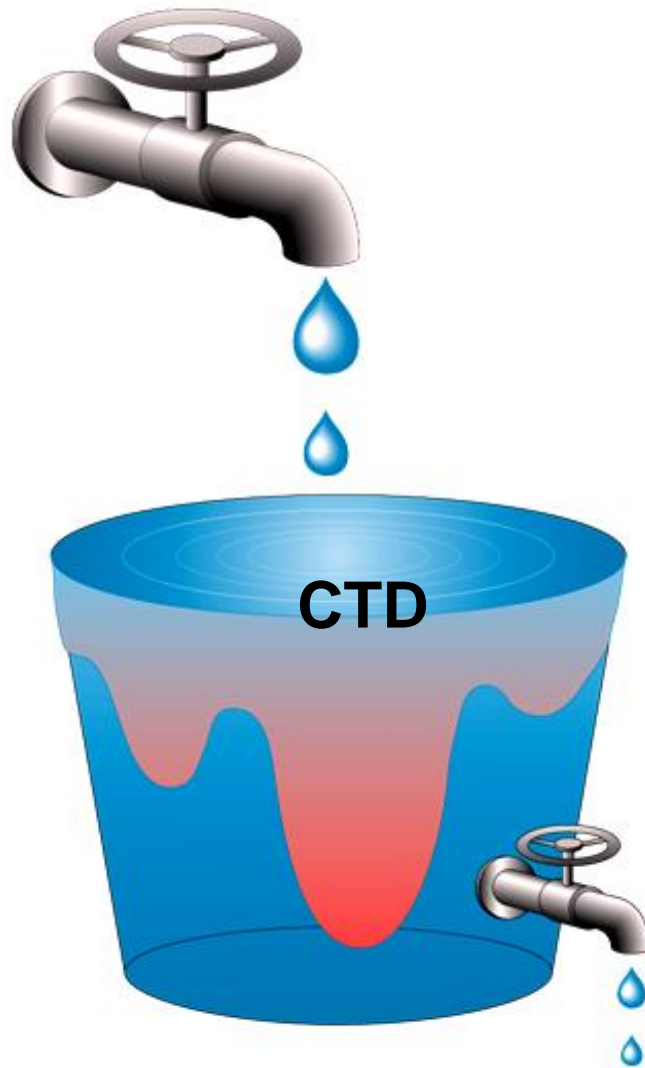
- Painful joints
- Pain, tingling or numbness in hands or feet
- Shooting or stabbing pains in arms or legs
- Swelling or inflammation
- Burning sensation
- Pain in wrists, shoulders, forearms, knees
- Fingers or toes turning white
- Back or neck pain
- Stiffness

● ● ● | **Trauma**

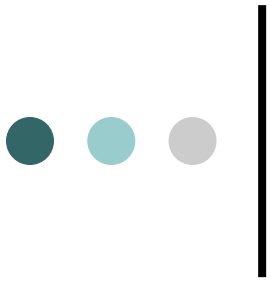


**Healing
Valve**

● ● ● | **Trauma**



**Healing
Valve**

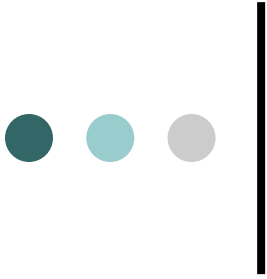


Exertional Descriptors for Job Tasks

Intensity of Exertion	➔	“Required strength, force, %MVC”
Duration of Exertion	➔	“% Duration of exertions”
Frequency of Exertions	➔	“Efforts per minute”
Hand/Wrist Posture	➔	“Position of hand/wrist”
Speed of Work	➔	“How fast the worker is working”
Duration Per Day	➔	“Duration of task per day”

Example





Force
Frequency
Posture



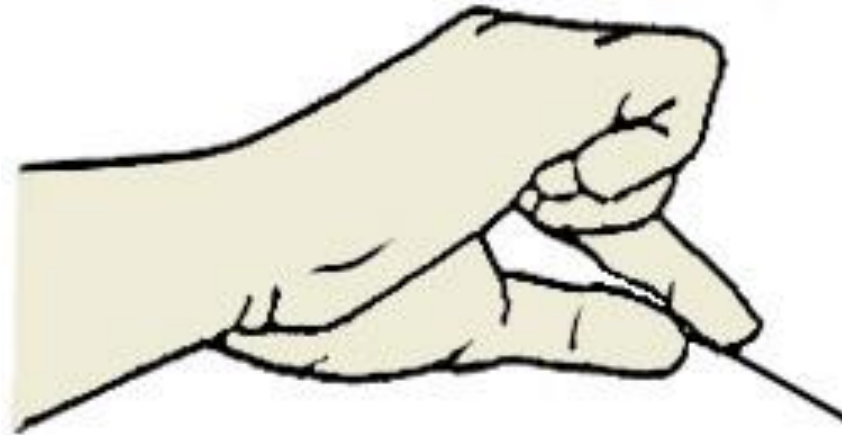
Body Parts Analyzed

- Hands and Wrists – right & left
- Elbows – right & left
- Shoulders – right & left
- Neck
- Back
- Legs

The Hands and Wrists



Pinch Grips

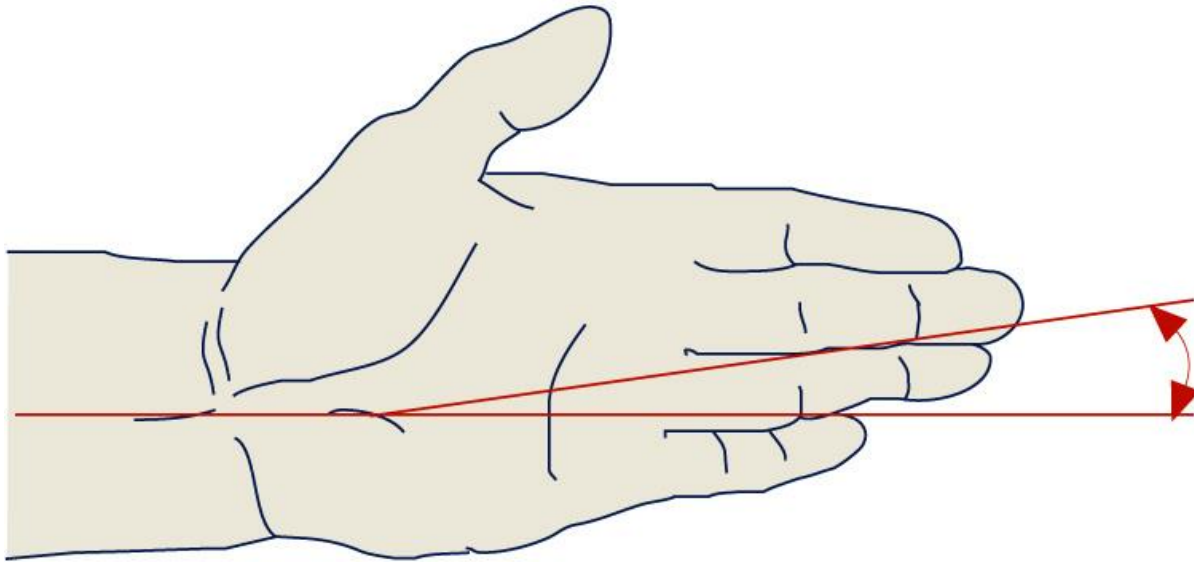




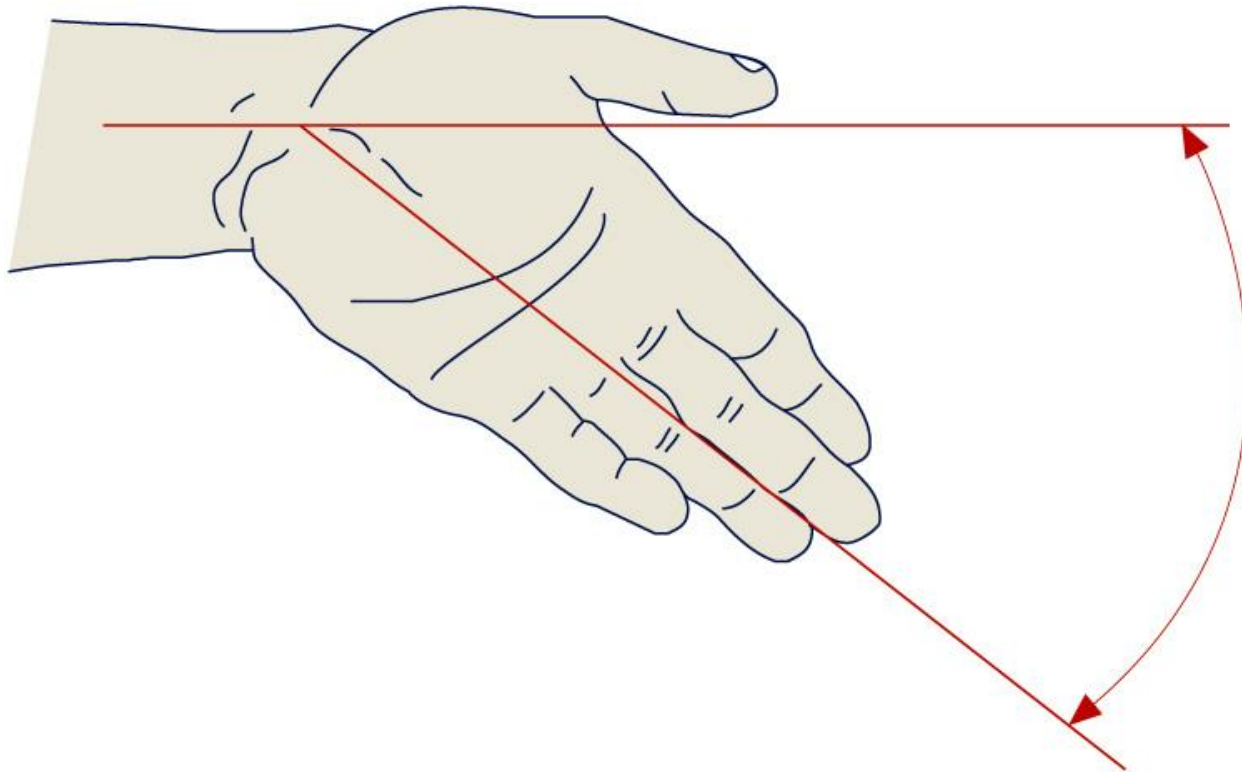
Finger Press



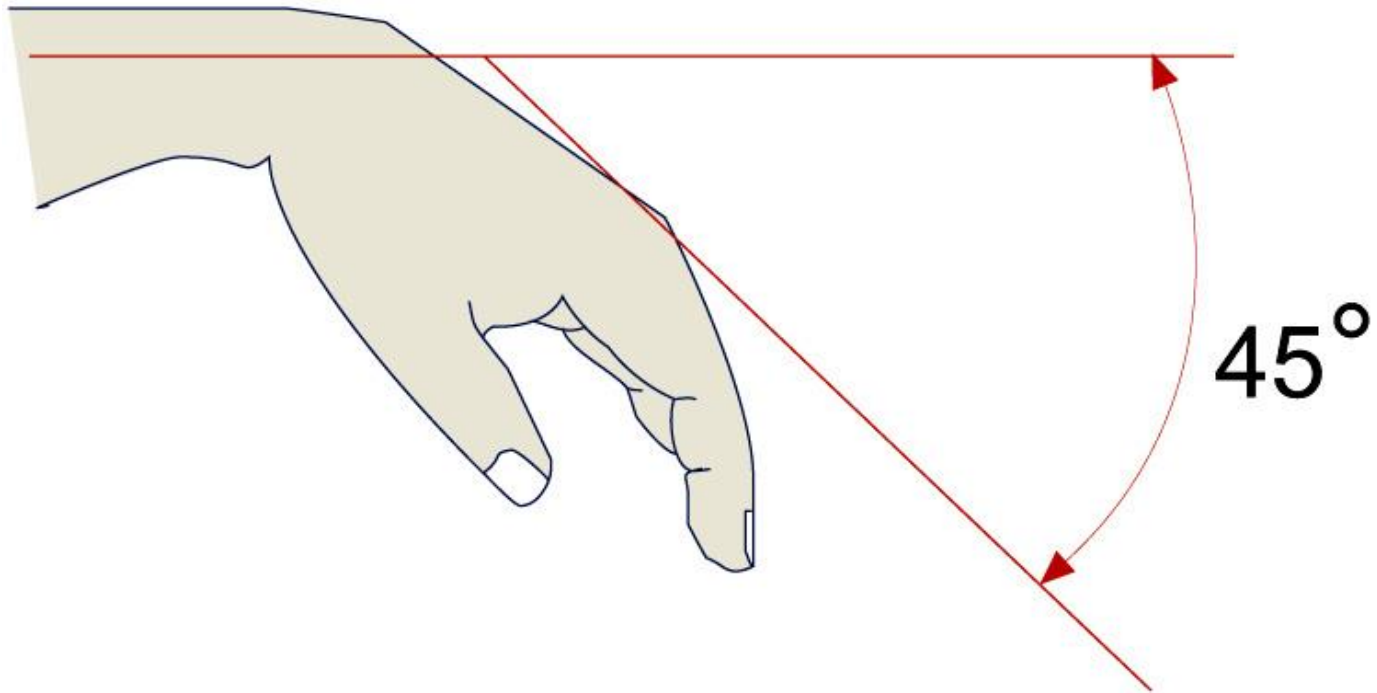
Radial Deviation



Ulnar Deviation



Wrist Flexion



Wrist Extension

