Employment and Social Development Canada
Emploi et Développement social Canada

Fair, safe and productive workplaces

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Aches and Pains – Hand Held Tools

Do you work with hand held tools and want to prevent or reduce aches and pains in your upper body? Then this Ergo-Tip information sheet is for you.

Working with hand held tools repetitively or for long periods is demanding on the upper body and could result in a Musculoskeletal Injury (MSI). The purpose of the Ergo-Tips is to help you perform your job more efficiently by reducing or eliminating injury and pain.

Ergonomic related issue	Consider the following
Grasping/Gripping: • Holding a tool for a prolonged time can cause the hand and arm muscles to fatigue at a faster rate and cause you to grip harder. • An undersized or oversized handle for your hand will result in you gripping harder and will cause your muscles to fatigue at a faster rate. • A handle that bends or extends your wrist too much will put your muscles in a weaker position. • A worn out or smooth grip will result in you gripping harder. • Working in a hot (sweat) or cold (less blood flow, decreased sensation) environment will result in you gripping harder. • Using the trigger to repetitively operate a tool will quickly fatigue and strain the muscles in the trigger finger.	• If it can be done safely, alternate hands. • Use a power tool to reduce the amount of time and force required. It may also reduce the amount of twisting in the wrist and arm. • Organize your work so that tools that are physically demanding are used periodically throughout the day. • Use a tool that has a handle optimal for your hand size and that keeps your hand in a neutral position. These tools usually feel the most comfortable in your hand. • Maintain tools in good condition. This includes re-gripping the handle so it does not slip and is comfortable. • Wear slip resistant gloves, use slip resistant coating on your hand, or use a tool with a slip resistant handle if you find the tool slipping (sweating hands, wet conditions). • Choose a tool with a trigger that is large enough to use at least two fingers.
Lifting: • The heavier the tool, the harder you have to grip to hold the tool which will increase the strain on the shoulder and arm.	• Choose lighter tools or tools that are optimally weighted/well balanced (try to avoid tools that are front heavy). • Frequently used heavy tools at a work station can be suspended to help support and counterbalance the weight. • Break up prolonged use of a heavier tool by intermittently performing other tasks or taking a break. • When operating a tool, try to keep it close to your body and at a height between your shoulder and waist. • Choose tools that allow for two hands to operate or, if possible, use the free hand to help support the weight.

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Contact Stress: • Any part of the tool that digs in to any part of your hand such as a short handle into your palm, or a trigger into your finger, can compress blood vessels, nerves and soft tissue. Over time this can lead to a MSI. Tools that require impact, such as a hammer, will also increase the contact stress in your hand.	• Use a power tool to complete the task more efficiently. • Use tools that properly fit your hand. • Use tools with larger triggers so more than one finger can be used. • Use a tool such as a rubber mallet instead of a hammer or your hand (i.e. when putting hubcaps back onto a tire) to reduce the impact stress.
Vibration: • Vibration causes the muscles to contract repetitively at a fast rate and increases the strain on the musculoskeletal system. Prolonged exposure to vibration may lead to long term or permanent injury. • Power tools such as drills will transmit various amounts of vibration through your hand, arm and shoulder. • Tools such as a hammer will create vibration after impact that will travel through your hand and arm.	• Use tools with anti-vibration mechanisms. • Use vibration resistant gloves. • Give your hand and arms a break from the vibration by intermittently performing other tasks or taking a break. • Avoid locking your elbow in a straight/extended position and keep the tool close to your body. • Properly maintain your tools as proper lubrication, calibration and replacing worn grip handles will help minimize vibration. • Take a break from the vibration by performing other tasks or taking a break.
Reaching: • Reaching too far with a tool will cause increased stress on your wrist, elbow and shoulder, and will cause your muscles to fatigue faster. • Reaching overhead will cause the muscles in your arms to fatigue faster.	• Adjust the person or work area so that reaching too far forward or overhead is eliminated or reduced. • Avoid awkward reaching positions by using the right tools for the task. Tilting or repositioning the object may also help. • When operating a tool try to keep it close to your body and at a height between your shoulder and waist.

Pay attention to signs and symptoms:

- Pay attention to signs and symptoms as they can be a warning of a potential injury. Make adjustments to compensate for the signs and symptoms you feel. Common signs and symptoms may include:
  - Persistent ache or soreness in your hand, arm, neck or upper back muscles. The ache or soreness is commonly caused by highly fatigued muscles from sustained postures or repetitive movements.
    - Note that your muscles may initially feel achy or sore when performing a task you have never performed or have not performed for a long time. In most cases, this is normal as it takes time for your muscles to adjust and to be accustomed to the task.
  - Localized swelling and feeling warm or hot at joint area.
  - Numbness/tingling.
  - Sudden sharp pain while performing a movement.
  - Feeling of weakness when gripping/grasping a tool.

Employers under Federal Jurisdiction have an obligation to assess the hazards in the work place. Contact a HRSDC – Labour Program District Office at 1-800-641-4049 if you have any questions on the *Canada Labour Code* Part II ergonomic requirements or to request a copy of the Labour Program's ergonomic publications.

Visit the HRSDC – Labour Program internet website (**labour.gc.ca**) for access to health and safety publications and the new Musculoskeletal Injury (MSI) E-tool.