Pain after Spinal Cord Injury: Activity Modification for Musculoskeletal Pain

This factsheet includes tips on how to adjust your activity to help with pain after SCI.

Musculoskeletal pain may be due to injury or overuse of muscles or arthritis of joints. It is a common problem for all people as they get older, including those with SCI. However, you can adjust your activity in different ways to help reduce or prevent musculoskeletal pain. These activity modifications include:

Exercise

- Most people can benefit from a fitness program that includes resistance training using weights or elastic bands for the muscles that stabilize the shoulder. Such exercise will help prevent shoulder pain and help to treat pain from overuse of these muscles. Strong muscles are much less likely to get hurt. Talk with your doctor or therapist about starting a resistance training program.
- For aerobic exercise, you can use equipment that works the upper body. This may include a stationary bike powered by the arms or a hand-cranked sports wheelchair. You can box with a speed bag. You can also use an activity monitor as you gradually increase your manual wheelchair pushing throughout the day for exercise.
- Make sure your back and shoulder muscles are strong enough to support wheeling and transferring. It is important that your muscles on both your left and right sides are as equal in strength as possible. Ask your physical or occupational therapist to evaluate you. They can prescribe strengthening exercises if you need them.
- See the MSKTC factsheet on Exercise after Spinal Cord Injury (see the Reference Section below) for more information including specific recommendations on exercise.

Using a Wheelchair

- Constant pushing of wheel rims can cause musculoskeletal pain. Think about getting a power or power-assist wheelchair or power-assist add-on for your wheelchair if you
  - have major pain in the upper limb (shoulder, elbow, or hand),
  - have tetraplegia (or quadriplegia),
  - have a prior injury to an upper limb,
  - are overweight,
  - are older, or
  - live in a challenging environment such as on a steep hill or near rough terrain.

The Model Systems Knowledge Translation Center works with Spinal Cord Injury Model System (SCIMS) centers to provide free research-based rehabilitation resources for people living with spinal cord injury (See https://msktc.org/sci for more information). This factsheet has been approved by experts from the SCIMS centers.

- If you use a manual wheelchair, make sure it is the lightest model you can afford or that your insurer will pay for. Such models are made from aluminum, titanium, or carbon fiber. Lighter models give you less weight to push around. You can often customize these chairs to make it easier for you to propel them.
- If you use a manual wheelchair, reduce the number of strokes you use as you travel. Rather than quick, short pushes, use long, smooth strokes.
- If you use a manual wheelchair, make sure it is in good shape. Also make sure it is set up in a way that lets you get around with little effort. Ask your therapist to check whether your seat is in the right position relative to your rear axle. Also ask them to check that the chair and cushion together give you good stability.
- Ask a physical therapist (PT) or occupational therapist (OT) who specializes in wheelchair seating to evaluate your wheelchair seating, your posture, and your pushing technique. Do so at least once every 2 years. Your needs, habits, or activities may change over time.
- Choose air filled tires and keep your tires well inflated to lessen rolling resistance.
- Wheel your chair over concrete and linoleum rather than through sand, grass, or carpet, when possible. The reduced resistance to your wheels will lessen the load on your arms.
- See the Preservation of upper limb function following spinal cord injury: A clinical practice guideline for health-care professionals and MSKTC factsheet The Manual Wheelchair: What the Spinal Cord Injury Consumer Needs to Know (see the Reference Section below) for more information.

Shoulder Health

- Limit arm/hand tasks, especially tasks that involve lifting any load higher than your shoulder. Let someone else get that book off a high shelf for you.
- If you can, avoid doing tasks over and over that require you to bring your hand higher than your shoulder. You may need to reorganize your house. Talk with your occupational therapist about ways to do so.
- Avoid lifting heavy loads. If you can't get someone else to do the heavy lifting, hold the load close to your chest rather than at the end of an outstretched arm.
- Avoid doing push-up pressure reliefs or weight shifts; they can harm your shoulder joint. Instead, do side-to-side or forward-lean pressure reliefs. Work with a therapist to learn the proper technique for these methods. See the MSKTC factsheet How to Do Pressure Reliefs (Weight Shifts) (see the Reference Section below) for more information.

Transfers

- How you transfer makes a difference. Work with a therapist to learn transfer techniques that can minimize pain.
- The heaviest thing you will lift is yourself. Reduce the number of transfers you do each day. Do them in a way that limits your risk of injury and avoids pain.
- Transferring from a high point to a lower one is not as hard on your wrists, elbows, and shoulders as transferring from a low point to a higher one. It is better to make two level transfers rather than one downhill transfer followed by one uphill transfer.
- Use a transfer board and other assistive devices (such as lifts) when doing a transfer.
- When doing a transfer, use a handgrip if one is present rather than putting your hand on a flat surface to avoid bearing weight through a bent wrist. If a handgrip is not available, make a fist and push through your knuckles, keeping your wrist as straight (neutral) as possible.

- When doing a transfer, keep your hands as close to your body as possible. Your arms should be straight up and down, and your weight should hang between them.
- Alternate which one of your arms is the lead arm when doing a transfer. The lead and trailing arms use different muscles during a transfer. Alternating the arms keeps your muscles balanced.
- Maintain a healthy weight. Being overweight is hard on your shoulders, arms, and wrists when you do transfers or push your wheelchair.
- See the MSKTC factsheets on Transfers (see the Reference Section below) for more information.

References

- Paralyzed Veterans of America Consortium for Spinal Cord Medicine. (2005). Preservation of upper limb function following spinal cord injury: A clinical practice guideline for health-care professionals. *Journal of Spinal Cord Medicine*, *28*(5), 433–470.
- https://msktc.org/sci/factsheets/exercise-after-spinal-cord-injury
- https://msktc.org/sci/factsheets/how-do-pressure-reliefs-weight-shifts
- https://msktc.org/sci/factsheets/manual-wheelchair-what-spinal-cord-injury-consumer-needs-know
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Authorship

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