

OUTSIDE THE NORMAL RANGE

Many people fall outside the standard size range that the construction industry has designed homes and workplaces around. For those of us taller or shorter than the average person, years of working in an environment that is not suited to our body size begins to take a toll physically as breakdown of the normal biomechanics of the musculoskeletal system occurs. For example, if your chair is too low your arms will be too low in relation to the counter or table. This forces you to hunch neck and shoulder muscles upward keeping arms in a constant semi-raised position. Eventually this ergonomically incorrect situation can lead to painful muscle spasms, tendinitis and joint problems.

Up to 70% of us will experience back and related problems during our lifetime. Pain can strike suddenly, often when you're doing something routine, or it can be a chronic, low-grade pain that limits activity.

I reached backward to put my arm into my jacket sleeve—ouch!! What a sharp pain I felt in my shoulder! I didn't think anything of it, that was, until next time, and the next time, and the next time, that I felt that same sharp pain in my shoulder. Every time I went to put my arm into a sleeve, every time I reached to get labels from the label printer, every time I reached for culture plates that were at an awkward angle, every time I went to comb my hair, every time I turned in bed, that same sharp pain was felt in my shoulder.

A visit to my family doctor started the rest of the process. His diagnosis was shoulder impingement or tendinitis. He recommended physiotherapy to relax the muscles. He also suggested going through Employee Health, in case the Workmans Compensation Board would have to be notified. My doctor strongly believed it was the angular position of the computer and the possible improper height of the benches and chairs in my work area that was causing the problem. When my arms are on the bench, my shoulders are constantly in an upward shrugging position and I have to twist my torso to enter data into the computer.

What is shoulder impingement?

It is a type of shoulder pain that arises from overuse of, or injury to the tissue surrounding the shoulder joint. The pain may be due to inflammation of either the shoulder tendons (tendinitis) or the fluid-filled sac of the joint that prevents friction (bursitis).

The shoulder has a group of muscles that help to hold the ball and socket joint together. One of the muscles travels through a tunnel over the ball and socket joint, from the shoulder blade to the upper arm bone. When the tendon that holds this muscle becomes inflamed it swells and becomes impinged in the bony tunnel. This means that the tunnel is now too small for the swollen tendon. The fluid-filled sac or bursa in this tunnel can become inflamed and produce the impingement pain.

What causes shoulder impingement?

Shoulder impingement occurs as a result of sudden, acute injury or overuse.

Overuse is the most common.

How is shoulder impingement diagnosed?

People report pain that is made worse by activity. The pain spreads from the tip of the shoulder and part way down the shoulder muscle. It is also worse when lifting or raising the arm to upper or overhead positions, or twisting in certain direction.

How is shoulder impingement treated?

Treatment is in 3 phases:

1. control of the pain and inflammation
 - a) apply ice:
 - in the early stages of the inflammation.
 - after any activity using your arm.
 - b) rest:
 - use your pain as your guide.
 - continuing your activities while experiencing pain will only aggravate the situation.
 - in very severe cases one should refrain from using the arm at all.
 - c) physiotherapy (ultrasound):
 - is done to reduce the inflammation.
 - d) massage therapy:
 - releases the muscular tension and soothes the pain caused by tension.
 - e) use of anti-inflammatory medication:
2. restore strength and function
 - a) strengthen the rotator cuff muscles:
 - with an exercise regime in conjunction with massage and physiotherapy.
3. return to normal activities and exercise
 - a) should be gradual so as to give the weakened muscle a chance to catch-up.
 - b) make modifications to techniques so as to prevent recurrence and injury.
 - c) an exercise program that has been worked out with your physiotherapist or massage therapist must be continued.

If these treatment phases are unsuccessful, an injection of cortisone (an anti-inflammatory) into the bursa can be helpful in controlling the pain.

The extreme cure of the pain could be surgery to enlarge the bony tunnel making space for the tendon.

Since Employee Health and the Workmans Compensation Board were notified, an ergonomic job site visit was required. Personnel were sent in to assess the problems we were encountering at our work stations. They noted problems and gave recommendations.

Problem #1

Position of the computer monitors and keyboards on the workbench are at a 45 degree angle. This requires the operator to work with a rotated trunk, head, and neck.

Recommendation:

Move the monitor and keyboard so they face the worker, eliminating the trunk rotation.

Problem #2

When keyboarding and reading culture plates the operator is required to have her inside arm in a sustained raised position.

Recommendation:

An adjustable keyboard tray would help with upper limb position; chairs with adjustable heights would also be of some assistance.

Problem #3

Location of the bench drawers and the hard drive impede leg room, causing the workers to perch on the front of the chairs.

Recommendation:

Removing the drawer and storing the hard drive in a horizontal position would create more leg room. Chairs with foot rests would alleviate the perching problem.

Problem #4

Insufficient space in the work area causes frequent over-reaching to access labellers and culture plates.

Recommendation:

Assess the usage of space. Assess possibility of labellers being put on a turntable device that might decrease the over-reaching and increase accessibility.

I started my physiotherapy, I went through a series of twelve treatments. There was a little more mobility in my shoulder movement, but not a lot. Each time I move wrong, the pain was still there. I continued my search in hope of finding some relief from the stiffness and pain, my next course of action was to make an appointment with a massage therapist.

When I questioned her as to causes of tendinitis, she said that ergonomics and repetitive motion were the main causes and that stress plays a big part. She said that sitting at a computer desk or terminal, especially one that is ergonomically incorrect for the operator, can cause muscular tension and pain. She suggested a series of computer and desk stretches. The handout that she gave me illustrated sixteen different stretches that one can do while sitting in front of the computer. It stated that taking a few minutes throughout the day to break and do the exercises would not only relieve the tension and stiffness in the affected area, but in the whole body as well. The article went on to say

that stretching should be done slowly without bouncing. Stretch to where you feel an easy stretch – if the tension does not diminish, you could be over-stretching, so ease off and hold that position for 5-20 seconds. When that is comfortable move further into the stretch until you feel slight tension, then hold this position. Relax as you concentrate on the area being stretched. Limberness should return to affected muscle.

After just three treatments with my massage therapist I could once again lift my arm over my head. My shoulder is not completely healed, but with continuation of the exercise program, a new-found acute awareness of my work station, and regular visits to my massage therapist, I am on the road to recovery.

The computerization of the laboratory has led to challenges in creating an ergonomically friendly work environment. Going paperless has meant that manual procedures have to be entered into the computer at the same time that the work is being done. Innovations such as space saving flat monitors and mini-keypads would be beneficial in some instances. Improving ergonomics in the workplace and an individual's attention to posture and lifestyle can do much to prevent pain.

It's cliché but the proverbial ounce of prevention is worth a pound of cure. After the first spasm, it's often a battle to prevent pain from becoming a chronic condition.

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