Craig Hospital
Redefining Possible for People with Spinal Cord and Brain Injuries

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Aching Shoulders?

It's no surprise that many people with spinal cord injuries have aches and pains. Often, that aching and paining target the joints. And, with arms needing to do their own job, as well as having to serve as "surrogate legs" – transferring, pushing wheelchairs, maybe even pedaling hand cycles – no one will be shocked to hear that the most achy joint of all is the shoulder.

Shoulder Pain is Common:

Numerous studies have shown how common shoulder pain is. In one international effort involving more than 600 British, Canadian and American people with SCI – all of whom had been injured 20 or more years – about one-third of those who participated complained of shoulder pain. Things were pretty similar in a second long-term study as well. Of 751 Americans with spinal cord injuries – all injured at least 10 years – 280, or 37%, had shoulder pain or stiffness. Other studies have reported shoulder pain to affect from 30% to more than 50% of spinal cord injury survivors. Percentages like these put spinal cord injury survivors with achy shoulders right up there with the best of them – competitive swimmers – but with none of the glory!

Predictors:

So, what kinds of things predict shoulder pain? Surprisingly, in the international study, there were no data to show that how active, busy, or independent you are is the culprit. Various ways of measuring how active people were – time working, hours out of bed, days out of the house per week, or the amount of attendant care they used – did *not* predict shoulder pain several years later. In fact, another study actually found complaints of shoulder pain to be *more* common among those who were *un*employed.

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What about age and length of time injured? Do these predict shoulder pain? Although some researchers are finding more shoulder pain in people who are older and have been injured longer, other researchers have not found this to be the case. It seems that the jury is still out on this one.

So what really does predict shoulder pain? In several studies, manual wheelchair use was found to be a predictor. In the three-nation study, those who used manual wheelchairs for mobility (rather than braces or crutches) were *more* likely to have shoulder pain in three years. This was verified by other studies. One even found that, on x-ray, the shoulders of wheelchair pushers had more joint deterioration than the shoulders of full-time crutch walkers. Having paraplegia also may be predictive. Perhaps more important, however, was whether the individual had had shoulder pain *previously*. Half of those in the international study who had shoulder pain when they first joined the study still had it three years later. In a US study of more recently injured people, about a third of those with shoulder pain at one follow-up point, still had it five years later.

"Aggravators:"

If you do have shoulder pain, what causes or aggravates it? The answers to this question are surprisingly consistent across numerous researchers' studies:

- Pushing a manual wheelchair, especially out of doors on rough and uneven terrain
- Transferring
- Weight shifting
- Driving a vehicle
- Upper body dressing

What about sports? In one study, 77% of all people with spinal cord injuries who were involved in sports were complaining of shoulder pain!

Regardless of what does or doesn't predict shoulder pain, the things that aggravate it seem clear. And, they make sense when you think about the principles and mechanics of shoulder injury, even in the non-disabled population.

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5 Facts to Keep in Mind:

Here are five things that we know about shoulders in general:

1. We know that repeated or sustained raising of your arm up over your head or out to the side – like swimmers do – can increase the forces sustained inside your shoulders to an amount that approaches your body weight. This translates to pain, stiffness and fatigue. Are you constantly reaching up to high shelves? When you push your chair, are your elbows angled out? Even this can increase the forces inside your shoulders. No, you can't stop reaching and you can't stop pushing your chair. But you can make modifications: Rearrange your work area so the number of overhead reaches is lessened. Think about ways that you can change how you sit in your wheelchair, so your arms can be tucked in a bit closer to your body as you push: what about closer or lower armrests? A cushion that lets you sit higher up from the wheel? A narrower chair? (But, remember: as you try these solutions, be aware of what else you might be affecting – especially skin and posture.) Should you try a power chair? Maybe. How drastic a solution a power wheelchair is depends on how severe the pain is.

2. We know that chronic compression – or forcing the shoulder into its socket also exerts a lot of force inside the shoulder joint. This is especially true when your body is moving while your hand stays put. Think of a gymnast working out on the pommel horse or doing a floor routine. Now think about doing a tub or a sofa transfer or getting into a high four-wheel-drive vehicle: there's not a whole lot of difference. You can't stop doing these things, but you can lessen the forces they create. Raise that sofa, or get a tub bench so the height of what you're going to is closer to the height of your wheelchair. This lets you reduce that amount of actual *lifting* you need to do to transfer. Of course, using a transfer board can further reduce the compression forces your shoulders are subjected to. At the very least, do things to minimize the absolute *number* of transfers you have to do.

3. We also know that muscle imbalance – stronger muscles on one side of the joint than the other – contribute to uneven shoulder wear and tear. Wheeling typically strengthens only the muscles on the front side of your shoulder. There is, in fact, very little we do functionally to strengthen the muscles on the backside of the shoulder joint. Some therapists recommend rolling your wheelchair backwards as part of a workout. Need other ideas? – Think of exercises that require you to *pull* against resistance – pulling down from over your head, or pulling back from in front of you. Weight machines that provide resistance while you do these movements can be found at almost any fitness center. If you need other ideas or more help, check with a trainer, PT, or OT.

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4. We know that shoulders are affected by *posture*. We just talked about your position while wheeling, but your posture when you're just sitting – especially at work – is also very important. How you sit, lean, even lie, alters the way forces are distributed throughout your shoulder joint. Take a look at a side view of yourself in a mirror. Your ear, your shoulder, your hip joint and the axle of your chair should pretty much make a straight line perpendicular to the ground. If they don't, it might be time to check with a PT or OT who understands posture and the equipment and modifications that improve it.

5. Finally, we also know that *everyone's* musculoskeletal system changes and deteriorates with age. Small, gradual strength losses appear with each decade as we get older. Cartilage deteriorates, and arthritic changes in joints are the norm rather than the exception. What can you do? Know that no one is immune, no one is immortal. Make choices to at least minimize and delay such aging-related changes as much as possible. If you're already having pain, get together with someone in-the-know who can help you problem solve. Remember: one of the biggest predictors of having shoulder pain in the future is having had it earlier. It isn't going to just go away on its own. Figure out what causes or aggravates your pain, and change it!

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