# Range of Motion for Individuals with SCI

## Edited Video Transcript

Okay, so now you've got the client dressed in a TLSO and cervical collar and up into the chair. Range of motion is often really common with our individuals with spinal cord injury. Range of motion has three purposes.

### Range of Motion Has Three Purposes: Maintain or Increase Range of Motion, Maintain to Help Promote ADL Function, and to Prevent Injury

If Britney had a cervical-level injury, she couldn't move. A high cervical injury like a C4—she couldn't move her arms. Over time, she starts developing contractures in those shoulders. Even if she had a lower injury, and she wasn't moving the arms the same way, she could develop contractures. One, we want to maintain or increase range of motion. Two, we want to think about ADLs. So if Britney had a limitation, she could only bring her arm [partially up]. Putting on a shirt is going to be a bear, right. We're going to have to get all Velcro shirts, and it's not going to be very cool. She's not going to look stylish, right. “You do, all right!” Three, to prevent injury, individuals [with] spinal cord injury are extremely prone to musculoskeletal injuries. So one, just think about if Britney did have that limitation and a nice caregiver said, “No, we'll get that shirt on.” Crank, right. She has a rotator cuff tear, but even if she has more function than that, if she's doing those transfers and pushing up with her arms all the time, pushing her wheelchair, that's going to do a lot of strain on the shoulders. So our three purposes are to maintain or increase range of motion, to maintain to help promote ADL function, and to prevent injury.

### Shoulder Stretch

So when we stretch shoulders, we're going to go through all our primary functions—flexion, abduction, extension, internal external rotation, and horizontal abduction.

For flexion, “Relax, dead weight, okay.” I'm going to bring this arm up. I'm going to hold it at end-range, right. When I start feeling resistance—of course if there's pain, I'm going to back off. The data really shows 60 seconds is your most effective, much shorter than that, you don't get the benefit. Much longer than that, you're spending more time than you need to. So again, after 60 seconds, I'd come down. I'd move into abduction. For most people with spinal cord injury, a little above 90 [degrees] is where you get to because of the scapula. If the scapula is not moving well, you're going to feel it. “That's fine. Stop there. Don't push through it.” I will often do [an] internal external rotation here because it's just easy, right, external and internal. Previous injuries—you've reviewed the chart, yeah? You've reviewed the chart, but you're also going to go by feel. The skills we talked about—palpation—that you worked on last semester in [Functional Anatomy]. are going to really get refined with real clients. So, with Brittany for example, her shoulders are really loose, right, so she's got really good range of motion. External is a little bit tight, but not bad, right. I know that. I know that. I can spend that little bit of time stretching. We're going to probably be fine, whereas others, you're going to find a limitation. Where it gets a little bit stuck, pay attention to pain, right. Don't go through pain. You're going to be pretty well off, okay. Know your [end feel of range of motion]. I can come back into [extension].

### Elbow Stretch

You don't have to worry too much about elbow because I'm doing elbow extension this entire time, and elbow flexion we have plenty of opportunity for. But I'll generally make certain that that doesn't have any tightness or limitations. Pronation, supination can be helpful.

### Hand and Wrist Stretch

Then, when we get down to the hand, wrist, we have to pay attention to that tenodesis. So, if we are trying to develop tenodesis grasp, we are trying to develop a contracture because just normally when I bring Brittany's hand into extension, her fingers move into flexion. When I move her hand into flexion, her fingers move into extension, and that's natural, but this isn't a very tight grasp. She could probably get a golf ball in there. She couldn't get a toothbrush or a fork in there. So you're going to actually try to promote that. That means you're always going to stretch in this format—going into extension with flexion, going into wrist flexion with finger extension. So, wrist extension with finger flexion, wrist flexion with finger extension, yes? Okay, now if someone either has a much lower injury, right, say a lumbar injury, hands are doing great. She's got good grasp, then yeah, that's fine. Don't worry about it. Stretch whatever pattern.