**Screen: 1**

**Objectives**

At the end of this activity you will be able to:

1. outline the implications of elbow flexion contractures for people with different levels of tetraplegia
2. prioritise contracture prevention programs on the basis of future mobility
3. list interventions to treat and prevent elbow flexion contractures

**Screen: 2**

This is Bert. He has a C5 motor level.

He can do simple hand-to-mouth activities.

He can not independently transfer.

**Screen: 3**

Bert is highly susceptible to developing elbow flexion contractures like this.

Why is Bert susceptible to elbow flexion contractures?

**Screen: 4**

**Activity**

Bert and people with C5 complete tetraplegia are susceptible to elbow flexion contractures because:

- they get spasticity in the triceps
- they can not push a wheelchair
- they have paralysis in their hands
- they have paralysis in triceps but not biceps

**Screen: 5**

**Answer**

People with C5 motor levels are susceptible to elbow flexion contractures because they have paralysis in their triceps but not in their biceps.

Their biceps strength is at least grade 3/5 according to the International Standards for Neurological Classification of Spinal Cord Injury.

They therefore tend to hold their elbows flexed for long periods of time.

This places the elbow flexors in their shortened position and at risk of losing length.

**Screen: 6**

This is Phil. He has a C6 motor level.

He also has paralysis of his triceps muscles.

However, he is less susceptible to elbow flexion contractures than a person with a C5 motor level.

Why is he less susceptible to elbow flexion contractures?
Activity

People with C6 motor levels are less susceptible to elbow flexion contractures than people with C5 motor levels because:

- they get spasticity in the triceps
- they can push a wheelchair
- they can use a tenodesis grip
- they can lift their body weight

Answer

People with C6 motor levels are less susceptible to elbow flexion contractures than people with C5 motor levels because they have sufficient strength around their shoulders to lift their body weight.

People with C6 tetraplegia lift by placing their elbows into a fully extended and stretched position because they have triceps paralysis. Repeatedly lifting and stretching every day as part of normal activities helps prevent elbow flexion contractures.

It is important to ensure no one develops severe elbow flexion contractures like in this picture. However, slight elbow flexion contractures are more disabling for some patients than others.

Understanding the future implications of different types of contractures for people with varying types of SCI helps therapists prioritise treatments. High priority needs to be given to treatments which will have the biggest impact on future independence and quality of life.
Screen: 13
Activity
Give 2 examples of stretches that might help prevent elbow flexion contractures. Look on www.physiotherapyexercises.com for ideas.

Screen: 16
Answer
Stretch administered through the hands of therapists can never be maintained for more than a few minutes.
A few minutes of stretch is unlikely to have lasting effects on contractures.
A few minutes of stretch might however provide transient (i.e., short-lived) increases in elbow range of motion.
However, if the aim of therapy is to treat contractures, the stretch must be maintained for at least 20 minutes, preferably longer.

Screen: 14
Answer
Two examples of stretches that might help prevent elbow flexion contractures are:

Screen: 17
Elbow flexion contractures are common for people with C5 and C6 motor levels.
They are best prevented with simple strategies that hold the elbow in extended positions for long periods of time.
Therapists need to prioritise treatments based on likely future implications of elbow flexion contractures for their patients.

Screen: 15
Activity
We do NOT suggest a stretch like below if the aim of therapy is treat elbow flexion contractures. Why?

Screen: 18
Summary
This is the end of the activity. In this activity you have learnt:
1. the implications of elbow flexion contractures for people with different levels of tetraplegia
2. how to prioritise contracture prevention programs on the basis of future mobility
3. interventions to treat and prevent elbow flexion contractures

Proceed to activity