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STUDY OF OSTEOPOROTIC FRACTURES (V2)

Spinal Kyphosis Measurement with Flexicurve

1. Introduction:

The purpose of this part of the examination is to measure the deformity of the spine caused by vertebral fractures, or kyphosis (also known as "dowager's hump"). The "flexicurve" is a flexible, metal rod encased in plastic. When manipulated, this rod holds the shape it is given. It is used by architects to draw nonstandard curves. We will press the flexicurve over the spine of participants to obtain a measure of the degree of kyphosis. These measurements will be used in studies of the relationship of vertebral osteoporosis with back pain and back function.

2. Equipment:

30-36 inch architect's flexicurve, a small rubber band wrapped around the flexicurve, and 36 inch graph paper.

3. Subject Preparation:

The participant should be wearing only one thin layer of clothing (i.e. a blouse). Sweaters, jackets, etc., should be removed. Ask her to stand with thighs pressed up against a table for balance and in a relaxed position; feet apart, looking straight ahead.

"Now I'm going to measure the shape of your back with device (*show her the flexicurve*). I want you to stand comfortably with your feet a little apart. Let your arms hang loosely at your sides. Look straight ahead."

If the participant is holding shoulders back stiffly. Ask her to relax. Flexing the shoulders back and fourth 1-2 times will help relax the neck and back.

4. Measurement procedure:

a) Find the greater trochanters (the hip bones) by firmly palpating the flanks through clothing until you find the top of the greater trochanters of each hip. (If necessary, have the participant abduct her hip to feel the trochanter.) Place a small piece of tape on each trochanter. Connect the trochanters with a piece of tape across the buttocks from one trochanter to the other. Keep the tape horizontal and as straight as possible.

b) Place the flexicurve ridged side outward, along the top of the spine. With one hand, find the top of the C7 spinous process (the most prominent bone at the back of the neck.) This landmark is easier to find with the subject's head bent down. Line up the black mark on the flexicurve with the top of the C7 spinous process. Then ask the subject to straighten her head and look straight ahead.

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c) Hold the flexicurve at the black mark with one hand, then mold the curve to the spine by gently pressing against the curve, pushing it inward until it touches the spine bones. Start at the top and work down until you reach the tape marking the greater trochanters.

d) Mark the point where the flexicurve touches the tape by sliding the rubber band to the point where the flexicurve touches the top of the tape.

e) Gently press along the flexicurve again to make sure that it is as snug as possible along the spine.

f) Now, slowly and carefully remove the curve from the spine, holding it firmly below the bottom mark and gently balance it with the upper hand by letting the top part of the curve lean against your hand. Keep it as nearly vertical as you can while carrying it to the table to trace the curve. If you accidentally bend the curve, start again.

g) Tracing the curve:

Lay the flexicurve out flat on the paper. Hold the curve with one hand and, using a No. 2 or darker pencil trace the curve along the non-ridged side of the flexicurve (the side that was against the participant's back). Start exactly at the C7 (top) mark and stop tracing exactly at the rubber band marking the level of the trochanters.

Make sure that the tracing is clearly labelled with the participant's number and name code, and which end is the "top".

You may put as many tracings on one piece of paper as can fit and still clearly be identified by ID number.