Erasmus+

Development of innovative training solutions in the field of functional evaluation aimed at updating of the curricula of health sciences schools

MODULE BIOMECHANICS OF SPINE

Didactic Unit D: INSTRUMENTED ANALYSIS OF THE SPINE

D.3. How is a normal biomechanical assessement of the cervical spine?

Self-Questionnaire

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Self-questionnaire:

- Self-questionnaire aimed to test the knowledge acquired.
- It will include 5 objective questions with 4 answer options.
- Mark in bold the correct answer.

Type of questions:

- **Drag and drop into text:** Students select missing words or phrases and add them to text by dragging boxes to the correct location. Items may be grouped and used more than once.
- **Drag and drop markers:** Students drop markers onto a selected area on a background image. Unlike the drag and drop onto image question type, the are no predefined areas on the underlying that are visible to the student.
- **Drag and drop onto image:** Students make selections by dragging text, images or both to predefined boxes on a background image. Items may be grouped.
- **Matching:** A list of sub-questions is provided, along with a list of answers. The respondent must “match” the correct answers with each question.
- **Multichoice:** With the Multichoice question type you can create single-answer and multiple-answer questions, include pictures, sound or the other media in the question and/or answer options and weight individual answers.
- **Select missing words:** Students select a missing word or phrase from a dropdown menu. Items may be grouped and used more than once.
- **True/False:** In response to a question (that may include an image), the respondent selects from two options: True or False.

Question 1

Find the 7 parameters that can be found as results from a biomechanical cervical evaluation (word search):

Angular velocity

Range

Isometric strength

Repeatability

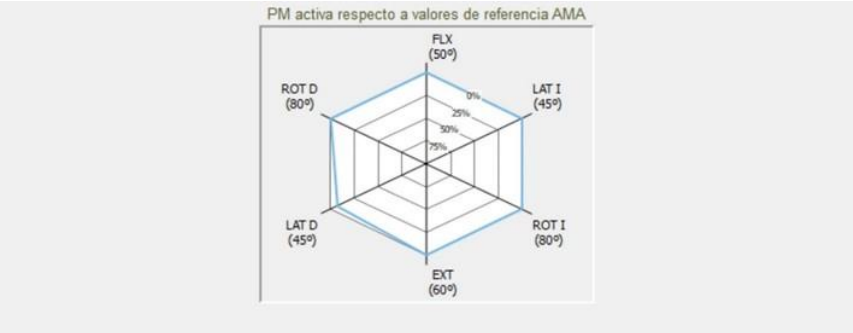
Rotation

Flexion

Coefficient of variation

Question 2

Analyse this graph with the mobility results obtained from a cervical spine biomechanical evaluation test. Out of the replies below, which interpretation is correct? (Note: the reference values used in this evaluation are given in brackets).



□ A A general decrease is observed in all axes of motion.

□ B The maximum mobility on each axis is far from the maximum mobility values for healthy people (reference values).

□ B **In general, it is seen that the mobility is within normal values, though there is a slight decrease in lateral right flexion.**

□ C The flexion and extension values are far from those of healthy people.

Question 3

Photogrammetry is an instrumental technique that can be used to evaluate people with cervical pain, in some cases allowing the results to be compared with a standard of motion for healthy people.

Choose the right answer:

□ A **True**.

□ B False.

□ C True, but only for muscular pathologies.

□ B False. More instrumental techniques are needed for comparison with healthy people.

Question 4

What parameters can we obtain by analysing the cervical spine with photogrammetry or inertial sensors?

Choose the right answer:

□ A Angular acceleration.

□ B Range of motion of the spine.

□ C Angular velocity.

□ D **All are correct.**

Question 5

Reply True or False to the following statements in an evaluation of the cervical spine.

□ A To evaluate the cervical spine from the biomechanical point of view, only inclinometers may be used. **FALSE**

□ B From the biomechanical point of view, only the range of cervical motion is worth knowing. **FALSE**

□ C There are some studies on muscular cervical activity via surface electromyography. **TRUE**

□ D The purpose of biomechanical evaluation is to objectify and quantify the existence of a functional alteration in the cervical spine of the person being assessed, regardless of what may have caused it. **TRUE**

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