



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



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MODULE BIOMECHANICS FOUNDATIONS

Didactic Unit D: TECHNIQUES FOR THE INSTRUMENTAL ANALYSIS OF MOVEMENTS AND FORCES

D.2 How can forces be measured and which parameters can be analyzed? What are its main applications?

Self-Questionnaire



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Self-questionnaire:

- Self-questionnaire 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, there 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

The force recorded by a dynamometric platform when a person walks on it has:

- A less magnitude and the same direction as the force generated by the individual.
- B the same magnitude and the same direction as the force generated by the individual.
- C **the same magnitude but the opposite direction to the force generated by the individual.**
- D greater magnitude but the opposite direction to the force generated by the individual.

Question 2

Due to the vector nature of the reaction force, what do you not need to know to determine this force?

- A Magnitude.
- B Direction.
- C **Area.**

Question 3

Select from the dropdown menu the missing word that best fits in these sentences about the characteristics of force platforms:

- A Increasing the **measurement range** affects the accuracy of the equipment.
- B **Overload** is the maximum force that the platform can support.
- C **Crosstalk** is the force measurement on an axis different from that of the actual application.
- D The higher the **natural frequency**, the greater the sensitivity to sudden changes.

Question 4

Mark the wrong answer:

- A One of the parameters extracted from an accelerometer is an inertial component such as acceleration.
- B A podoscope is a device for measuring plantar pressure statically.
- C The thermal stability of pressure sensors determines the behaviour of the sensor in the face of temperature changes.
- D **Isokinetic dynamometers maintain a constant resistance at a variable speed throughout the joint range.**

Question 5

In regard to pressure platforms, it is false that:

- A **They record forces in the three axes of space.**
- B They consist of a flat rigid surface.
- C They are used to analyse the behaviour of the foot during gait.
- D Their sensors are evenly distributed in the form of a matrix so that they record pressure with the same degree of accuracy over the entire measurement surface.

