Erasmus+

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

MODULE BIOMECHANICS: FOUNDATIONS OF BIOMECHANICS APPLIED TO THE LOCOMOTOR SYSTEM

Didactic Unit E: TECHNIQUES FOR THE INSTRUMENTAL ANALYSIS OF PHYSIOLOGICAL SIGNS AND ANTHROPOMETRIC AND MORPHOMETRIC PARAMETERS

E.2. What are the applications of the analysis of physiological signs?

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

Features and parameters extraction from raw recorded data as a part of biosignal data analysis allows to:

□ A reveals the information not seen in direct data (signal curves) observation,

□ B introduce the quantity measures to the particular cases quality descriptions performed in traditional way .

□ C create a feature vector for given process as an input to reasoning, advisory system in modern computer diagnosis support systems.

□ **D** **all of the above are correct**

Question 2

Time and Frequency domain analysis of Heart Rate signal gives the information about …?

□ A skin resistance,

□ **B** **Central Nervous System (CNS), especially sympathetic vs. non-sympathetic balance**

□ C brain waves: alpha, beta, gamma,

□ D none of the above

Question 3

Heart Rate [bmp] important for central nervous system assessment can be extracted from ?

□ A galvanic skin response GSR signal.

□ **B** **electrocardiogram – ECG and pulse wave signals,**

□ C electrooculogram – EOG and electromyogram – EMG,

□ D none of the above.

Question 4

Electromyography (EMG) signal can be applied to ..,

□ A body sensor networks as a one of components,

□ B assess the rehabilitation progress during orthopaedic treatment,

□ C human – machine/computer interactions,

□ **D** **all of above are correct.**

Question 5

Heart Rate (HR) pathologies, detected by biosignal analysis include among others:

□ **A** **tachycardia and bradycardia,**

□ B glycaemia,

□ C biomarkers pathologies,

□ D none of the above.

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