TEACHER'S GUIDE SHEET

MODULE	BIOMECHANICS OF GAIT
DIDACTIC UNIT	D: INSTRUMENTED ANALYSIS OF GAIT D.1: WHICH GAIT BIOMECHANICAL INSTRUMENTED EVALUATION PROTOCOLS EXIST?
TITLE OF ACTIVITY/CLASS	BIOMECHANICAL INSTRUMENTED PROTOCOLS FOR HUMAN GAIT ASSESSMENT.
OBJECTIVES	• To define the main biomechanical evaluation techniques for gait assessment. • To review the methodologies and protocols used for gait evaluation with the most used instrumental techniques in the clinical and research field. • To review the main results / outcomes that can be extracted from gait assessment with the main biomechanical instrumental techniques • To reinforce learning of contents through activities and tests
LENGTH	2h30' / 3h - PowerPoint presentation of the contents + Reinforcement activity
PREVIOUS KNOWLEDGE REQUIRED	In order to fully understand the concepts explained during class, the student should previously revise at least the contents of Didactic Unit A, B and C.1 from the Module Biomechanics of Gait.
TECHNICAL NEEDS	PC with software for the reproduction a power point presentation. Projector and screen to show contents appropriately to all the students during class. You can give the activity material to students online or print.
RESOURCES NEEDED	PowerPoint file of class material presentation and the reinforcement activity pdf file, print or online version. Each student need one copy.

DESCRIPTION OF THE CLASS/ACTIVITY

Part 1: Teacher's theoretical explanation

The teacher's presentation of the D.1 Didactic Unit will be divided in 4 parts:

1) Photogrammetry and gait assessment. Clinical Approach.

The professor will begin to explain the definition of the word photogrammetry and which elements compose the system (reference system to calibrate the device and markers and accessories). Secondly, the biomechanical model and the anatomical colocation of the markers will be reviewed. After this, the teacher will expose how the data is captured to be processed, analyzed and how the digitizing of the measures will be made. Finally, teacher will explain the interpretation of the gait cycle curve and the advantages and disadvantages of this gait assessment methodology.

2) Accelerometers and gait assessment. Clinical Approach.

The professor will begin to explain what is an accelerometer device and which elements compose the system (reference system to calibrate the device and markers and accessories). Next to this, the assessment protocol will be exposed emphasizing the importance of the well fixing of the anatomical markers and the interpretation of the acceleration curves. Finally, teacher will expose the advantages and disadvantages of this gait assessment methodology.

3) Dynamometric platforms and gait assessment. Clinical Approach.

The professor will begin to explain what is a dynamometric platform device and which elements compose the system (reference system to calibrate the device and markers and accessories). Secondly, the assessment protocol will be exposed emphasizing the data capture procedure, the interpretation of the gait cycle curve and which curves must be eliminated from the assessment. Finally, teacher will expose the advantages and disadvantages of this gait assessment methodology.

4) Instrumented pressure insoles and gait assessment. Clinical Approach.

The professor will begin to explain what is an instrumented pressure insole device and which elements compose the system (reference system to calibrate the device and markers and accessories). Secondly, the assessment protocol will be exposed emphasizing the main device's collocation errors, the control of speed and the importance of the results. Then, teacher will expose the advantages and disadvantages of this gait assessment methodology.

Part 2: Practical activities for students

Students will answer the questions of the case study in a concise way and justifying it in the cases that require it.

TASKS TO BE DEVELOPED BY THE STUDENT IN CLASS

In order to fully understand the concepts explained during class, the student should afterward resolve the 'Reinforcement activity' pdf.

TASKS TO BE DEVELOPED BY THE STUDENT OUTSIDE OF CLASS (If required)

After the class and concept presentation, the students should revise the PDF with the contents of the didactic unit or the PowerPoint presentation (what the teacher prefer to provide).

The students will be able to access to PowerPoint presentation of Class Material or to the contents generated for the teacher contained within this didactic unit.

EVALUATION METHODOLOGY

The teacher can use the evaluation method that she/he considers. The correct answers for the Reinforcement activity are in the teacher solutions document.