

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



MODULE: BIOMECHANICS OF GAIT

Didactic Unit A: BIOMECHANICS OF NORMAL GAIT



REINFORCEMENT ACTIVITY



REINFORCEMENT ACTIVITY

Preparation for the task

Select 2-3 volunteers to conduct the study. Ask them to bring clothes that allows them to observe the movement of the lower limbs while walking. It's best if it's a tight, black outfit.

REINFORCEMENT ACTIVITY

Preparation for conducting measurements

Mark in any way (for example with chalk or a marker pen) the following points on the body of the examined persons:

- right and left ASIS,
- point around L5 / S1
- right and left great trochanter,
- lateral epicondyle of the right and left femur,
- right and left lateral ankle,
- right and left heel,
- metatarsophalangeal joint of the toe of the right and left foot.

REINFORCEMENT ACTIVITY

Preparation for conducting measurements

Prepare a minimum of two cell phones for recording movies.

Telephones should be positioned to record the gait of the examined person in the sagittal plane and in the frontal plane. Telephones must be stationary (preferably on tripods).

On the floor or wall elements should be placed that allow calibration in terms of dimensions - for example, put clearly visible lines drawn every 10 cm both along the measurement path and across. These lines must be clearly visible through the telephones recording the transitions.

REINFORCEMENT ACTIVITY

Carrying out measurements

Ask the subject to walk back and forth along the designated measurement path. Record a minimum of three transitions (if one phone is used for recording in the sagittal plane, a minimum of three videos for the left and three for the right limb should be recorded).

REINFORCEMENT ACTIVITY

Analysis of measurement results - time-space values

When using registered movies:

- specify stride length
- specify the length of the double step,
- determine the frequency of steps taken,
- determine the walking speed.

REINFORCEMENT ACTIVITY

Analysis of measurement results - gait determinants and angle courses in joints

When using registered movies:

- determine the percentage of individual walking phases,
- determine the range of pelvic rotation in the frontal plane,
- determine the extent of pelvic lateral movements in the frontal plane,
- the value of flexion in the knee joint when the limb is fully loaded,
- angular ranges of flexion / extension movements in the hip, knee and ankle joints in the sagittal plane,
- maximum flexion / extension angles in the hip, knee and ankle joints in the sagittal plane.



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