Biomechanics (Third year)

Topics :

1. **Subjective assessment of gait**
   - Definition of gait
   - Benefits of assessment
   - Different methods for gait assessment
   - Define subjective assessment
   - Advantage and disadvantage
   - Accuracy
   - Subjective assessment and research work .

2. **Objective assessment in gait**
   - Definition of gait
   - Benefits of assessment
   - Different methods for gait assessment
   - Define objective assessment
   - Advantage and disadvantage
   - Accuracy
   - objective assessment and research work .

3. **Assessment of neurological gait**
   - Definition of gait
   - Benefits of assessment
   - Different methods for gait assessment
   - Why neurological gait differ from others ?
   - Illustrate 4 different neurological cases gait analysis based on clinical trials .

4. **New trends in human gait assessment.**
   - Definition of gait
   - Benefits of assessment
   - Different methods for gait assessment
   - Illustrate new devices , software used in gait analysis (last 5 years)
   - Lab design for direct or indirect assessment

5 Human and animal locomotion

- Concepts
- Parameters (values)
- Similarities and differences
- Refer to different animals
- Vision for physical therapy in veterinary

6   Efficient gait

- Definition of gait
- Locomotor functions
- Parameters of efficient gait
- Methods of determination of energy conservation
- How biomechanics can explain energy conservation during gait
- How exercise physiology can explain energy conservation during gait

7Comparative study between recent and old clinical gait assessment

- Definitions of gait
- materials in gait assessments ,old and recent
- methods of gait assessment for each
- example of cases to apply with

8Assessment of orthopedic gait

- Definition of gait
- Benefits of assessment
- Different methods for gait assessment
- Causes of such gait deviations
- Pathomechanics
- choose one for clinical settings

9 clinical case scenario for gait assessments

- Normal gait parameters
- 3 Case study
- Justification for change
- Decision making based on evidence based practices
- Analyse gait from observational gait analysis point of view for each case

10 Kinetic gait analysis

- Kinetics ofgait
- Normal valuesand features
- Instruments
- Application in pain , obesity and amputation

(all topics should be illustrated with pictures and diagrams)

+ project will be attached during final submission .

Project name (choose any gait scenario and analyze this gait from your observational gait analysis point of view)

General instructions:

Text include (cover page , objectives of the research , list of contents ,list of diagrams and pictures , titles in bold times new roman 18 , each paragraph not more than 6 lines times new roman 16 , references, numbering of pages). each one participation should be determined and illustrated. The file pages ranges from 10 -20 pages

Goodluck

Olfat Kandil