GAIT – PRACTICAL LEARNING ACTIVITIES

1. Gait Cycle Mapping Exercise Objective: Visualize key phases, parameters, and biomechanical connections in normal gait. Instructions: In groups of 4-5, create a detailed mind map on large poster paper linking stance (with subdivisions), swing, double support phases, gait parameters (stride length, cadence, velocity), and joint motions at hip, knee, ankle. Incorporate at least three muscle activity examples (e.g., gluteus maximus in initial contact). Present your map to the class in 10 minutes, followed by a 5-minute Q&A. Use class-provided markers and paper; no external resources allowed. Time: 45 minutes (20 for mapping, 25 for presentations). Assessment: Peer evaluation on clarity and relevance (30%), instructor feedback on accuracy (70%).

2. Pathological Gait Case Analysis Objective: Analyze deviations and biomechanical implications in abnormal gait patterns. Instructions: Individually, review a provided case vignette (e.g., hemiplegic patient with circumduction gait). Identify key concepts (e.g., reduced stance time, muscle weakness). In pairs, discuss and propose two physiotherapy interventions (e.g., weight shifting, gait re-education). Share one key insight with the class. Cases distributed in class; use textbook notes only. Time: 30 minutes (15 for individual analysis, 15 for pair discussion and sharing). Assessment: Written summary submission (50%), class participation (50%).

3. Gait Cycle Role-Play Objective: Demonstrate joint motions and muscle activity through interactive simulation. Instructions: In groups of 3, role-play the full gait cycle on one limb. Assign roles (e.g., physiotherapist narrating, patient walking slowly, observer noting phases). Incorporate hip, knee, ankle motions, trunk/upper extremity contributions, and potential disruptions (e.g., weak dorsiflexion). Perform a 5-minute skit explaining physiological implications. Props limited to classroom items. Time: 40 minutes (20 for preparation, 20 for performances). Assessment: Group creativity and engagement (40%), scientific accuracy (60%).

4. Normal vs Pathological Gait Debate Objective: Critically evaluate biomechanical implications of gait deviations. Instructions: Divide the class into two teams. One team argues that compensatory mechanisms in pathological gait (e.g., Trendelenburg) effectively maintain function, while the other argues they lead to long-term joint overload and inefficiency. Use evidence from unit topics like muscle activity and parameters. Each team has 5 minutes to present, 3 minutes for rebuttal. Time: 35 minutes (10 for team prep, 25 for debate). Assessment: Argument strength (50%), use of clinical concepts (50%).
5. Gait Phase Pathway Tracing Workshop Objective: Trace and apply joint kinematics and muscle activity across the gait cycle. Instructions: Working individually then in pairs, draw and label a step-by-step diagram of stance and swing phases, noting hip/knee/ankle angles, muscle actions

(e.g., eccentric quadriceps in loading response), and trunk/UE roles. Discuss pathological alterations. Share diagrams on the whiteboard and explain one clinical implication. Time: 40 minutes (20 for drawing, 20 for discussion and sharing). Assessment: Diagram accuracy (60%), clinical application insight (40%).

6. Abnormal Gait Problem-Solving Objective: Solve problems integrating normal gait mechanics with pathological variations. Instructions: In small groups of 4, analyze a scenario (e.g., antalgic gait in knee OA patient with reduced stance phase). Identify biomechanical implications (e.g., increased energy cost, joint stress). Propose two evidence-based modifications (e.g., cane use, strengthening). Present solutions in a 5-minute pitch. Scenarios provided in class. Time: 45 minutes (25 for analysis, 20 for presentations). Assessment: Problem-solving depth (50%), group collaboration (50%).

7. Gait Component Peer Teaching Objective: Teach peers about specific elements of gait analysis. Instructions: Each student is assigned a component (e.g., double support phase, ankle plantarflexion in push-off, gluteus medius in stance, pathological implications like drop foot) via random draw. Prepare a 3-minute teach-back session explaining rationale, timing, and relevance. Follow with class Q&A. Use whiteboard for illustrations; no slides. Time: 50 minutes (10 for prep, 40 for sequential teachings). Assessment: Clarity of explanation (40%), engagement with peers (30%), accuracy (30%).

8. Gait Cycle Simulation Game Objective: Simulate and explain dynamics of normal and pathological gait. Instructions: In teams of 5, create a human chain game to model gait phases (e.g., students as heel strike, loading, midstance, toe-off). Incorporate muscle roles and errors (e.g., weak hip extensors causing forward lean). Debrief as a class on biomechanical implications. Use classroom space. Time: 35 minutes (15 for simulation setup, 20 for game and debrief). Assessment: Team participation (40%), conceptual linkage to unit topics (60%).

9. Gait Parameter Concept Application Objective: Apply gait cycle knowledge to clinical assessment and training. Instructions: Individually, jot down notes on how parameters change in pathology (e.g., reduced velocity in Parkinsonism). Then, in groups of 3, build a flowchart showing normal gait cycle linked to one intervention (e.g., rhythmic cueing for festinating gait). Share flowchart with class. Use paper for flowcharts. Time: 40 minutes (15 for individual notes, 25 for group work and sharing). Assessment: Flowchart completeness (50%), application to physiotherapy (50%).

10. Integrated Quiz and Reflection Objective: Synthesize unit topics through self-assessment and reflection. Instructions: Participate in a 10-question in-class quiz on core topics (e.g., muscle activity in swing phase, implications of short stance in hemiplegia). After scoring, individually

write a 200-word reflection on one weak area (e.g., analyzing trunk role in gait) and how it connects to physiotherapy practice. Discuss reflections in pairs. Quiz provided by instructor. Time: 45 minutes (20 for quiz, 25 for reflection and discussion). Assessment: Quiz score (60%), reflection depth (40%).