KNEE COMPLEX – PRACTICAL LEARNING ACTIVITIES

1. Patellofemoral Tracking Simulation Game

Objective: Simulate dynamics of patellofemoral joint function.

Instructions: Teams of 5 use human positions to model tracking during flexion/extension, Q angle influence, and deviations. Debrief implications.

Time: 35 minutes (15 setup, 20 game/debrief).

Assessment: Participation (40%), linkage (60%).

2. Knee Stability Case Analysis

Objective: Examine effects of injury on knee stability and function.

Instructions: Individually review case (e.g., ACL tear). In pairs propose interventions. Share insight.

Time: 30 minutes (15 individual, 15 pair).

Assessment: Summary (50%), participation (50%).

3. Meniscus vs Ligament Debate

Objective: Debate roles in knee stability and mobility.

Instructions: Teams argue menisci vs ligaments as primary stabilizers. 5 min present, 3 min rebuttal.

Time: 35 minutes (10 prep, 25 debate).

Assessment: Strength (50%), concepts (50%).

4. Knee Axes Pathway Workshop

Objective: Trace mechanical and anatomic axes in motion.

Instructions: Draw/label axes, locking/unlocking, rotation. Discuss Q angle effects. Share whiteboard.

Time: 40 minutes (20 drawing, 20 sharing).

Assessment: Accuracy (60%), insight (40%).

5. Knee Structure Mapping Exercise

Objective: Visualize knee anatomy connections.

Instructions: Groups of 4-5 mind map tibiofemoral/patellofemoral structures, menisci, bursae, Q angle. Present with three injury examples.

Time: 45 minutes (20 mapping, 25 presentations).

Assessment: Clarity (30%), accuracy (70%).

6. Q Angle Peer Teaching

Objective: Teach specific knee elements.

Instructions: Assigned topic (e.g., Q angle, bursae, screw-home). 3-minute teach-back.

Time: 50 minutes (10 prep, 40 teaching).

Assessment: Clarity (40%), engagement (30%), accuracy (30%).

7. Knee Injury Problem-Solving

Objective: Manage knee disease biomechanically.

Instructions: Groups analyze OA case with varus. Propose two interventions. 5-minute pitch.

Time: 45 minutes (25 analysis, 20 presentations).

Assessment: Depth (50%), collaboration (50%).

8. Locking Mechanism Role-Play

Objective: Demonstrate tibiofemoral function.

Instructions: Groups role-play extension/locking with muscle roles. Include pathology. 5-minute skit.

Time: 40 minutes (20 prep, 20 performances).

Assessment: Creativity (40%), accuracy (60%).

9. Knee Rehab Concept Application

Objective: Apply knowledge to rehabilitation progression.

Instructions: Individual notes; groups flowchart acute to return-to-sport. Share.

Time: 40 minutes (15 individual, 25 group).

Assessment: Completeness (50%), application (50%).

10. Integrated Quiz and Reflection

Objective: Synthesize knee complex topics.

Instructions: Quiz + 200-word reflection on weak area.

Time: 45 minutes (20 quiz, 25 reflection).

Assessment: Score (60%), depth (40%).