**Anatomy of Balance Poses**

1. In balance poses, practice, observe, and discuss how core activation promotes proper hip alignment.

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2. What is joint reaction force? Using KM, discuss how joint reaction forces are in play between the hip and knee joint.

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3. What is muscular co-activation? Discuss how muscular co-activation aligns the hip and protects the knee joint in balance poses.

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4. For synovial joints in general, list from most stabilizing to least the following features: shape of the articulating surfaces, muscle tone and tendon attachments across the joint, and the joint capsule and ligaments.

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5. Label the following knee structures: tendon of quadriceps femoris, patellar ligament, medial and lateral retinaculum, patella, medial (tibial) collateral ligament, lateral (fibular) collateral ligament, anterior and posterior cruciate ligaments.

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6. BONUS—What are the basic characteristics of all synovial joints? See additional handout

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**Need to knows:**

1. Joint reaction forces—how/why does this happen
2. Muscular co-activation—how/why is this beneficial
3. Basic knee anatomy (#5)

**Recommended reading:**

1. Manual pgs. 174-175, 76-77
2. KM pgs. 24-25

Synovial Joints: Six Distinguishing Features

## 1. **Articular cartilage: hyaline cartilage**

### Prevents crushing of bone ends

## 2. **Joint (synovial) cavity**

### Small, fluid-filled potential space

## 3. **Articular (joint) capsule**

### Two layers

#### External Fibrous layer

##### Dense irregular connective tissue

#### Inner Synovial membrane

##### Loose connective tissue

##### Makes synovial fluid

## 4. **Synovial fluid**

### Viscous, slippery filtrate of plasma and hyaluronic acid

### Lubricates and nourishes articular cartilage

### Contains phagocytic cells to remove microbes and debris

## 5. **Different types of reinforcing ligaments**

### Capsular

#### Thickened part of fibrous layer

### Extracapsular

#### Outside the capsule

### Intracapsular

#### Deep to capsule; covered by synovial membrane

## 6. **Nerves and blood vessels**

### Nerve fibers detect pain, monitor joint position and stretch

### Capillary beds supply filtrate for synovial fluid

# Three Stabilizing Factors at Synovial Joints

## **Shapes of articular surfaces (minor role)**

## **Ligament number and location (limited role)**

## **Muscle tendons that cross joint (most important)**

### Muscle tone keeps tendons taut

#### Extremely important in reinforcing shoulder and knee joints and arches of the foot