

# Working with the Knees and Knee Pain

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Steve Bader

***Bäder***

***Movement***

# The Knee – Questions to Ask

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- How many directions does the knee move in?
- Is the knee always the source of knee pain?

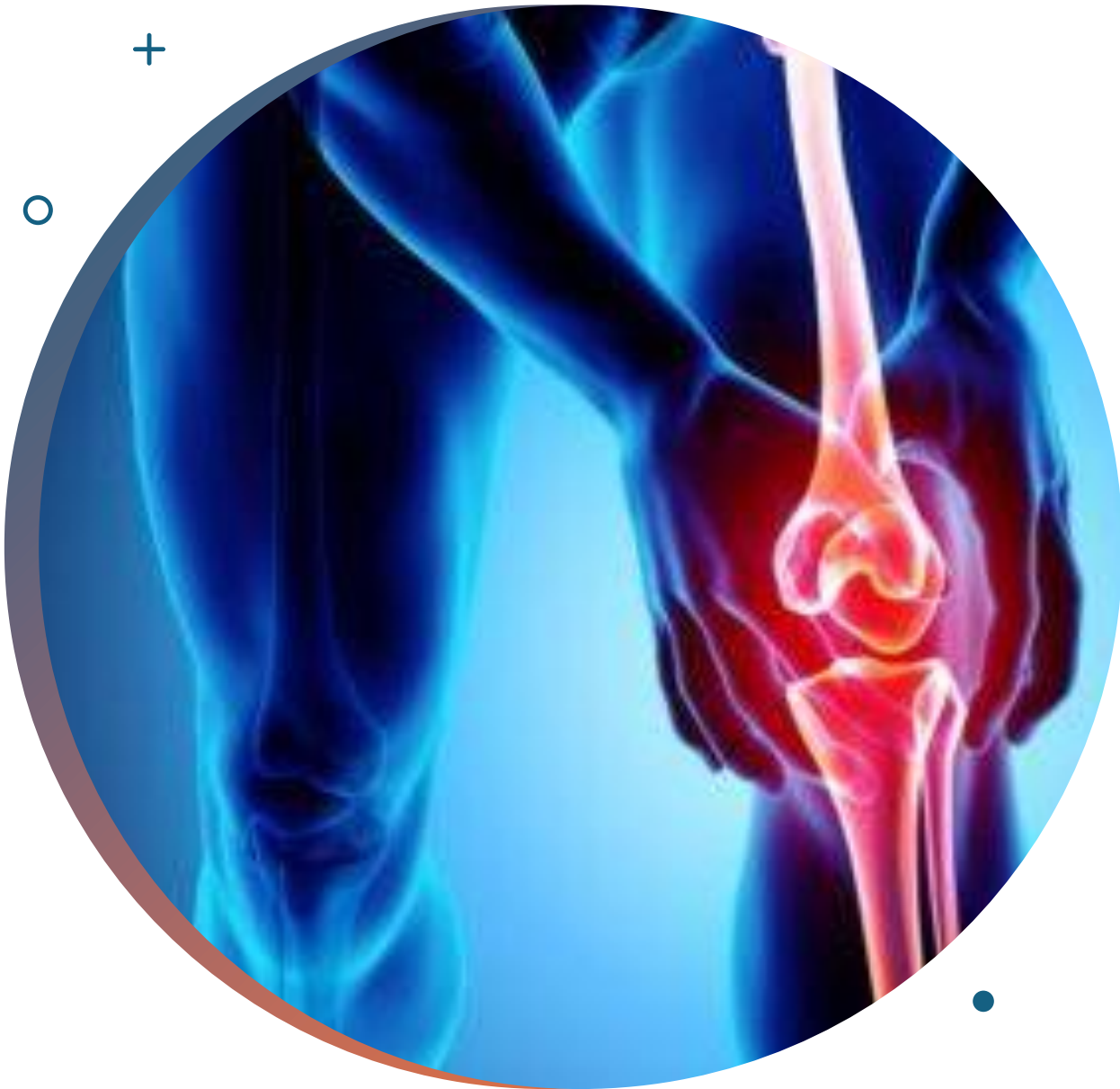


# Imagery As a Training Method

- Ideokinesis – Using Imagery for the Development of Body Awareness

*Behind every unhealthy physical movement pattern slumbers a good one. But instead of getting tense by trying to change the bad, we delve into the body to bring the good back to the surface. Imagery serves as an echo sounder that encourages the body to rediscover dormant natural movement patterns. In this sense, nobody is truly clumsy or cramped; poor functioning is merely a temporary dominance of inefficient coordination; in the background there is a better movement pattern waiting to be resurrected.*

*Eric Franklin*



# Common Injuries

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- Ligament Injuries
- Fractures
- Torn Meniscus
- Patellar Tendinitis
- Patellofemoral Pain
- Bursitis
- Iliotibial Band Syndrome
- Arthritis
- Dislocated Knee



# Bones of the Knee

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- Femur
- Patella
- Tibia



# Fibula

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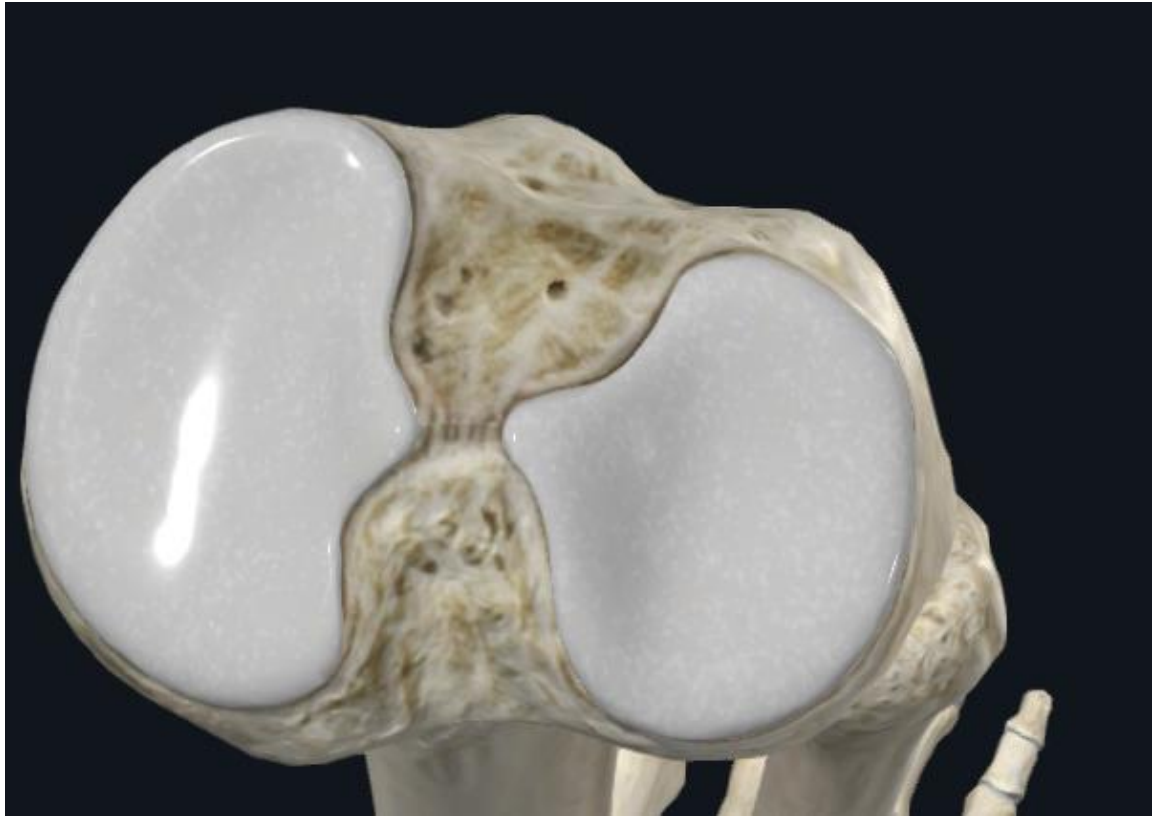
Don't forget about me!

# Bony Landmarks

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**Areas of Significance**





# Tibial Plateau

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# Condyles of the Femur

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- Lateral (Larger)
- Medial



# Joints of the Knee Complex

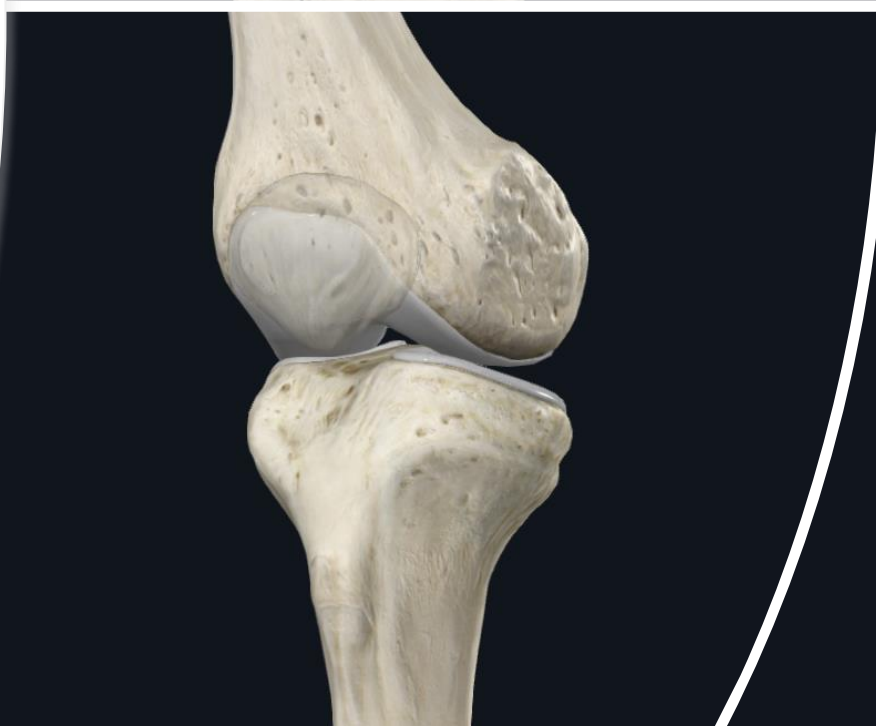
Femorotibial

Patellofemoral

Tibiofibular

# Femorotibial

Between Femur and Tibia





# Patellofemoral

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Between Patella and Femur



# Tibiofibular

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Between Tibia and Fibula  
Subtle Motion



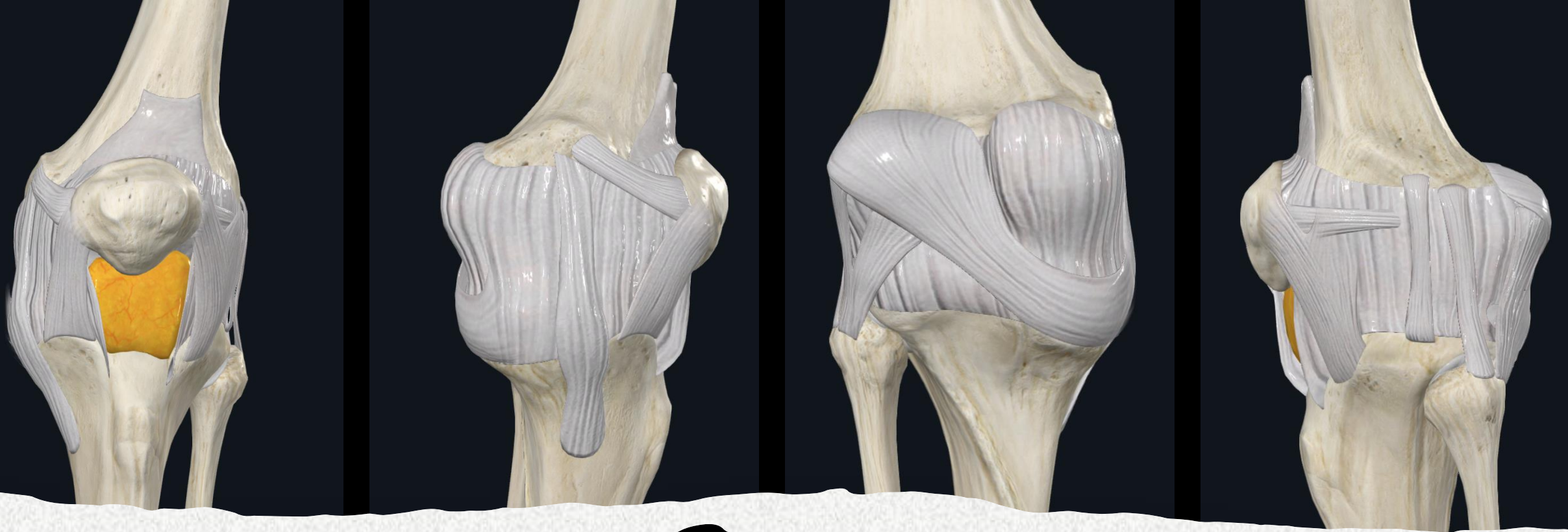


## Connective Tissue

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- Numerus Ligaments, Meniscus, Tendons, Cartilage Surfaces
- Bursa



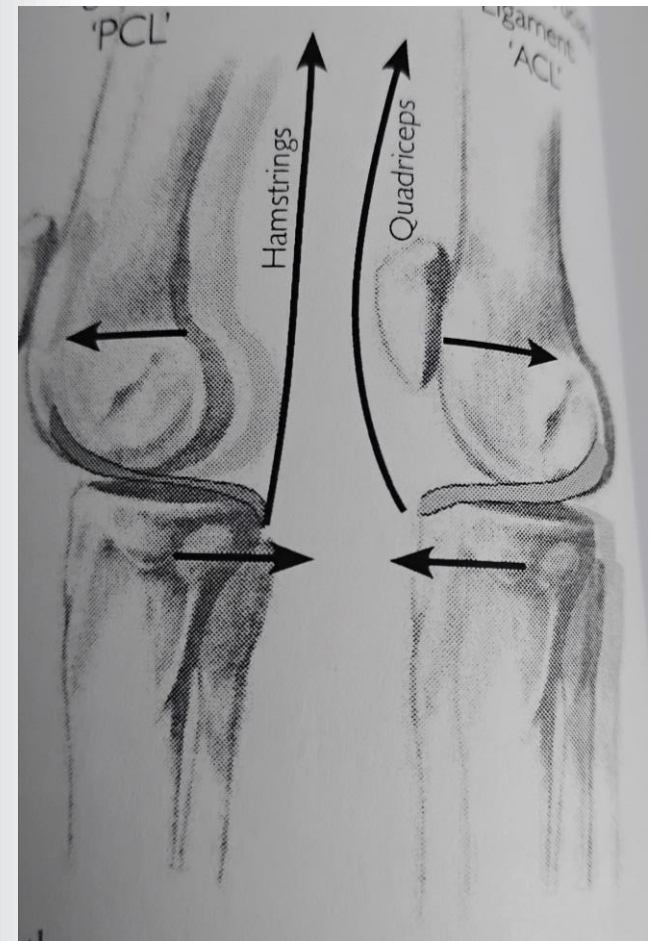


Ligaments of the  
Knee



# ACL and PCL

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LCL



Lateral Collateral Ligament

# MCL

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Medial Collateral Ligament





# Meniscus

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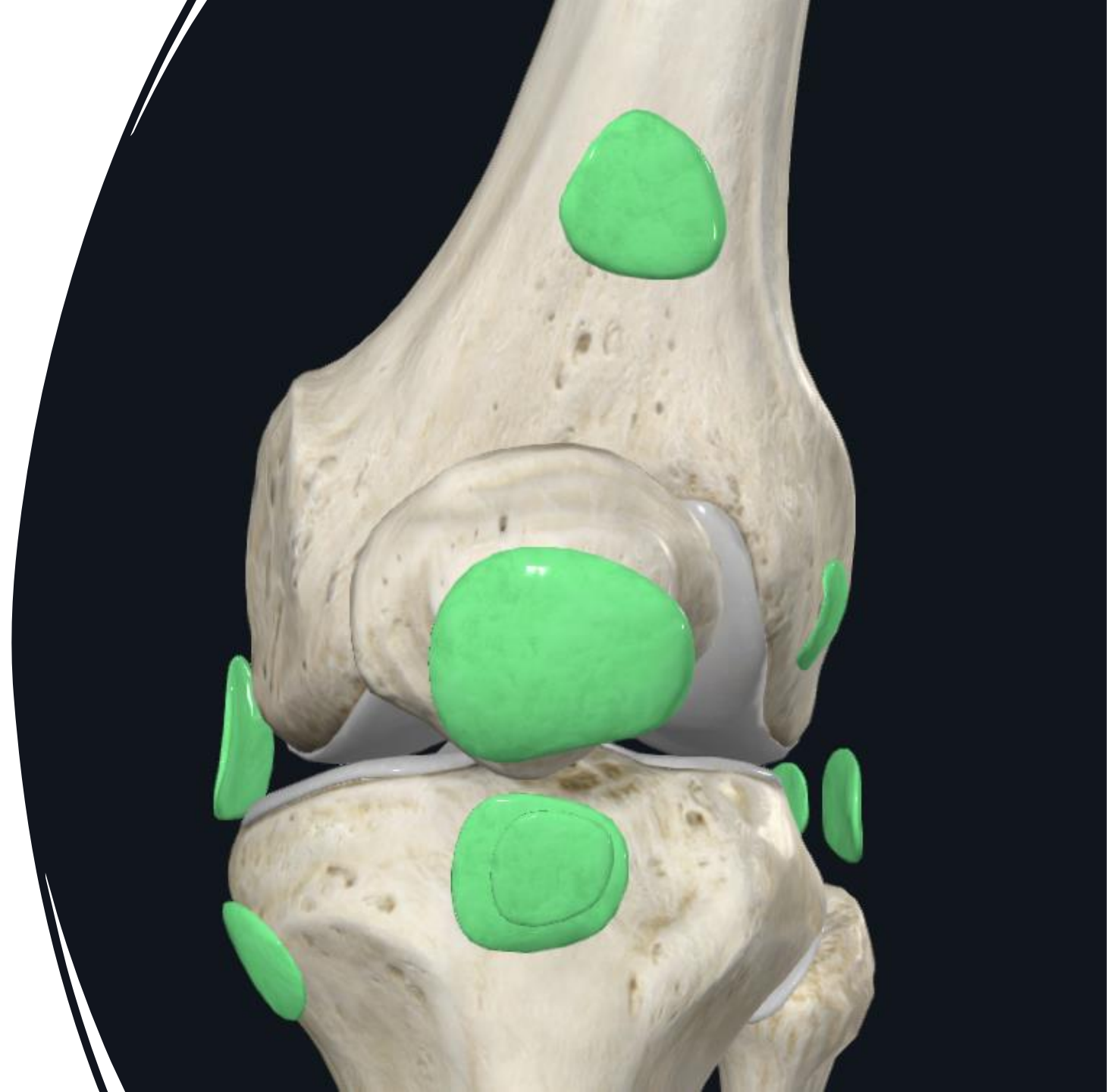
Cushions



# Anterior Bursa

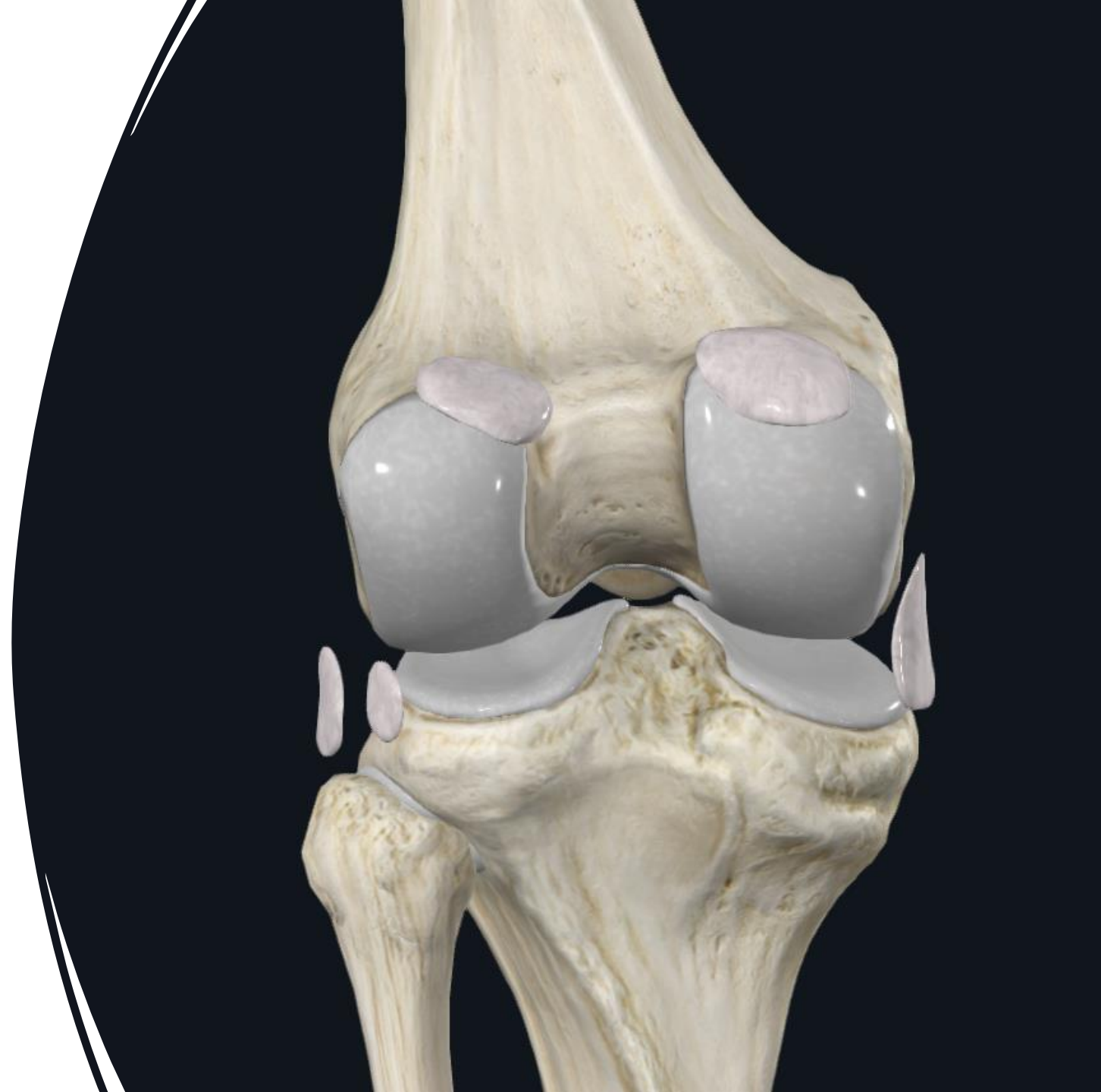
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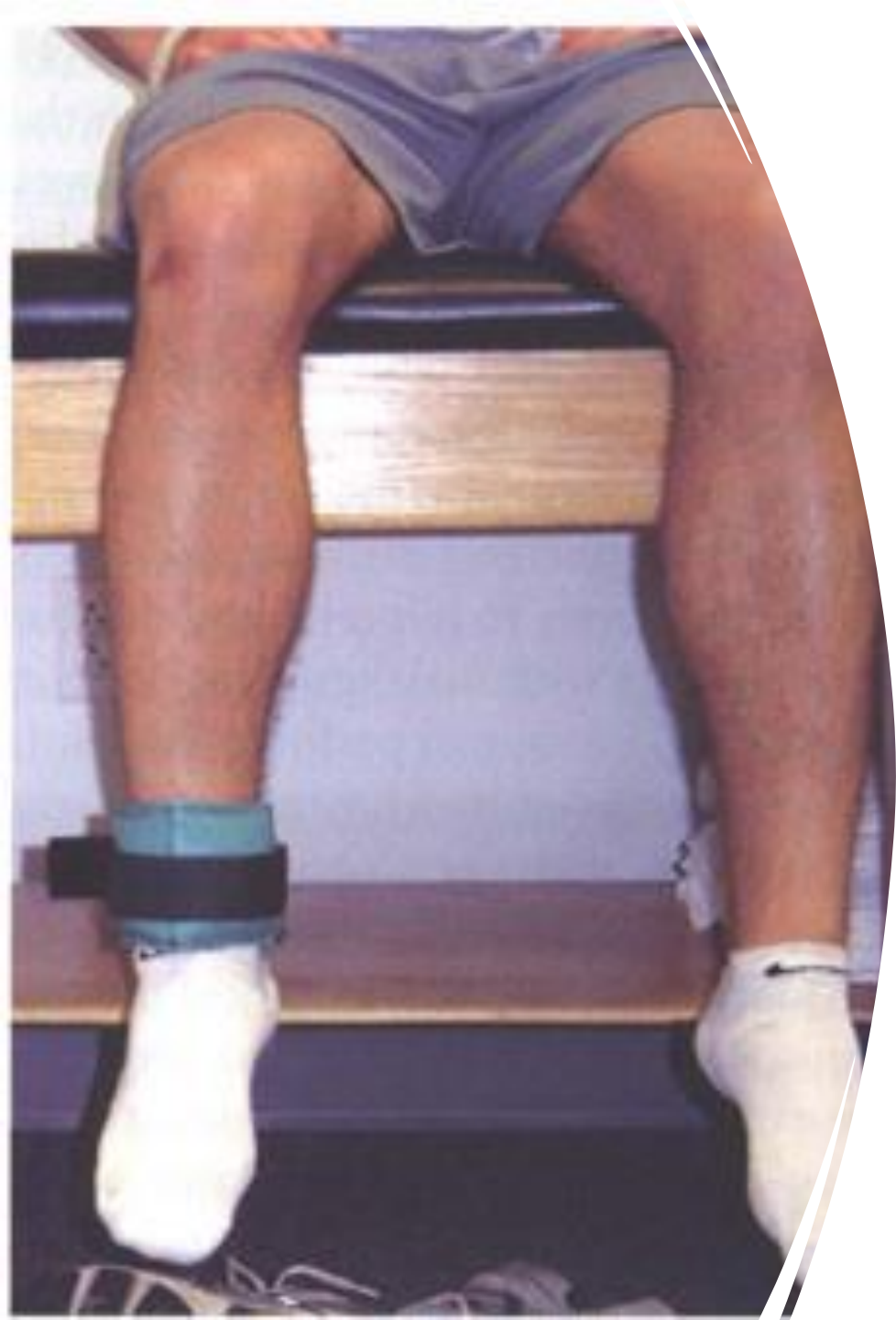
- Fluid Sacks for Cushioning
- Reduce Friction for Smooth Movement



# Posterior Bursa

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# Help Yourself Restore

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- Light Weight
- Up to 10 minutes
- Gently move knee

# Muscles of the Knee

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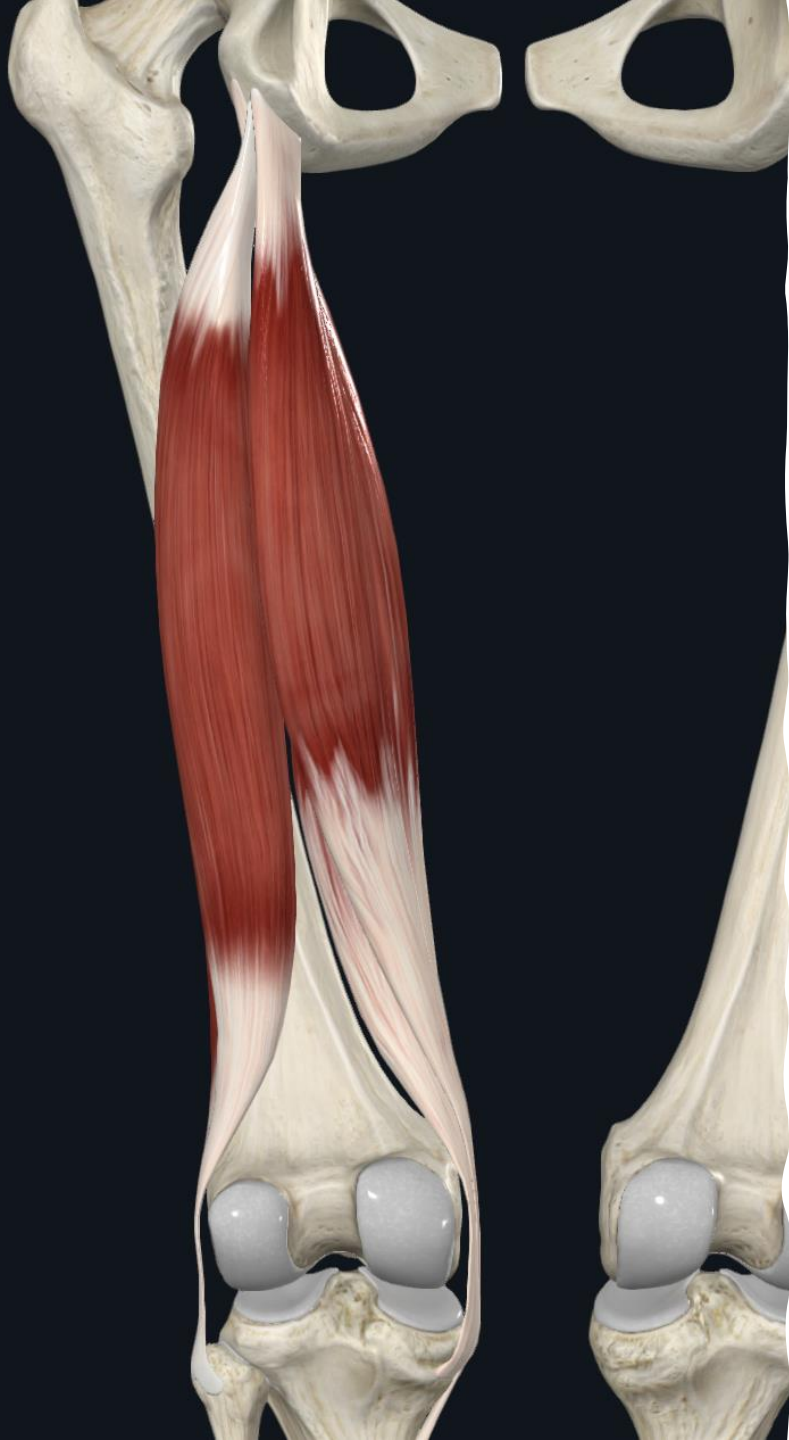
Quadriceps  
Hamstrings



# Quadriceps

- Rectus Femoris
- Vastus Lateralis
- Vastus Medialis
- Vastus Intermedius





# Hamstrings

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- Biceps Femoris
- Semitendinosus
- Semimembranosus



# Tensor Fasciae Latae

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- Connects to the Iliotibial Band



# Gracilis and Sartorius

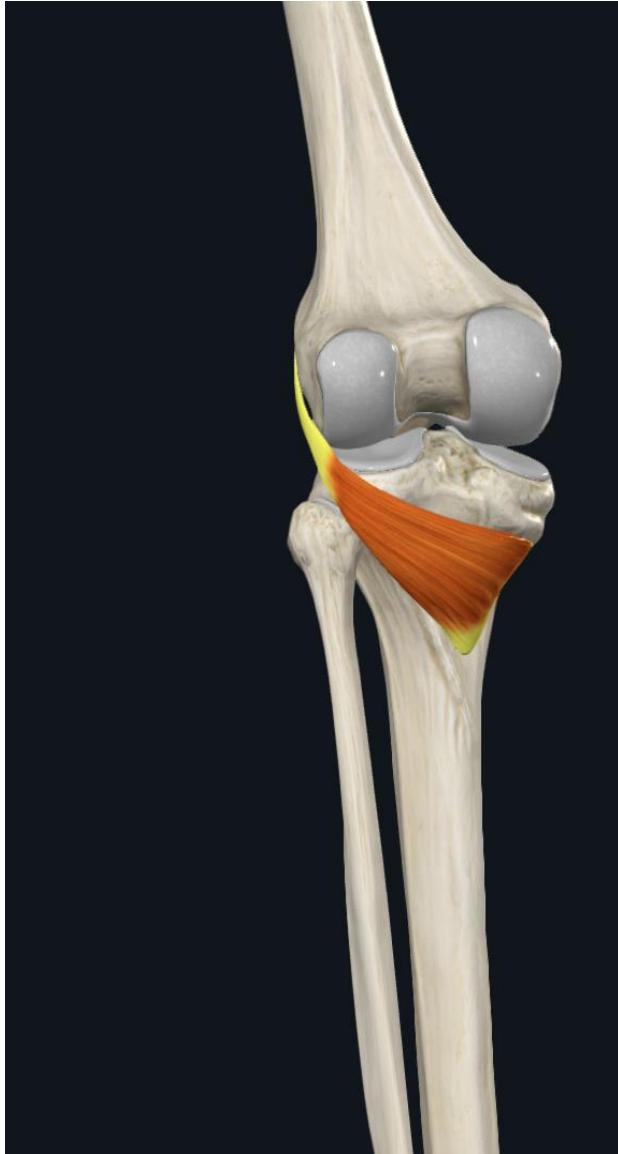
Fine Tuners



An anatomical illustration of the femur (thigh bone) showing the Articularis Genu muscle. The muscle is depicted as a red, fibrous band running along the shaft of the bone. The femur is shown in a light beige color with some texture. The background is dark blue/black.

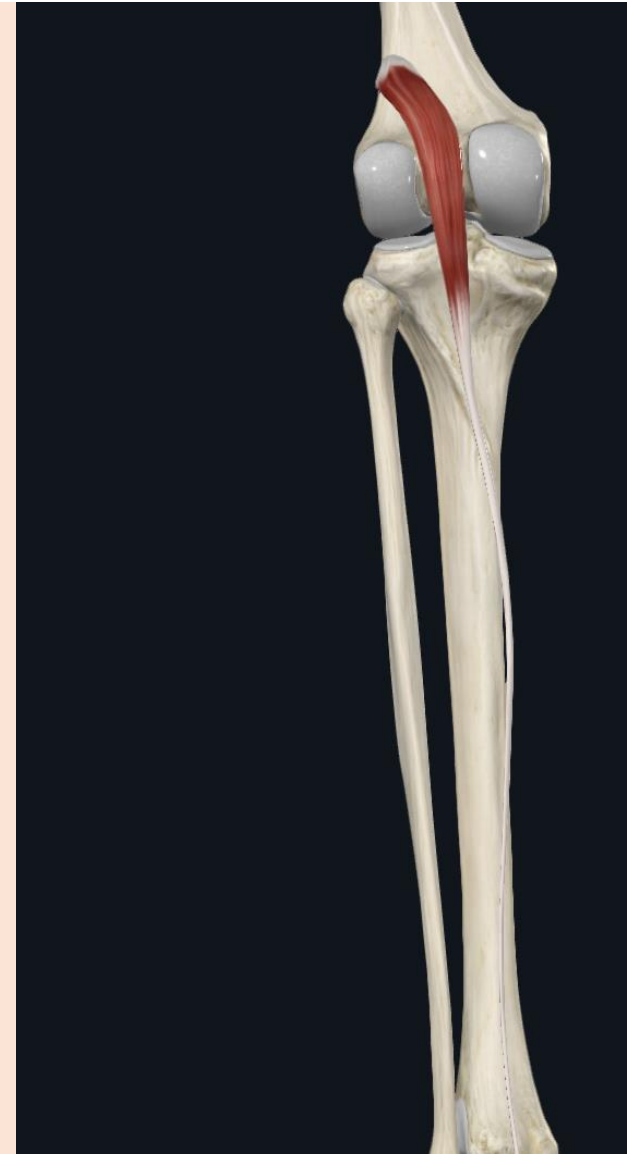
# Articularis Genu

- Lifts the synovial membrane to prevent pinching



## Posterior Knee

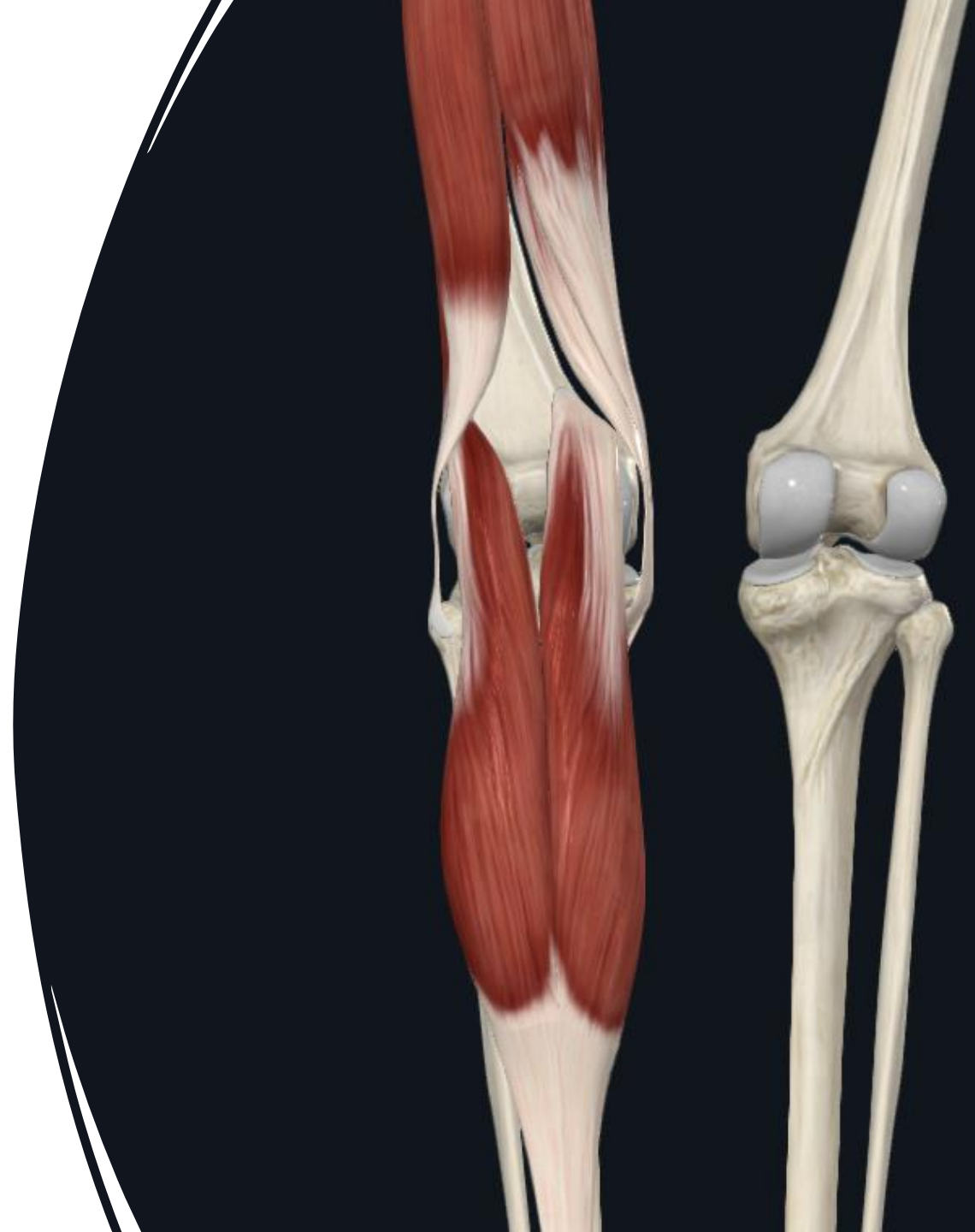
- Popliteus
- Plantaris



# Gastrocnemius

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- Knee Flexion





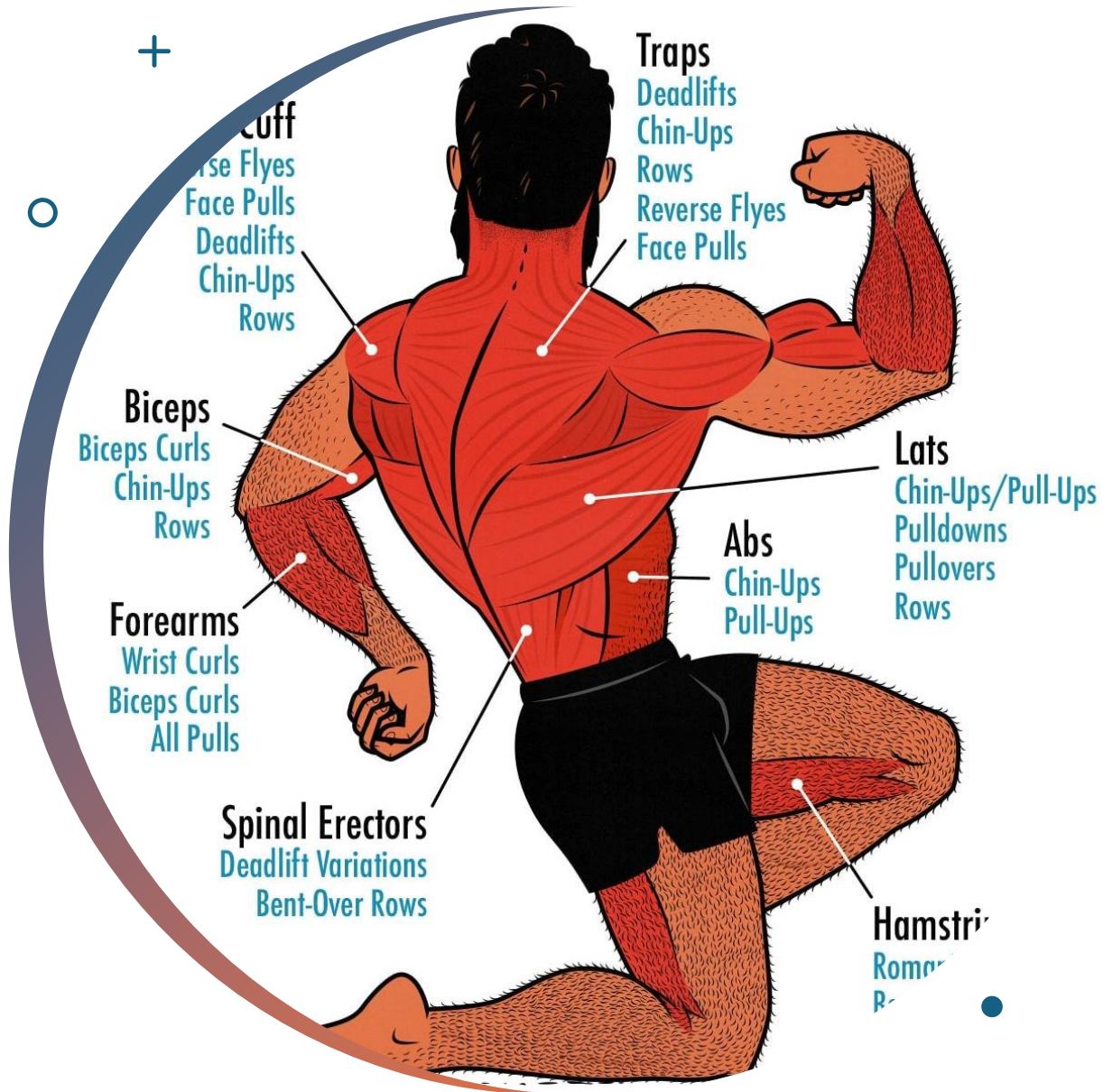
## Tibialis Anterior

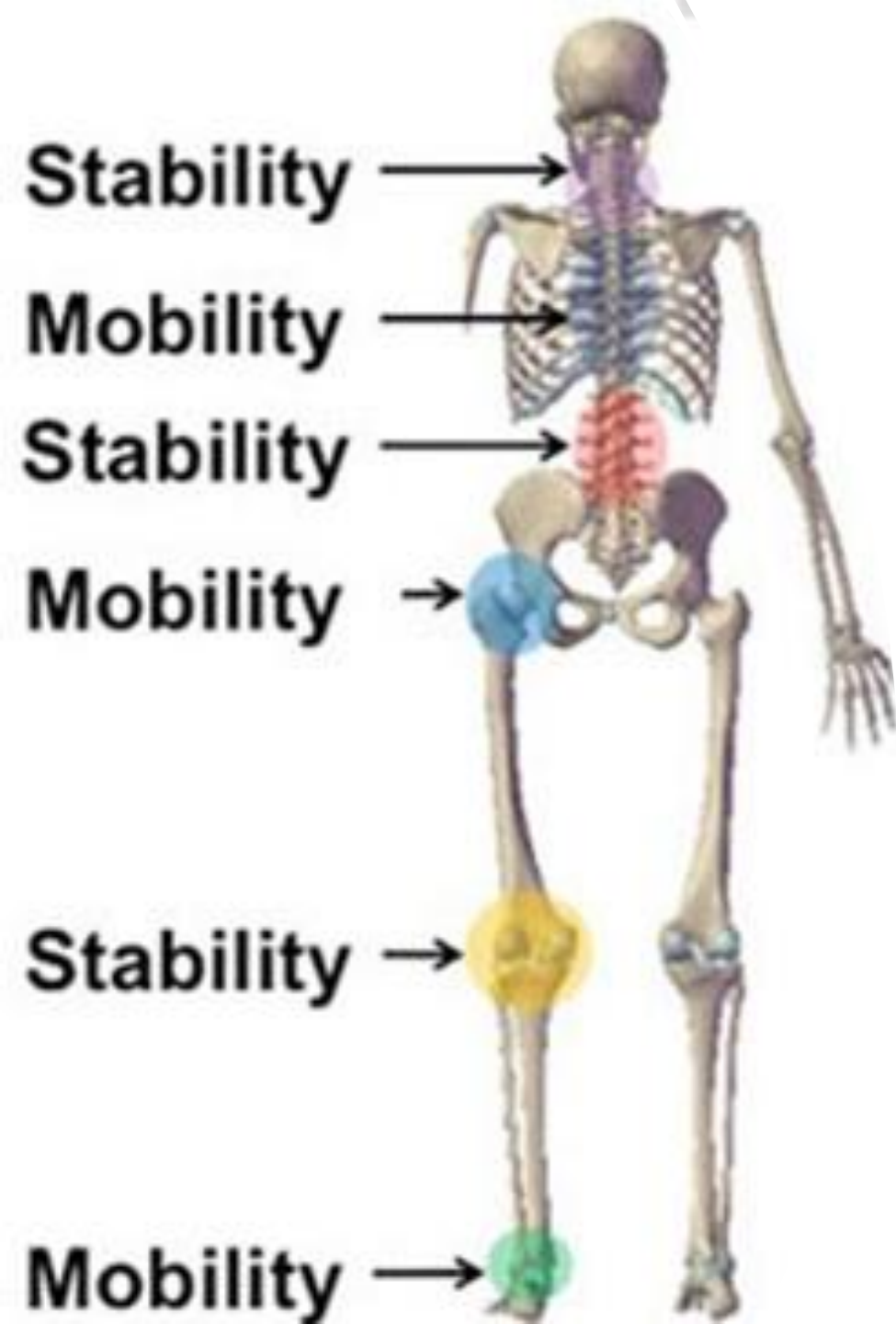
Doesn't work directly on the knee

Weakness can cause poor knee mechanics

# Training Focus

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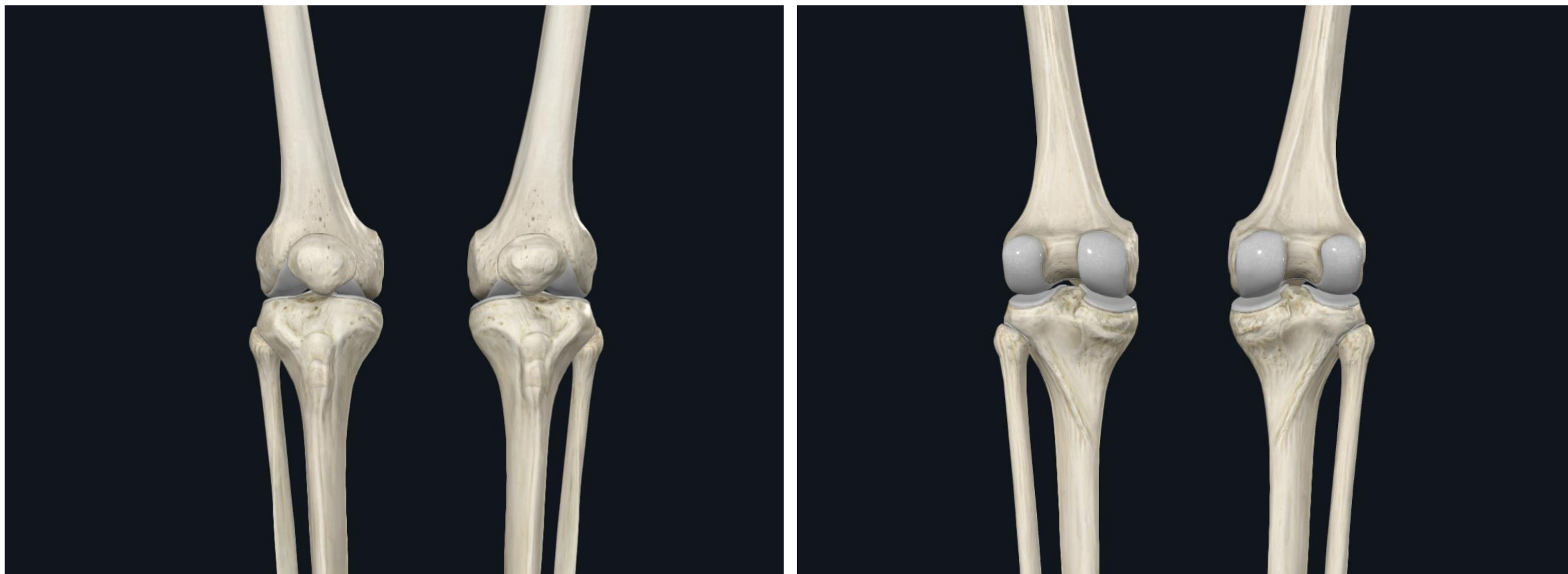
# Joint Functions

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Alternating Stability and Mobility

Imbalances lead to compensations

# Knee Joint



# Movements of the Knee

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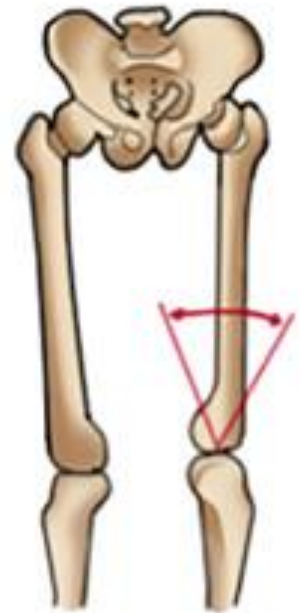
Knee



Flexion/extension

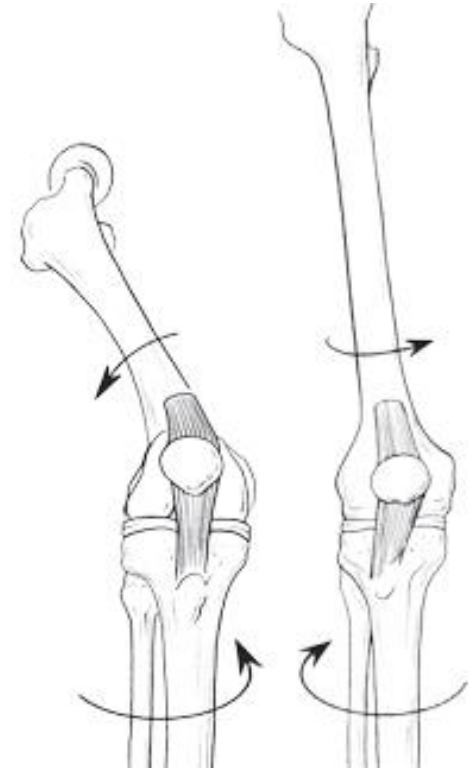
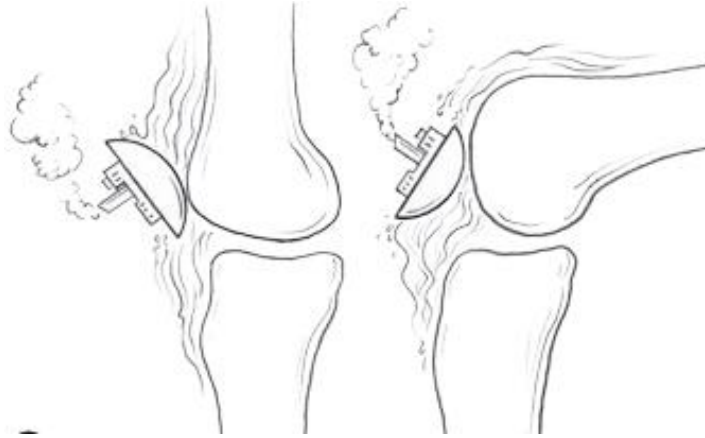
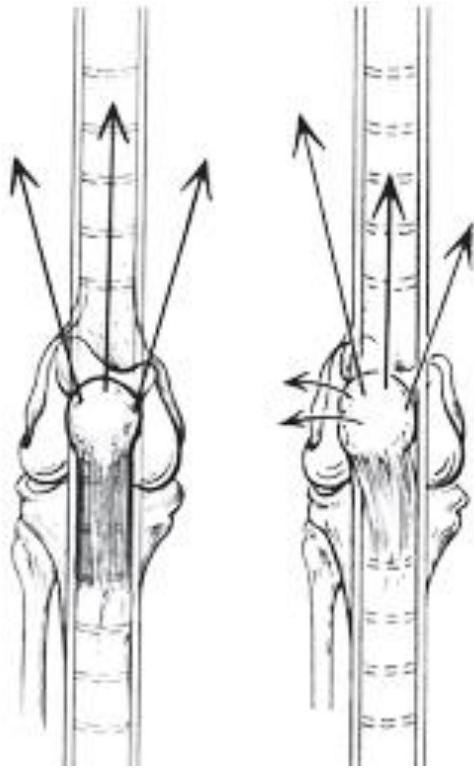


Internal/external rotation



Adduction/abduction





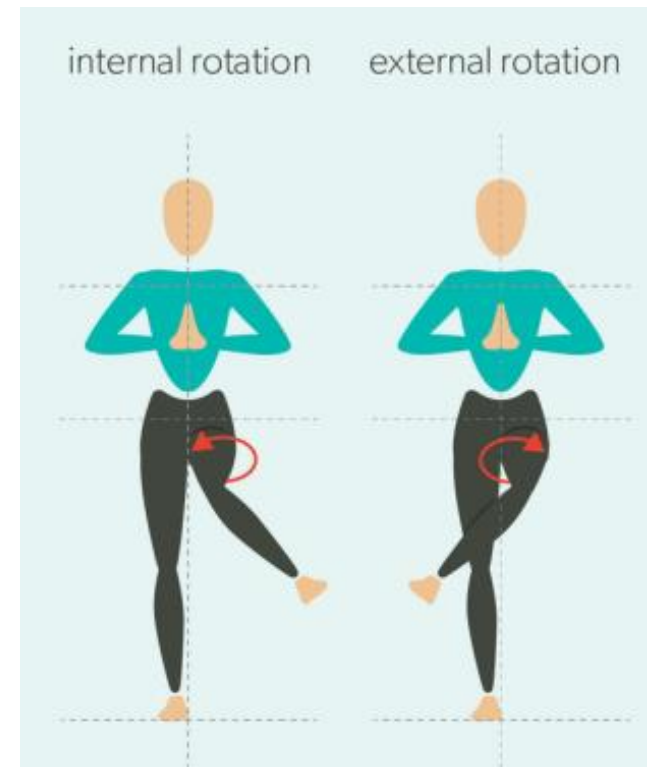
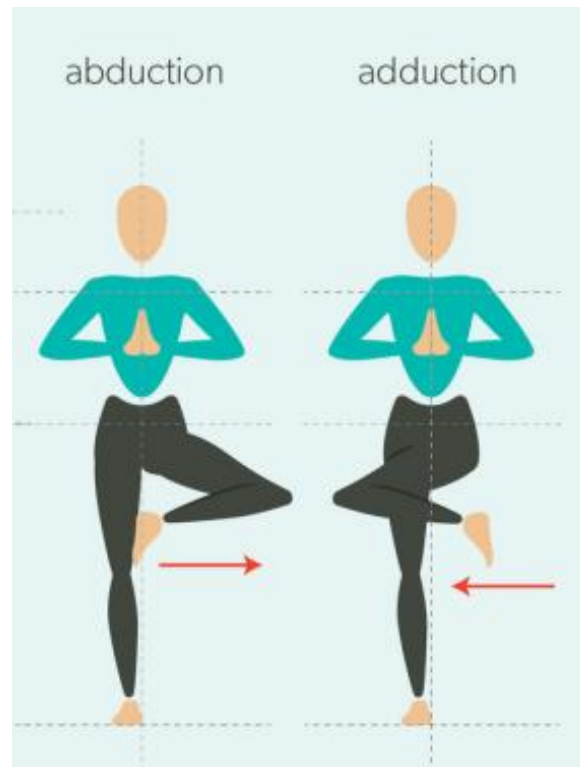
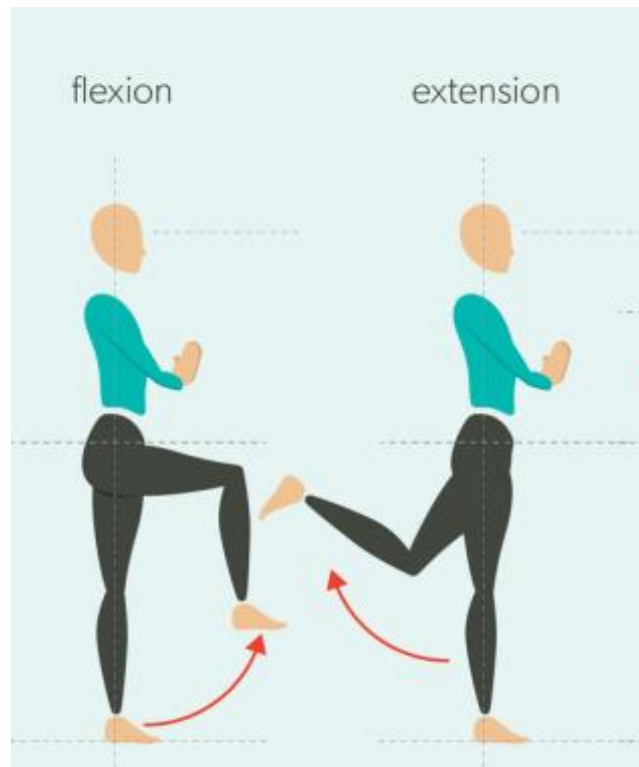
## Movements of the Knee Cap



# Hip Joint

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- Extremely Mobile

# Movements of the Hip

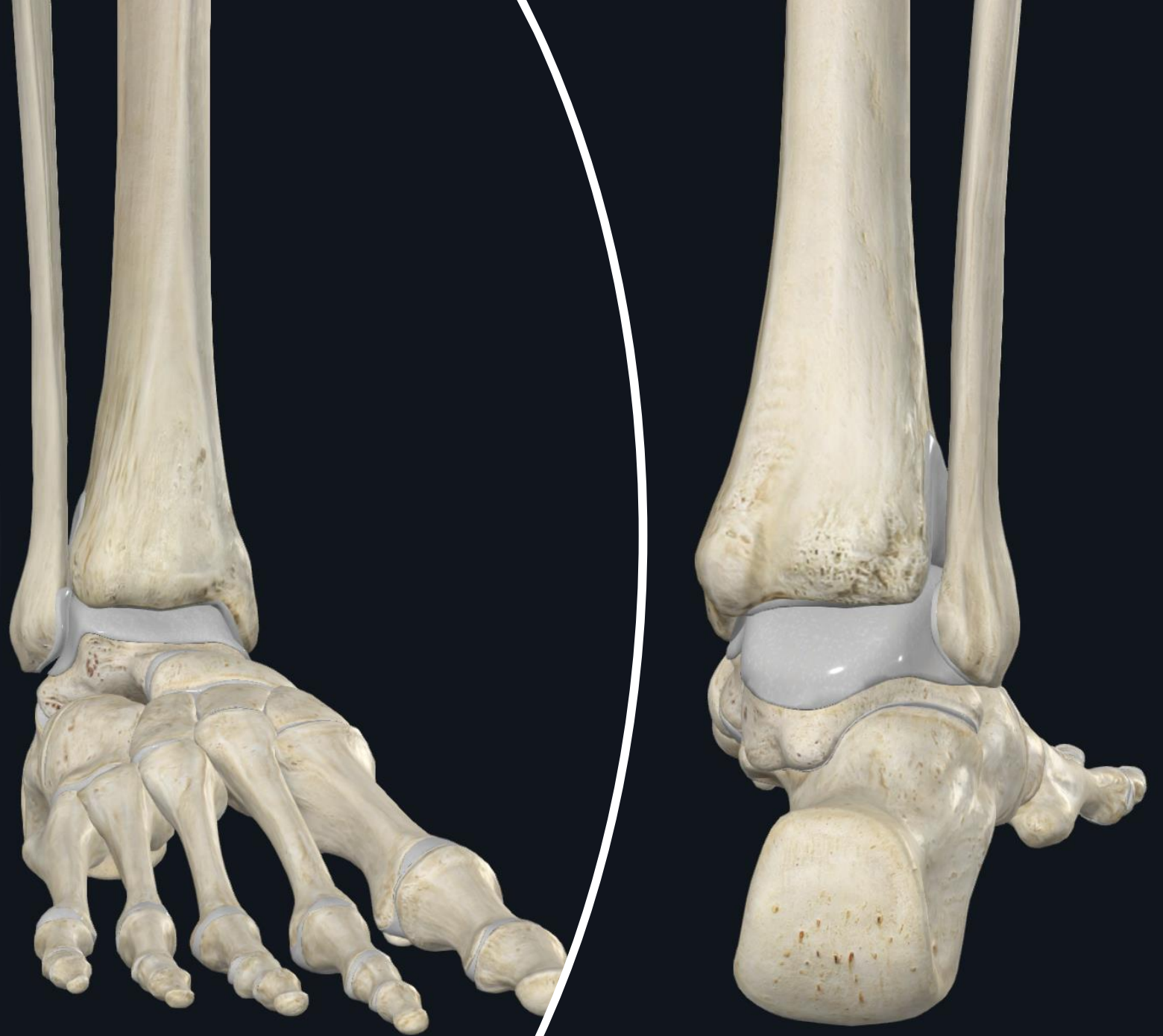




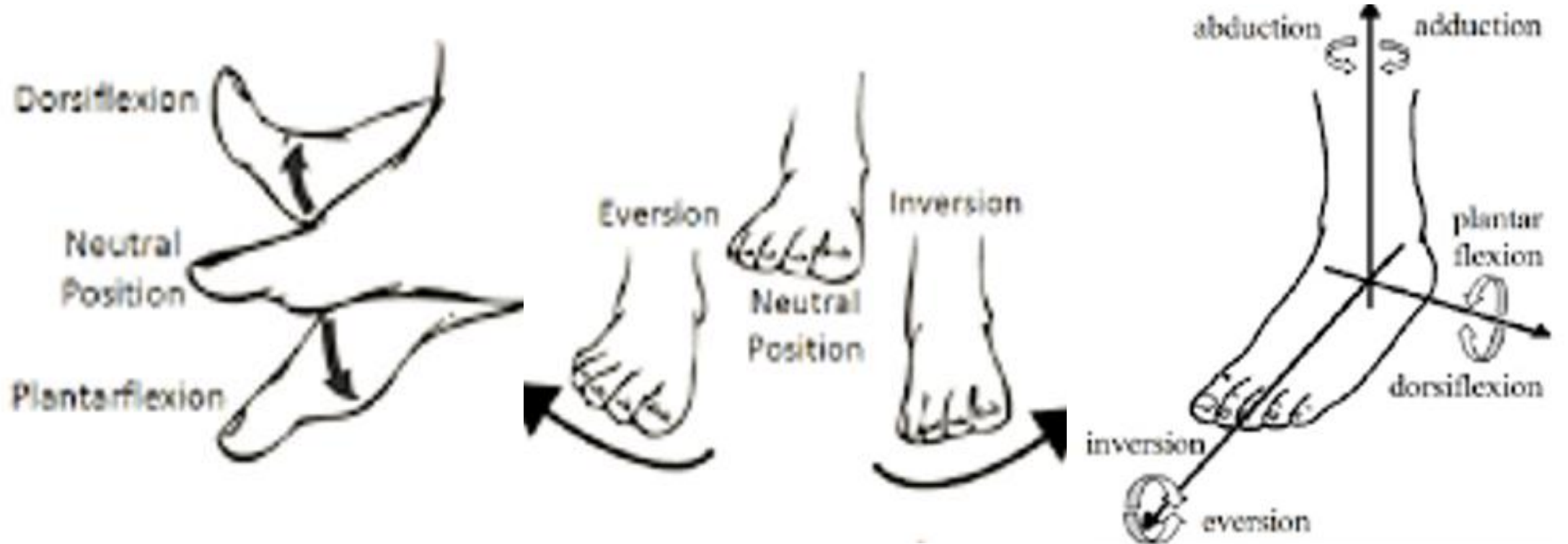
## Ankle Joint

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Allow mobility in multiple planes



# Movements of the Ankle



# Bonus! Movements of the Toes

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## TOE YOGA: RANGE OF MOTION

EarthRunners

FLEXION



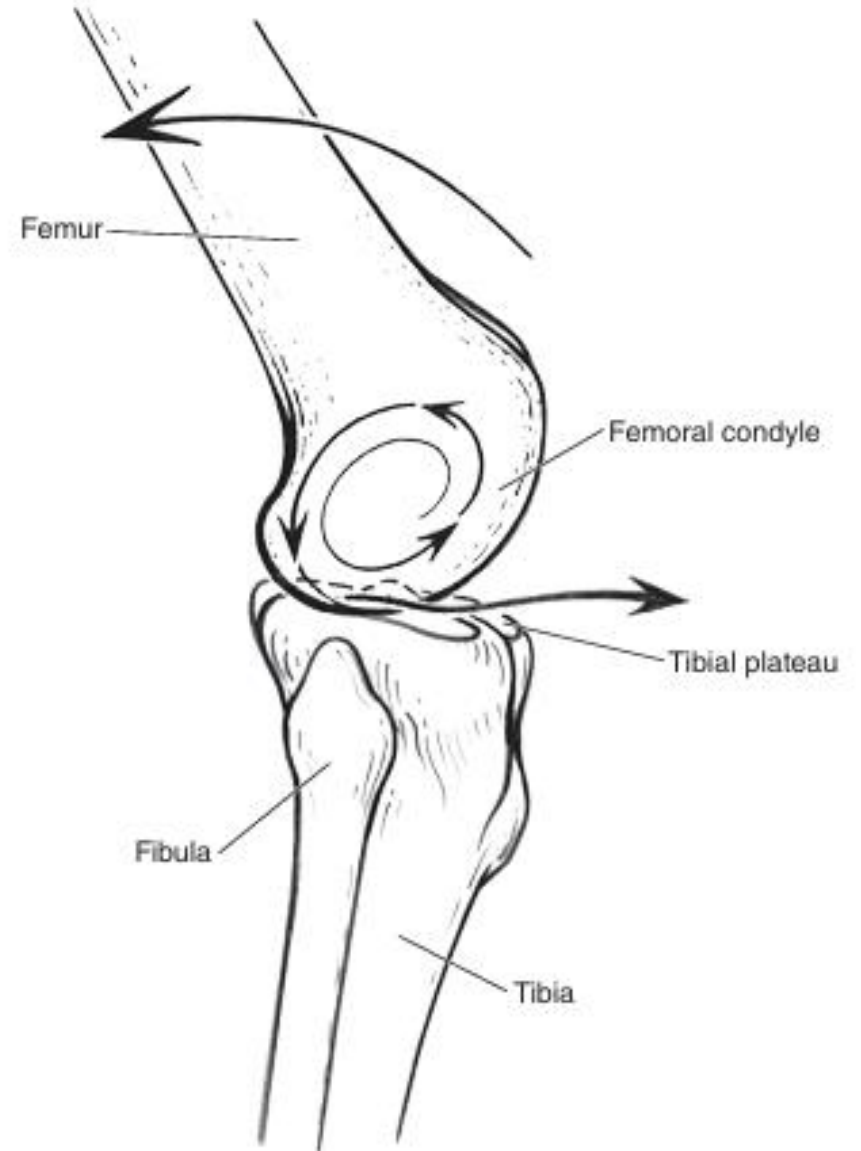
EXTENSION



# Movements of the Bones

Relative Motion

*The Rhythm Between Bones*

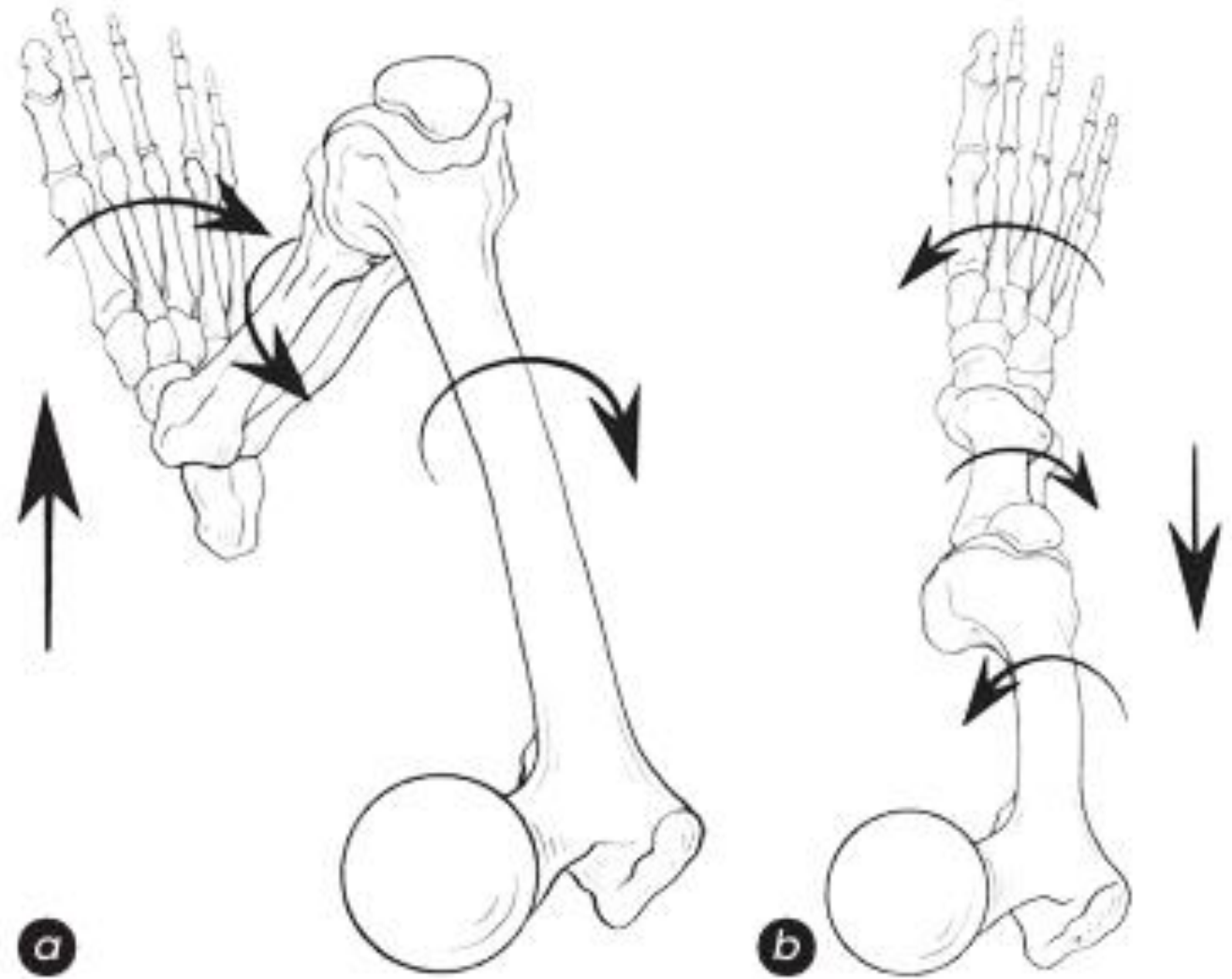


**Knee Bend:**  
More than a  
*Simple Bend*

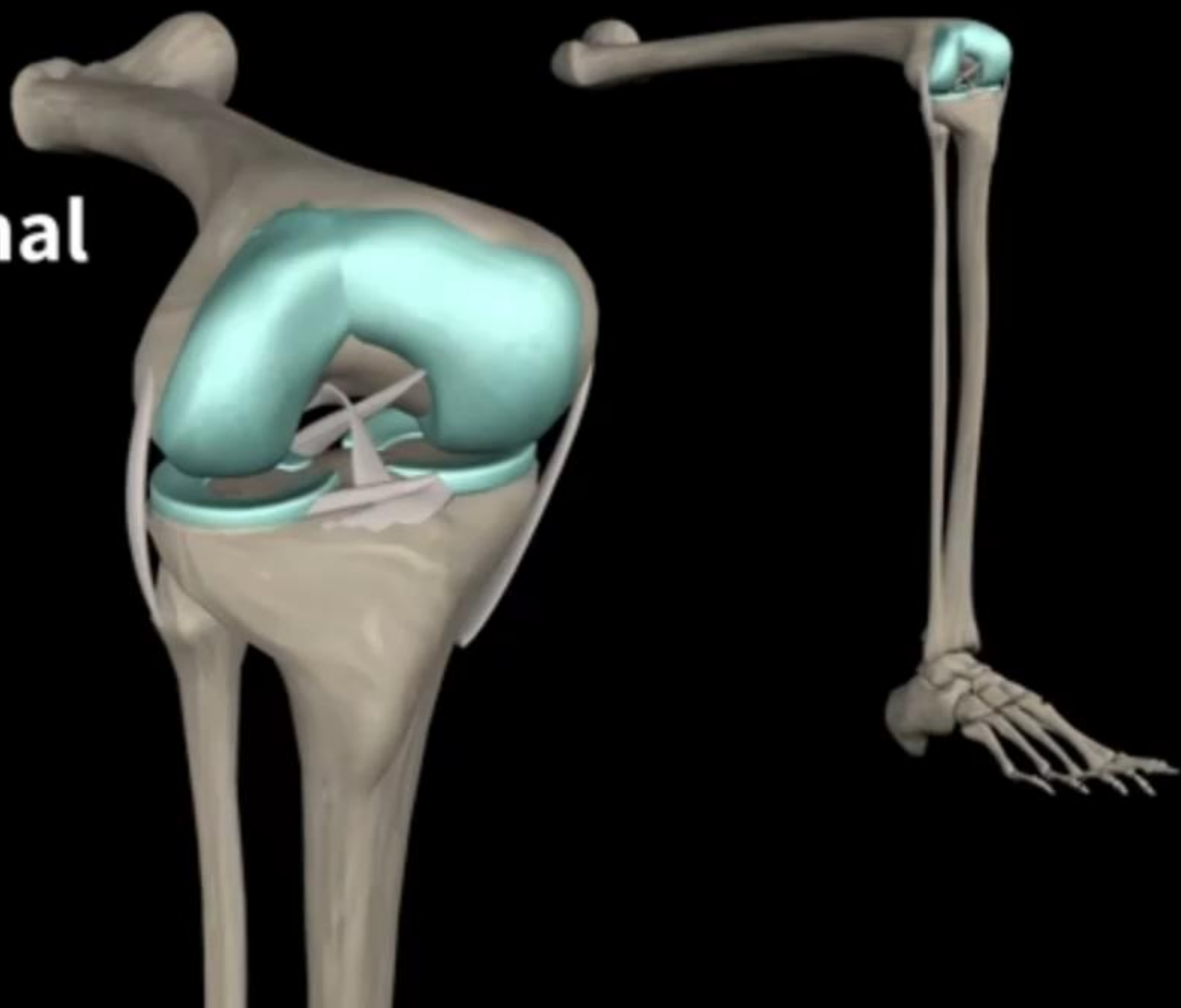


Let 'em  
Rotate!

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# Internal-External Rotation

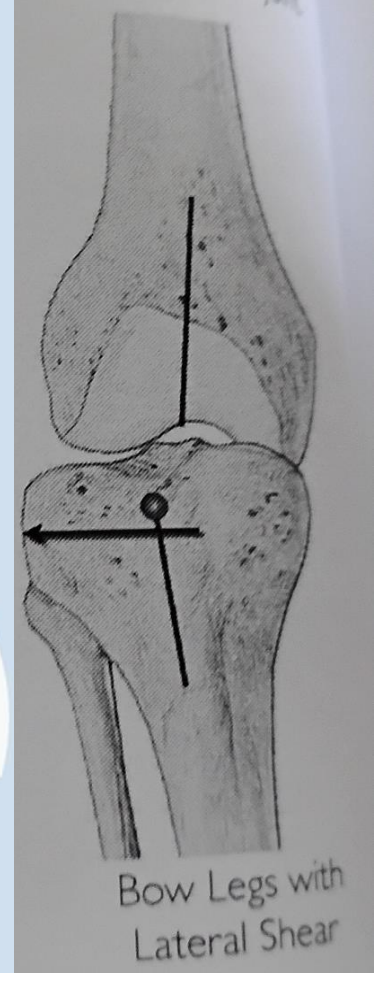
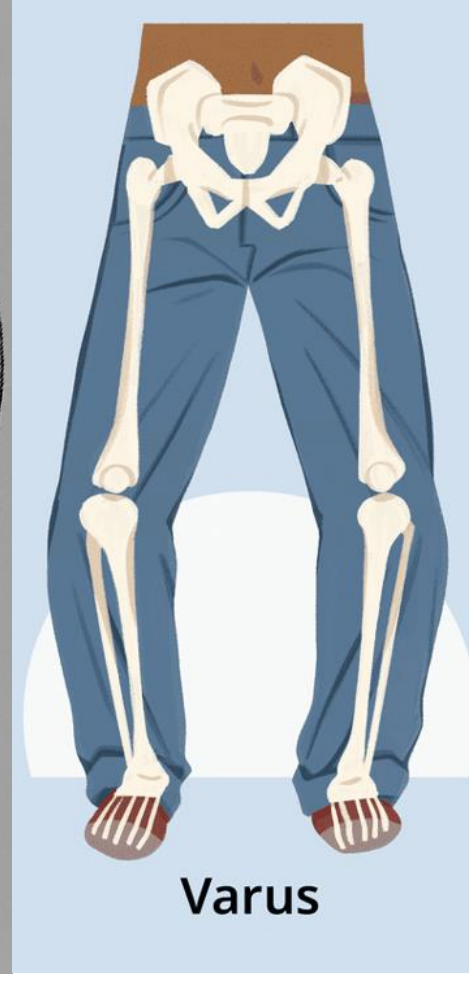
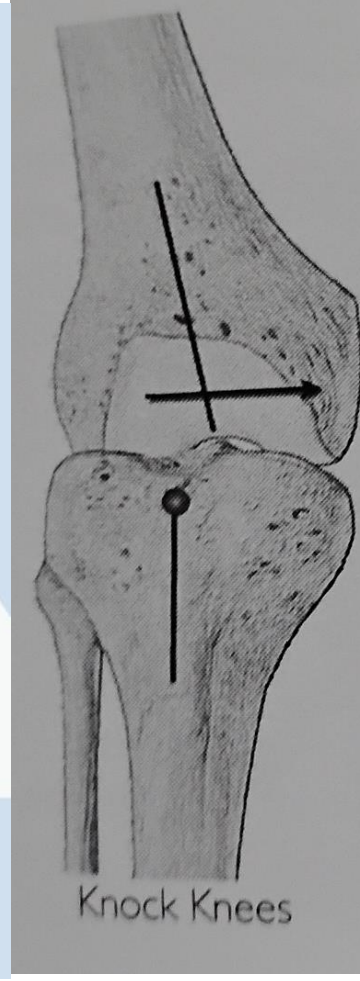
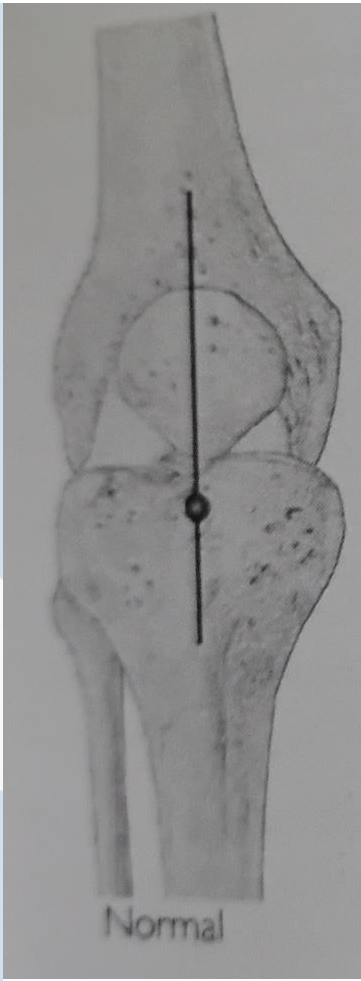


# Good Movements

- Good Movements = Proper Relative Motion = Proper “Rhythms”
- Poor Rhythm, Poor Movements, Poor Alignment results in injury

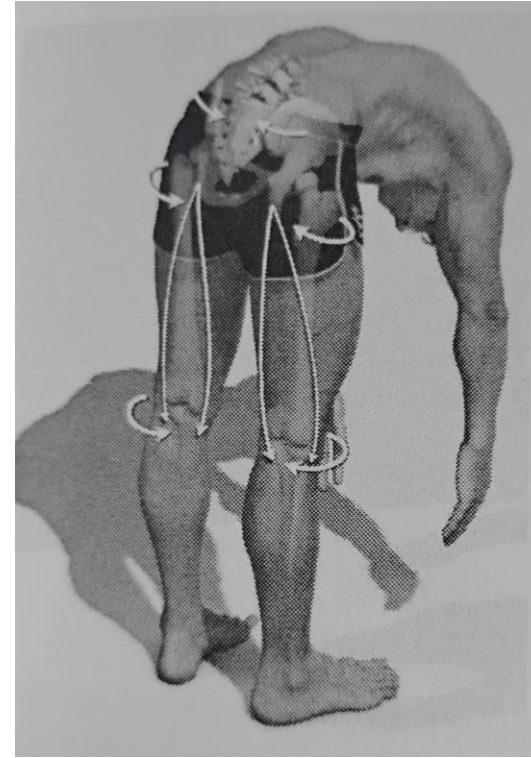


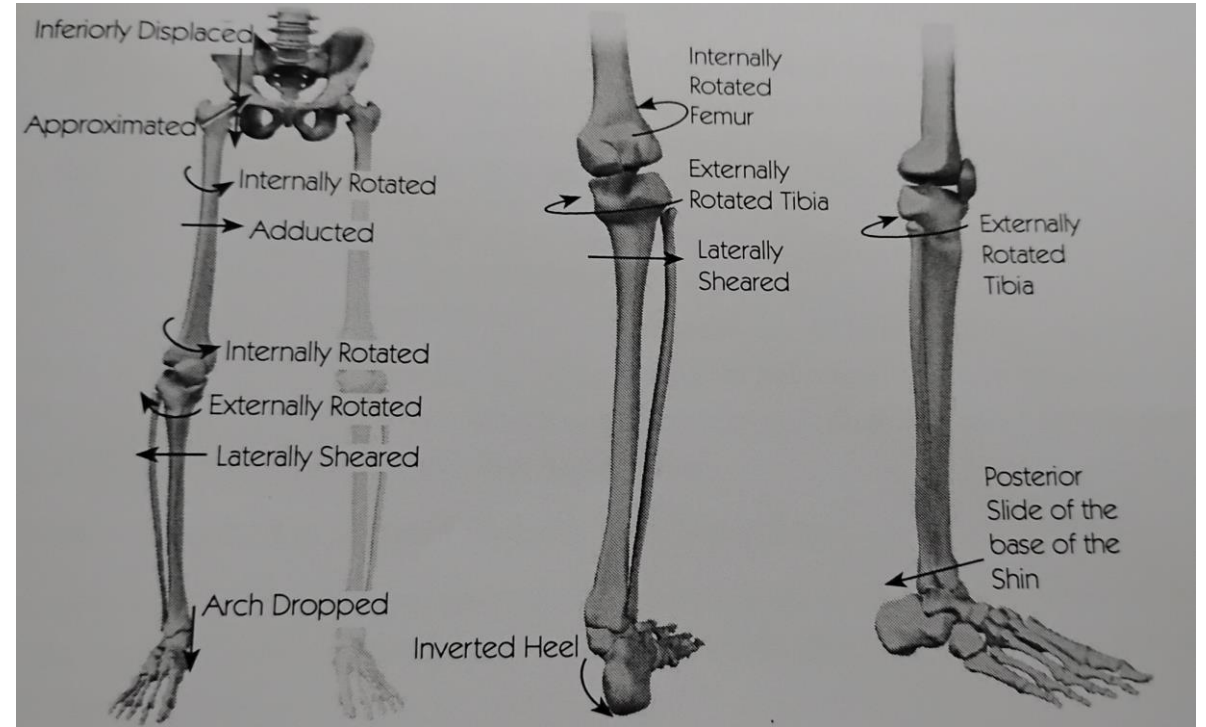
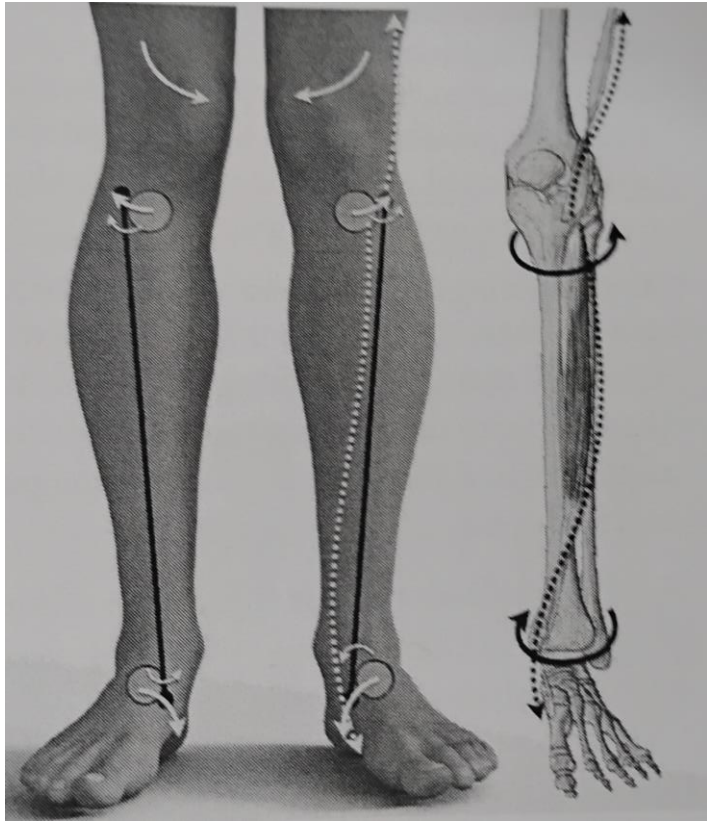
# Common Alignment Problems



# Common Alignment Problems:

## Feet Rotated Outward





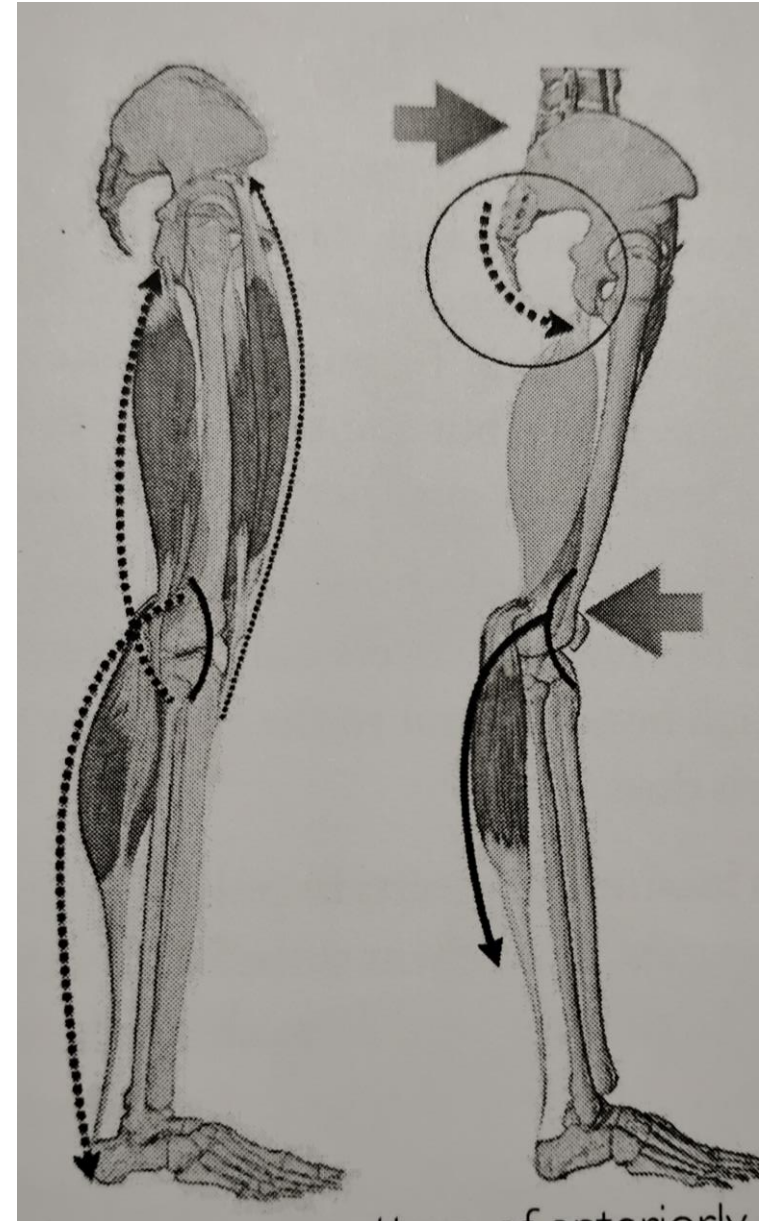
# Common Alignment Problems

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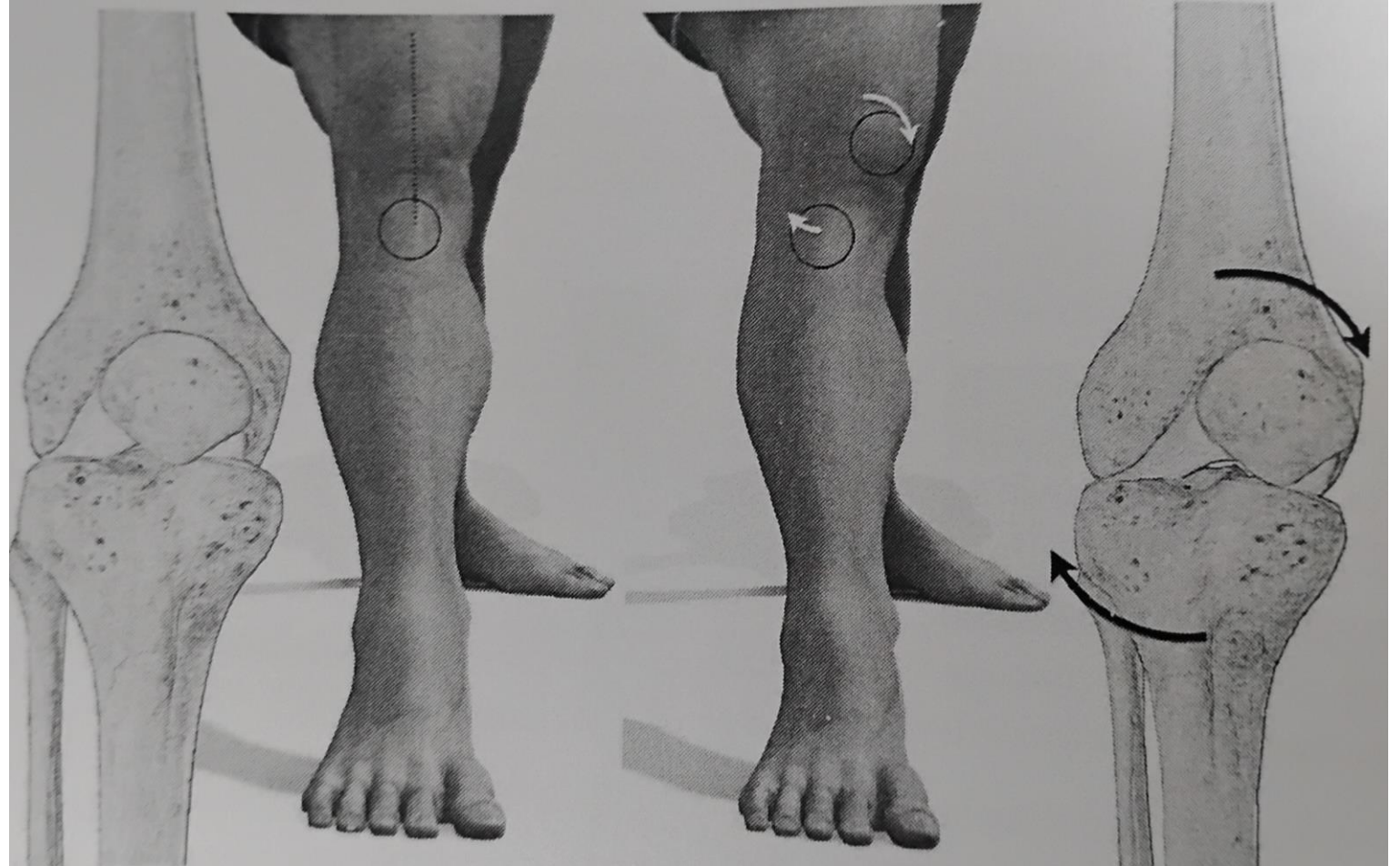
Hyperextension



# Common Alignment Problems

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Knee Falling Inward



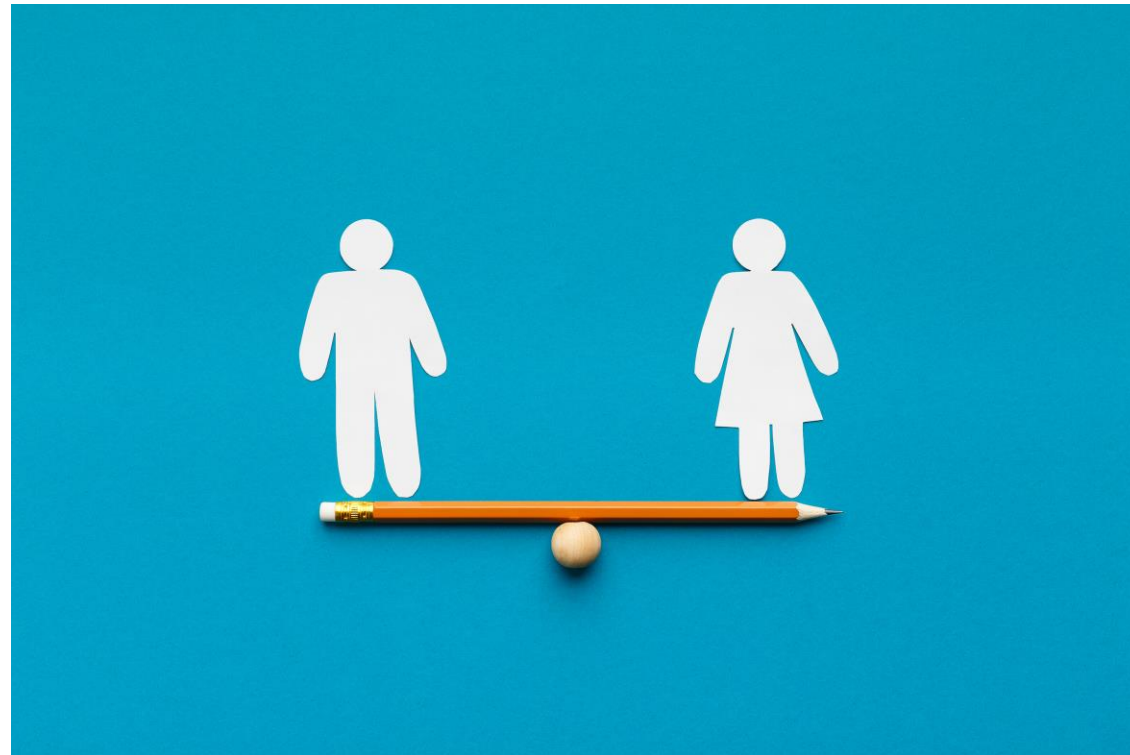
# The Knee – Questions to Ask

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- How many directions does the knee move in?
- Is the knee always the source of knee pain?



# Using Imagery to Find Balance



# Iyengar Knee Rods

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Imagine the forces in the legs being balanced between these rods



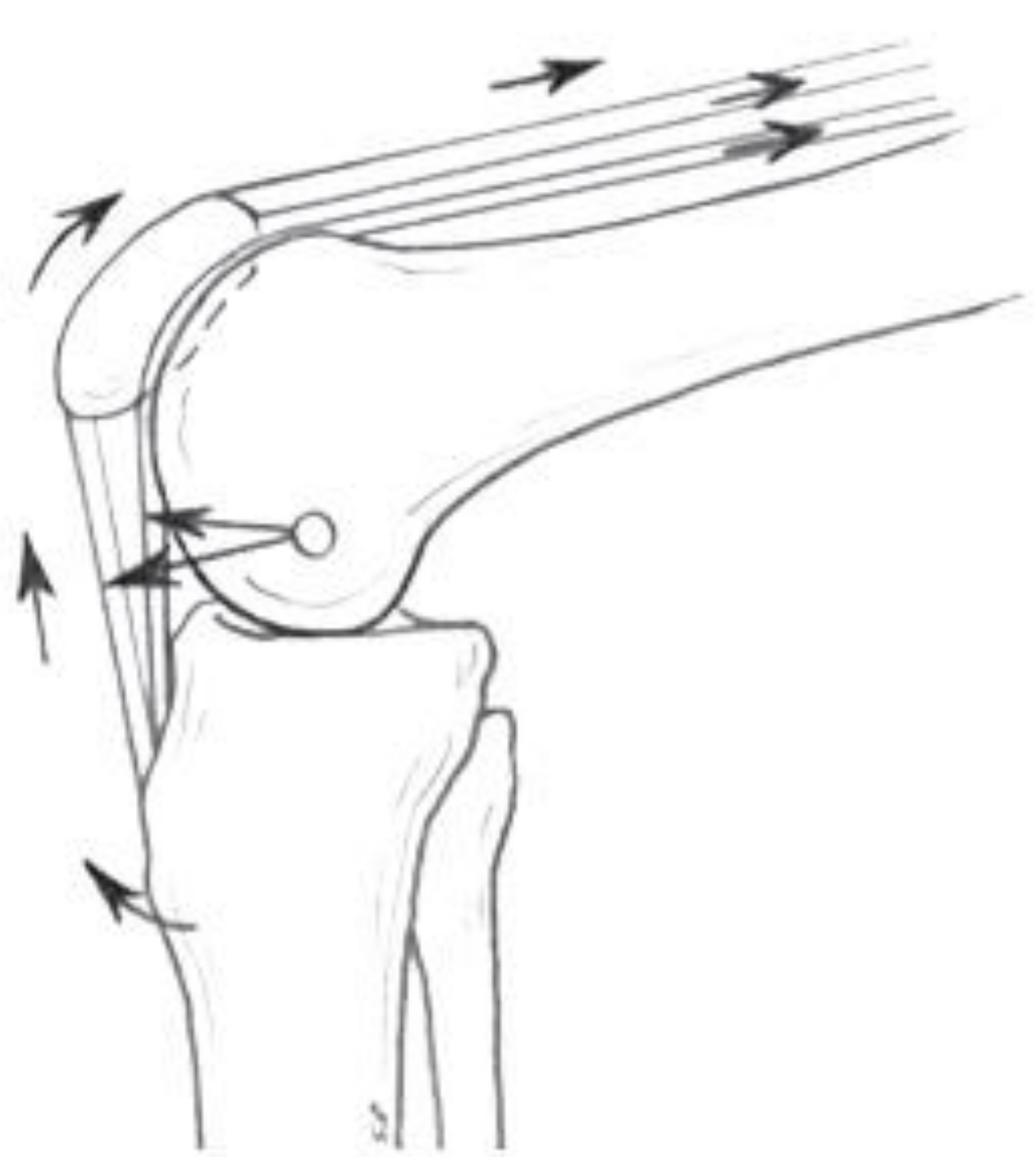
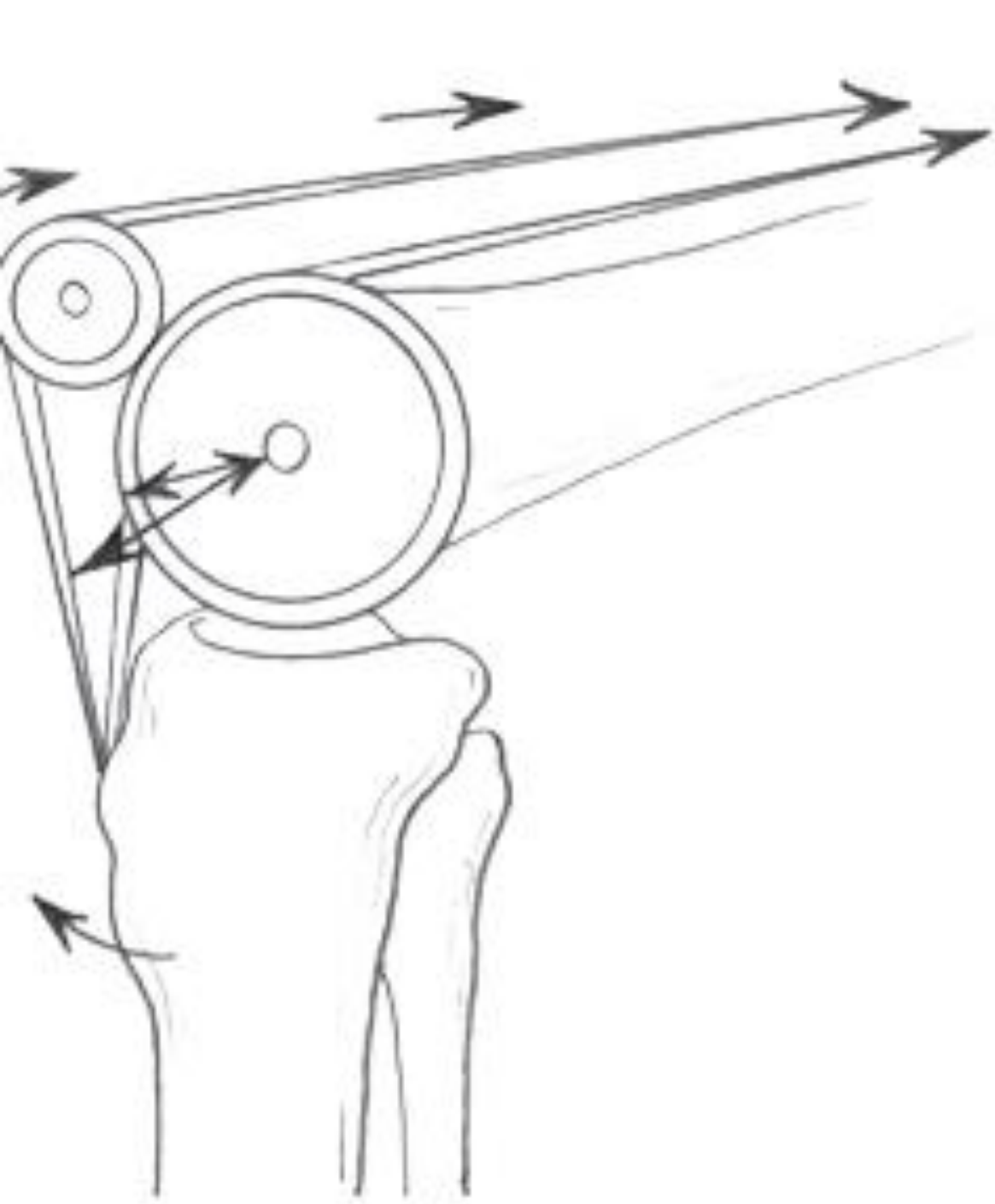


## Mobile Rods

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- The rods need to be flexible
- Should still move together







## Ankle Motion

- Tibia and Fibula control the Rear Foot

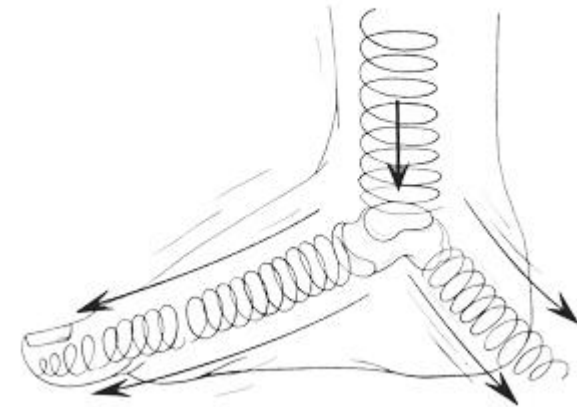
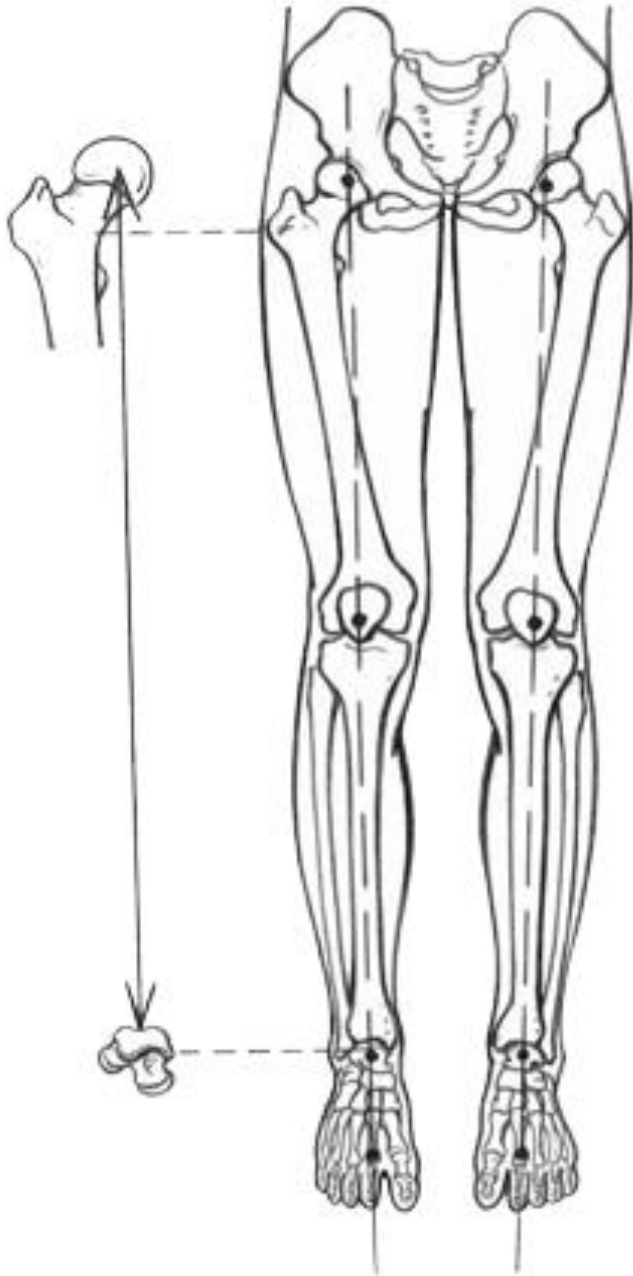
# Ankle Motion

Making Room at the Front



# Finding Balance When Standing

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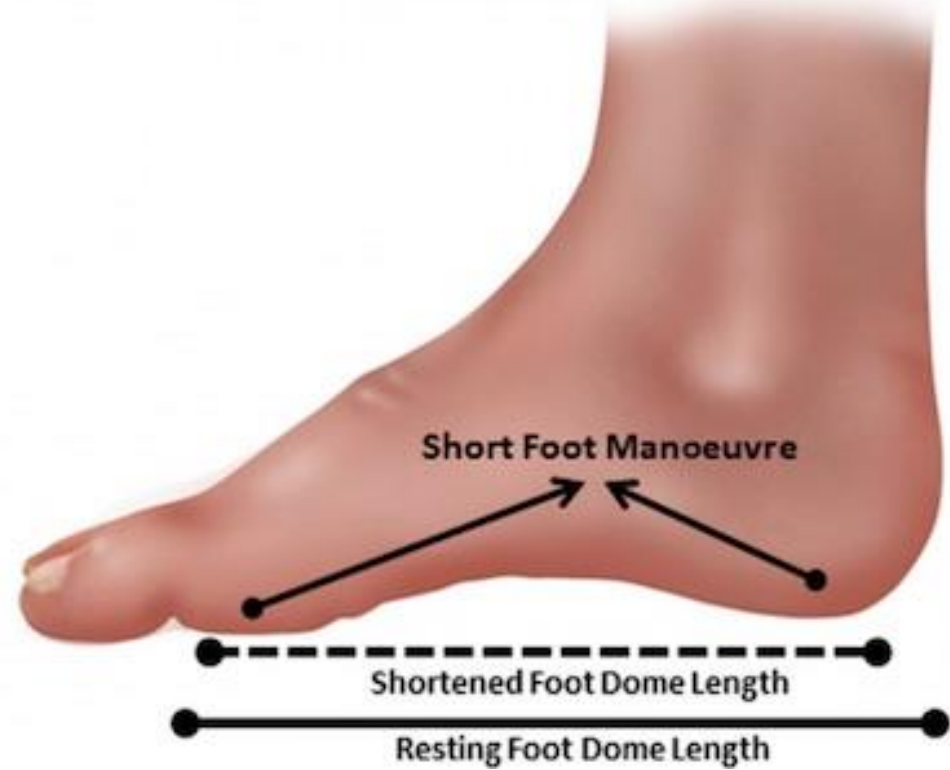


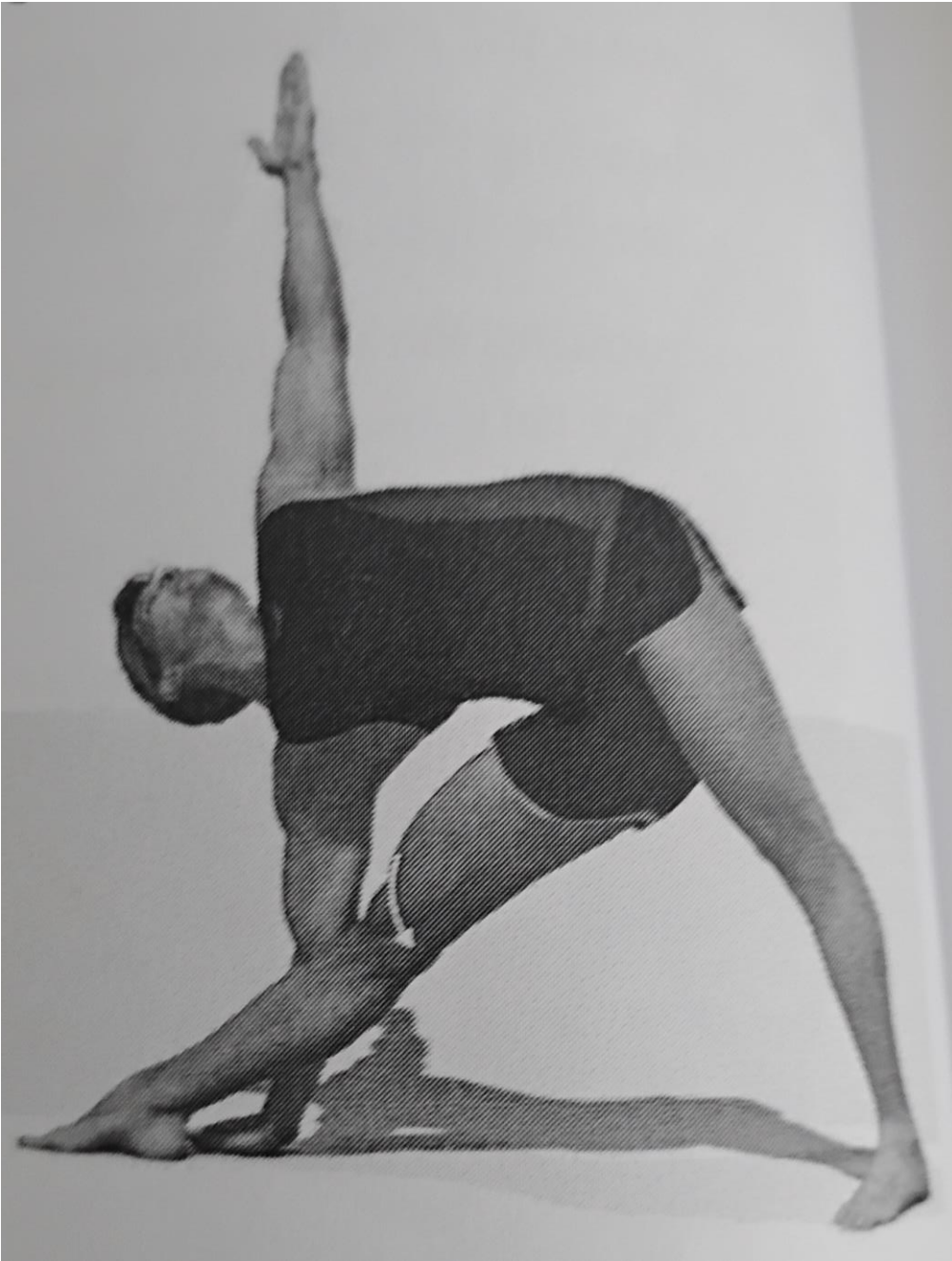
# Working the Foot

Relaxed Foot Core



Contracted Foot Core



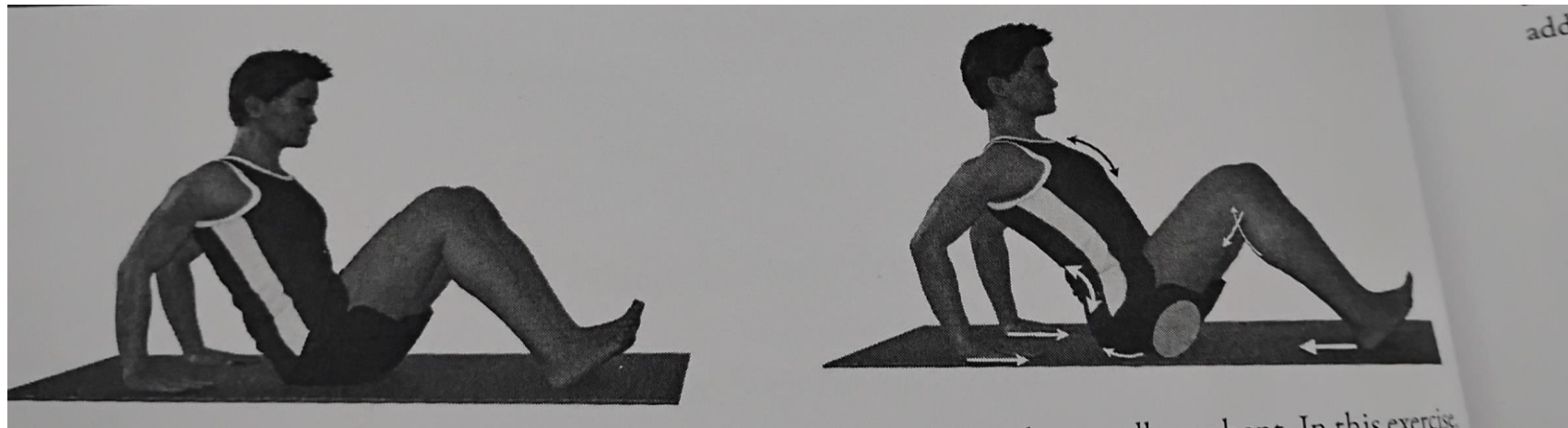


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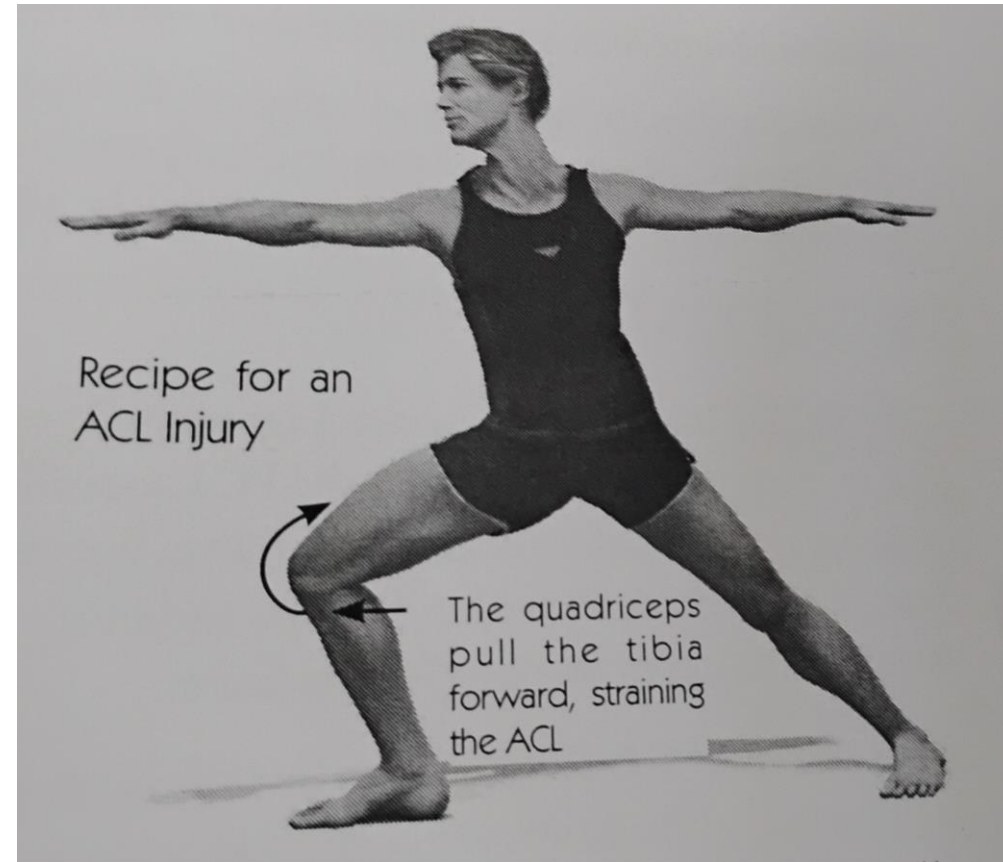
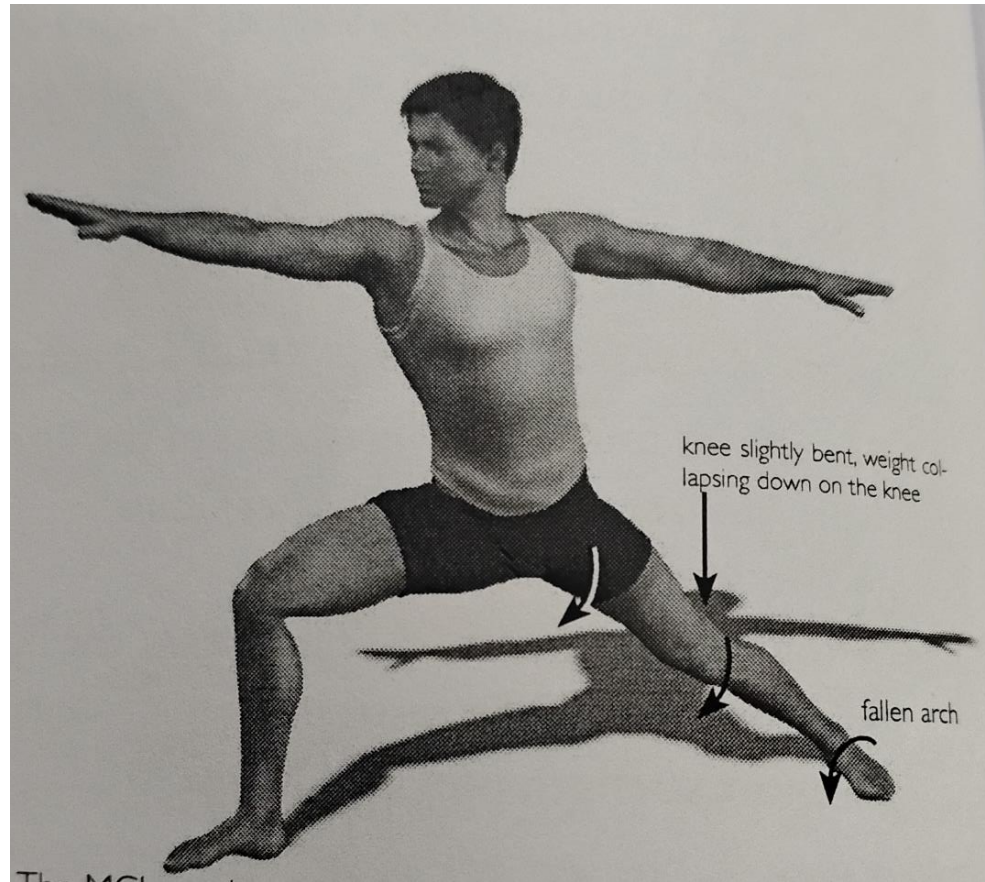
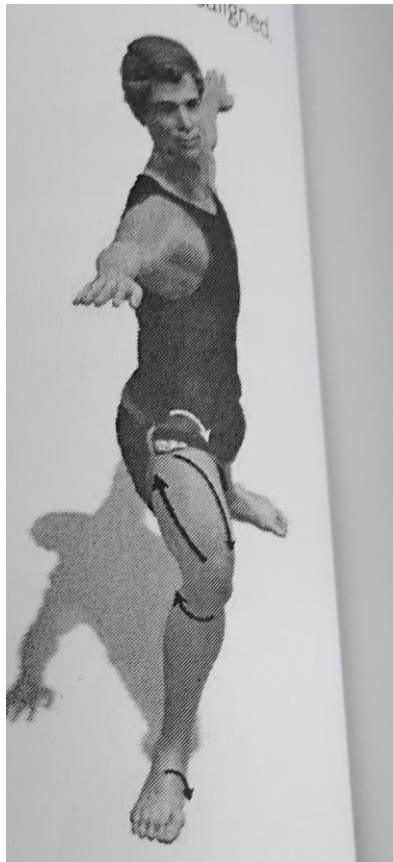
## Common Issues in Yoga

- Hyperextension

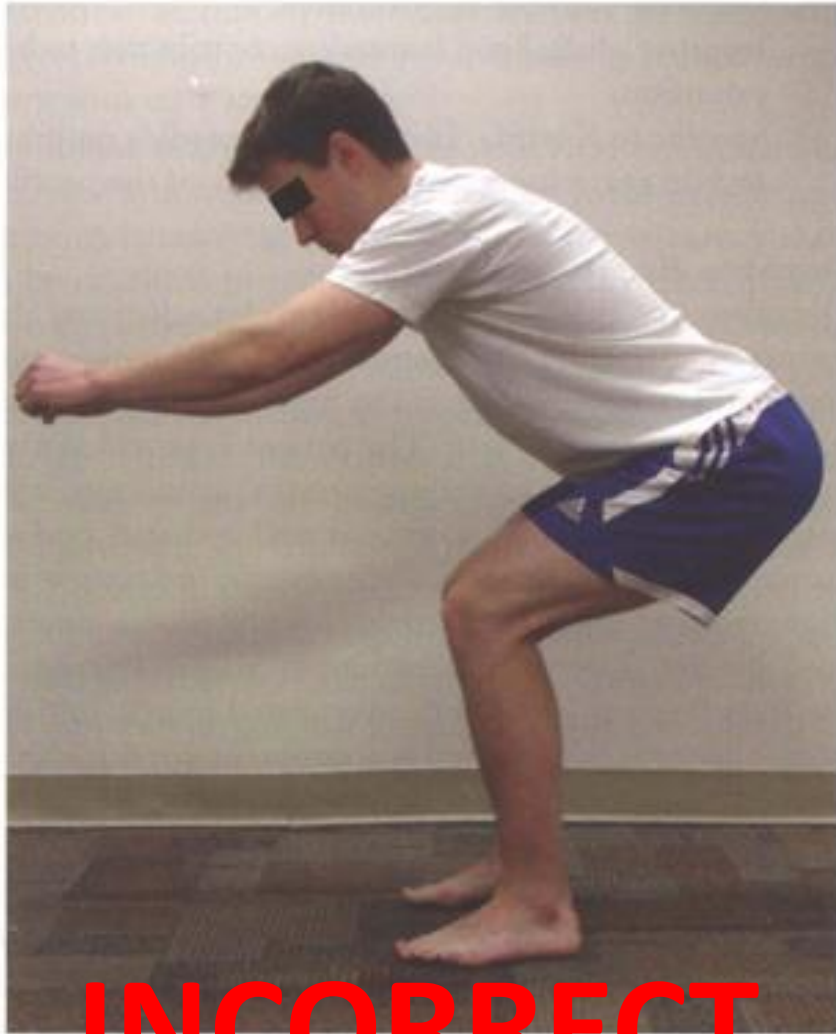
# Helping Hyperextension



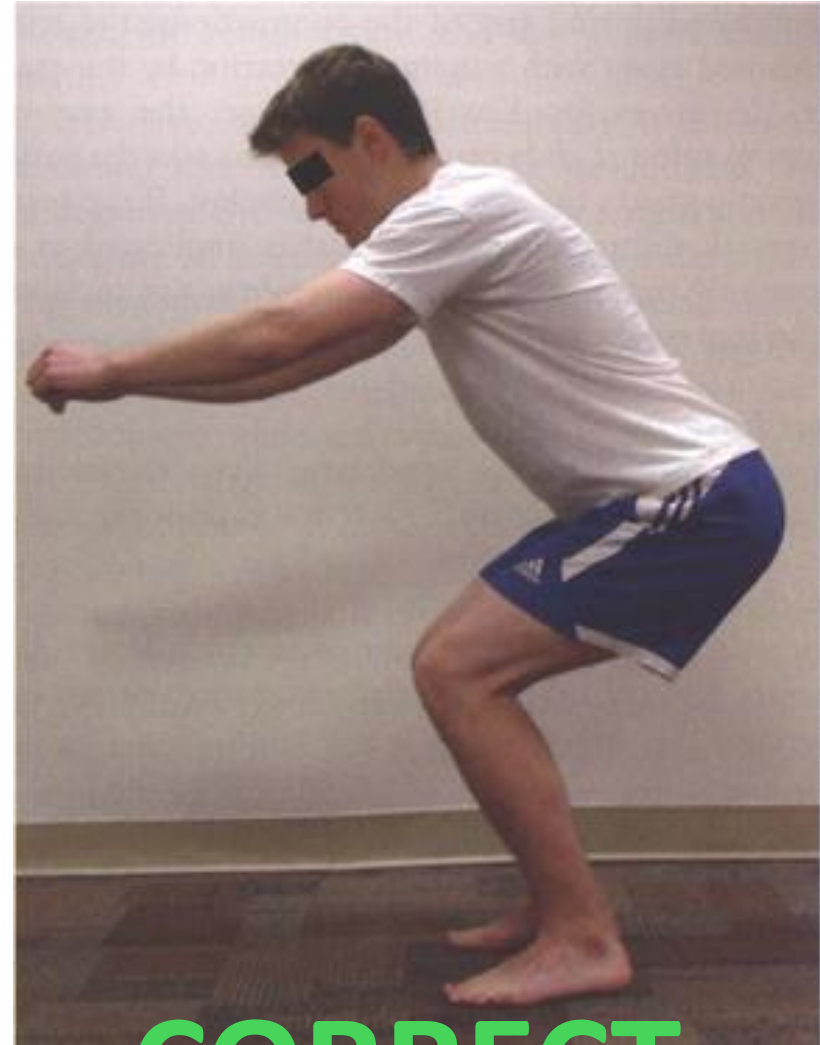
# Common Issues in Yoga Warrior 2



# Common Issues - Chair Pose

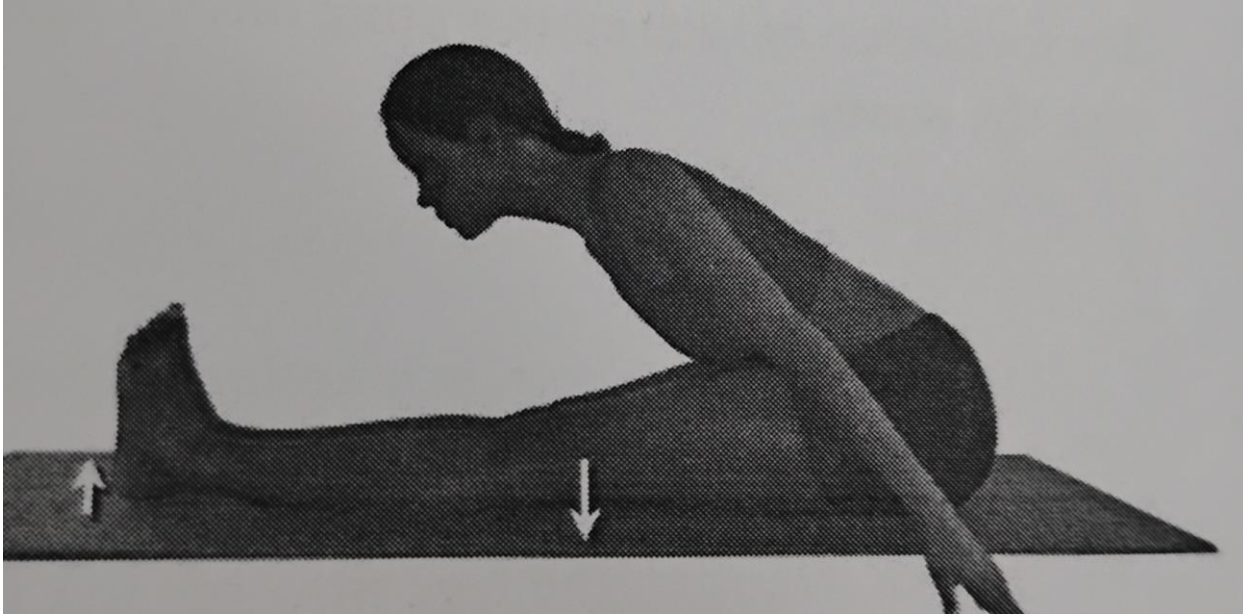


**INCORRECT**

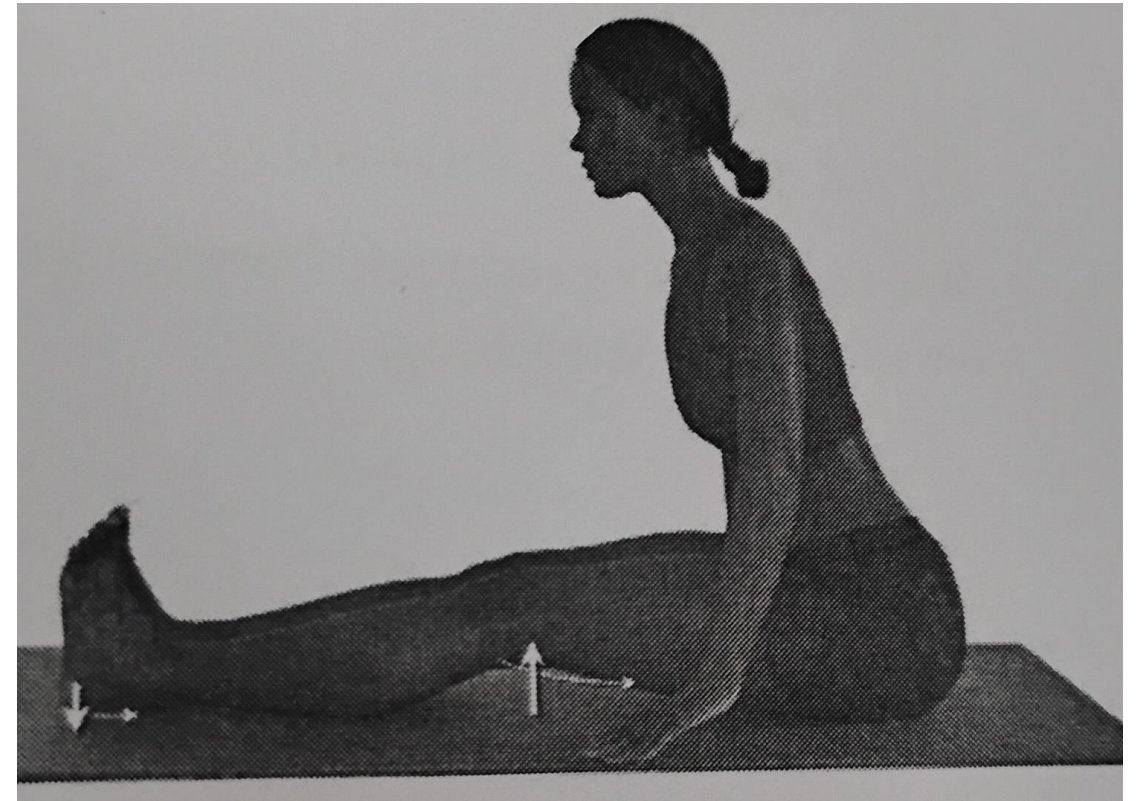


**CORRECT**

# Common Issues – Forward Fold

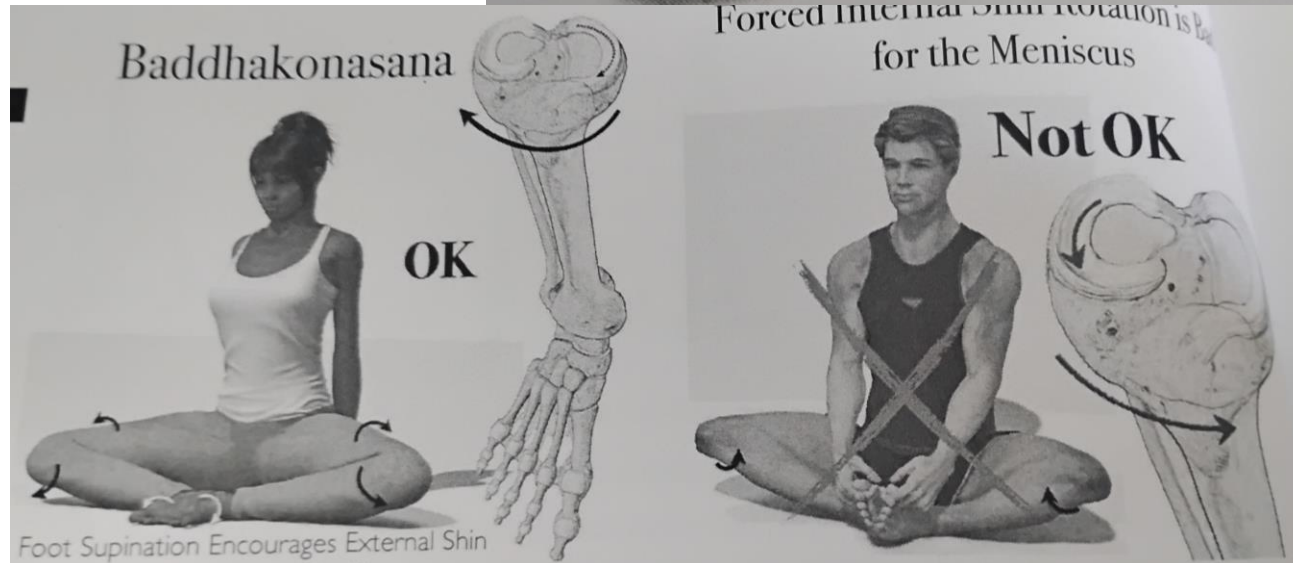
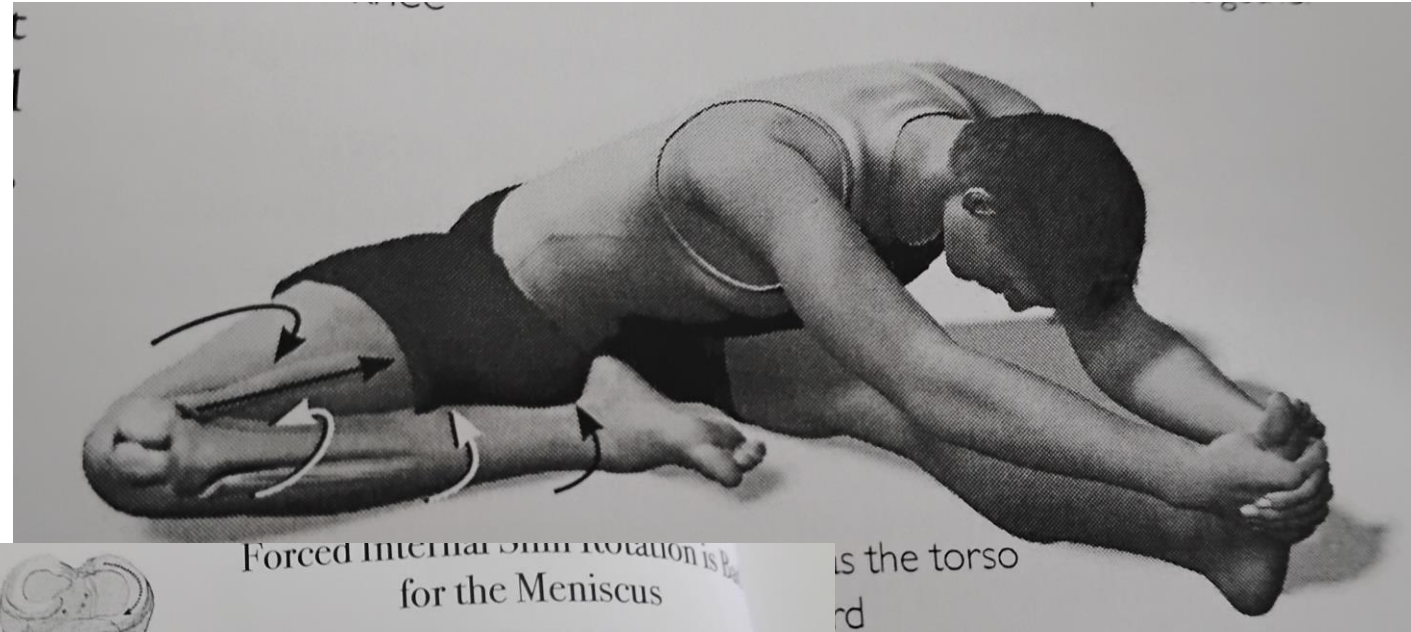
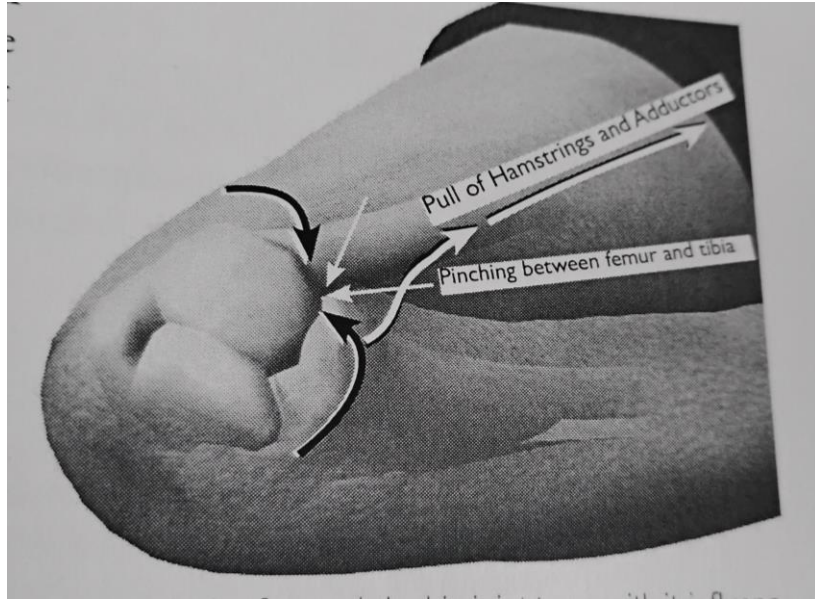


**INCORRECT**



**CORRECT**

# Common Issues in Yoga



# References

- Yoga
  - Doug Kellar: The Therapeutic Wisdom of Yoga Vol 1+2
- Imagery
  - Eric Franklin: Dynamic Movement Through Imagery
- Biomechanics
  - Shirley Sahrmann: Diagnosis and Treatment of Movement Impairments
  - Bill Hartman, Alex Effer, Connor Harris, Michael Mullin



**Bäder** **Movement**

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| Yoga Therapy | Movement

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Therapy | Ergonomic Assessment