

aXis

Amphibious eXercise for Improved Swimming

aXis

- Research, design & develop scientifically based
- Properly implemented
- Orthopedically sound
- Swimming performance driven
- “Prepared & Readiness” Training Systems



aXis R&D Teams

Competitive Pool



Open Water





Combat & Rescue



Direct Influences

How?

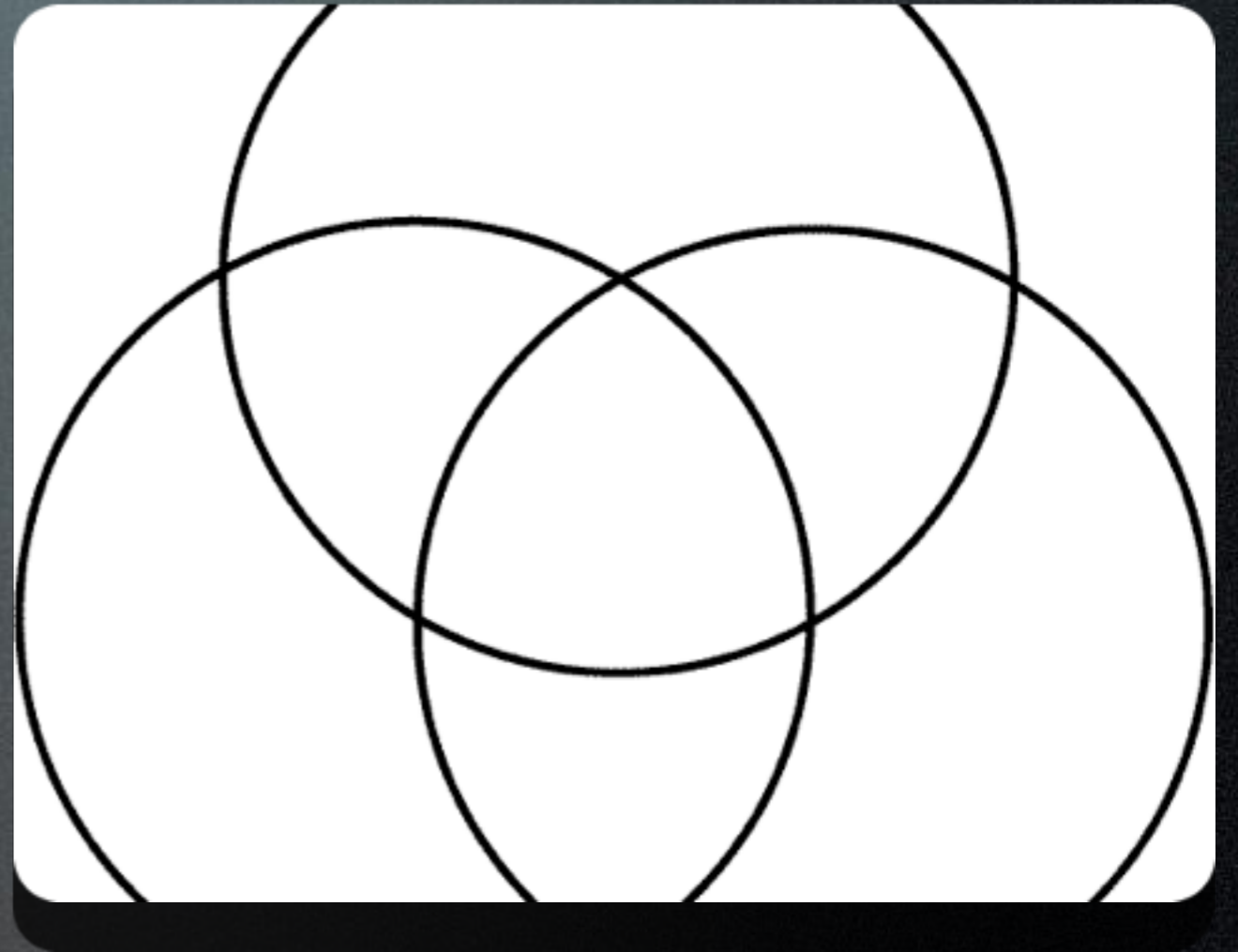
Structural Integration of Systems

- Skeletal System
- Nervous System
- Musculo-Tendinous System

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Reduce the probability of injuries
Minimize the severity of injuries
Optimize skill acquisition

Increased swimming performance



How?

Improve & Strengthen Fundamental Movement Abilities

- Praxis
 - Primals & Biomechanical Vocabulary
 - Addressing “Problems”
 - Improvements in FMA
- Myelination
 - Strengthening FMA

How?

Develop Efficient Compensatory Action Reflexes (CAR)

- Concentric: Overcoming Force
- IsoMetric: Equal to Force
- True Eccentric: Not enough to overcome Force “Springing”
- Quasi-IsoMetric: Constant “give & take” to protect a joint position or series of joint positionings

Shoulder Girdle Stabilization

Develop FMAs, then challenge them



- Primal
 - Scapular
DEPRESSION &
Elevation

Shoulder Girdle Stabilization

Develop FMAs, then challenge them

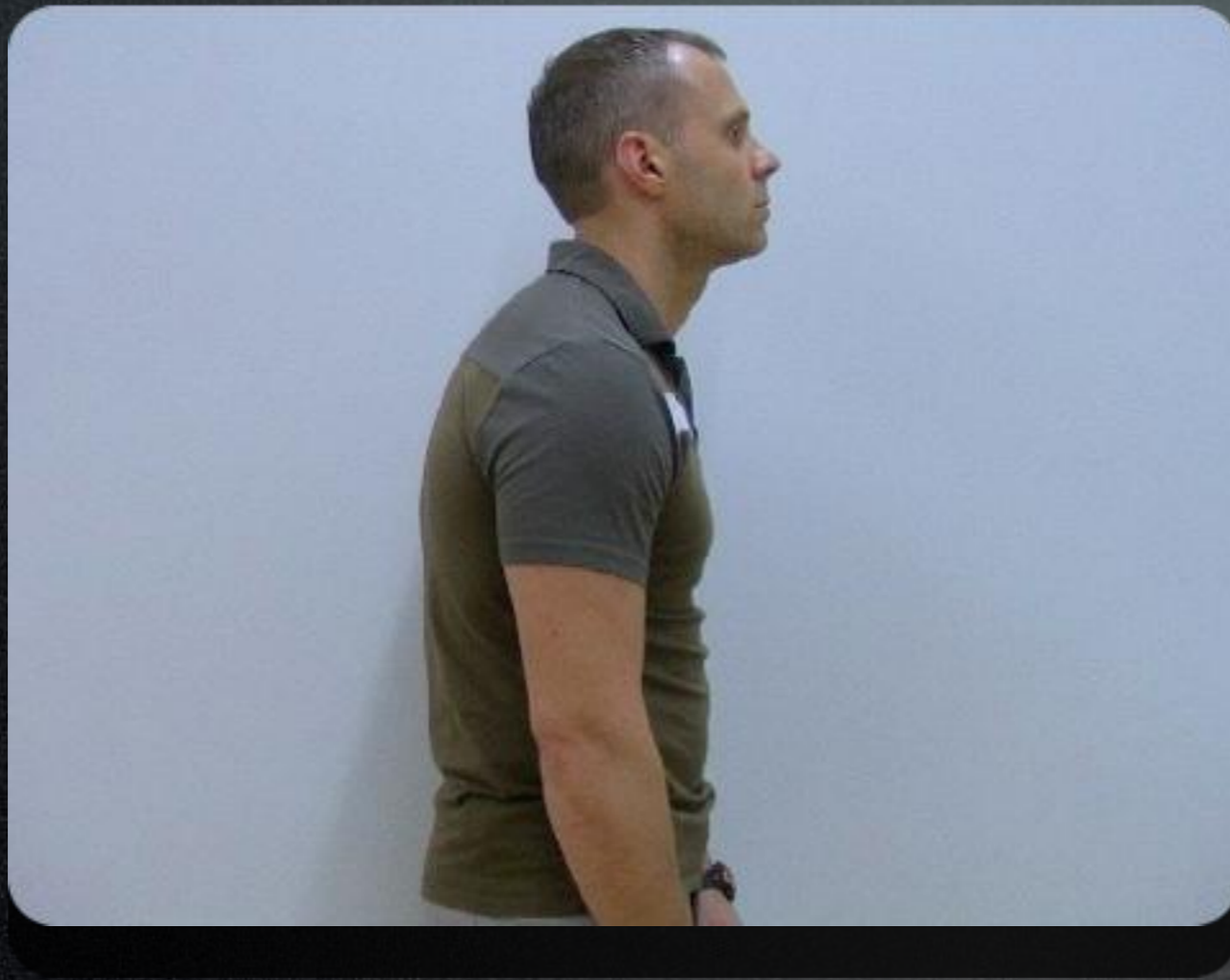


- Primal
 - Scapular Protraction to RETRACTION

Shoulder Girdle Stabilization

Develop FMAs, then challenge them

- Primal
- Scapular Tilt Anterior to POSTERIOR



FMA & Limiting Factors (Lf)

- Scapular Elevation to DEPRESSION, Protraction to RETRACTION & Anterior to POSTERIOR Tilt
 - Strengthen:
 - Child's Pose
 - Reach, Roll & Lift R&L
 - T-Spine Rotation "Moose Antlers" R&L
 - Lengthen:
 - Over-Under Reach R&L
 - Sleeper Stretch R&L

Biomechanical Movement Analysis (BMA)

- Swimmer's Wall Squat
 - What are we trying to test?
 - Why is it important to swimming performance?
 - How do we positively address its dysfunction?



BMA - Swimmer's Wall Squat (Lats)

- Why is it important to swimming performance?
 - Increases potential to have a higher catch position
 - Allows for the development of the aXis spine (Elongated Spinal Position) marking a true streamline position

BMA - Swimmer's Wall Squat (Lats)

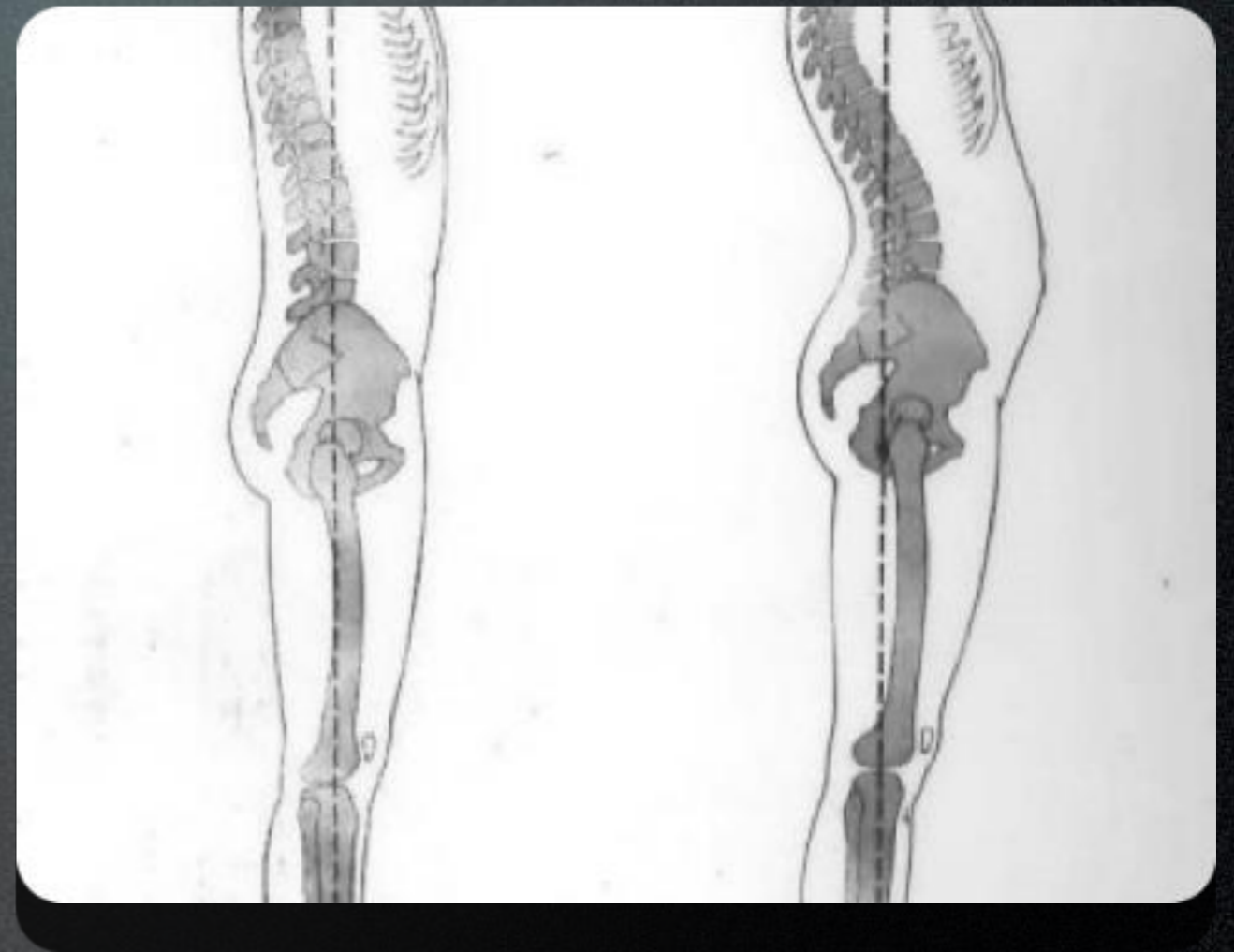
- How do we determine its dysfunction? As the athlete squats down in the streamline position: his/her pelvis rotates back (posterior tilt) and pulls the Thoracolumbar Fascia (TLF) down.
 - The depth of the squat will be limited if the elbows are kept high and straight in the streamline position
 - The elbows bend as the hips rotate back (posterior tilt)
 - The arms widen and can't be held in the streamline position

BMA - Swimmer's Wall Squat (Lats)

- How do we positively address its dysfunction?
 - Strengthen: Iliopsoas CAR (3rd Module)
 - Lengthen:
 - Vertical Column Side Stretch R&L
 - Saxon Lunge R&L
 - Modified Hurdler's Stretch R&L
 - Self Myofascial Release (SMR)
 - Posterior Capsule
 - Sleeper Stretch
 - Pectoralis Stretch (Straight Arm & 90/90) R&L

BMA - Swimmer's Wall Squat

- Pelvic Tilt



BMA - Swimmer's Wall

- **Squat (Pelvic Tilt)**
Why is it important to swimming performance?
- Allows for the development of the aXis spine (Elongated Spinal Position) marking a true streamline position



BMA - Swimmer's Wall Squat (Pelvic Tilt)

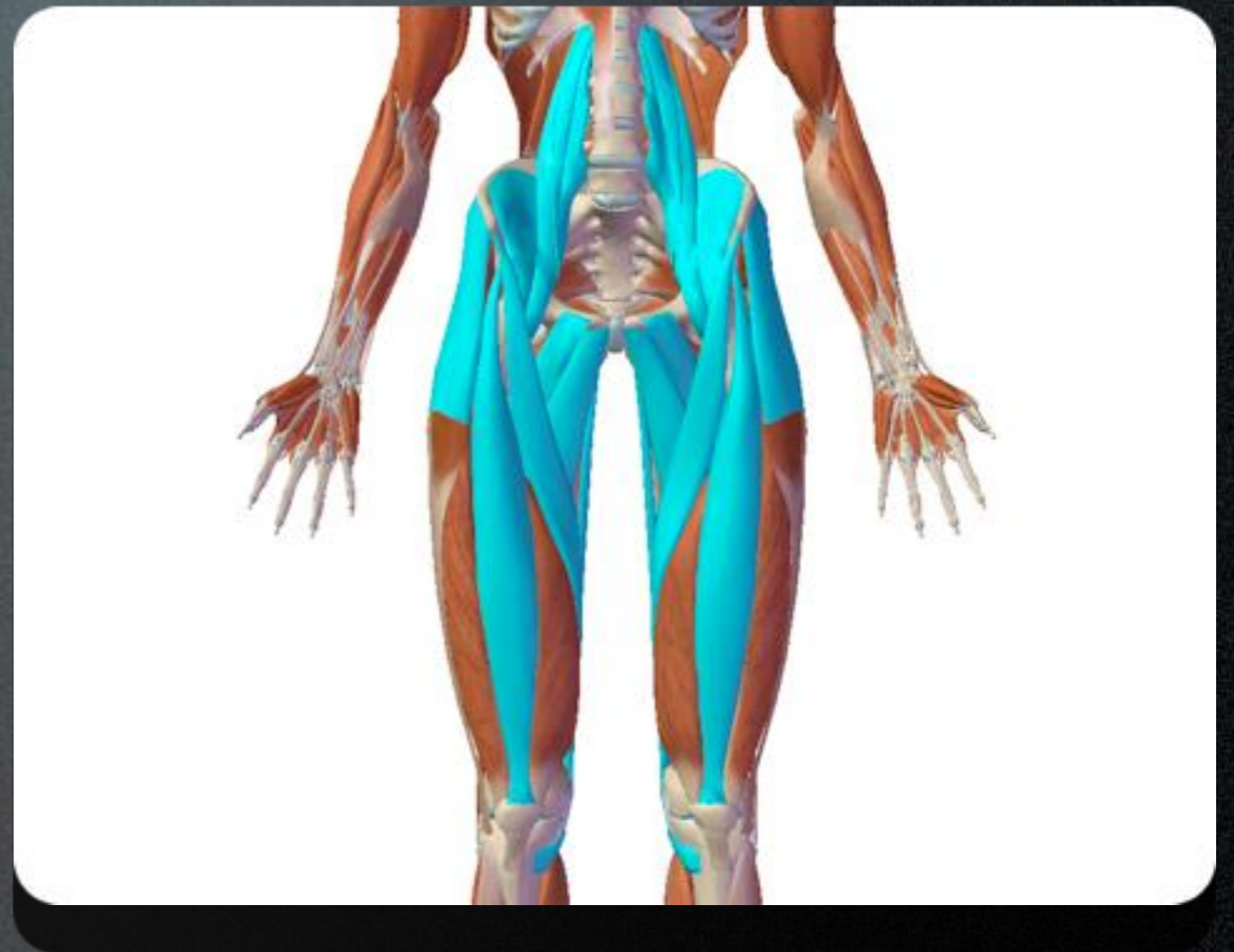
- How do we determine its dysfunction? As the athlete squats down in the streamline position: he/she can not roll the pelvis down into a full depth squat (as defined by the rotation of the pelvis and not the knee angles)
- • Wall Alignment Progression
- Anatomical Position: roll the low back flat into the wall
- “T” Position: roll the low back flat into the wall
- Streamline Position: roll the low back flat into the wall

BMA - Swimmer's Wall Squat (Pelvic Tilt)

- How do we positively address its dysfunction?
 - Wall Alignment Progression
 - Anatomical Position: roll the low back flat into the wall
 - "T" Position: roll the low back flat into the wall
 - Streamline Position: roll the low back flat into the wall Lengthen:
- Pos Front Pillar Complex [I. Plank II. Push Up Pos]
 - Static
 - single Leg Walking Narrow R&L
 - single Leg Walking Wide R&L
- Lengthen: Streamline Child's Pose w/ single Arm Thoracic Rotation R&L

BMA - Swimmer's Wall Squat

- Hip Flexor Group “Iliopsoas”
 - Iliacus
 - Psoas Major
 - Psoas Minor
- Also includes:
 - Rectus Femoris, Sartorius, TFL, Adductor Longus, Adductor Brevis, Pectineus & Gracilis



BMA - Swimmer's Wall Squat (Hip Flexors)

- Why is it important to swimming performance?
 - Allows for the development of the aXis spine (Elongated Spinal Position) marking a true streamline position
 - Reduces the “Check Mark” body alignment



BMA - Swimmer's Wall Squat (Hip Flexors)

- How do we determine its dysfunction? As the athlete squats down in the streamline position: his/her pelvis does not rotate back (posterior tilt) and they can not keep an elongated Axis spine.

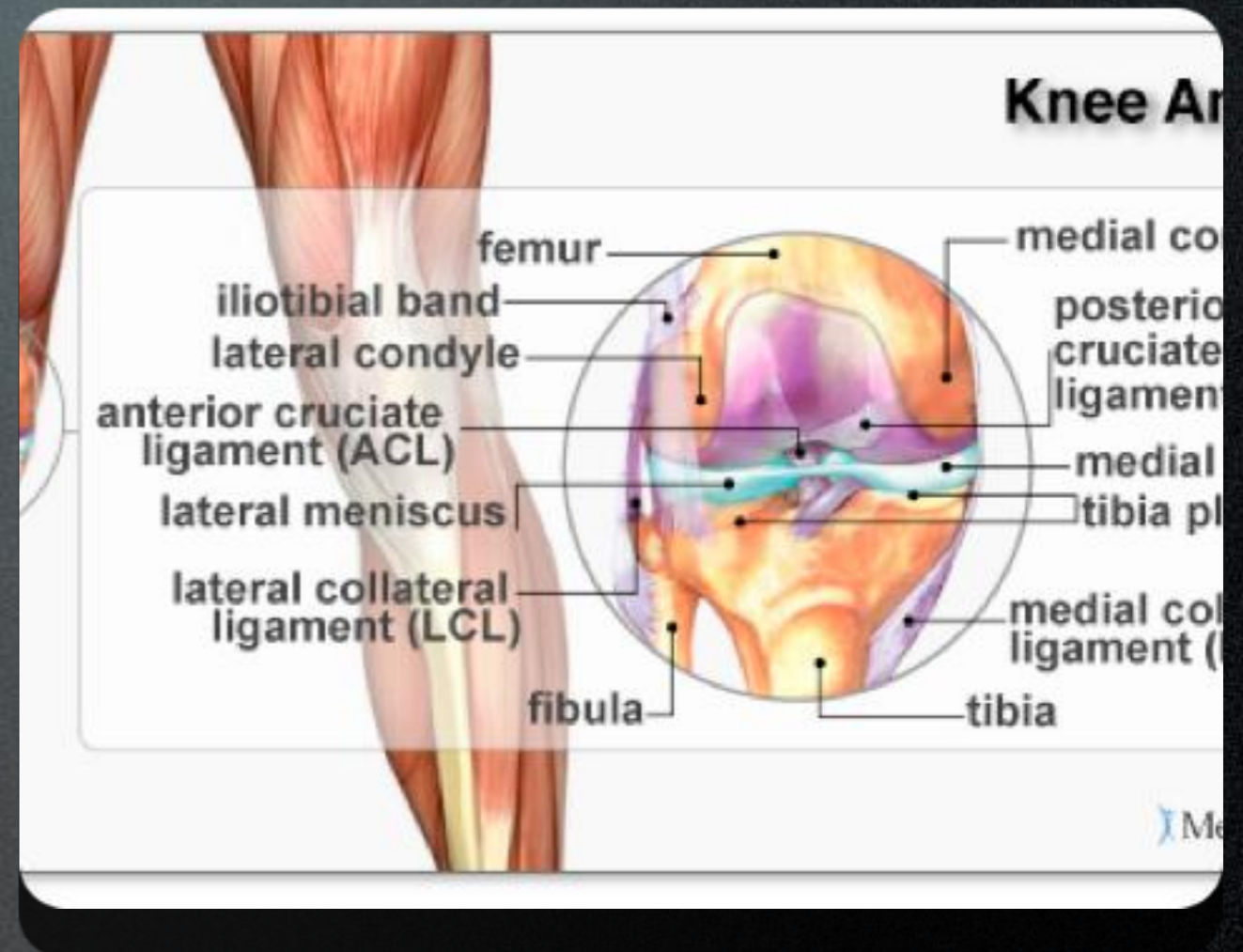
BMA - Swimmer's Wall Squat (Hip Flexors)

- How do we positively address its dysfunction?
 - Strengthen
 - Iliopsoas Complex (CAR)
Manual Resistance Hip Flexion in the Iso Stability Test Position (Dead Bugs)
 - Lengthen
 - Side-Lying Z-Stretch w/
Rotation R&L
 - Straight Leg Spiderman w/
Rotation "Dara Torres"



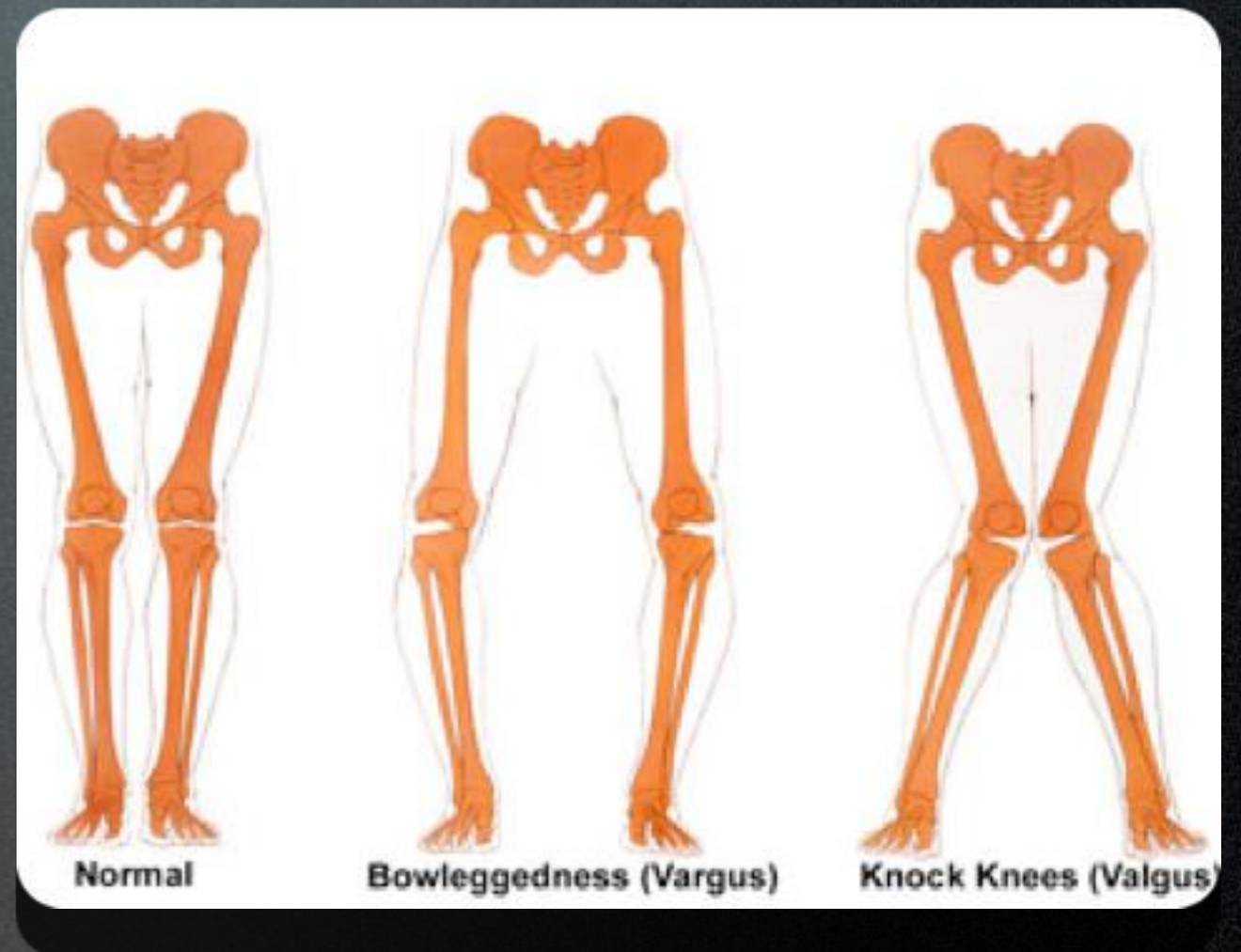
BMA - Swimmer's Wall Squat

- Optimal Knee Tracking
- Hips Neutral
- Knees Neutral
- Feet Neutral



BMA - Swimmer's Wall Squat (Optimal Knee Tracking)

- Why is it important to swimming performance?
 - Develops a good foundation for effective and orthopedically sound dry-land strength & conditioning
 - Develops optimal hip, knee & ankle alignment



BMA - Swimmer's Wall Squat (Optimal Knee Tracking)

- How do we determine its dysfunction? As the athlete squats down in the streamline position: take note if the knees excessively
 - slide In (Pelvic Girdle Adduction)
 - slide Out (Pelvic Girdle Abduction)
 - rotate In (Femoral Internal Rotation)
 - Rotate Out (Femoral External Rotation)

BMA - Swimmer's Wall Squat (Optimal Knee Tracking)

- How do we positively address its dysfunction?
 - Strengthen
 - Manually Resisted Hip Abduction
 - Hip Adduction – single Leg Windshield Wipers
 - Femoral Internal Rotation – ITB Twisting Slow Kicks
 - Femoral External Rotation – Manually Resisted Iron Cross
 - Lengthen
 - Same as above



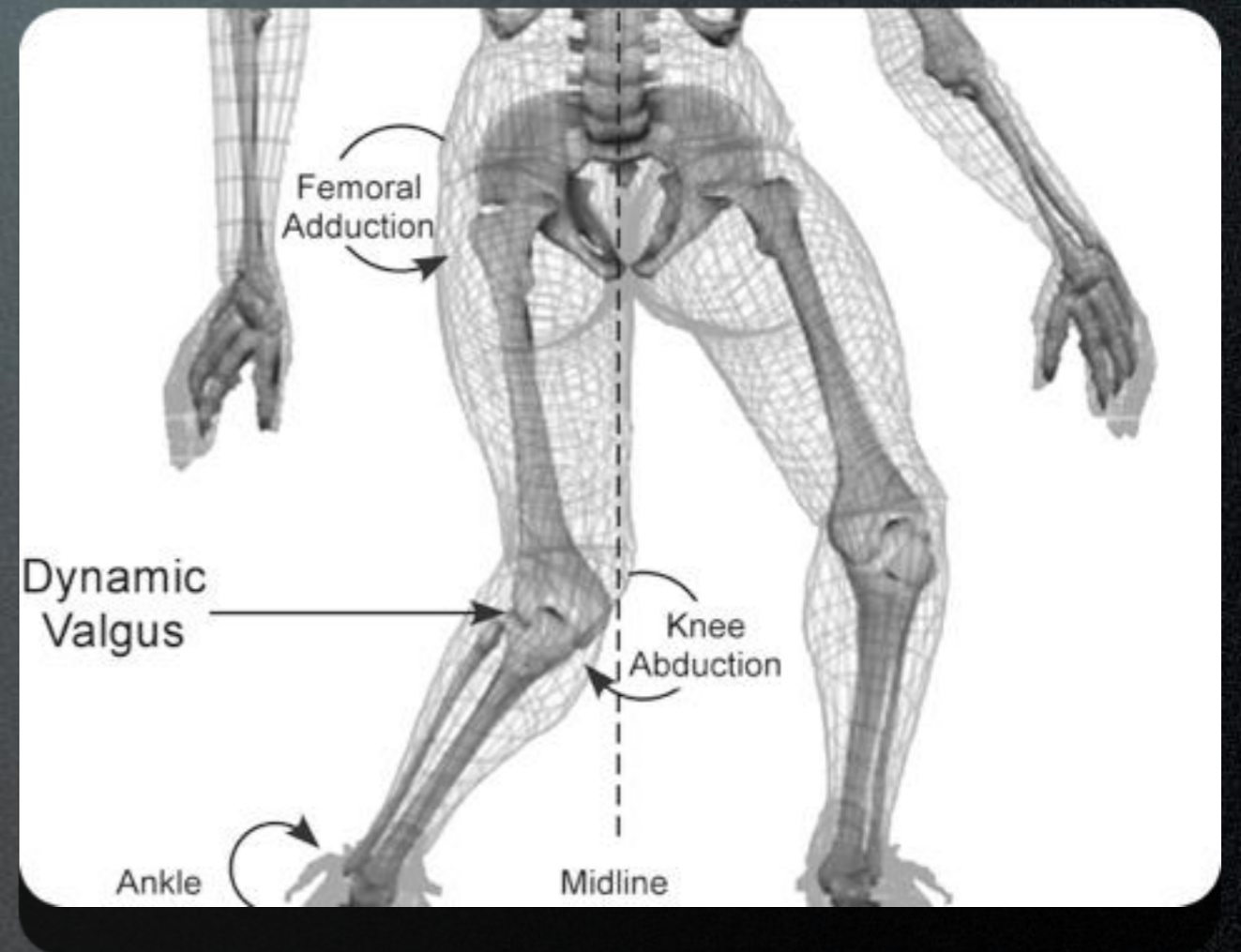
BMA - Swimmer's Wall Squat

- Navicular Drop



BMA - Swimmer's Wall Squat (Navicular Drop)

- Why is it important to swimming performance?
 - Develops a good foundation for effective and orthopedically sound dry-land strength & conditioning
 - Develops an optimal hip and knee alignment



BMA - Swimmer's Wall Squat (Optimal Knee Tracking)

- How do we determine its dysfunction?
- As the athlete squats down in the streamline position, the foot stays flat on the ground but the Medial Malleolus roll inwards

BMA - Swimmer's Wall Squat (Navicular Drop)

- How do we positively address its dysfunction?
 - Strengthen
 - Cockey Walk Complex
 - Forwards
 - Backwards
 - Lateral R&L



Perpetual evolution of aXis

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- Properly implemented
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