

C  R E A · I · M

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An educational resource for growing youth athletes

Unit 4 – The Core A.I.M.™ Orthopaedic Mobility Assessment





Unit 4 – Objectives

1. To introduce the Orthopaedic Mobility Assessment (OMA).
2. To recognize the indications for conducting the OMA.
3. To learn the purpose of the OMA for your athletes.
4. To understand the protocols & minimally recommended values for each component within the OMA.
5. To discover the importance of mobility in sport & any factors that influence this.



OMA – Indications

The Orthopaedic Mobility Assessment (OMA) is indicated IF

- The *obtain phase is not achieved* for any of the SQUAT, STRIDE, or STRETCH (SLV, SLH) stance positions.
- Your athlete plays a very asymmetrical sport, due to the concerns regarding a possible *default posture*.
- Your athlete is dealing with *rapid growth spurts*.

NOTE: the OMA measurements will vary across the athlete's life span, and therefore *current scores* are integral to understanding the athlete's *current profile*.





OMA – Purpose

The Orthopaedic Mobility Assessment (OMA) is used to

- *Evaluate* movement accessibility in targeted areas.
- *Identify & highlight* asymmetries due to default posturing.
- Further *investigate* reasoning for an athlete's inability to obtain the foundational sporting positions.

NOTE: the OMA contains some active & some passive components



So, What *IS* the OMA?

- Battery of 16 carefully selected tests:
 - Some functional multi-joint & some targeted single-joint tests
 - Combination of closed kinetic chain & open kinetic chain tests
 - Mixture of active & passive mobility tests
- Evaluates mobility in the sagittal, frontal & transverse planes
- Gives an indication of a muscle's ability to functionally work in different capacities
- Targets: UL, LL & spinal



Mobility enables an athlete to obtain proper positioning & movement sequencing in sport!

Mobility enables efficient & integrated movement through the use of the body's sling system! ([Myers, 2011](#); [Vleeming et al., 1995](#))

Mobility, balanced w/ strength, enables an athlete to absorb & transfer forces at a high rate!

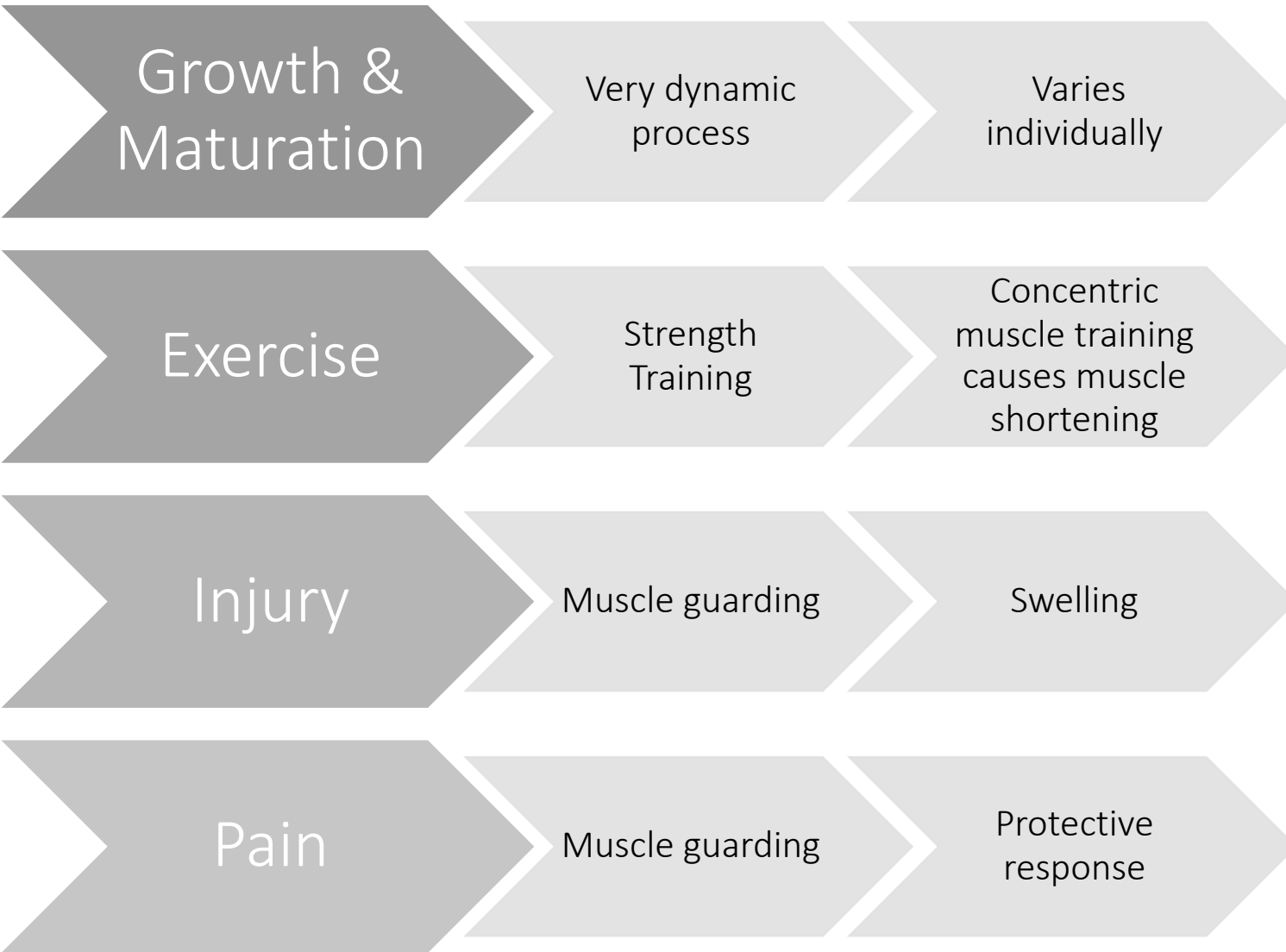


Mobility helps prevent an area from *stealing* range from elsewhere in the body, thus preventing tissue breakdown & reduced power!



Why Mobility?







What is *Optimal* Mobility?

The optimal mobility recommendations that are listed in the OMA are *clinical recommendations* resulting from awareness of sporting demands on the field, court and ice.

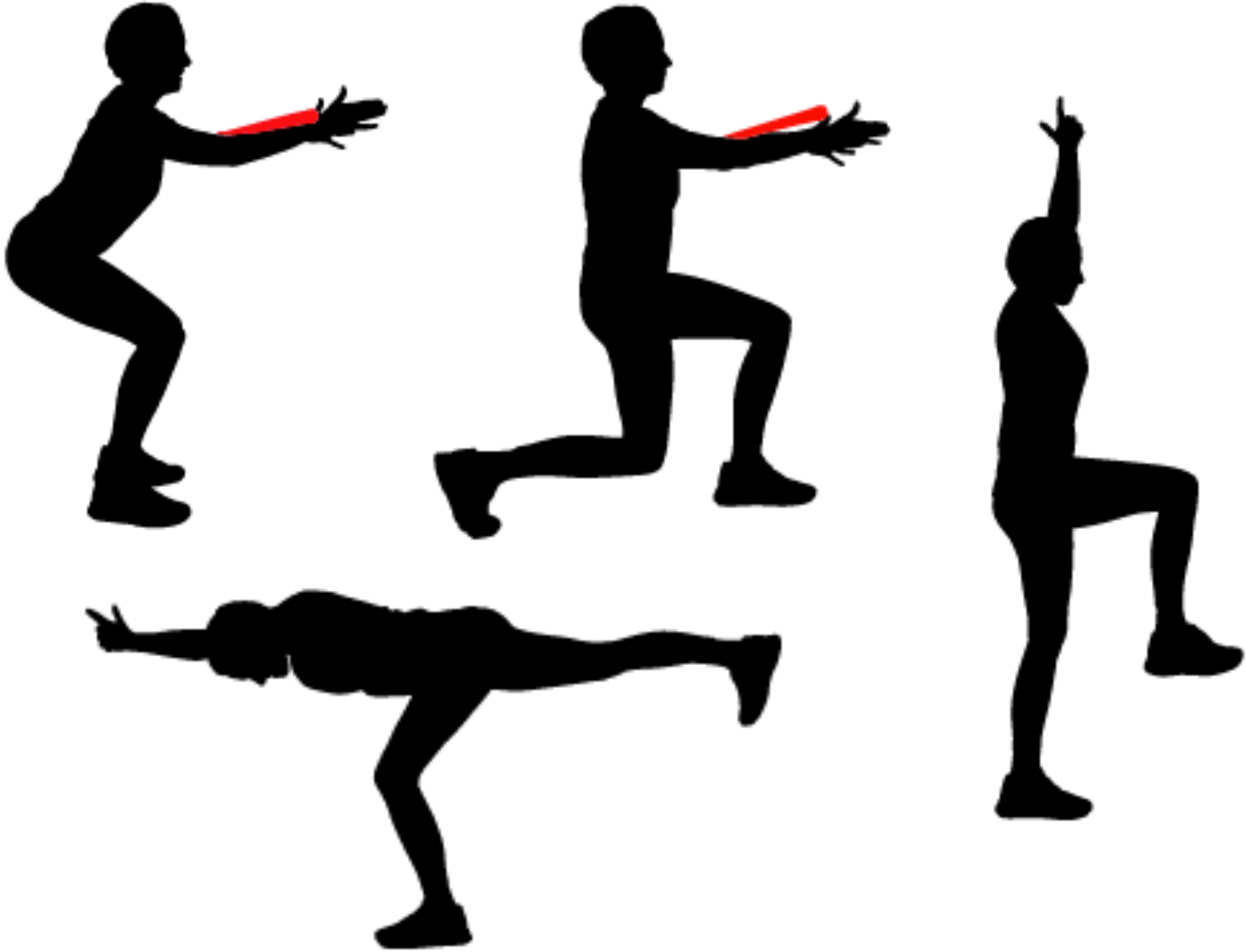
They are *not* derived from normative data.

It is our belief that mobility recommendations should be based on the *sporting demands*.

Keep in mind that these are recommended *minimums*.

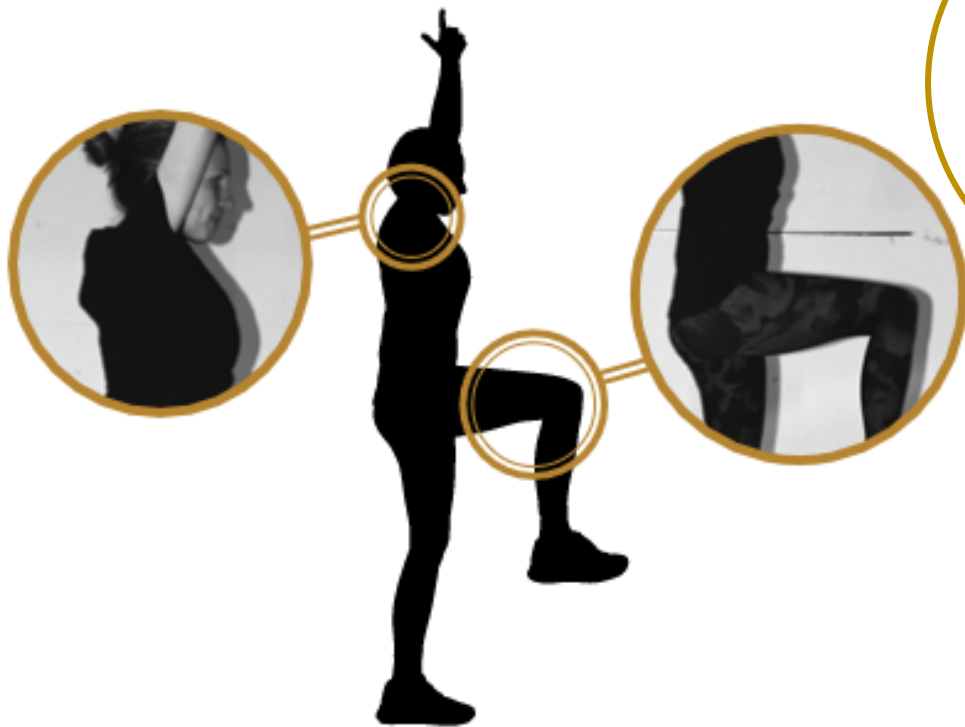
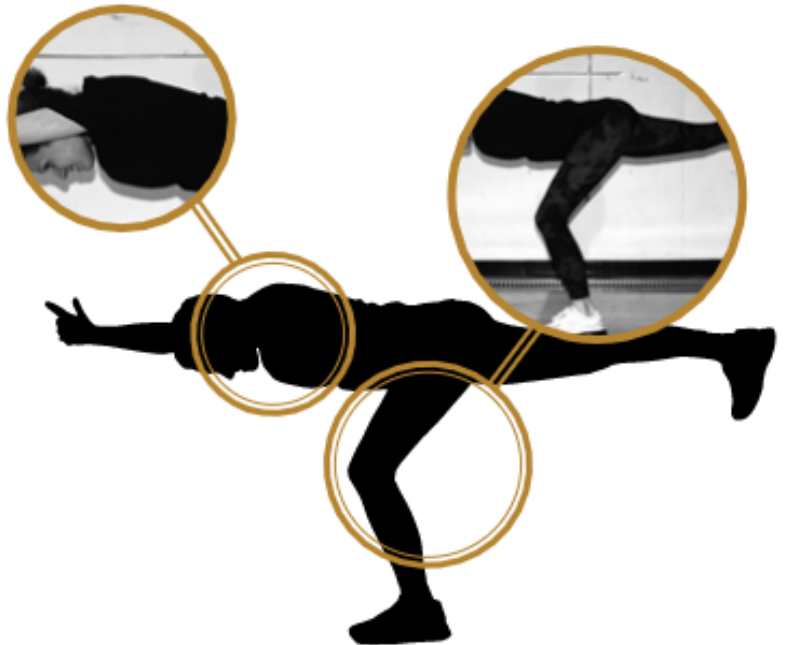
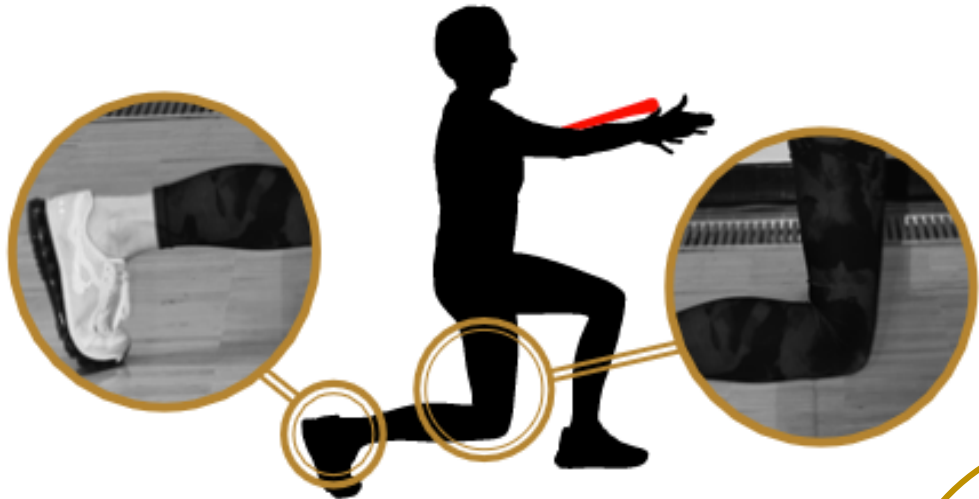
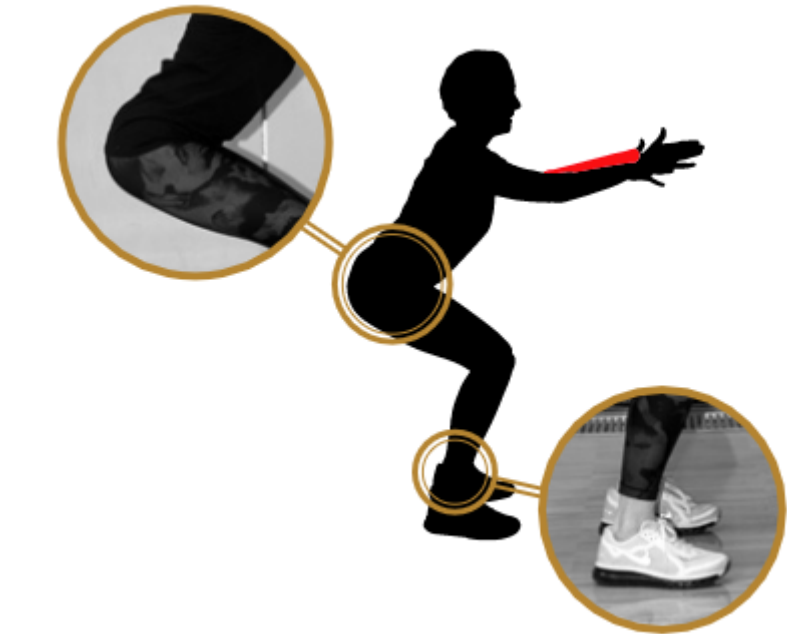
*Gymnastics, Figure Skating, Dancing, Martial Arts & other high range dependent sports require us to increase expectations & adapt suggested optimal recommended minimums for our athletes.





4 Foundational Positions





Key Mobility Areas





Tests – 16 total

Big Toe Extension

Knee to Wall

Sidelying Iliopsoas/Quads

Functional SLR

Straight Leg Hip Abduction

Hip Extension

Hip Flexion

Hip IR – Seated

Hip ER – Seated

Hip IR – Supine

Hip ER – Supine

SL Balance – Eyes Closed

Overhead Wrist to Wall

Shoulder IR at 90deg – On Wall

Shoulder ER at 90deg – On Wall

Thread the Needle





BIG TOE EXTENSION

Instructions

Isolate the big toe as shown & move it passively into extension. Using a goniometer, measure the angle between the foot and the big toe.



Optimal minimum: 65 deg





KNEE TO WALL

Instructions

Foot beside the tape measure and make sure the hips and torso are square to the wall with the knee directly over the 2nd toe. Keeping the heel on the ground, touch knee to wall. If successful while maintaining posture as above, move slightly further from wall and repeat. Measure furthest successful trial, ensuring heel is down, arch is in neutral and alignment is as described.



Optimal minimum: 10 cm from wall





SIDELYING ILIOPSOAS-QUADS

Instructions

In sidelying, grab bottom knee with bottom hand out in front of body to stabilize pelvis. Then with top hand, grab top foot and pull it back. The assessor then uses a goniometer to measure the angle of trunk to thigh.





FUNCTIONAL SLR

Instructions

Lie on back with foot in 90 degrees dorsiflexion. Keeping a neutral spine, assessor raises athlete's leg. Stop when stretch is reported by athlete & measure the angle of the torso to the leg using a goniometer.



Optimal minimum: 75 deg

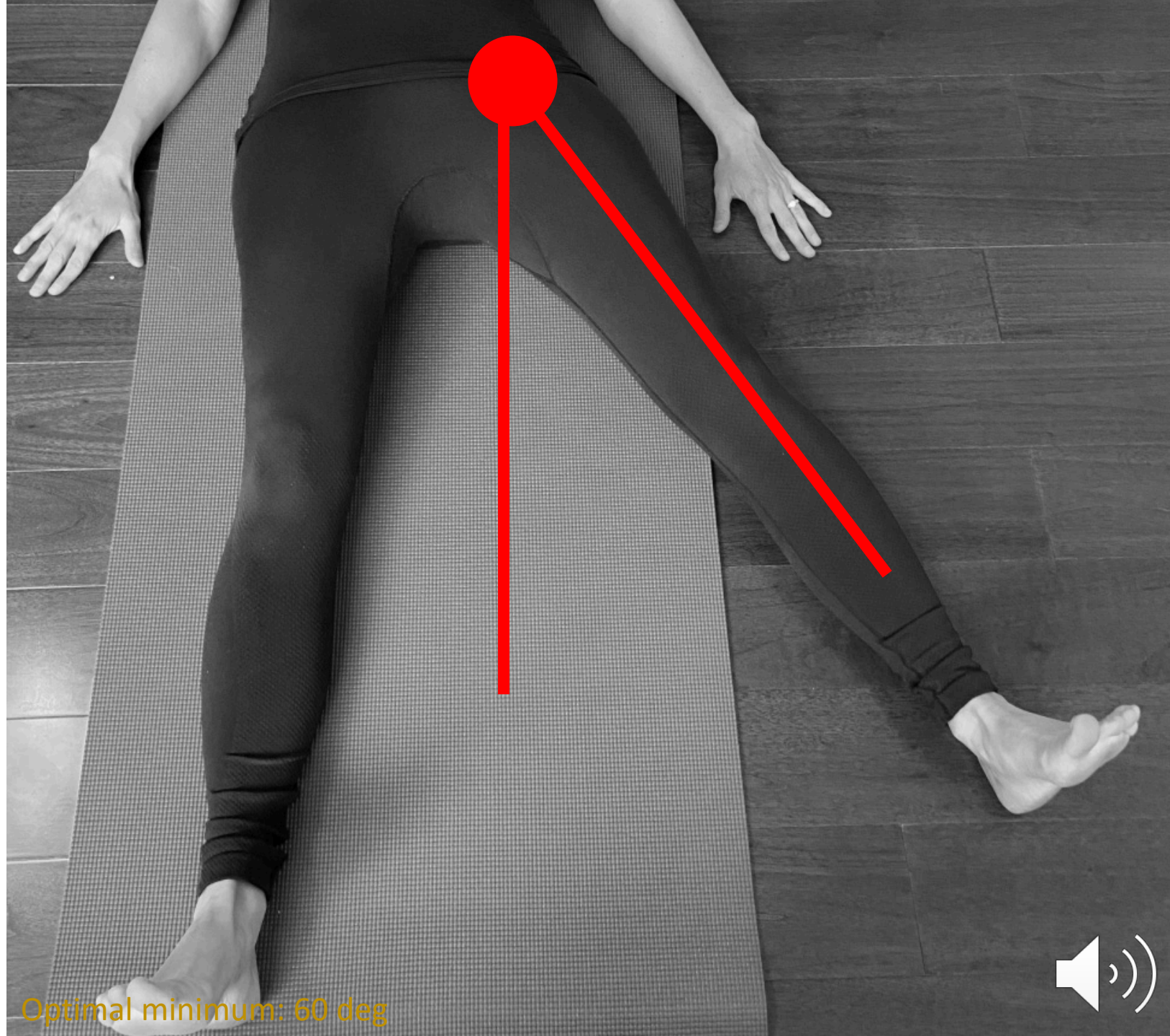




STRAIGHT LEG HIP ABDUCTION

Instructions

Lie on back with foot in 90 degrees dorsiflexion. Keeping a neutral spine, assessor bring athlete's leg out to the side. Stop when stretch is reported by athlete and with the pelvis level measure the angle from hip socket neutral to femur using a goniometer.



Optimal minimum: 60 deg





HIP EXTENSION

Instructions

Sit with sit bones on edge of bed and hug knee to chest. Laying back into Thomas Test position, let opposite leg drop down while keeping pelvis stable. Assessor uses goniometer to measure angle from pelvis/trunk to thigh as shown.



Optimal minimum: 185 deg





HIP FLEXION

Instructions

Lay back on bed, maintain a neutral pelvis and actively bring knee to chest as far as possible (without the use of hands). Assessor measures the angle from torso to thigh as shown using a goniometer.





HIP EXTERNAL ROTATION - SEATED

Instructions

Sitting in neutral on the bed, thighs supported (so hip is flexed to 90 deg), actively rotate hip externally by bringing **heel inwards** across body. Keep thigh stable on bed. Using a goniometer, assessor measures angle from vertical to tibia as shown.

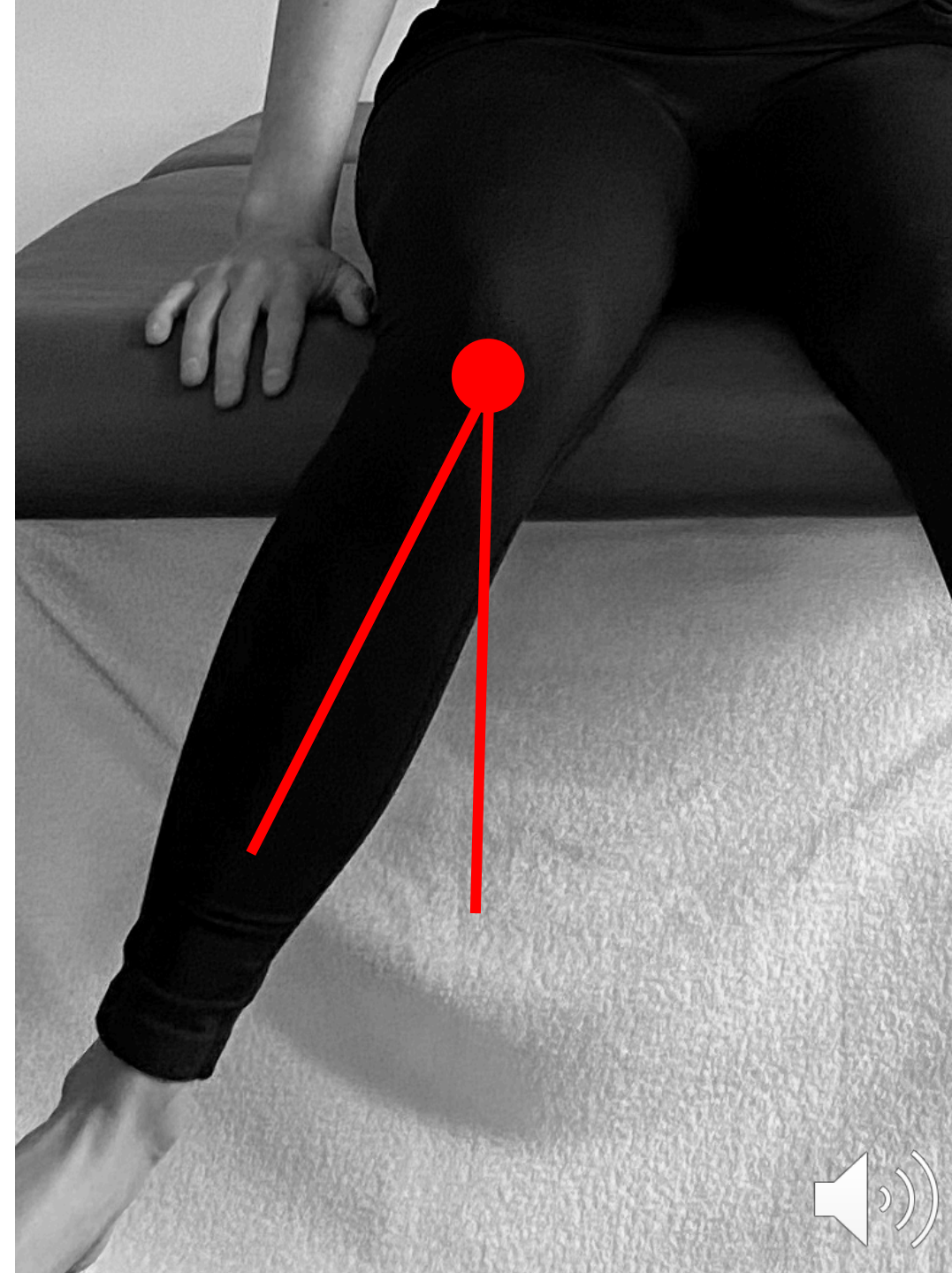




HIP INTERNAL ROTATION - SEATED

Instructions

Sitting in neutral on the bed, thighs supported (so hip is flexed to 90 deg), actively rotate hip internally by bringing **heel outwards** away from body. Keep thigh stable on bed. Using a goniometer, assessor measures angle from vertical to tibia as shown.

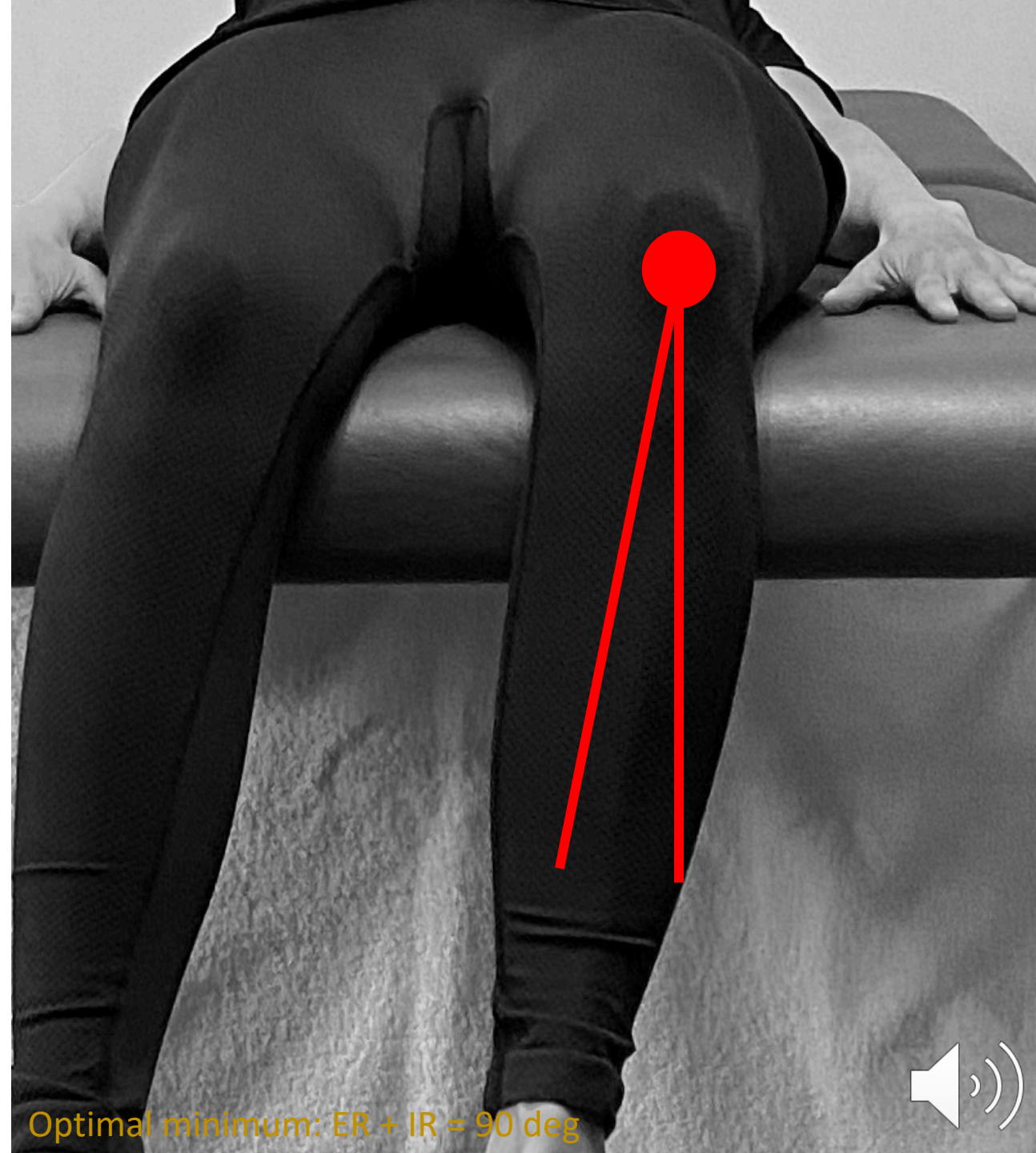




HIP EXTERNAL ROTATION - SUPINE

Instructions

Lying back on bed (so hip is in neutral), actively rotate hip externally by bringing **heel inwards** across body. Keep thigh stable on bed. Using a goniometer, assessor measures angle from vertical to tibia as shown.



Optimal minimum: ER + IR = 90 deg





HIP INTERNAL ROTATION - SUPINE

Instructions

Lying back on bed (so hip is in neutral), actively rotate hip internally by bringing **heel outwards** across body. Keep thigh stable on bed. Using a goniometer, assessor measures angle from vertical to tibia as shown.



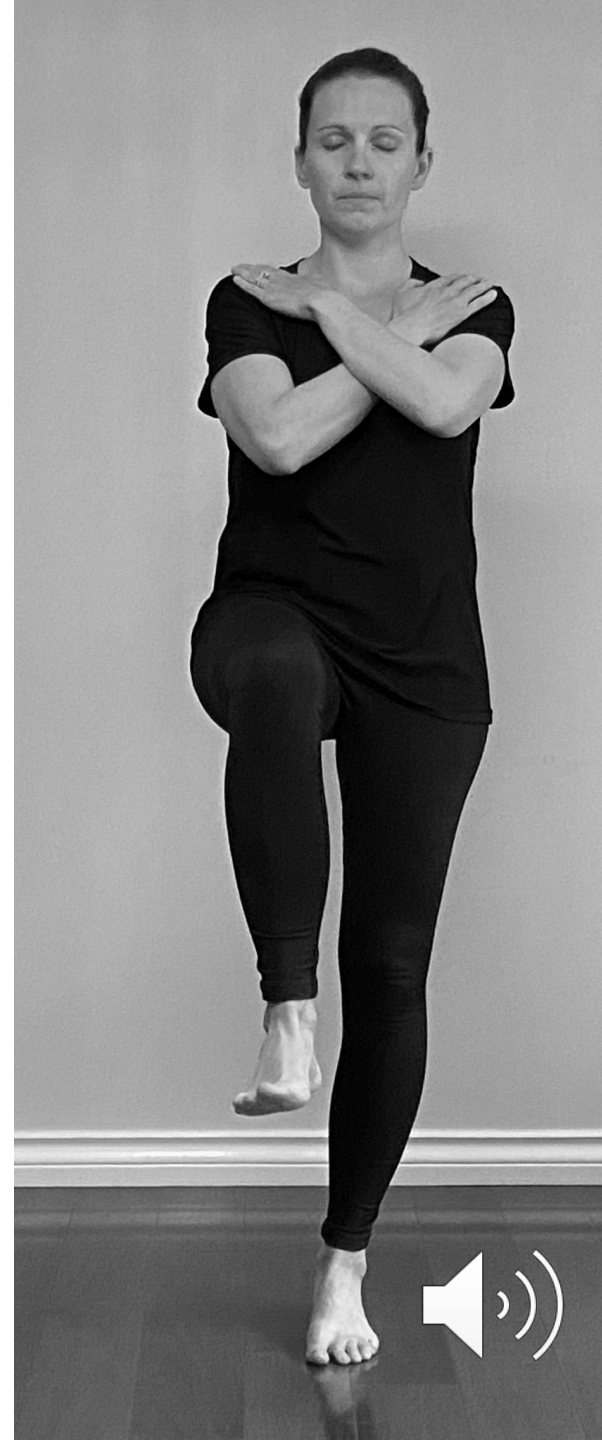
Optimal minimum: ER + IR = 90 deg



SL BALANCE – EYES CLOSED

Instructions

Standing on one leg with opposite leg bent up to 90 deg, place arms across chest and close eyes. Using a stopwatch, determine how long this position is held. Time stops with any deviation of position.



Optimal minimum: 20s hold with zero deviations



OVERHEAD WRIST TO WALL

Instructions

Stand with hips, ribs and shoulders against wall. Keeping hands together in with wrists in mid-pronation position. Reach wrists to wall overhead as shown, keeping this alignment. Assessor uses tape measure to record distance from wrist to wall.



Optimal minimum: 5 cm (thumbs touch wall)





SHOULDER EXTERNAL ROTATION AT 90 DEG – ON WALL

Instructions

Stand against wall with arm at 90 deg as shown. With scapula set in a neutral upwardly rotated position, rotate **palm up** to touch wrist towards wall. Assessor uses tape measure to record distance from wrist to wall.



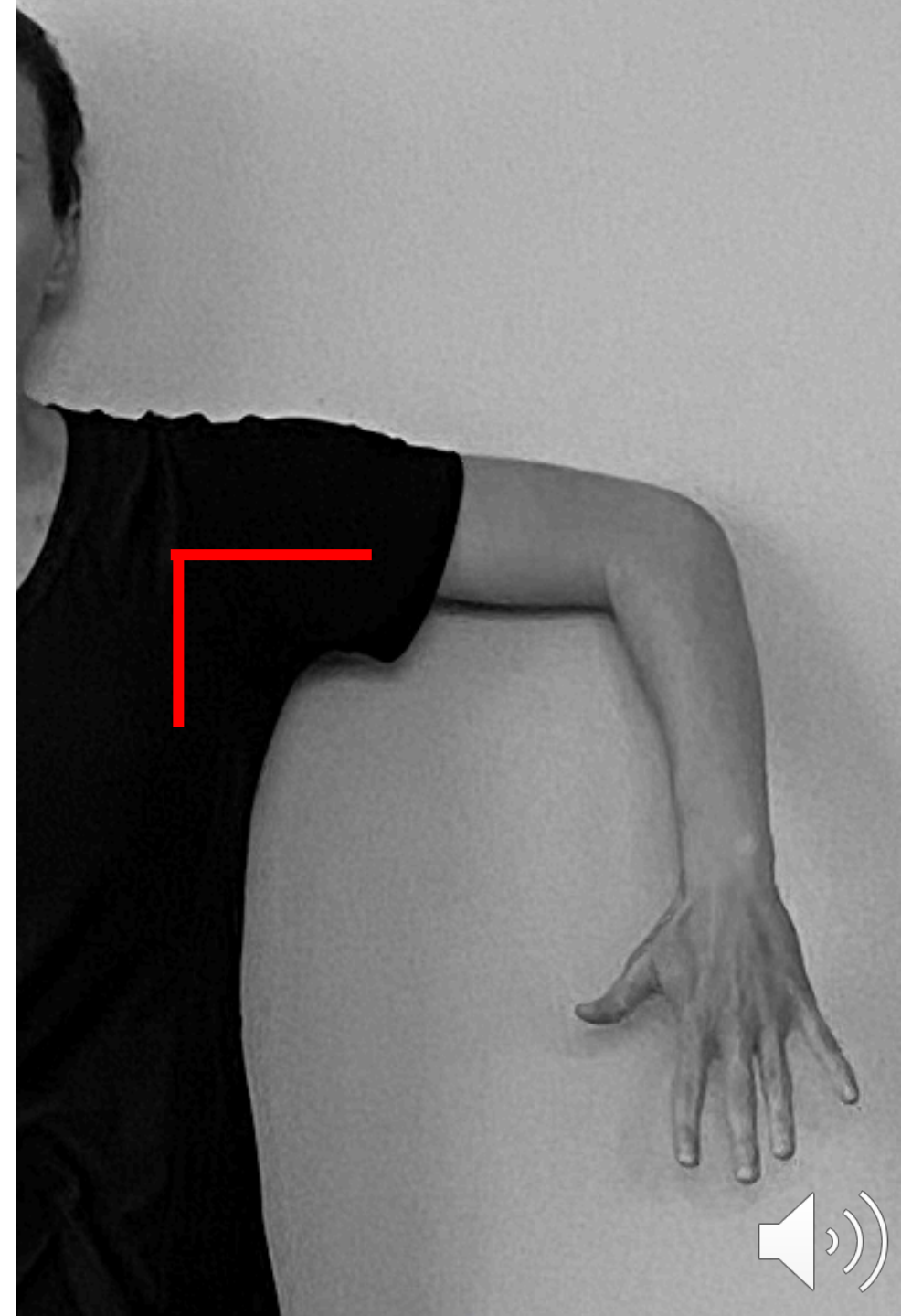
Optimal minimum: 0 cm (wrist on wall)



SHOULDER INTERNAL ROTATION AT 90 DEG – ON WALL

Instructions

Stand against wall with arm at 90 deg as shown. With scapula set in a neutral upwardly rotated position, rotate **palm down** to touch wrist towards wall. Assessor uses tape measure to record distance from wrist to wall.



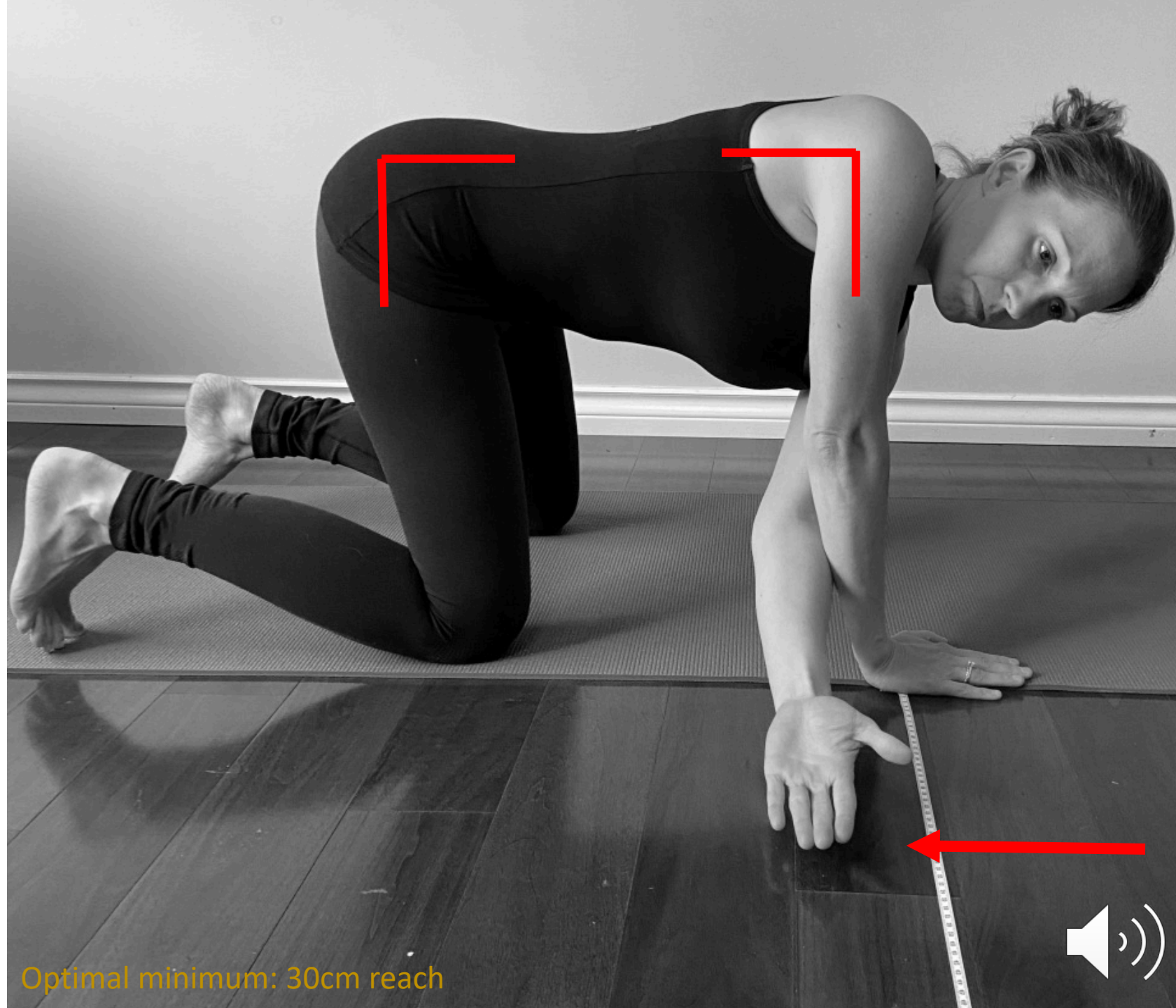
Optimal minimum: 0 cm (wrist on wall)



THREAD THE NEEDLE

Instructions

Place tape measure on floor as shown. In 4pt position, keep torso to shoulder & torso to pelvis at 90 degrees each (neutral) with weight distributed evenly between left & right knees. Place weight-bearing arm straight with wrist at zero & reach underneath with opposite arm as far as able. Place weight-bearing wrist at zero & reach underneath with opposite arm as far as able.



Optimal minimum: 30cm reach





Unit 4 – OMA Summary

The Orthopaedic Mobility Assessment (OMA) is only indicated *if*:

- Your athlete cannot obtain a position
- They have just had a recent growth spurt
- It is *not* required for every athlete

It's components include isolated single-joint, functional multi-joint, passive and active movements while recognizing that *optimal* mobility is specific to sporting demands.

The OMA's 16 tests target key mobility building blocks for the Core A.I.M.™ Foundational Screen.

- It assists you in identifying range of motion limitations that could be impacting your athlete's ability to obtain the 4 foundational positions – SQUAT, STRIDE, SLV & SLH STRETCH



References

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Myers, T. (2011). Fascial fitness: Training in the neuromyofascial web. *IDEA Fitness Journal*, 8(4), 1-11. <https://www.ideafit.com/personal-training/fascial-fitness/>

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