

Doing Our Best to Reduce Risk of Injury in Our Classes

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Dysfunction that leads to injury:

Muscle imbalances, decreased flexibility, or lack of core and joint stability.

Reduce Risk of Injury (also Improve Power Output) by:

1. **Flexibility and Mobility Training**
2. **Focusing on form and function**
3. **Train progressively and systematically**

My Favorite Mobility Drills

The 90/90 Hip Mobility Exercise



Side Lying Thoracic Rotations



Shoulders with bands and PVC Pipes



Foam Roll Release



HIP FLEXOR ROLLOUT



IT BAND RELEASE



PRONE QUAD RELEASE



FIGURE 4



ADDUCTOR ROLLOUT

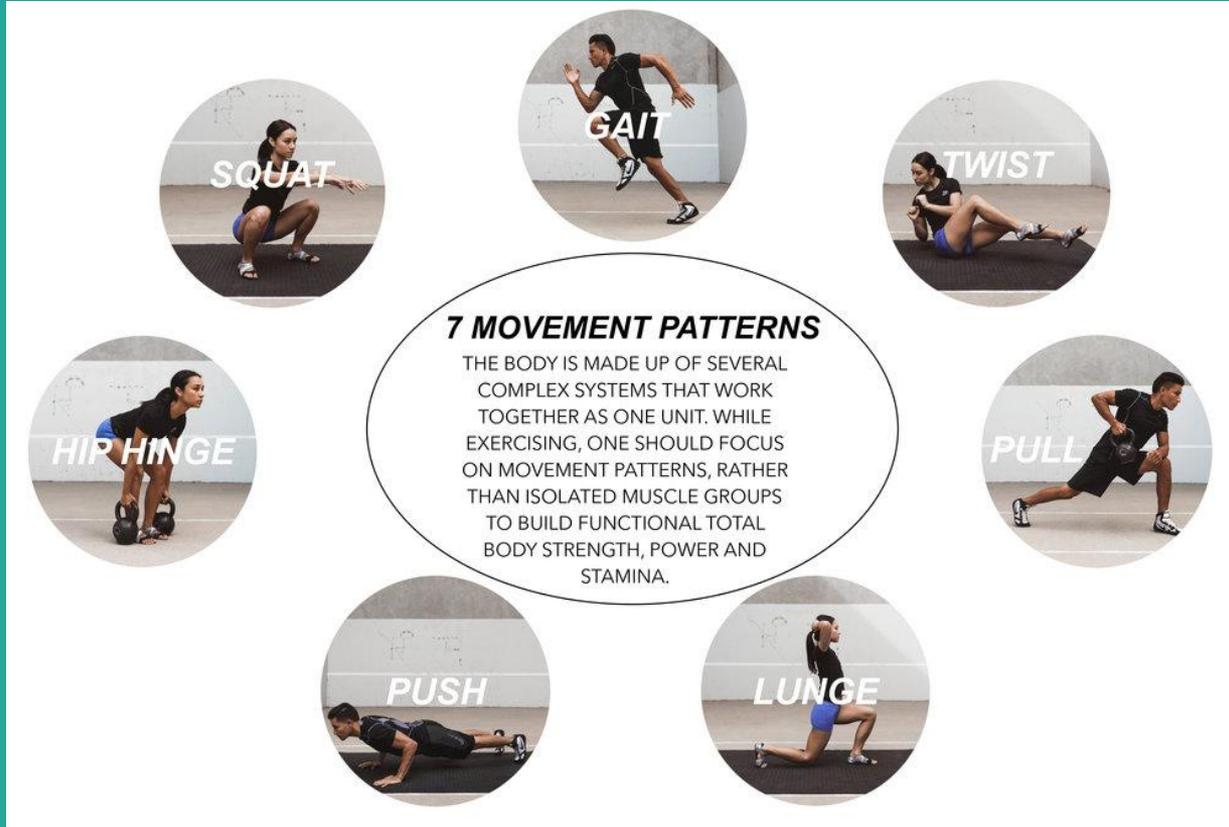


OL RELEASE



SUPINE HIP FLEXOR STRETCH

Functional Training: A workout with a purpose



Five Kinetic Chain Checkpoints



Ideal

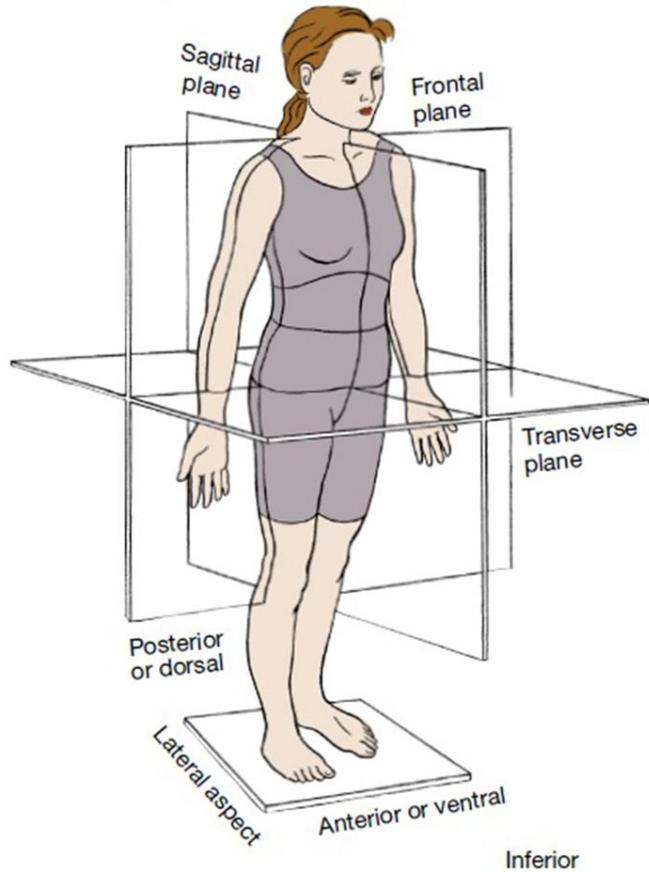
- Head
 - Neutral, center of ear in line with center of shoulder
- Shoulders
 - Neutral, center of shoulder in line with center of hip joint
- Hips
 - Neutral spine with abdominals drawn-in
- Knees
 - Straight ahead in line w/ 2nd and 3rd toes
- Feet
 - Straight ahead w/ neutral position at the ankle



Poor

Anatomical position and planes of motion

Superior



Core Training for Functional Efficiency

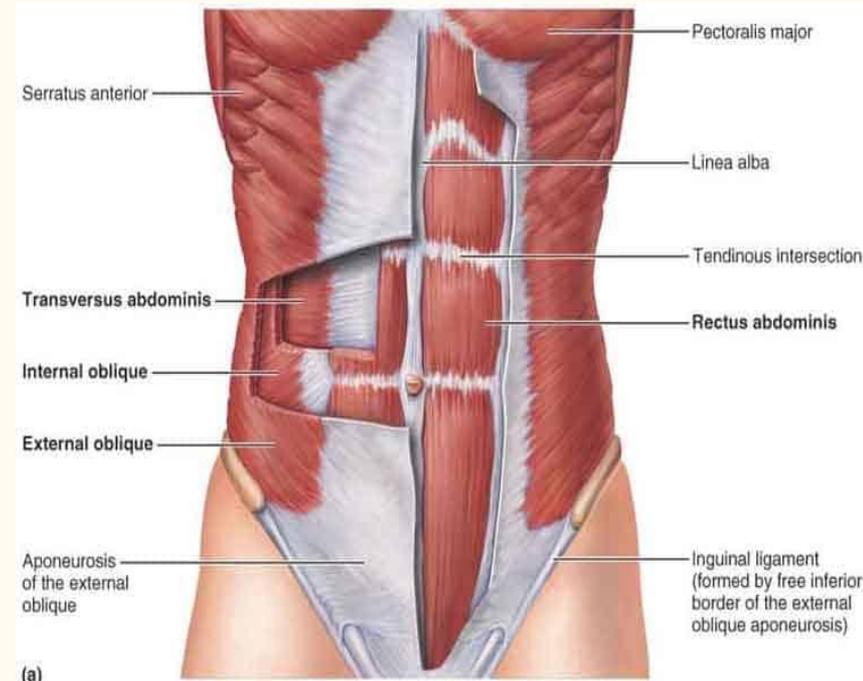
The Core is the group of muscles that move or stabilize the Lumbar Pelvic Hip Complex: Lumbar section of the spinal column, Pelvis, Hip joint and abdominal region

Weak core is a fundamental problem that results in inefficient movement that leads to predictable patterns of injury.

Provide a controlled yet stable training environment

Challenge all planes of movement

Cue Drawing-in Maneuver (TA) and Bracing (Bearing down) to help stabilize the pelvis during core exercises



Benefits of Balance training

- Reduces the rate of ankle sprains and lower extremity injuries.
- Balance exercises are frequently used for ACL injury prevention programs
- Improves lower body mechanics
- Balance training for 10 mins/day, 3x per week for 4 weeks appears to improve both static and dynamic balance ability.



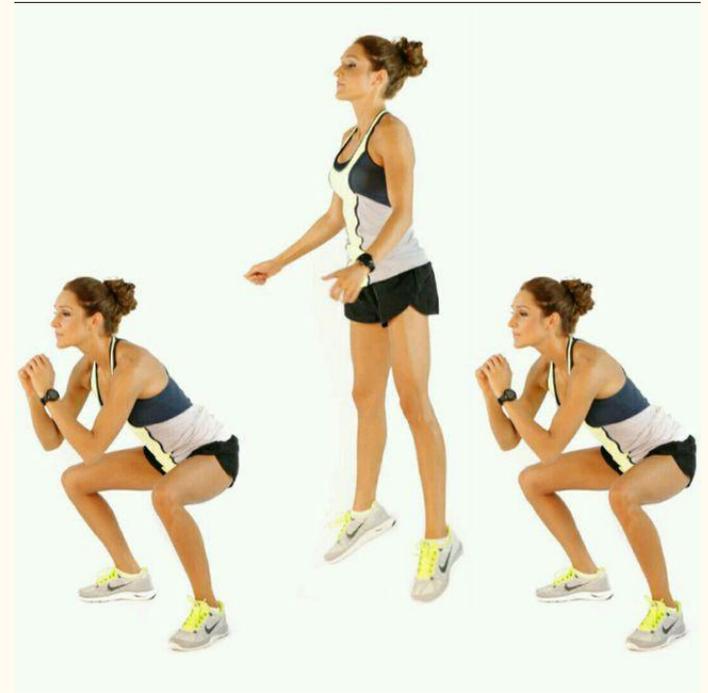
Plyometric Training for Injury Prevention

Exercises that generate quick, powerful movements involving an explosive concentric muscle contraction preceded by an eccentric muscle contraction.

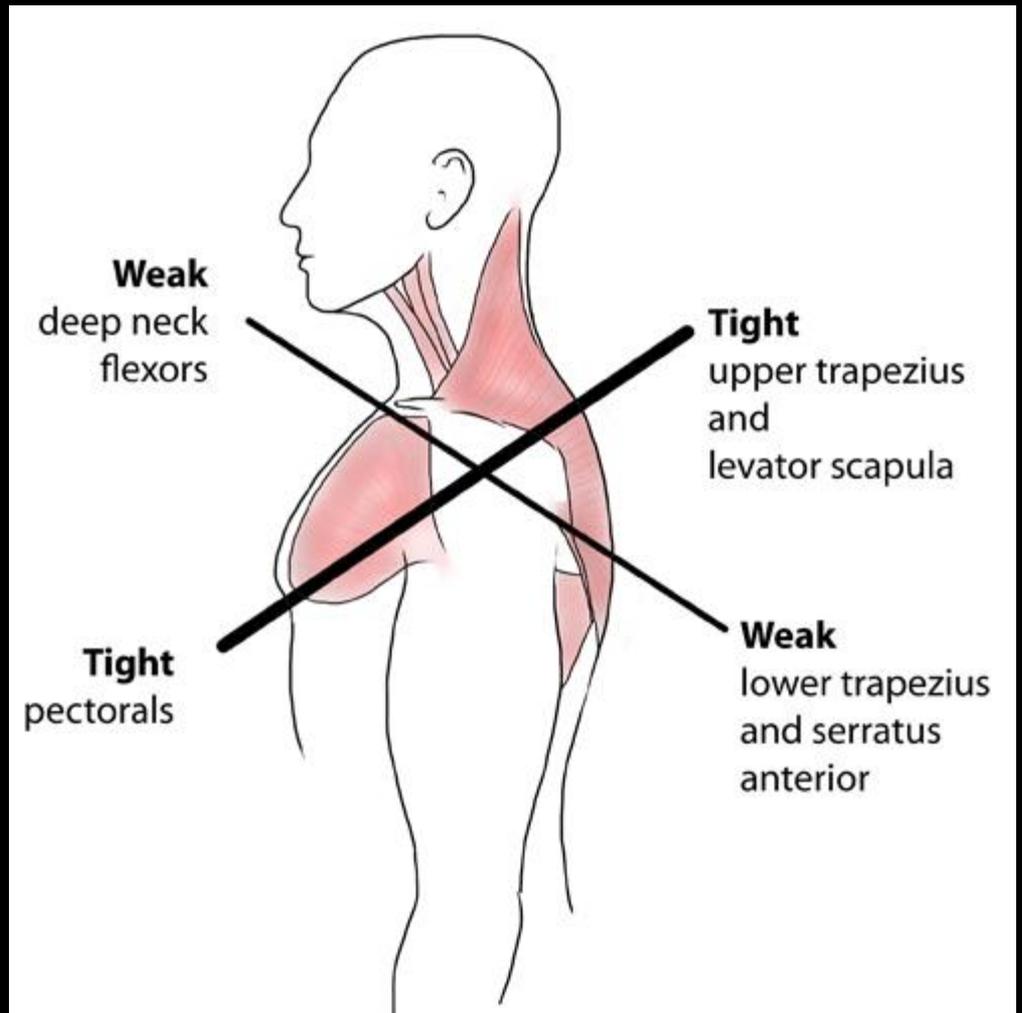
Best used for students who have obtained a proper base of body strength, flexibility, core strength and balance.

Prepares students for functional demands of cutting, change of direction and safer reaction to stimuli.

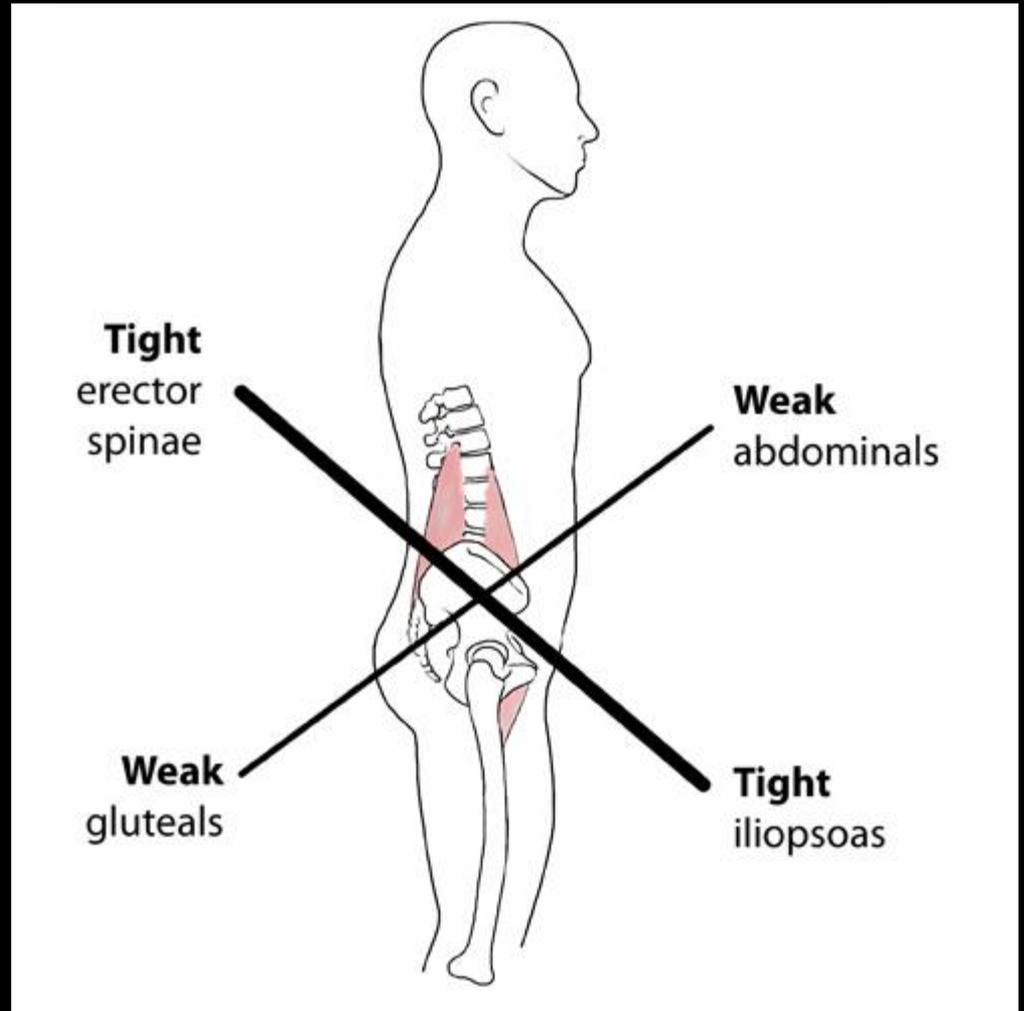
The body will only move as fast as the nervous system has been programmed to allow.



Upper cross Syndrome



Lower Cross Syndrome



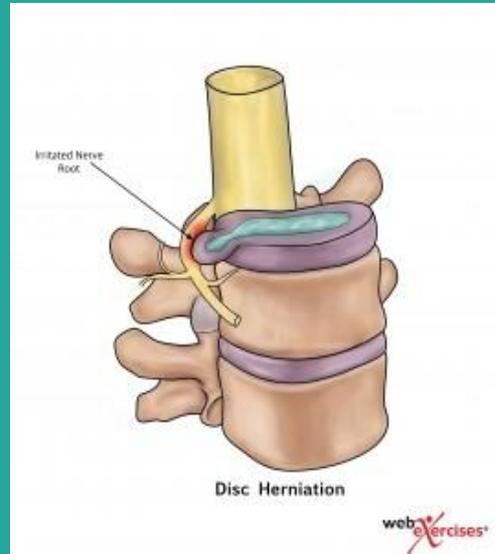
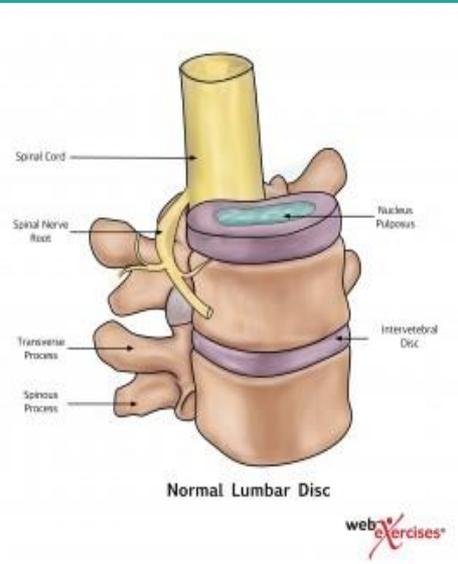
Common Injuries



- Nearly 80% of adults experience low-back pain at some point in their lives.
- Of the 80,000 to 100,000 ACL injuries occurring each year, 70-75% are related to a lacking of ability to control the body in motion.
- Overuse Injury
- Additionally, 21% of people will have shoulder pain.
- Previous injuries can put one at more risk for another injury

Possible reasons for low back pain

- Sport injuries
- Trauma causing disc herniation
- Weak core muscles
- Prolonged sitting
- Altered motor control and weakness in the deep spine stabilizer muscles
- Muscle imbalances due to pain that causes muscular compensation



Focus on stabilizing and strengthening deep spine and major muscles of and around the low back.

Bird Dog



Side Plank or Bridge



Stir the Pot

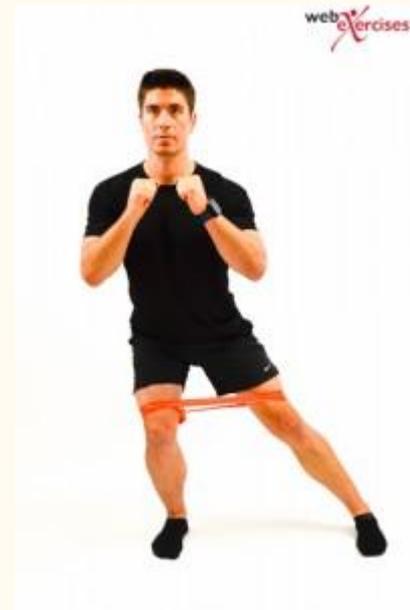


Focus on glute & hamstring activation and hip external rotation

Hip Bridge Abduction with band



Lateral Side steps with band

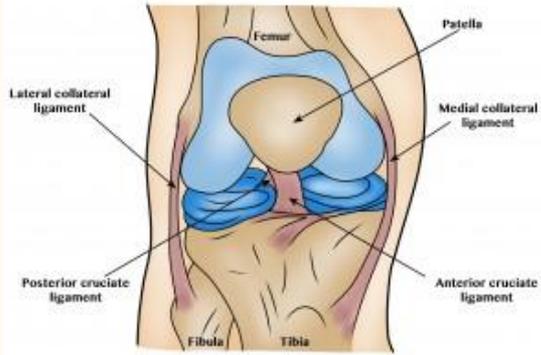


The Clamshell

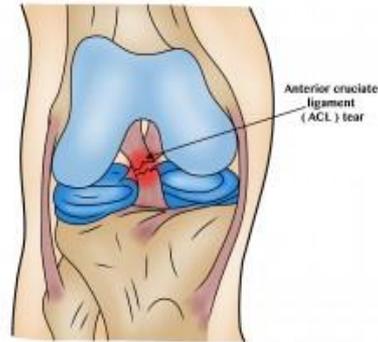


Stability Ball Leg Curl





Normal ACL

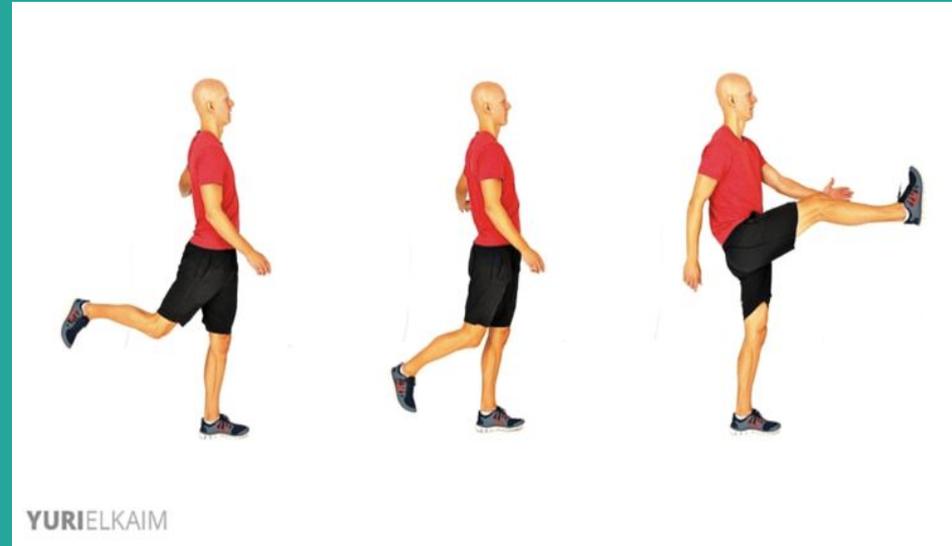


Torn ACL

Reasons for ACL tears

- Lack of core stability
- Muscular imbalance
- Increased muscle activation in quads with decreased activation of glutes
- Risk goes up 4-6x more for teen girls

**DYNAMIC STRETCHING: THE ACTIVE
EXTENSION OF A MUSCLE USING FORCE
PRODUCTION, AND MOMENTUM TO MOVE A
JOINT THROUGH THE FULL AVAILABLE RANGE
OF MOTION.**



**STATIC STRETCHING: THE PROCESS OF
PASSIVELY TAKING A MUSCLE TO THE
POINT OF TENSION AND HOLDING THE
STRETCH FOR MINIMUM OF 30S.**



*“Enlarge the place of your tent, and
let the curtains of your habitations
be stretched out; do not hold back;
lengthen your cords and strengthen
your stakes.”*

Isaiah 54:2

Sources

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Velocity Sports Performance, 2019
David Cruz, NASM 2021
NASM - Blog.nasm.org and 6th Edition
FMS- functionalmovement.com