



Movement to Muscle

SPORTS CONDITIONING FOR THE VOLLEYBALL
SHOULDER

Introduction

- ▶ My goal and purpose today....
 - ▶ Summarize/explain the correct muscle mechanics of a healthy volleyball shoulder.
 - ▶ Instruct/Demonstrate safe and effective exercise.
 - ▶ Explain to you which exercises and muscles you need to use sparingly or avoid all together.

The ideal sports training environment

- ▶ Preventative training strategies and sports conditioning should meld together as one entity
- ▶ How do we accomplish both?
 - 1.) *Make the exercises functional-*
They should somewhat resemble the movements made in volleyball.

The ideal sports training environment

2.) Conditioning sessions should be similar to sports practice

Fundamentals (passing, serving, blocking)

- ▶ Scrimmage (create various game like situations)
- ▶ You need to teach your volleyball players muscle fundamentals before you have them do exercises “that put it all together”

The ideal sports training environment

- ▶ 3.) Identify good muscles from the bad
 - ▶ Which muscles when overused can predispose our young people to injury
 - ▶ Which muscles foster healthy shoulder mechanics

What must a volleyball shoulder do?

- ▶ #1. The volleyball athlete must be able to get their hand above their head
- ▶ It's a triplanar function that could be summed up with one word- **Abduction -180 degrees**
 - ▶ Scapula
 - ▶ Clavicle
 - ▶ Arm

What must a volleyball shoulder do?

- ▶ #2 The volleyball shoulder must Rotate
 - ▶ It must externally rotate
 - ▶ to cock the arm back
 - ▶ It must internally rotate
 - ▶ to swing the arm forward

What key muscles facilitate healthy abduction and rotation?

- ▶ #1 Subscapularis (What's that?)
 - ▶ It is the most important shoulder internal rotator
 - ▶ It maintains the flexibility of the posterior rotator cuff and posterior shoulder capsule
 - ▶ Why is this so important? Prevents abnormal and excessive force via the anterior shoulder- specifically the biceps tendon and labrum



Subscapularis

What key muscles facilitate healthy abduction and rotation?

- ▶ #2 Triceps (Not biceps)

- ▶ It does more than straighten the elbow

- ▶ Helps extend the shoulder

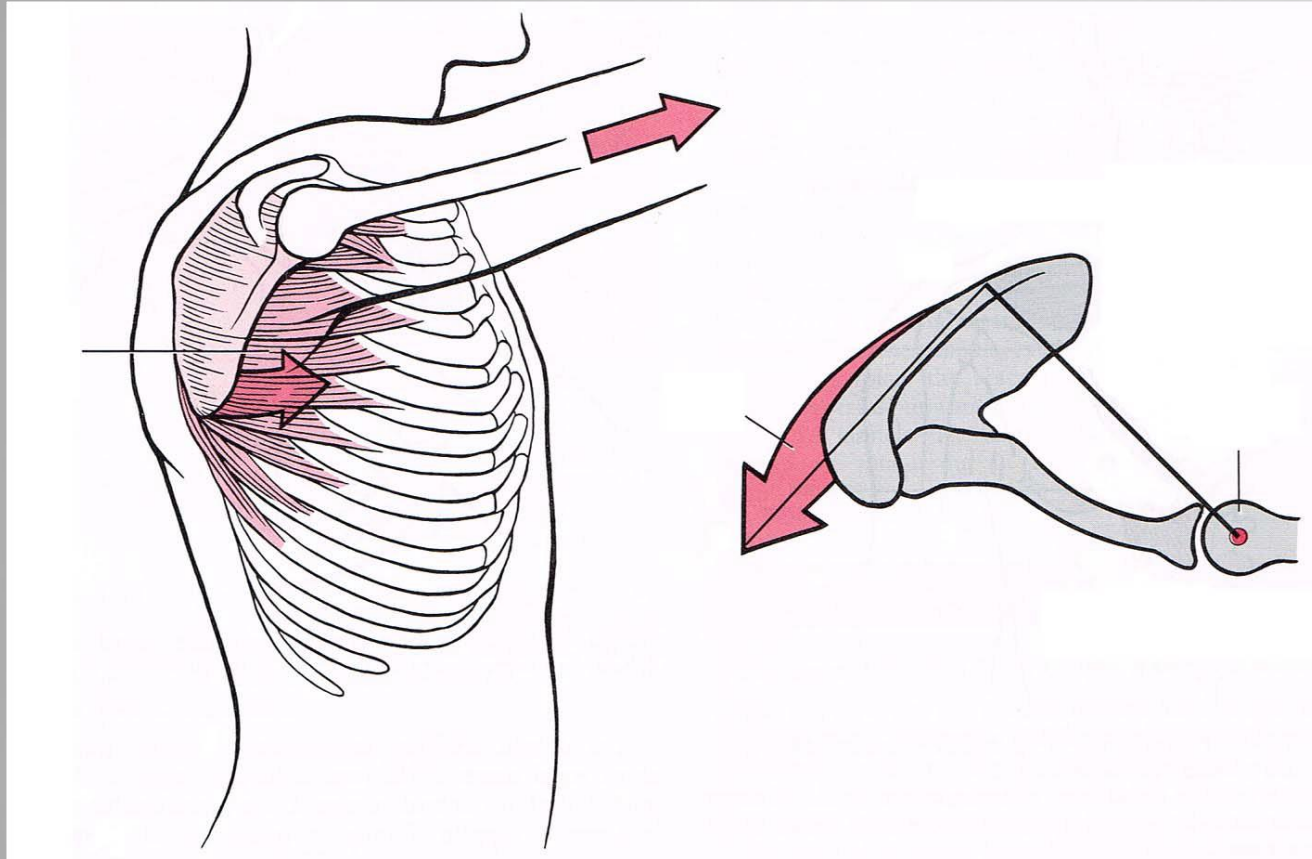
- ▶ It has a big attachment to the shoulder blade (helps oppose anterior chest wall and biceps)

What key muscles facilitate healthy abduction and rotation?

- ▶ #3 Posterior Deltoid
 - ▶ It's the most important external rotator
 - ▶ It's like the glut max of the shoulder complex -the big gun
 - ▶ It cocks the shoulder back- concentric
 - ▶ It helps slow internal rotation -eccentric

What key muscles facilitate healthy abduction and rotation?

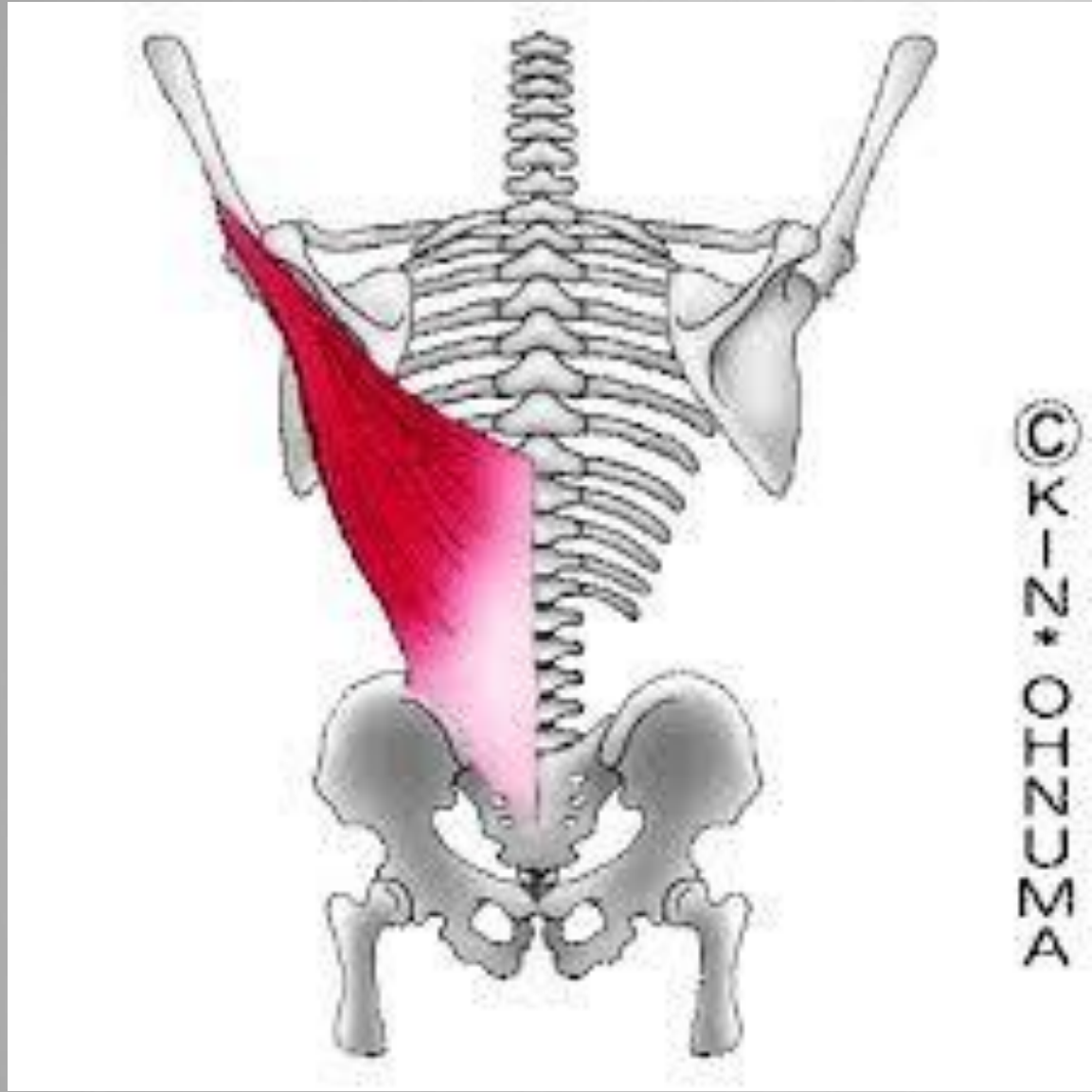
- ▶ #4 Serratus anterior (What's that?)
 - ▶ Helps to push the shoulder blade up when they abduct
 - ▶ **Should be** very active during push-ups
 - ▶ Known as the “boxer muscle” but in volleyball this has major implications for blocking
 - ▶ it improves an athletes ability to reach over and seal the net



Serratus anterior

What are the muscles that can rob the shoulder of healthy ROM?

- ▶ #1 Latissimus- The number one culprit
 - ▶ Latissimus is a huge powerful adductor-it pulls the arm down to the body or the body up to the arm
 - ▶ This action describes two of the trendiest exercises we are all doing today; pulldowns and pull ups
 - ▶ This is exactly the opposite of what a volleyball shoulder must do



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Latissimus dorsi

What are the muscles that can rob the shoulder of healthy ROM?

- ▶ **#1 Latissimus- it can hog all the rotation responsibility**
 - ▶ Latissimus is also a powerful internal rotator of the shoulder.
 - ▶ How does it do this? The lat insertion is on the front of the arm- lower than subscapularis.
 - ▶ The Problem- if the lat gets too tight it can actually translate/pull the ball of the shoulder joint forward.

What are the muscles that can rob the shoulder of healthy ROM?

▶ #1 Latissimus- Can start a domino effect

- ▶ The shoulder joint loses passive range of motion
- ▶ This changes the position and mechanical advantage of the entire shoulder girdle.
- ▶ Most effected is subscapularis and its ability to internally rotate the shoulder and keep the posterior shoulder flexible.
- ▶ Without normal IR the external rotators can not function correctly to slow down the attack arm .
- ▶ The biceps tendon attempts to do perform this function.
- ▶ This frequently evolves into bicipital tendonitis which can unfortunately lead to a labrum tear (SLAP lesion)

What are the muscles that can rob the shoulder of healthy ROM?

- ▶ #2 Pectoralis major (the anterior chest wall)
 - ▶ Together pec major and latissimus are the largest adductor/extensor muscles
 - ▶ Pec major has a large attachment to the clavicle
 - ▶ It can cause a rounded shoulder posture
 - ▶ Rounded shoulders feed the latissimus overuse problem
 - ▶ You must develop strength in the opposing muscles before you start full body lifts

Exercises to use sparingly or avoid

▶ Use sparingly

- ▶ Push-ups/ Burpees
- ▶ Why? Many young athletes are compensating- they do not have the strength in the triceps, serratus, and posterior deltoid

▶ Avoid all together

- ▶ Pull-ups/ Pull-downs
- ▶ Why?
 - ▶ It is non-functional for the volleyball shoulder
 - ▶ It heavily recruits muscles that can rob ROM- lats and biceps

What are the “fundamental” exercises for volleyball shoulders

- ▶ 1.) Subscapularis - Pool noodle ball drops with spin ins
- ▶ 2.) Triceps - Back lying dumbbell press
- ▶ 3.) Posterior deltoid - Pool noodle spin backs –resisted
- ▶ 4.) Serratus anterior
 - ▶ Rocker board
 - ▶ Back lying mini punches

What are “put it together” exercises for the volleyball shoulder?

- ▶ 1.) Standing IR & ER – Resisted
 - ▶ Perform at 30 degrees and 90 degrees of abduction
 - ▶ Can be done with a partner
- ▶ 2.) Dumbbell Shoulder Press
 - ▶ Alternate arms so the abs engage
 - ▶ Use low weight and high reps

What are “put it together” exercises for the volleyball shoulder?

- ▶ 3.) Modified Plank
 - ▶ Hands On (Not forearms)
 - ▶ Dip Option
 - ▶ Walk Up Option
- ▶ 4.) Standing D2 Flexion –Resisted
 - ▶ High reps with light resistance
 - ▶ Can be done with a partner

Does your existing program need modification?

Make a list of every single exercise your volleyball players are doing and answer the following questions;

- ▶ What muscle or muscles am I targeting with this exercise?
- ▶ Is this exercise functional for the sport of volleyball?
- ▶ Do I have any rotation and abduction exercises in my program?

Closing Remarks

- ▶ References; Neumann, Donald A: Kinesiology of the Musculoskeletal System. Mosby, 2002.
- ▶ The “Take Home Message”
 - ▶ You are coaching immature muscle-skeletal systems
 - ▶ Be careful of the extreme workout-boot camp mentality
 - ▶ Teach muscle fundamentals first and gradually build a solid foundation