



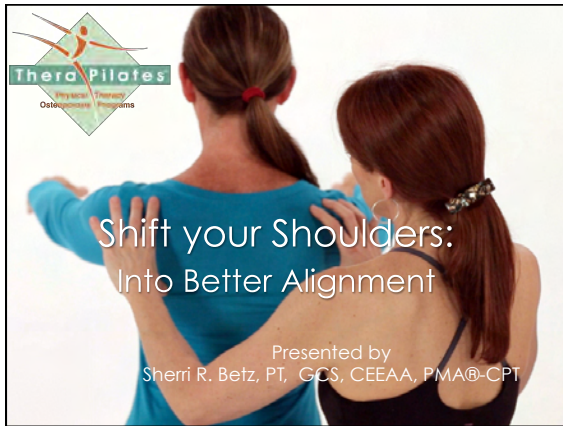
# Pilates for Shoulder Pain

---

Dr. Sherri Betz

PT, DPT, GCS, CEEAA, PMA-CPT

[www.therapilates.com](http://www.therapilates.com)



**Objectives**

- Discover the anatomy of the shoulder girdle
- Review faulty and poor biomechanics of the shoulder
- Analyze postural alignment of yourself and a partner
- Practice self-correction alignment techniques to help with pain reduction
- Learn exercises to improve awareness, mobility, and strength of the shoulder

2

**The Inventor**

“Good posture can be successfully acquired only when the entire mechanism of the body is under perfect control. Graceful carriage follows as a matter of course.”

*Joseph Pilates  
Return to Life, 1945*

3

**A lot of bones to control!**

- Jaw (mandible)
- Hyoid
- Clavicle
- Scapula
- Humerus
- Cervical Spine
- Thoracic Spine

4

**18 Muscles of the Shoulder**

Scapulo-thoracic Muscles

- Rhomboid Major & Minor
- Trapezius
- Latissimus Dorsi (sometimes)
- Pectoralis Minor
- Levator Scapulae
- Serratus Anterior

5

**More muscles...**

Scapulo-humeral Muscles


- Supraspinatus
- Infraspinatus
- Subscapularis
- Teres Minor
- Teres Major
- Deltoid
- Coracobrachialis
- Biceps (Long head)
- Triceps (Long head)

6

Still more muscles...

Humero-thoracic Muscles

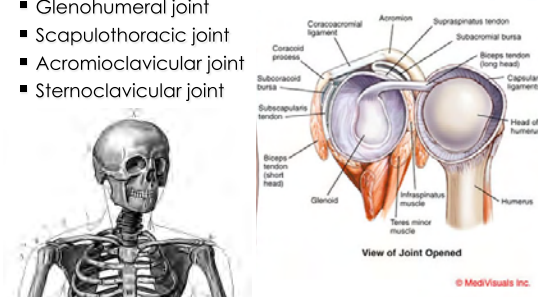
- Latissimus Dorsi
- Pectoralis Major



7

Shoulder Joints

- Glenohumeral joint
- Scapulothoracic joint
- Acromioclavicular joint
- Sternoclavicular joint




© MediVisuals Inc.

Rotator Cuff  
(Smith LK, Weiss EL, Lehmkuhl DL 2007)

▪ **Rotator Cuff**

- Job is to keep the humeral head at least 1 cm from the center of the glenoid fossa at all times



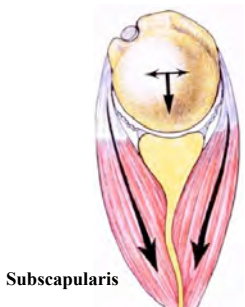
Back of shoulder blade

Front of shoulder blade

9

Rotator Cuff Function

“Shoulder Sandwich”



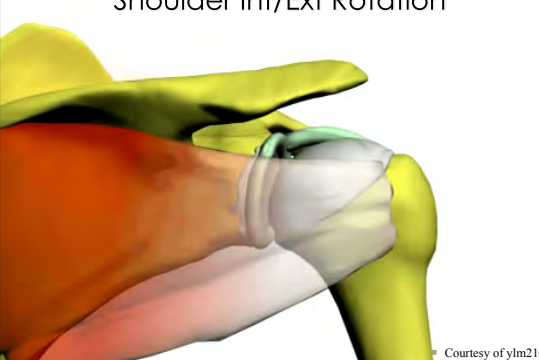
Subscapularis

Teres Minor

Photo courtesy of the Boston Shoulder Institute

10

Shoulder Int/Ext Rotation



Courtesy of ylm2103 on YouTube

<http://www.youtube.com/watch?v=UfBLQotUcg>

11

Supraspinatus Action



Courtesy of ylm2103 on YouTube

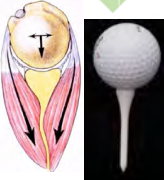
<http://www.youtube.com/watch?v=uskZlqThIb0>

12

### Shoulder Girdle

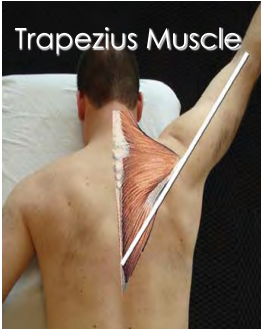
**Shoulder Girdle Awareness:**

- Function of the rotator cuff is to “sandwich” the humeral head in the socket which is very shallow like a “golf ball on a tee”
- Job of rotator cuff is to keep head in the socket. Most of us have the humeral head too far forward in the socket, disrupting proper joint mechanics. Wilk, Arrigo, Andrews *JOSPT* 2009



13

### Trapezius Muscle




- Good Alignment with thumb up and shoulder blade down

■ Reinold, Escamila, Wilk 2009  
■ Blackburn, et al 1990

14

### Biceps Long Head

- Biceps tendon slides in the bicipital groove with elbow flexion and shoulder movement up to 6 cm.
- Great forces across the biceps occur with daily overhead activities.
- Throwing sports place great stress on its attachment at the superior labrum.

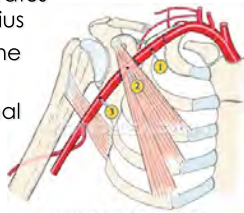


■ Rodosky and Harner 1994 Photo courtesy of Boston Shoulder Institute

15

### Short Pectoralis Minor

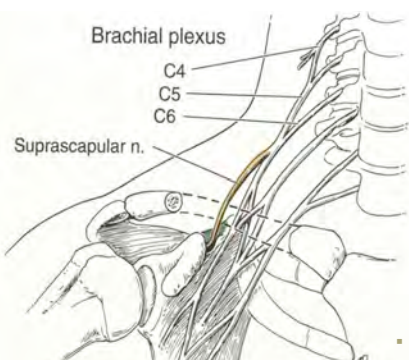
- Causes forward tilt of scapula
- Associated with weak serratus anterior and lower trapezius
- Changes the posture of the humerus in the glenoid
- Results in shortened internal rotators and weakened external rotators



Borstad 2008 Kisner and Colby 2007

16

### Brachial Plexus

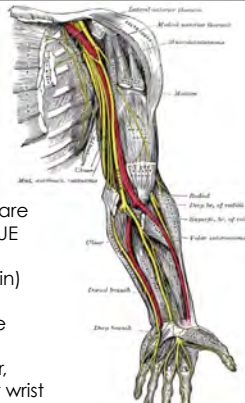


■ Courtesy of Boston Shoulder Institute

17

### Brachial Plexus


- Neurodynamics are very important in UE radiculopathies (radiating arm pain)
- There is often entrapment at the cervical spine, scalenes, shoulder, elbow, forearm or wrist



18

### Hypermobility vs. Instability

(Norkin CC, White DJ 2009)




**Hypermobility**

- Hypermobile: excessive ROM with dynamic control
- Instability: excessive mobility with poor dynamic control

■ Photo Courtesy of Boston Shoulder Institute

19

### Laxity with Stability






- A pitcher has increased laxity that allows him to throw a fastball
- Normal ligaments and muscles prevent instability.

■ Photo Courtesy of Boston Shoulder Institute

20

### Shoulder Girdle

Experience Shoulder Girdle Awareness!

21

### Thoracic Mobility/Shoulder Posterior Glides



**Foam Roller: Spine Aligned on Top:**

1. Mount
2. Supine Snow Angels
3. Supine Core Control Work



**Spine Perpendicular to Roller:**

1. Thoracic Spine Extension
2. Rolling




Copyright© 2012 TheraPilates®

22

### Hanging Trapeze Table






Hanging for Shoulder Impingement/Pain

Kirsch 2012

23

### Pilates in the Rehab Environment Trapeze Table

(Polestar Pilates Manual, SR4)


Upper Quarter Neural Mobilization:

- Combining Supine Upper Arms Scapular Series: Protraction and Retraction with neural glides to treat cervical spine and shoulder pathologies

Copyright © 2013 TheraPilates

24

### Shoulder Control and Thoracic Mobility



**Theraplans for Osteoporosis Manual**

**HAT WORK**  
Head Opening  
(Gentle Thoracic Mobilization)

**MOVEMENT/BREATHING**

**WATCH FOR**

25

### Fletcher Towelwork™



- Preparation (modified taut towel pulls with elbows bent to 90 degrees and palms up)
- Taut Towel Pulls
- Overhead Work
- Behind the Back
- Use Towel as assist with Swan or Swimming
- Combine Towel Work with Balance Exercises


\*With Osteoporosis avoid Deep Sidebends, Deep Rotation and Forward Bends





From Fletcher Pilates Program of Study 26

### Pilates Apparatus: Fletcher Towelwork™

(Ron Fletcher Program of Study Manuals)



- Facilitates teres minor and infraspinatus to bring humeral head posteriorly in the glenoid fossa
- Inhibits upper trapezius with shoulder flexion overhead

Copyright © 2013 TheraPilates

27

### Towelwork™




Fletcher Taut Towel Pulls at:

- Hips
- Collarbones
- Overhead





Copyright © 2019 TheraPilates® 28

### Scapular Stability




Important to emphasize weightbearing for rehab of shoulder injuries and facilitation of the rotator cuff.

Increase hold time to 1 min. before progressing to an actual push up with bent elbows.


Copyright © 2019 TheraPilates® 29

### Advanced Shoulder Stability



**Sidelift Exercise:**


Lying on side, up on elbow, palm down, pretend to “stand up straight against a wall” with head, midback, sacrum/buttocks, calves and heels against the wall. Comfortable head & neck position. Attempt to side lift...if unable, bend bottom knee, or stagger feet one in front of the other. Use top hand to assist if necessary.



Copyright © 2019 TheraPilates® 30

### Concepts to Remember: Shoulder Function



- Proper organization of the head, neck and shoulders improves access to our senses: vision, hearing and touch
- Congruency: maintaining optimal surface contact at the articulation between bony surfaces of the joint.
- The function of the shoulder complex is to maintain the head of the humerus in the center of the socket (glenoid)
- Balance of muscle length and strength around the joint
- Hypermobility vs Instability – Need awareness and control
- Scapula should be able to be stable or mobile at any time
- Thoracic mobility is very important for overhead work or throwing athletes
- Shoulder pain is often referred from the cervical spine



31

### Pilates in the Rehab Environment

- Apparatus assists patients with movement
- Joseph Pilates ingeniously designed equipment to help people with movement






32

### Pilates Apparatus: Trapeze Table

(PMA Pilates Certification Exam Study Guide, 2005, 2014)

“Breathing” Exercise:  
Latissimus dorsi and gluteus maximus are facilitated simultaneously to provide traction forces to lengthen the spine. Great exercise for disc related low back pain.

33

### Pilates Apparatus: Wunda Chair

(PMA Pilates Certification Exam Study Guide, 2005, 2014)

Springs from below assist arms with Push Ups, scapular retraction or spine extension






34

### Pilates Apparatus: Wunda Chair

(PMA Pilates Certification Exam Study Guide, 2005, 2014)

Springs from below assist with spine extension






35

### Pilates Apparatus: Ladder Barrel


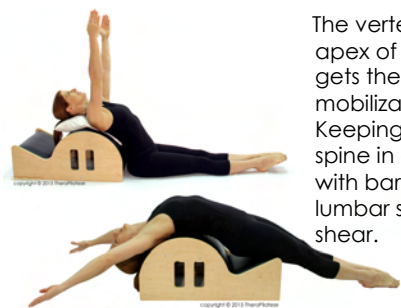
(PMA Pilates Certification Exam Study Guide, 2005, 2014)

Ladder Barrel and Spine Corrector were originally a beer barrel cut in half designed to mobilize the spine in extension!

36



**Pilates Apparatus: Spine Corrector**  
(PMA Pilates Certification Exam Study Guide, 2005, 2014)


The vertebra at the apex of the arc gets the most mobilization. Keeping lumbar spine in contact with barrel protects lumbar spine from shear.

37

**Pilates Apparatus: Reformer**  
(PMA Pilates Certification Exam Study Guide, 2005, 2014)





Springs assist with shoulder flexion/abduction or hip flexion. Often a favorite of patients and students of Pilates!




38

**Pilates Apparatus: Ped-o-Pul**  
(PMA Pilates Certification Exam Study Guide, 2005, 2014)





- Pole gives feedback to spine alignment.
- Springs assist with arm or leg movement
- Springs unload body weight especially for knee pain



39

**Pilates Apparatus Trapeze Table**  
(Polestar Pilates Manual, SR4)

“Quadruped Hip Extension” exercise that promotes core control, scapular and pelvic stability while performing hip extension.

40

**Thank you!**




TheraPilates Physical Therapy Clinic  
920-A 41st Avenue Santa Cruz, CA 95062  
[www.therapilates.com](http://www.therapilates.com) 831-359-5184 [sherri@therapilates.com](mailto:sherri@therapilates.com)

41