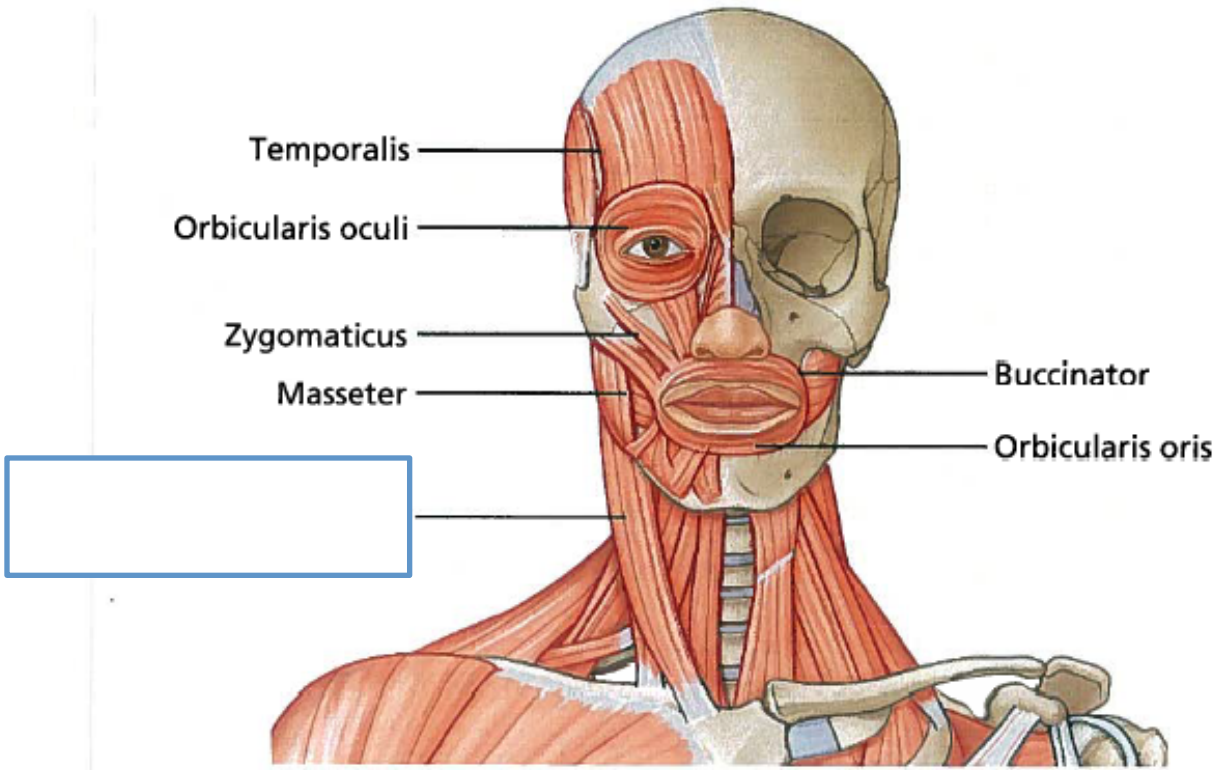
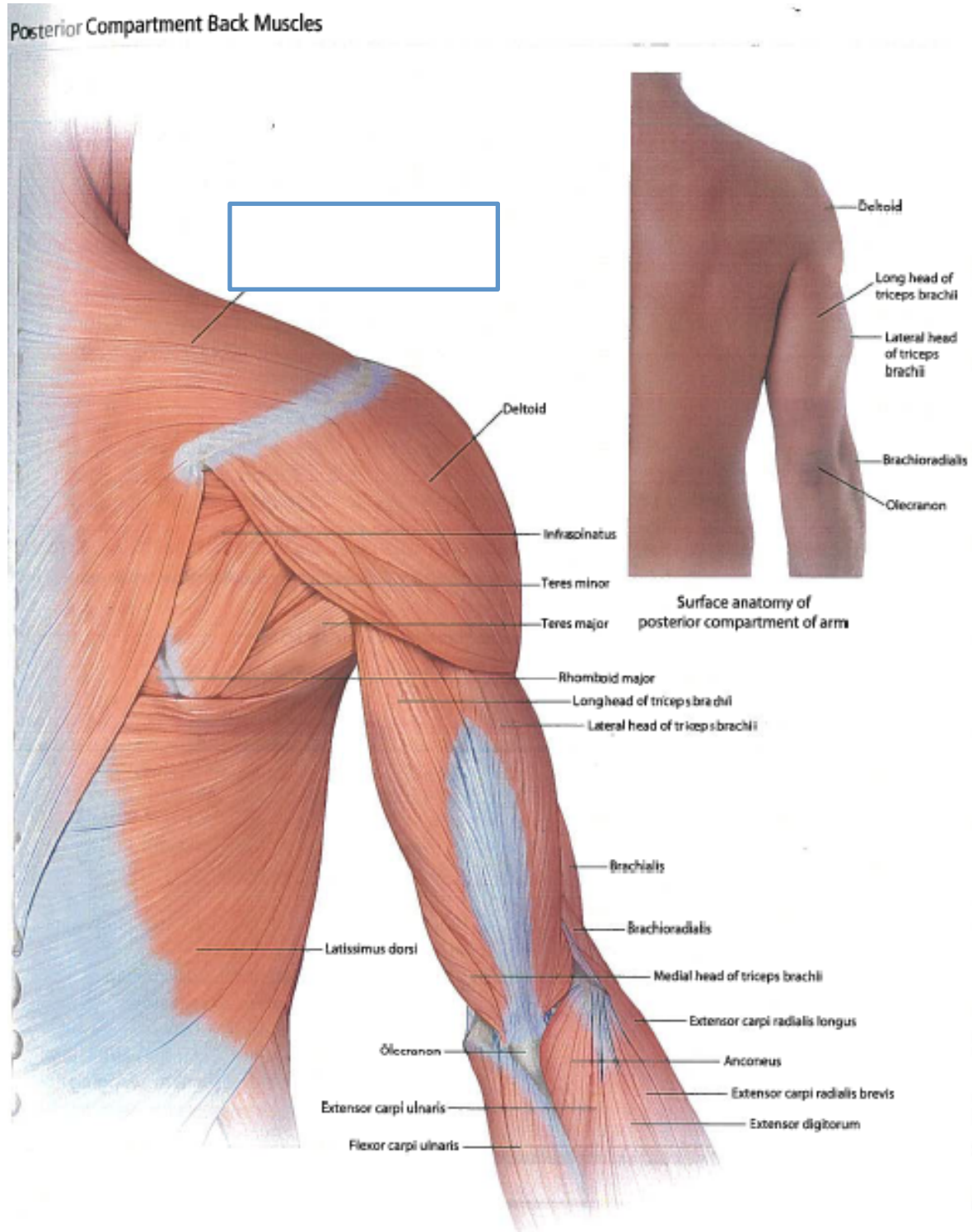


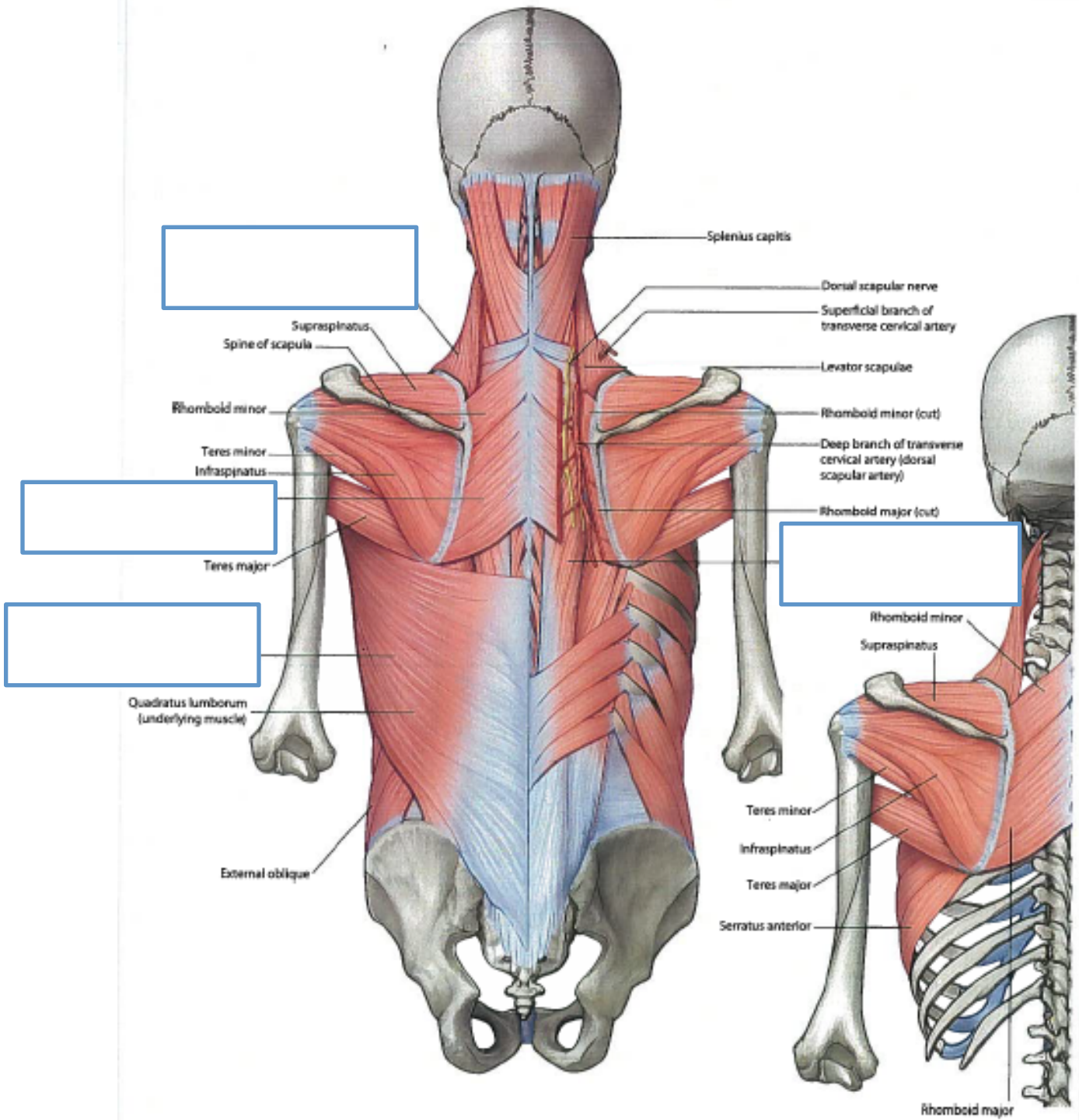
4.5 Neck and Back Muscles

Muscles of the Head





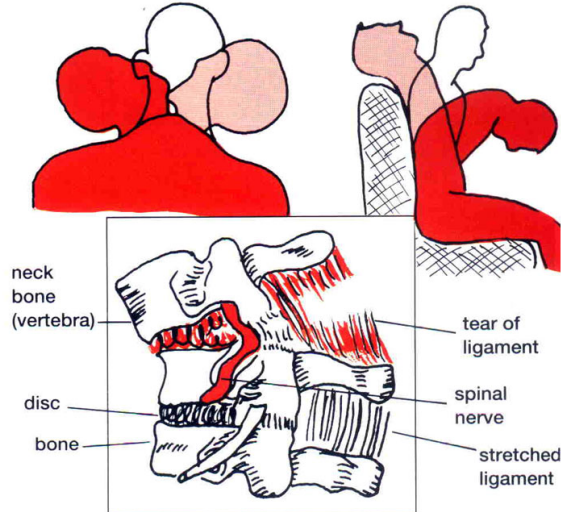
Superficial Musculature



Common Neck and Back Injuries

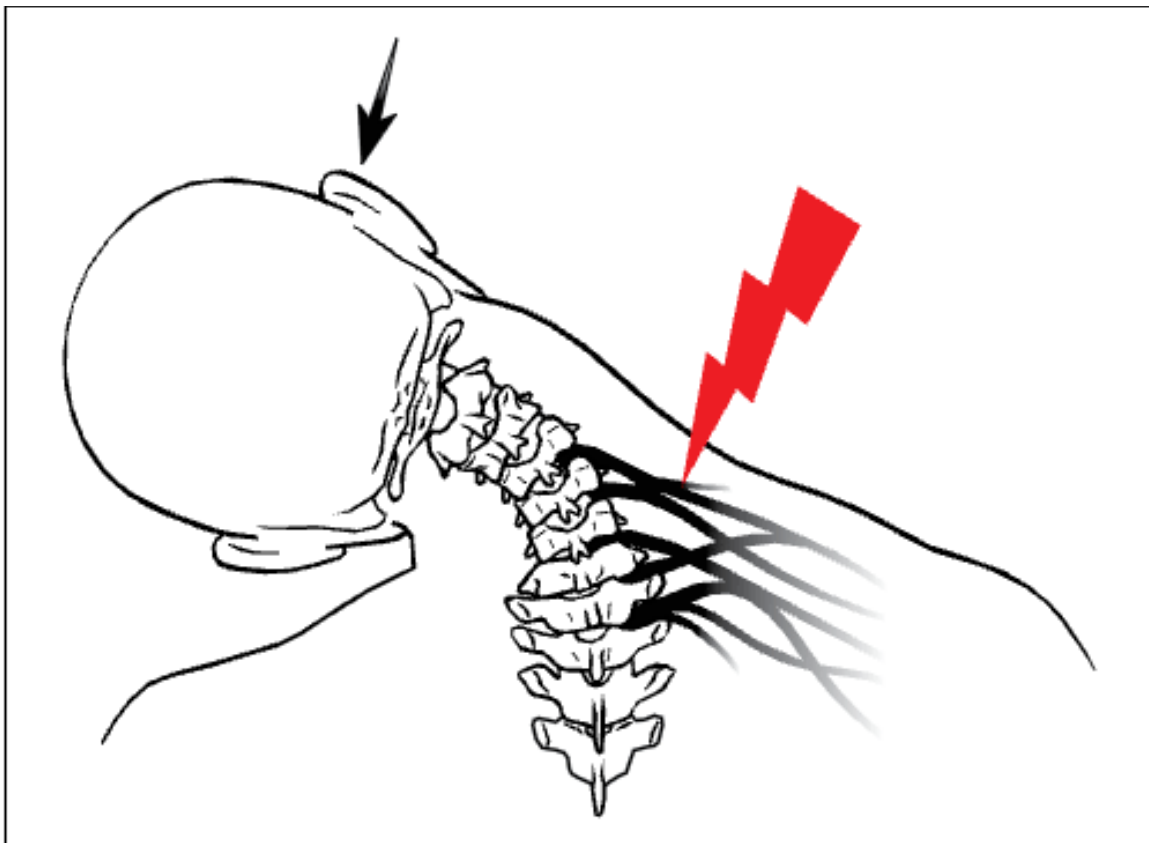
1) Whiplash Associated Disorders

Sprained ligaments in the neck after the head has been ‘whipped’ back and forth.



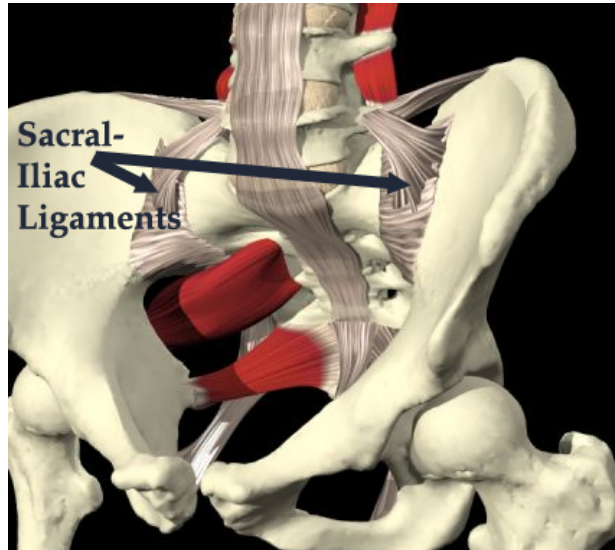
2) Stinger

If nerves from the neck to the arm are stretched, it can cause severe pain.



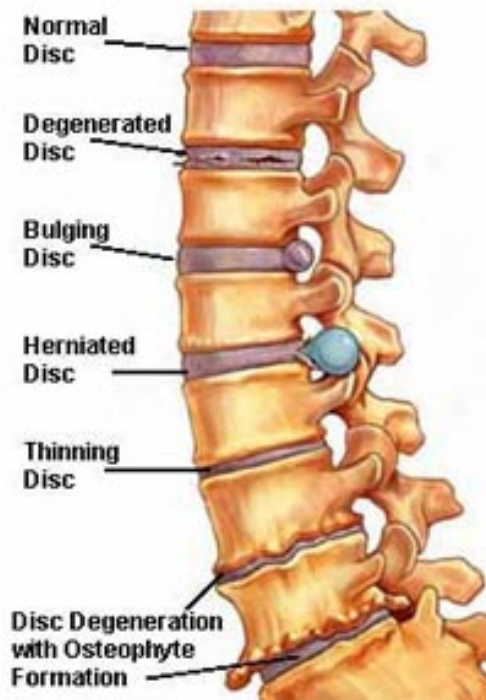
3) Back Strain

There are many ligaments that support your spinal column and these can be sprained. See examples in the picture below.



4) Damaged Disc

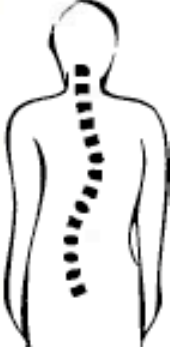


In between each vertebra in your back is a disc that allows movement to occur. These discs can become damaged, slip out of place, or become herniated (swollen).



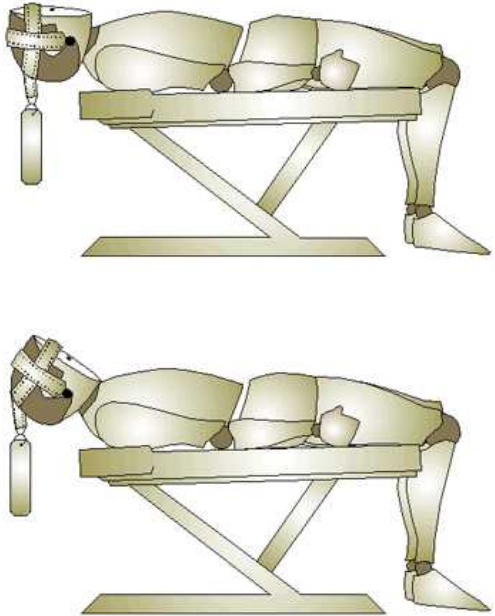

When in proper alignment, the spinal curves coupled with the discs, ligaments, and muscles produce a flexible and highly efficient weight-bearing arrangement.

Abnormal Curves of the Spine

Abnormal curves of the spine may develop due to congenital factors (those present at birth), poor posture, poor muscle tone and muscle imbalance.

Condition	Description	Diagram
		
		
		

Neck Muscles

Exercise	Picture	Variations/Notes
		
		

Back Muscles

Exercise	Description	Variations/Notes

Contra-indicated Exercises

Full Neck Rolls

Purpose: Warm-up or stretch the neck.

Potential Hazards: This exercise causes both hyperextension and hyperflexion. This increases the risk of neck strain, neck sprain, grinding cervical vertebrae, pinching or compressing vessels, nerves, discs and other soft tissues in the neck area.

Alternatives: Controlled lateral flexion of the neck (half circle.)



DIAGRAM 11.4



DIAGRAM 11.5

Straight Leg Toe Touches or Unsupported Spinal Flexion.

Purpose: Stretch hamstrings, lumbar area, calves.

Potential Hazards: Unsupported flexion leading to too much pressure on the discs between the vertebrae (intervertebral discs), lower-back strain (within the discs and soft tissues), knee strain and blood pressure elevation.

Alternatives: Sitting or one-legged hamstring stretches. The intervertebral discs are fibrocartilaginous cushions serving as the spine's shock absorbing system, which protect the vertebrae, brain and other structures (i.e. nerves). The discs allow some vertebral motion: extension and flexion. Individual disc movement is very limited, however considerable motion is possible when several discs combine forces.

Plough

Purpose: Stretch the back, shoulder and neck.

Potential Hazards: Neck strain through increased stress on discs and nerves.

Alternatives: Lie supine on mat and bring knees into chest or to chin in a controlled contraction.



DIAGRAM 11.10



DIAGRAM 11.15

Behind the Neck Pull Downs

Purpose: Strengthen arms and back.

Potential Hazards: Shoulder and neck strain. The shoulder joint is in a weak position susceptible to dislocation when abducted and externally rotated. Impingement problems occur when participating in physical activities that require excessive overhead motion (humeral abduction coupled with internal rotation). Neck strain can be caused by hyperflexion that occurs during this exercise.



Alternatives: Lat pull downs to the upper chest (in front of head).

Teacher Key

Page 1) Sternocleidomastoid

Page 2) Trapezius

Page 3) Lavator Scapula, Rhomboid, Latissimus Dorsi, Erector Spinae

Abnormal Curves		
Scoliosis	A lateral curvature is most commonly found in the thoracic region. Genetics, poor posture and muscle imbalance can contribute to this condition.	
Kyphosis (hunchback)	An abnormal thoracic curvature, most often the result of osteoporosis, that is also evident in males who have over-developed the muscles of the chest.	
Lordosis (swayback)	Excessive lumbar curve that is often the result of excessive weight gain in the abdominal region, bad posture or weak abdominal muscles.	