

SCAPULAR MECHANICS & REACHES

Scapular Mechanics • Reaches • Expansion • Compression

ANGLE	EXPANSION	COMPRESSION
Where is the arm?	Where can the ribcage move?	Where is the system closing?

FIELD QUESTION: If I change the sternum, the reach angle, the body position, or the hand - what space becomes available?

POSITION → ANGLE → SCAPULA → RIBCAGE → BREATHE → RETEST

Educational material. Not medical diagnosis or treatment.

01 / THE MAP

Scapular mechanics are easiest to learn when you stop treating the shoulder blade as an isolated bone. The scapula rides the ribcage. Reaching changes the scapula, and that changes where the ribcage has room to expand or compress.

INHALATION	EXHALATION
Expansion External rotation Abduction	Compression Internal rotation Adduction

MWK STUDY ORDER

1. Sternum position → 2. Reach angle → 3. Body position → 4. Hand position

Do not memorize the arm angle by itself. Ask what the whole thorax is doing.

COLOR LANGUAGE	
BLUE-VIOLET	Headings / primary mechanics
PURPLE	Angles / degree ranges
GREEN	Expansion / scapular ER emphasis
ORANGE	Compression / concentric orientation
RED	Humeral rotation / anatomy emphasis
YELLOW	Scapular upward rotation

02 / SCAPULAR + HUMERAL MECHANICS

DOWNWARD ROTATION • Levator scapulae • Rhomboids • Pec minor • Long head triceps UPWARD ROTATION • Upper trapezius • Lower trapezius • Serratus anterior POSTERIOR TIPPING + DEPRESSION • Lower trapezius • Latissimus dorsi	SCAPULAR EXTERNAL ROTATION • Mid trapezius • Rhomboids • Serratus anterior • Subscapularis SCAPULAR INTERNAL ROTATION • Infraspinatus • Teres minor • Supraspinatus ANTERIOR TIPPING + ELEVATION • Upper trapezius • Levator scapulae • Rhomboids
HUMERAL EXTERNAL ROTATION Infraspinatus Teres minor Supraspinatus Posterior deltoid	HUMERAL INTERNAL ROTATION Subscapularis Lats Teres major Anterior deltoid

KEY VISUAL

Scapular ER: the medial border moves closer to the ribcage.

Scapular IR: the medial border moves farther away from the ribcage.

03 / THE REACH LADDER

This is the page to memorize

0-60°	Relative IR Relative downward rotation	External rotation	Posterior lower Posterior upper
60-120°	External rotation Upward rotation	External rotation	Anterior upper / pump handle Posterior lower
120-180°	External rotation Upward rotation Posterior tipping	External rotation	Anterior lower / below ISA Anterior upper Posterior lower

0-60° / LOW REACH

60-120° / MID REACH

Think: FRONT-UPPER. As the musculature around the scapula and posterior ribcage becomes more concentrically oriented, anterior expansion becomes more available - especially the pump-handle region.

120-180° / HIGH REACH

Think: FRONT-LOWER. Upward rotation continues, posterior tipping helps the scapula remain congruent with the ribcage, and anterior expansion is emphasized at the bucket-handle / lower anterior rib region.

04 / STEERING THE RIBCAGE

UNILATERAL REACH

A single-arm reach turns the sternum toward the opposite side
expansion opportunity and a contralateral posterior expansion

hat creates an ipsilateral anterior

REACH RIGHT	RIGHT anterior + LEFT posterior expansion
REACH LEFT	LEFT anterior + RIGHT posterior expansion

STERNUM

STERNUM UP

More anterior expansion opportunity.

STERNUM DOWN

More posterior expansion opportunity.

BODY POSITION

SUPINE	Posterior + lateral expansion Anterior compression
PRONE	Anterior + lateral expansion Posterior compression
SIDELYING	Anterior + posterior expansion Lateral compression

HAND POSITION

PRONATION	Scapular IR → more posterior expansion
SUPINATION	Scapular ER → more anterior expansion

05 / GAIT INTEGRATION

HEEL STRIKE / FOOT FLAT	Sternum faces stance-leg side Scapula externally rotated Humerus internally rotating relative to scap	Anterior compressing Posterior expanding
MID-STANCE	Sternum near neutral / still toward stance side Scapula internally rotating Humerus externally rotating relative to scap	Anterior compressed → beginning to expand Posterior expanded → beginning to compress
LATE STANCE	Sternum faces opposite side Scapula external + upward rotation Humerus externally rotating relative to scap	Anterior expanding Posterior compressing

MWK CONNECTION

Do not chase the shoulder. Read the system from the ribcage outward: **Ribcage** → **Scapula** → **Humerus** → **Forearm**.

0-60°	BACK Posterior lower → posterior upper
60-120°	FRONT-UPPER Pump handle + posterior lower
120-180°	FRONT-LOWER Bucket handle + anterior upper + posterior lower

REACH RIGHT → **RIGHT FRONT + LEFT BACK**

REACH LEFT → **LEFT FRONT + RIGHT BACK**

COACHING QUESTION

Where is the system compressed - and what position gives it somewhere else to go?

OBSERVE → POSITION → CREATE SPACE → BREATHE → RETEST

is a biomechanics-informed movement education and coaching system built around clear positions, sensory contacts, respiration, and progressive movement options.

Educational use only. Not medical diagnosis, treatment, or individualized rehabilitation advice.