



RUHANI COLLEGE — REGISTERED MASSAGE THERAPY DIPLOMA PROGRAM

Thoracic Region: Scapular Stabilization, Pectoral Rehabilitation & Condition-Specific Protocols

Lecture 12

RU RMT 19 — Remedial Exercise & Kinesiology

Aligned to CMTCA accreditation standards and the CMTO Standards of Practice

Full-day delivery (approximately 6–7 hours with practical lab components)



Learning Outcomes

By the end of this lecture, the learner will be able to:

- Explain the role of the scapular stabilizers in shoulder-girdle function and posture.
- Teach rhomboid, mid-trapezius, and lower-trapezius strengthening exercises with correct scapular cueing.
- Coach the YTWL series and describe the intent of each position.
- Prescribe pectoral strengthening and length work, balancing agonist and antagonist.
- Apply condition-specific exercise protocols for scoliosis, thoracic outlet syndrome, and degenerative disc disease.
- Recognize contraindications and red flags across these conditions and refer appropriately.



CMTCA Competency Alignment

This lecture continues to support the profession's competency domains:

Therapeutic exercise and self-care

- Prescribe, teach, and progress scapular, pectoral, and condition-specific exercises.

Clinical reasoning

- Match exercise selection to assessment findings and to the specific pathology.

Client education and communication

- Explain realistic goals, particularly for conditions like scoliosis where exercise supports comfort and function rather than cure.

Professional and ethical practice

- Stay within scope; identify vascular, neurological, and other red flags and refer without delay.



Recap of Lecture 11

What we established

- Functional anatomy of the thoracic region and the muscles involved.
- The upper-crossed pattern: tight anterior/upper structures, inhibited posterior/lower structures.
- Thoracic extension and mobility restore the mobility/stability division of labour with the lumbar spine.
- Myofascial release prepares tissue; mobility restores range; strengthening keeps it.

Where we go today

- Strengthen and re-educate the scapular stabilizers.
- Balance pectoral strength and length.
- Apply protocols for scoliosis, TOS, and DDD.

The organizing question remains: is this tissue tight (lengthen/release) or inhibited (strengthen/re-educate)?



Scapular Stabilization — Why It Matters

The scapula is the base from which the arm operates. If the base is unstable or poorly positioned, shoulder and neck function suffer.

Functional role

- Scapular stabilizers position and control the scapula on the thoracic wall during arm movement.
- Adequate control allows the back and shoulders to properly perform an exercise or daily task.

When stabilizers are weak

- The scapula tips, protracts, or winds up out of position, contributing to impingement, neck strain, and poor posture.

Remedial goal

- Re-educate retraction, depression, and upward rotation so the scapula provides a stable, well-positioned base.



Scapular Kinematics & Scapulohumeral Rhythm

Arm elevation is a coordinated movement of the humerus and scapula, commonly described as scapulohumeral rhythm.

Key movements of the scapula

- Elevation and depression; protraction (abduction) and retraction (adduction); upward and downward rotation; and anterior/posterior tilt.

The muscular team

- Upper trapezius, lower trapezius, and serratus anterior together produce upward rotation for overhead reach.
- Middle trapezius and rhomboids produce retraction; lower trapezius contributes depression.

Clinical link

- A weak lower trapezius impairs the ability to depress and retract the scapula, disrupting the rhythm and overworking the upper trapezius.



Rhomboids & Mid-Trapezius — Functional Role

The rhomboids and middle trapezius are the primary scapular retractors — they draw the shoulder blades toward the spine.

Why they matter

- In rounded-shoulder posture they are held long and become inhibited, allowing the shoulders to sit forward.
- Strengthening restores the ability to hold the scapulae back and down, supporting upright posture.

Coaching theme for this group

- The common cue is to squeeze the shoulder blades together while keeping the chest open and the neck relaxed.
- Typical hold is 1–5 seconds, then a slow release.

The exercises that follow — prone lateral raise, seated rows, scapular retraction, and wall slides — all target this retraction function.



Prone Lateral Raise

Technique

- Lie prone and hold a weight in each hand; keep the forehead flat on the table.
- Keep the arms extended with the palms facing down toward the feet.
- Lift the arms out to the sides until the elbows are at shoulder height and the arms are parallel to the floor.
- Ensure the arms are perpendicular to the torso and fully extended.
- Squeeze the shoulder blades together and hold for 1–5 seconds, then release and slowly lower back down.

Coaching and cautions

- No need to go above shoulder height; avoid lifting at an angle, which shifts stress onto the deltoids rather than the retractors.



Seated Rows

Technique

- Sit with the back straight.
- Tuck the chin and slowly contract the rhomboids by squeezing the shoulder blades together.
- Hold for 1–5 seconds, then release; repeat.

Coaching points

- Lead the movement with the shoulder blades, not the hands — the arms follow the scapular retraction.
- Keep the shoulders down (avoid shrugging) and the chest open; maintain a tall spine.

Equipment and scaling

- Can be performed with a cable/machine or a resistance band anchored in front; scale resistance to allow controlled retraction.



Scapular Retraction

Technique

- Perform either standing or seated.
- Engage the core and focus on pulling the shoulders down and back together.
- Make sure the chest is open as you squeeze the shoulder blades together.
- Hold the retraction for 1–5 seconds and slowly release.
- Keep breathing throughout; release the contraction and repeat.

Why it is useful

- A simple, equipment-optional drill (can use tubing) that re-educates the retraction pattern and can be done frequently through the day.

Cue

- "Down and back," not "up and back" — depress as you retract to recruit the lower and middle trapezius rather than the upper trapezius.



Scapular Wall Slides

Technique

- Lean against a wall; maintain a neutral pelvic tilt to avoid arching the back, and bend the knees slightly.
- Press the head, upper back, and buttocks firmly against the wall.
- Open the chest and raise the arms to shoulder height.
- Squeeze the muscles as you fully extend the arms straight above the head, with the palms facing away from the wall.
- Keep the backs of the palms, wrists, elbows, and back pressed against the wall.
- Hold for 1–5 seconds, then slowly release and repeat.

Note

- Maintaining wall contact is the challenge; loss of contact reveals restriction to address with mobility and length work.



Additional Variations & Progressions

The retraction pattern can be trained through many equipment options and body positions, scaled to the client:

- Reverse cable/band flyes and bent-over rows for loaded retraction.
- Prone or stability-ball retraction holds to challenge posture and balance.
- Inverted rows / bodyweight rows and pull-up-pattern work for stronger clients.
- Partner-resisted or self-resisted retraction for feedback.

Programming principles

- Begin with unloaded pattern re-education; add resistance only when the client can retract without shrugging.
- Progress by load, repetitions, hold time, reduced support, or increased range as control allows.

Safety

- Regress immediately if the upper trapezius takes over or symptoms increase.



Lower Fibre Trapezius — Functional Role

The lower trapezius depresses and helps upwardly rotate the scapula; it is frequently weak and under-recruited.

Why it matters

- A weak lower trapezius means the client cannot effectively depress and retract the scapula.
- The lower trapezius works together with the upper trapezius and serratus anterior to let the back and shoulders perform an exercise properly (the upward-rotation force couple).

Remedial goal

- Activate and strengthen the lower trapezius in positions that discourage upper-trap dominance.
- Common cue: set the scapula (down and back) first, then initiate the arm movement.



Rear Deltoid Cable Raise

Technique

- Use a cable system or a resistance band anchored to the ground on the opposite side.
- Grasp the cable/band with the opposite hand, palm facing up toward the ceiling, with a slight bend in the elbow.
- Bend at the waist until the torso is nearly parallel to the floor, knees slightly bent, so the hand rests on top of the thigh.
- Slowly raise the arm up with the elbow slightly bent until the arm is parallel to the floor and in line with the ear/shoulder.
- Hold for 1–5 seconds, then slowly release.

Why it works

- This motion forces activation of the lower trapezius while the rotator cuff and deltoid drive the movement.



YTWL Exercises — Overview & Set-Up

The YTWL series is a set of four positions designed to activate the lower trapezius using the rotator-cuff muscles to drive the motion.

Progression of difficulty

- Start prone on a bench with no weight; progress to a stability ball with a light 2–5 lb weight.
- Begin each motion by first setting the scapula into place, then initiate the arm movement.

During all four positions

- Engage the core; pinch the shoulder blades together; stay as parallel to the ground as possible.
- Move the arms through range without changing the angle of the torso; keep the thumbs pointed up toward the ceiling.
- Avoid hyperextending the lumbar spine; rest between each exercise rather than doing them as a continuous circuit.



YTWL — The "Y" Position

Position

- Raise the arms in front of you to form a "Y" (arms overhead and slightly out, thumbs pointing back/up).

Execution

- Set the scapula, retract, and raise the arms toward the ceiling.

Focus

- The Y position emphasizes the lower trapezius through an overhead line of pull; keep the thumbs up to encourage external rotation.

Common errors

- Shrugging into the upper trapezius, changing the torso angle, or hyperextending the lumbar spine to lift higher.



YTWL — The "T" Position

Position

- Extend the arms straight out to the sides to form a "T," roughly perpendicular to the body.

Execution

- Set the scapula, retract, and raise the arms toward the ceiling.

Focus

- The T position emphasizes the middle trapezius and rhomboids (horizontal retraction) with lower-trap support.

Common errors

- Letting the arms drift forward of the shoulder line, bending the elbows, or losing the parallel-to-ground torso position.



YTWL — The "W" Position

Position

- Bend the elbows to form a "W" (elbows down and back, hands up).

Execution

- Set the scapula, retract, and raise toward the ceiling.

Focus

- The W emphasizes retraction with external rotation, blending scapular and rotator-cuff activation.

Common errors

- Flaring the ribs or hyperextending the lumbar spine; letting the shoulders shrug up toward the ears.



YTWL — The "L" Position

Position

- Bend the elbows to 90 degrees with the upper arms at your sides and the fists pointing toward the ground.

Execution

- Set the scapula, retract, and raise (externally rotate) toward the ceiling.
- Keep the elbows as close to the body as possible.

Focus

- The L emphasizes glenohumeral external rotation with the scapula stabilized — important for shoulder health and posture.

Common errors

- Letting the elbows drift away from the body or substituting trunk movement for shoulder rotation.



YTWL — Common Cues & Error Correction

Universal cues

- Set the scapula (down and back) before moving the arm.
- Thumbs up to encourage external rotation and lower-trap recruitment.
- Keep the torso still and parallel to the ground; move only the arms.

Errors and fixes

- Upper-trap shrug → cue "shoulders away from ears"; reduce range or load.
- Lumbar hyperextension / rib flare → cue core brace; lower the lift height.
- Fatigue and form loss → rest between letters rather than performing a continuous circuit.

Dosage guidance

- Begin unloaded on a bench; add 2–5 lb only when form is clean on a stability ball.



Pectoralis Major & Minor — Functional Role

The pectoralis muscles are responsible for movement patterns of the shoulder joint — specifically flexion, adduction, and internal rotation.

In remedial exercise, two aims coexist

- Strength — the pectorals are important pushing and shoulder-stabilizing muscles for balanced function.
- Length — when chronically short, the pectorals round the shoulders, limit thoracic extension, and (via pectoralis minor) can contribute to TOS.

The balance principle

- Strengthen the pectorals for function while ensuring they are not so tight that they pull the posture forward.
- Pair pectoral strengthening with posterior scapular strengthening and pectoral length work as needed.



Pectoralis — Push-Ups

Technique

- Start on the hands and knees, both approximately shoulder-width apart.
- Extend the legs and maintain straight alignment of the back, with the hips not dipped toward the ground.
- Slowly bend the elbows and lower the upper body and head toward the ground, hold for one second, then slowly raise back up.

Alignment checklist

- Head neutral and in line with the spine; shoulders retracted, depressed, and medially rotated toward the spine.
- Hip flexors and core activated to keep the hips in line with the spine (not sagging).
- Feet perpendicular to the floor to allow optimal rotational movement of the body.



Pectoralis — Push-Up Regressions & Progressions

Regressions (make it easier)

- Perform on the knees, or with the hands elevated on a bench, counter, or wall to reduce load.

Progressions (make it harder)

- Change hand position: the wider the hands, the more the pectorals are activated; the narrower the hands, the more triceps recruitment.
- Elevate the feet, add tempo/holds, or add an unstable surface once control is solid.

Coaching

- Maintain the alignment checklist through every variation; never trade form for a harder variation.

Scaling principle

- Choose the hardest variation the client can perform with clean alignment for the prescribed repetitions.



Pectoralis — Bench Press

A similar motion to the push-up; it can therefore serve as a modified or progressed version of that exercise.

Technique

- Lie supine with the nose directly below the bar or stick.
- Squeeze the shoulder blades together, raise the chest, and tighten the upper back to create a stable base.
- Straighten the arms to lift the bar up.
- Slowly lower to the chest, then extend back up.

Scaling

- Can also be done with a resistance band, or standing; to modify, use a stick with no weight to groove the pattern.

Coaching

- Keep the shoulder blades set and the upper back tight throughout; control the descent.



Pectoralis — Dumbbell Flyes

Technique

- Position supine flat on the ground, on an incline bench, or standing.
- Hold a weight in each hand and extend the arms above you with a slight bend at the elbows.
- Breathe in and lower the arms out to the sides, palms still facing up, keeping the arms extended.
- Breathe out and bring the dumbbells back up to the starting position.

Equipment options

- Can be done with weights or with a resistance band/tubing — raise the arms overhead with the band between the hands and perform the movement pattern.

Scaling

- Modify by performing supine; progress by using an incline bench (approximately 30 degrees).



Pectoralis — Stretching & Length-Tension Balance

Because tight pectorals round the shoulders and block thoracic extension, length work is often prescribed alongside posterior strengthening.

Common length options

- Doorway/corner pectoral stretch at varying arm heights to bias different fibres.
- Chest foam rolling (from Lecture 11) as a self-myofascial release adjunct.
- Supine extension over a roller to open the anterior chest and thoracic spine.

Programming principle

- Lengthen the tight anterior chest and strengthen the inhibited posterior stabilizers to shift resting posture.

Caution

- Keep stretches within a comfortable range; avoid provoking shoulder or neurovascular symptoms, especially where TOS is suspected.



Integrating Strengthening & Stretching

Balanced programming pairs lengthening of the tight structures with strengthening of the inhibited structures — an agonist/antagonist balance.

A typical thoracic/postural template

- Release: chest and lat foam rolling.
- Lengthen: pectorals, upper trapezius, levator scapulae, scalenes as indicated.
- Mobilize: thoracic extension and rotation drills.
- Strengthen: mid/lower trapezius, rhomboids, thoracic erectors, and cervical flexors.

Sequencing logic

- Release and lengthen restrictions first, then mobilize into the new range, then strengthen to hold it.

Individualize

- The template is a starting point; assessment findings dictate emphasis, volume, and progression.



Scoliosis — Pathophysiology & Classification

Reference: Rattray, p. 585.

Scoliosis is a three-dimensional lateral curvature of the spine, usually with a rotational component, producing a convex and a concave side.

Classification (recognition)

- Structural (fixed) versus functional (postural/compensatory) curves.
- By cause: idiopathic (most common), congenital, and neuromuscular.

Muscular consequences

- Concave-side muscles tend to be shortened; convex-side muscles tend to be lengthened.

Realistic goals

- Back exercises attempt to restore balanced muscle tone and promote healthier spinal curvatures.
- We cannot prevent curve progression, but we can help improve core strength and provide symptomatic relief.



Scoliosis — Convex/Concave Exercise Principles

Core principle

- Strengthen the muscles on the convex side of the curve.
- Stretch (lengthen) the muscles on the concave side of the curve.

Purpose

- Back exercises are an attempt to restore balanced muscle tone and promote healthy spinal curvatures.
- The aim is improved core strength and symptomatic relief, not curve correction.

Application caution

- Curves can be complex (multiple curves); always confirm which side is convex/concave at the segment being treated through assessment before loading.
- Progress gently and monitor symptom response.



Scoliosis — Stretch Up and Reach Down

Technique

- Stand with the back against a wall, arms along the sides.
- Raise the arm on the concave side up toward the ceiling.
- Reach toward the floor with the opposite hand.
- Hold the stretch for 5 seconds, relax, then repeat 10 times, 2–3 times per day.

Why it fits the principle

- Reaching up on the concave side lengthens the shortened concave musculature; the movement encourages a more balanced trunk position.

Coaching

- Keep the movement smooth and pain-free; the wall provides feedback for an upright starting posture.



Scoliosis — Side Bends, Bird Dogs & Precautions

Additional options

- Side bends — performed toward the appropriate side to lengthen the concave musculature and encourage balance (guided by assessment).
- Bird dogs — for core and spinal-stabilizer strength and endurance, supporting trunk control.

General programming

- Emphasize core strength, balanced tone, and symptom relief; keep loads and ranges comfortable.

Precautions

- Individualize direction of stretch/strengthening to the specific curve; do not apply a generic side to every client.
- Coordinate with the client's medical care; refer if pain, neurological signs, or rapid progression appear.



Thoracic Outlet Syndrome — Pathophysiology & Types

TOS is compression of the neurovascular structures passing from the neck to the arm, at one or more sites: the interscalene triangle, the costoclavicular space (over the first rib/under the clavicle), and beneath pectoralis minor (the subpectoral space).

Types (recognition)

- Neurogenic — involving the brachial plexus (most common); produces tingling, numbness, and aching in the arm/hand.
- Vascular — involving the subclavian artery or vein; may produce colour change, swelling, coolness, or heaviness.

Symptom behaviour

- Symptoms often change as the arm is moved or elevated.

Referral note

- Vascular signs are more urgent and warrant prompt medical referral.



TOS — Exercise Focus

The overarching aim is to take compression off the brachial plexus.

Stretch (shortened, hypertonic muscles)

- Scalenes; pectoralis minor/major; levator scapulae; suboccipitals.

Strengthen (weak muscles)

- Scapular retractors; glenohumeral lateral rotators; cervical flexors; thoracic extensors.

Breathing

- Teach proper breathing patterns to help decrease apical (upper-chest) breathing, which over-recruits the scalenes.

Logic

- Opening the compression sites (scalenes, first rib, pectoralis minor) and repositioning the shoulder girdle relieves the neurovascular bundle.



TOS — Side-Arm Raises & Standing Wall Slides

Side-Arm Raises

- Lie prone with the arms out to the side.
- Squeeze the shoulder blades and raise the arms off the ground; lower with control.

Standing Wall Slides (Wall Angels)

- Standing or seated.
- Place the back, shoulders, elbows, and wrists against the wall.
- Slide the arms up without letting them come off the wall; return with control.

Purpose

- Both re-educate scapular retraction/depression and thoracic extension — repositioning the shoulder girdle to relieve the outlet.



TOS — Additional Stretches & Breathing Retraining

Stretch options

- Scalene stretch; pectoralis stretch; suboccipital stretch.

Postural/neural options

- Chin tuck (deep cervical flexor activation, forward-head correction).
- Shoulder rolls (gentle mobility and postural reset).

Breathing retraining

- Coach diaphragmatic breathing to reduce reliance on the scalenes and upper chest (apical breathing).

Cautions

- Keep stretches gentle and within symptom-free range; if a movement reproduces or worsens arm symptoms, ease off and reassess.
- Refer promptly if vascular signs or progressive neurological deficits appear.



Degenerative Disc Disease — Pathophysiology

DDD describes age- and load-related changes in the intervertebral discs — reduced hydration, disc thinning, bulging, and loss of disc height — that alter how load is shared across the spine.

Presentation

- Most often causes low-back pain.
- If it impinges on a nerve root in the low back, it can also cause a form of sciatica (radicular symptoms down the leg).

Implications for exercise

- The aim is to support the spine with stabilization and to move in directions and ranges the client tolerates.
- Lumbar stabilization exercises should be progressive; correct technique matters and it can be harder than it appears.



DDD — Stretching Guidelines & Precautions

Precautions first

- Avoid stretching or activity that causes hyperextension of the back.
- Resist bouncing while stretching, unless otherwise advised by a health-care professional.

Better-tolerated stretches

- Perform forward-bending stretches, such as a hamstring stretch or reaching toward the toes.
- Supine, bringing the knees to the chest.

Clinical note

- Directional tolerance varies between clients; match the stretch direction to the individual's comfort and any professional guidance, and stop anything that provokes radicular symptoms.



DDD — Strengthening: Dynamic Lumbar Stabilization

Strengthening centres on dynamic lumbar stabilization — building control around a comfortable, well-supported spinal position.

The concept

- Find the "natural spine" position — the most comfortable weight-bearing position while sitting, walking, or standing.
- Train the ability to maintain that position under increasing demand.

Example progression

- Walking with abdominal bracing — maintaining the neutral, braced position while moving.

Programming

- Progress gradually; make clients aware that stabilization can be more difficult than it looks and that quality of control comes first.
- Regress the demand if control is lost or symptoms increase.



Contraindications, Red Flags & Referral

Across all conditions in this series, screen for findings that require caution, modification, or referral before or during exercise:

Refer / do not treat as a mechanical exercise case

- Vascular signs (colour change, swelling, coolness) — possible vascular TOS or other vascular pathology.
- Progressive or severe neurological signs (worsening numbness, weakness, or changes in bowel/bladder function).
- Sudden, severe, or "worst-ever" headache, or new neurological symptoms.
- Unexplained, rapidly progressing deformity, or symptoms out of proportion to the presentation.

General safety rules

- Keep exercise pain-free or non-provocative; obtain and respect medical clearance.
- Regress or stop if symptoms increase; document and communicate concerns; refer within scope.



Summary, Client Education & Review

Key take-aways

- Re-educate and strengthen the inhibited posterior stabilizers (mid/lower trapezius, rhomboids, thoracic erectors).
- Balance pectoral strength with pectoral length and posterior strengthening.
- Apply condition-specific principles: convex-strengthen/concave-stretch (scoliosis); decompress the outlet (TOS); stabilize and match stretch direction (DDD).

Client education & documentation

- Teach-back, written home program with dosage and cautions, expected response, and re-assessment plan.

Review questions

- Why is the lower trapezius emphasized, and how does the YTWL series recruit it?
- How do the three TOS compression sites map to the muscles we stretch?
- Which stretch direction is generally better tolerated in DDD, and why?