Ribs: Exhalation Dysfunction Treatment

Exhalation Dysfunction of the ribs is a process in which a rib or group of ribs is found to be inferior and posterior to surrounding ribs. This can cause tenderness, difficulty taking a deep breath, and pain with inspiration. This type of exhalation can be found in the aftermath of when air must be forcefully expelled, such as coughing, singing, or extraneous pressure. Treatment of exhalation dysfunction can be completed with soft tissue techniques, such as muscle energy. Palpation of the ribs throughout the respiratory cycle aids in diagnosis. Determining the type of rib dysfunction is done by identifying the key rib. A common way to remember the various treatment positions for muscle energy is the combined pneumonic ‘at 1AM I got up to pee, because from 3-5PM I had 6-8 sodas and from 9-10 to lay down and from 11-12 I was quiet’ This combines the treatment of the ribs to remind you which muscles are engaged to treat each group of ribs. Absolute contraindications to muscle energy of the ribs include fracture and acute muscle spasm.



PLAY PICMONIC

Mnemonic

"At 1 AM I got up 2 pee because from 3-5 PM I had 6-8 sodas. From 9-10 I laid down and from 11-12 I was quiet."
Getting up at 1AM to Pee
A common way to remember the various treatment positions for muscle energy is the combined mnemonic "at 1 AM I got up 2 pee because from 3-5 PM I had 6-8 sodas. From 9-10, I laid down, and from 11-12, I was quiet." This mnemonic indicates the treatment of the ribs to remind you which muscles are engaged to treat each group of ribs.

Treatment with Muscle Energy

Rib 1: Anterior and Middle Scalenes
Rib (1) Wand: Anteater and Middle-ages Sardines
Anterior and middle scalene muscles both have attachments to rib one, making them the target for muscle energy. The patient should be positioned supine and raise the forearm of the affected side to their forehead with the palm facing toward the ceiling. The patient should take a deep breath while the provider engages the angle of the affected rib inferiorly. The patient will then raise their head toward the ceiling against resistance for 3-5 seconds. Repeat muscle energy to the anterior and middle scalene 3-5 times before rechecking for improvement of motion. The muscles engaged can be remembered with ‘at 1 A.M’ for rib 1 and anterior/middle scalenes.

Rib 2: Posterior Scalene
Rib (2) Tutu: Post-terrier Sardine
The posterior scalene has a direct attachment to rib 2. The patient should, again, lay supine and place the forearm against the forehead with the palm facing toward the ceiling. They then turn their head to the affected side 30 degrees before raising their head toward the ceiling against resistance. Repeat this 3-5 times before rechecking for improvement of motion. The muscle engaged can be remembered by 'I got up TO PEE,' indicating rib 2 is affected by the posterior scalene.

Ribs 3 - 5: Pectoralis Minor
Ribs (3) Tree - (5) Hand: Pecks Miner
Pectoralis minor is associated with ribs 3-5. While lying supine, the patient will place their forearm to their forehead with their palm toward the ceiling on the affected side. The patient will then attempt to bring the elbow toward the opposite anterior superior iliac spine against resistance for 3-5 seconds before relaxing. Repeat this 3-5 times, then recheck for improvement of motion. The muscle engaged can be remembered by ‘from 3-5 PM’ for pectoralis minor treating ribs 3-5.

Rib 6-8: Serratus Anterior
Ribs (6) Sax - (8) Ball: Serrated-knife Anteater
Serratus anterior is associated with ribs 6-8. To treat this dysfunction, have the patient lie supine with their forearm placed to their forehead and palm facing toward the ceiling. The patient will push the arm anteriorly against resistance for 3-5 seconds before relaxing and placing it into the new feather edge. Repeat this 3-5 times, then recheck for improvement of motion. The muscle engaged can be remembered by ‘had 6-8 Sodas’ to remind you the serratus anterior treats ribs 6-8.

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Rib 9-10: Latissimus Dorsi

Ribs (9) Lives Cat - (10) Tin: Lotus with Dorsal-fins

The Latissimus Dorsi is targeted for the treatment of ribs 9 and 10. The patient will lay supine with their forearm brought to their forehead, palm facing superiorly. Then instruct them to adduct the arm against resistance for 3-5 seconds. Repeat this 3-5 times before checking for improvement of motion. The muscle engaged can be remembered by 'from 9-10 to lay down', indicating Latissimus Dorsi treats ribs 9 and 10.

Rib 11 - 12: Quadratus Lumborum

Ribs (11) Double Wands - (12) Dozen: Quad-rat Lumber-rum

Quadratus Lumborum is associated with ribs 11-12. The patient should, again, lie in a supine position. The provider grasps the leg of the affected side and has the patient attempt to raise the ipsilateral ASIS toward the ipsilateral shoulder for 3-5 seconds. Repeat this 3-5 times before checking for improvement of motion. The muscle engaged can be remembered by 'from 11-12 I was quiet' indicating that quadratus lumborum treats ribs 11 and 12.

Contraindications

Acute Muscle Spasm

Acute-angle Muscle-man Spaceship

Acute muscle spasm is an absolute contraindication for muscle energy. Instead, wait until the spasm has resolved before attempting muscle energy to the area.

Fracture

Fracture

Fracture is another absolute contraindication for muscle energy to the ribs. If a fracture is suspected or confirmed, muscle energy should not be attempted until fully healed.

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