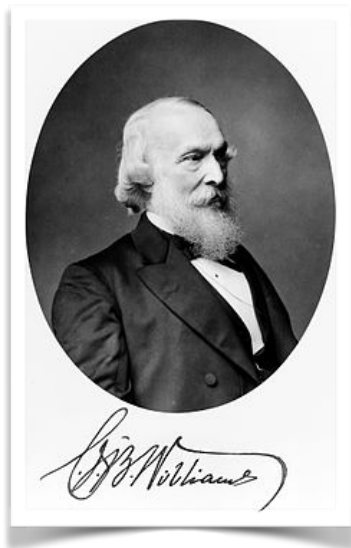


Tactile Fremitus^{1,2}

Narrative Section

HISTORICAL VIGNETTE - One Dr. Charles J.B. Williams was a prominent English physician and specialist in diseases of the chest in the 19th century. After studying with the inventor of the stethoscope, Laennec, in France in 1825-6, he returned to England and in 1828 was the first to describe the finding of “vocal tactile fremitus”, as “a slight vibratory fremitus or thrill that may... be felt on the application of the hand to the [chest wall] during the exercise of the voice.” In 1839, he went on to describe the usefulness of the finding in distinguishing percussive dullness caused by local consolidation (where tactile fremitus can be increased) versus a pleural effusion (where the fremitus will be decreased).



CONTEXT AND USEFULNESS - Tactile fremitus is normally more prominent in men than women due to the lower male voice and superior transmission of low frequency sounds through healthy lung tissue (i.e. the healthy lung is a low-pass filter that allows frequencies of up to 200Hz pass through to the hands). Students can be convinced of this by having them feel the reduction in tactile fremitus as a volunteer sings an ascending scale.

Physical Manuever

Model Proper (And Improper) Technique - Place both hands firmly over symmetrical areas on opposite sides of the patient’s chest and back while they say a word (“coin”, “ninety-nine”, “one-two-three”) evenly and repeatedly as the clinician feels to detect differences in the vibrations between the detecting hands. The clinician moves his hands sequentially to cover the entire thorax while the patient repeats the word or phrase.

INTERPRETATION - In hospitalized patients with respiratory complaints, asymmetric tactile fremitus significantly increases the probability of underlying pleural effusion (Positive LR = 5.7) while symmetric tactile fremitus significantly decreases its probability (Negative LR = 0.2).

Fremitus can be absent in normal individuals because of the pitch of their voice. *Only asymmetric tactile fremitus is important.* An asymmetric decrease occurs whenever lung tissue is separated from the chest wall by air (pneumothorax), fluid (pleural effusion), or tumor. An asymmetrically increased region of tactile fremitus suggests underlying lung consolidation.

CAVEAT AND COMMON ERRORS - Despite much lore regarding the necessity of having the patient say specific words or sounds, such as the “oy” sound in English, as in “toy boat” or “coin” or “neun-und-neunzig” (ninety-nine) in German, this seems not to matter. Different clinicians successfully use different words and some have their patients sing or even scream to elicit the finding. Likewise, various texts recommend the exclusive use of either the palms, the dorsal aspect of the fingers, or the ulnar aspects of the hands for detecting the vibrations. In reality, the clinician can choose whichever technique allows them to best detect the vibrations.

¹ Chi J et. al. “The Five Minute Moment.” *Am J Med.* 2016 Aug; 129 (8): 792-795.

² McGee, Steven. *Evidence-Based Physical Diagnosis, 4th ed.* Philadelphia, PA: Elsevier; 2018.

Special thanks to **Dr. Brian Bramson** for submitting this 5M2.