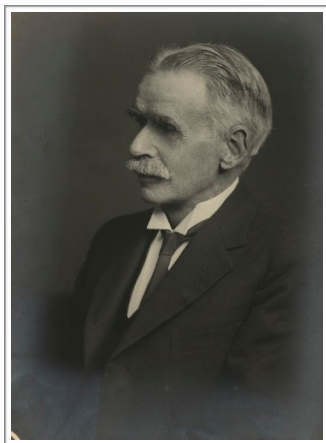


## Functional Murmur<sup>1,2</sup>

### Narrative Section

#### HISTORICAL VIGNETTE - WHO IS CONSIDERED THE FATHER OF BRITISH PEDIATRICS?

Sir George Frederic Still (1868-1941) was known as the “father of British Pediatrics.” A polymath at the turn of the century who was fluent in four languages plus his native English, Frederic Still left an indelible mark on the fields of Rheumatology (Still’s disease), Pediatrics (Attention-Deficit Hyperactivity Disorder), and cardiology. In 1909, he described the now eponymous childhood murmur signifying a benign course. Others have described the same “innocent” or “functional” murmur that can be heard in both children and adults without underlying valvular pathology. Subsequent evaluations show normal echocardiography.



**CONTEXT AND USEFULNESS** - One can remember the mnemonic “Seven S’s of Stills Murmur” to help distinguish *functional murmurs* from more pathologic findings:

- (1) Systolic
- (2) Soft (2/6 or less)
- (3) Short (not holo-systolic)
- (4) Soon (early to mid-systolic, NOT late...pause before S2)
- (5) Sternal (typically left sternal border)
- (6) Supine (decreased or disappears when sitting or standing)
- (7) S2 normally split (not widely fixed and split, as with ASD)

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

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

### Physical Manuever

**Model Proper (And Improper) Technique** - The murmur should be auscultated in a *quiet room* using the diaphragm of the stethoscope with a supine patient. Note should be taken of the murmur’s location, intensity, timing. S2 should be carefully auscultated at the left 2nd intercostal space at the sternal border. With the diaphragm in place over the point where the murmur is loudest, the patient should be asked to sit up. Then, the listener should carefully note any change in the murmur’s intensity.

As you complete a thorough cardiac exam, consider the following check list: Is the apical impulse normal? Are the neck veins normal? Have you examined the arterial pulses and are you satisfied they are normal? Did you take note of the heart tones?

**INTERPRETATION** - If the murmur has all the characteristics of a functional murmur *and* the rest of the cardiac exam is normal, the **LR = 4.7** that this is the Still’s murmur, and therefore, will have a normal echocardiogram. The following QR code provides additional video information for benign murmurs.



**CAVEAT AND COMMON ERRORS** - Some benign functional murmurs do not meet all of these characteristics. Historically, the classical Still’s Murmur describes children with a typical musical quality. Other functional or benign murmurs fitting the mnemonic above may well be benign but not a classic Still’s Murmur.

Remember the following “Seven S’s” indicating a murmur of a more benign process: **S**ystolic, **S**oft, **S**hort, **S**oon, **S**ternal, **S**upine and **S**2 split.

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