

Gary R. Spruill – Inventor statement

What makes the *TRIPLE GUSSET* different from other shirts?

To answer this I would like to offer a basic understanding of “how” the arm/shoulder muscles work.

There are many muscles involved in the movement of the human arm:

- Trapezius
- Levator Scapula
- Latissimus Dorsi
- Pectoralis Major
- Pectoralis Minor
- Teres Major
- Teres Minor
- Subscapularis
- Deltoid
- Coracobrachialis

Each of these muscles are responsible for a particular movement of the human arm whether it is extension, medial rotation, or adduction.

The shoulder joint is not designed for strong movements – the shoulder joint serves as the fulcrum for a third class lever system designed for mobility and speed of movement, and not for strength.

The latissimus dorsi, teres major and the pectoralis major muscles are the most powerful muscles associated with the joint. All three muscles work to pull the humerus toward the mid-line of the body as well as to rotate the humerus medially (internally). The Deltoid muscle is responsible for raising the arm.

Currently, shirts with single underarm gussets or no gussets restrict freedom of movement in abducting the arm.

The Triple Gusset shirt is designed with three gussets under each arm with specific function and named after the major muscle groups which they are associated with. These gussets cooperate in complete synergy of all the muscles in the human arm.

While the shirt is being worn we don't stop to ask "Which muscle group am I using right now?"

Wearing our shirt without restricted movement is comfortable and effective.

Further reference suggested by Doctors Janet Travell and David Simons describes the function of myofascial trigger points (tiny contraction knots) in overworked serratus anterior muscles as the most frequent cause of the incapacitating stitch in the side that afflicts runners and other athletes. The serratus anterior muscles are located under your arms, just down from the armpit. Their function is to aid inhalation by assisting expansion of the ribs when you are breathing strenuously.

Hampered Breathing

Pain from trigger points in a serratus anterior muscle is usually felt in the side and in the mid back at the lower end of the shoulder blade. Typically, you can't take a deep breath without pain, nor can you exhale completely. Normal breathing may hurt too, so you may be limited to shallow chest breathing in an effort to avoid pain.

Cascade of Symptoms

When serratus anterior muscles are in trouble, additional stress is put on the scalene, sternocleidomastoid, and serratus posterior muscles, all of which aid in forced inhalation. This can result in a growing cascade of myofascial symptoms, from headaches and jaw pain to dizziness and numb hands, making a whole list of mistaken diagnoses possible.

The Dual Function

The serratus anterior is an interesting muscle, in that it has a dual function. In addition to being an auxiliary breathing muscle, it also rotates the shoulder blade to position it for raising your arm. Without the serratus anterior, you wouldn't be able to raise your arm above shoulder level. Since the serratus anterior is so active, not only in strenuous breathing, but also in movements of the arm and shoulder, it's particularly vulnerable to overuse in tennis, swimming, running, chin-ups, push-ups, weight lifting, and workouts on the pommel horse or the rings.

Ref: *Myofascial Pain and Dysfunction: The Trigger Point Manual*

In conclusion, *"we understand movement of the arm and the synergy of the muscle groups -- the TRIPLE GUSSET is most unique in demonstrating this freedom of movement."*