

SEROLA SACROILIAC BELT

The State of the Art Back Support

In 1988, Dr. Serola discovered that strength increased after sacroiliac stabilization. After years of research, he developed a theory based on biomechanics (see www.serola.net). He thought that a properly made belt could stabilize the sacroiliac joint, and help the muscles become stronger, more relaxed and less painful. Not finding one on the market, he developed his own belt based on his discovery. Now, the Serola Sacroiliac Belt is being used to provide pain relief, and help prevent injury, to thousands of new people every month throughout the world.

COMMON PROBLEM

CAUSE: With the emergence of the science of biomechanics, the sacroiliac joint has been shown to be the major biomechanical cause of low back pain.

EFFECT: Sprained ligaments in the sacroiliac region cause imbalanced muscular responses which lead to structural compensation patterns, muscle spasm, weakness, and back, hip, and leg pain.

THE SEROLA DIFFERENCE

The Serola Sacroiliac Belt is the only belt designed to normalize the function of the sacroiliac joint.

- Non-elastic layer mimics action of ligaments
- Additional elastic layer provides compression and helps maintain correct posture
- No irritating buckles or pads
- Does not replace muscle function - Improves muscle function - Increases strength throughout the body
- Can be worn for extended periods without causing muscle weakness or atrophy

IN CHOOSING THE CORRECT BELT, WE MUST CONSIDER THE FUNCTION OF LIGAMENTS

- Ligaments Establish a Stop Point at the end of range of motion (r.o.m.)
- Ligaments Are Essentially Non Elastic - elastic cannot establish a stop point
- Ligaments Do Not Compress a Joint - they allow movement within normal r.o.m.
- Ligaments relay position sense to help regulate muscle tone (ligamento-muscular reflex)

BIOMECHANICAL STUDIES HAVE FOUND THAT CORRECT TENSION FOR AN SI BELT IS ABOUT WHAT YOU WOULD USE TO TIE A SHOE.

Within the SI joint, the only means of fluid exchange for inflow of nutrients and outflow of metabolic wastes is pressure variance.

Cinch the belt too tight (with a buckle) and you can easily reduce movement below normal; this allows a buildup of metabolic toxins and joint irritation.

Elastic belts, on the other hand, fail to provide a stop point for excess motion, leading to a false sense of security. Bending, lifting, or twisting may re-injure the joint.

PROPER APPLICATION involves envisioning what we are trying to accomplish. Muscle spasm is activated by irritation of the ligaments through stretching or excess pressure. The key is to compress the soft tissues of the hips just enough so that when the joint opens, it stops at its normal end of range of motion.

The elastic layer is then applied to compress the joint, bring the

THE SEROLA BELT DOES NOT REPLACE MUSCLE FUNCTION

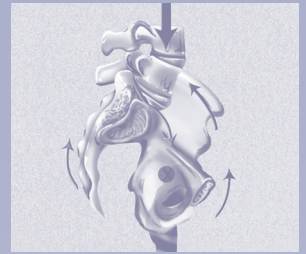
The core muscles are turned off and weak for a reason. Injured ligaments create a reflex that turns off muscles that would worsen the injury, e.g. the Transverse Abdominus, Multifidus, and other core muscles. Most pain comes from the build up of toxins in imbalanced muscles that are either too tight or too weak and deconditioned.

Exercise or stretching flushes out toxins accumulated in inactive muscles. Although it feels good, supporting or exercising these muscles can worsen the joint, if done incorrectly.

By properly stabilizing the sacroiliac joint, the Serola Sacroiliac Belt normalizes muscle tone and allows them to assist in supporting the joint naturally. Exercising while wearing the Serola SI Belt allows better muscle function and pain relief, while not stressing the joint.

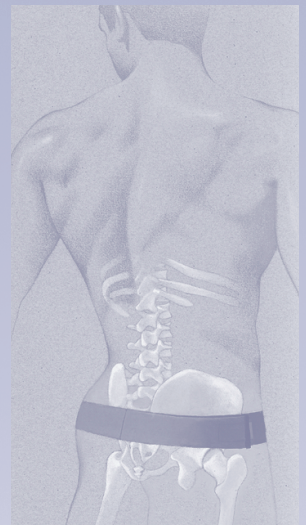
THE KEY IS NORMALIZATION, RATHER THAN SIMPLY STABILIZATION.

By normalizing the mechanics of the joint, we normalize its physiology, including muscle strength, proprioception, and fluid exchange dynamics. Normal function allows proper healing.

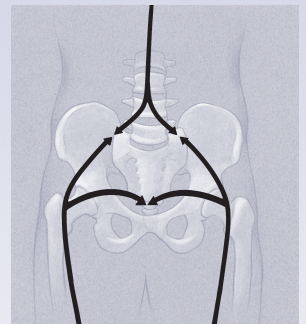


SEROLA THEORY

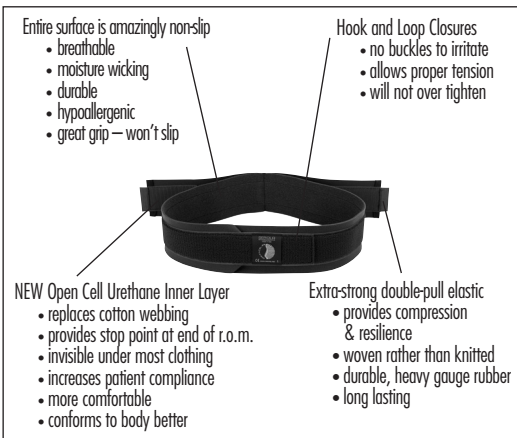
Visit www.serola.net/theory to view animations and 20 years of research into biomechanics by Dr. Rick Serola.



WHAT TO WATCH OUT FOR
Buckles that allow over-tightening, & uncomfortably press on the belly, or elastic that will not stop the joint from opening beyond normal.



Studies conclude that the sacroiliac joints are important sensors of large force streams between the trunk and legs in which the largest muscles of the body are involved. In this respect, the sacroiliac joint functions as a multi-directional force transducer.



pelvis back into correct alignment, and improve posture.

The Serola Sacroiliac Belt combines the best of both layers. Together, these forces support the underlying mechanism of pressure variance and resist harmful stresses placed on the SIJ by bending, lifting, or twisting.

SEROLA
BIOMECHANICS

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LUMBAR BELTS VS. THE SEROLA SACROILIAC BELT

Lumbar Belt

1. Takes the place of muscles, allowing atrophy.
2. Designed to increase pressure in the abdominal cavity in order to take stress off the disc. Studies have shown that this does not happen. More pressure is developed simply by holding one's breath.
3. Does not significantly reduce muscle spasm.
4. Disc injuries occur in a relatively small proportion of low back injuries.
5. The lumbar disc is relatively stable during bending, twisting, and lifting compared to the sacroiliac joint.
6. Belts are bulky, hot, uncomfortable and restrict movement.
7. Should be worn only while lifting.
8. Does not increase muscle strength.

The U.S. Air Force conducted a six year study comparing lumbar belt usage with no belt. They found that, although the number of injuries were less, they were more severe and the Government ended up paying more money on care due to low back injuries on the lumbar belt users than they did on those that wore no belts.

Imagine a stack of children's blocks. If the base is unstable, we cannot build very high before the column weakens and falls. We all know that it would be better to stabilize the column by securing the base rather than the blocks that are beginning to fall. It's that simple.

PREGNANCY

"After childbirth 147 patients used a pelvic belt. Of these patients 10% reported more pain, 23% no effect, & 67% a positive effect." J.M.A. Mens, et al 1992

Studies have shown that, because all pelvic joints loosen during pregnancy, use of a sacroiliac belt will most likely prevent associated pain during and after pregnancy. Snidjers, et al 1992, Vleeming, et al 1990, Hansen JH 1992

"The influence of physical activities on pelvic pain and the relief with the use of a pelvic belt in about 60% of the patients implicates the locomotor system as a cause of pelvic pain, and not an inner organ such as the uterus." Use of a pelvic belt appears to be useful in treating peripartum pelvic pain. Snijders, et al 1992

Serola Sacroiliac Belt

1. Takes the place of ligaments, allowing normal functioning of the muscles because they no longer have to contract to stabilize the joint; thus the muscles are stronger, have better circulation, and improve over time with continued use of the belt. Also, with reduced stress, the ligaments can heal better.
2. Designed to compress and stabilize the sacroiliac joint, taking pressure off that joint and allowing normal function to occur.
3. Nullifies the ligamento-muscular reflex, thereby significantly reducing muscle spasm in the back, abdomen, upper legs, and shoulders.
4. Recent research has found the sacroiliac joint to be the main cause of pain in the great majority of low back injuries.
5. The sacroiliac joint is as 20 times as susceptible to compression and 2 times as much to torsion as lumbar discs; these are the forces in bending, twisting, and lifting.
6. The SS Belt is small, comfortable, and allows freedom of movement with no restrictions. It feels good to wear.
7. Can be worn all day, with no bad effects.
8. The Serola Sacroiliac Belt increases strength throughout the body, especially in the trunk, upper legs, and arms.

"To remain stable, the SIJ utilizes a self-bracing mechanism consisting of the ligaments and muscles, as described by Vleeming, et al. This biomechanical model endorses the benefit of a sacroiliac belt for treatment of peripartum pain." Snijders 1992



Muscles that move the SIJ

Abdominals, Transverse & Rectus
Obliques, Internal & External
Pelvic Floor Muscles
Pyramidalis
Latissimus Dorsi
Hamstrings
Rectus Femoris
Gluteus Maximus, Medius, & Minimus
Tensor Fascia Lata
Adductor Brevis, Longus, & Magnus
Pectinius
Gracilis
Gemellus, Inferior & Superior
Obturator Internus & Externus
Sartorius
Erector Spinae
Quadratus Lumborum
Iliacus
Psoas Major & Minor
Multifidus
Piriformis
Quadratus Femoris

"If the SIJ is incompetent, and the nervous system is intact, the muscle will be inhibited due to the reflex activity (ligamento-muscular reflex). We can measure muscle strength. SIJ incompetence can be implied by diminished motor performance of muscles which control pelvic position."
Mooney V 1992

DISC VS. SACROILIAC JOINT AS A CAUSE OF PAIN

"From our data it seems clear that discs are not a significant cause of low back pain and that SIJ dysfunctions are a very common cause of low back pain."
Shaw 1992

"The sacroiliac joint is 20 times more vulnerable to axial compression and twice as susceptible to axial overloading as lumbar segment... these are the forces created by bending, lifting and twisting."
Bowen & Cassidy 1981

"The study seems to support the contention that SIJ syndrome has a high incidence in the failed back syndrome. Greenman 1992

"SIJ dysfunction has been demonstrated to be the major biomechanical cause of lumbar disc degeneration." Shaw 1992, also Scholten 1988

"In our study of 1,000 consecutive patients with low back pain, 98% had a mechanical dysfunction of the sacroiliac joints as a major cause of their LBP." Joseph L. Shaw 1992

"The pressure of unilateral low back pain alerts the clinician that a patient may have a sacroiliac problem." Greenman 1992, also Bourdillon 1982, Wells 1986, Ramamurti 1979, Cibulka 1992

"If a dysfunction of SIJ's were to compromise the movement of the sacrum, this would cause a considerable increase in the shear forces on the disc." Dontiny RL 1990

"In a study of 1293 patients, the SIJ was the primary cause of low back pain in 22.5% of patients. ALSO, in 33% of the patients, coexisting sources of pain existed between combinations of the SIJ & posterior facet joint syndrome, SIJ & lateral recess spinal stenosis, and SIJ & herniated nucleus pulposus.
Bernard & Kirkaldy-Willis

"In sports requiring repetitive, unidirectional movement, pelvic shear and/or torsional force is understandable." (torsion as in golfing, bowling, or soccer, and shear as in skating, jumping, or stopping fast)
Bowen & Cassidy 1981, also Gunterberg 1976, Miller, et al 1978 Scholten, et al 1988