

Get Healthy, Stay Healthy

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with Kinetic Health

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Hip Extension - A Key Link To Improve Your Running

By: Dr. Brian Abelson DC.



When athletes think about increasing their ability to run faster with less effort, they often talk about stride length and foot turnover (cadence). As important as these factors are, there is also another key factor called “**Triple Extension**”. Triple Extension refers to the simultaneous extension of the hip, knee, and ankle to propel the body forward during the propulsive phase of gait.

Propulsive extension occurs when we push the ground back with our standing leg, as the ground passes under our body (our center of gravity). This occurs during the mid-to-late stance of gait. If you want to see the epitome of effective propulsive extension

when running, take a look at elite Kenyan and Ethiopian runners. These runners demonstrate an impressive amount of extension before their foot leaves the ground. While running the Paris Marathon, I was fortunate enough to see some of these runners float down the course while moving at incredible speeds (2:05 marathon time).. *Article continued on page - 2*

Scoliosis - We Can Help

By: Dr. Evangelos Mylonas DC.



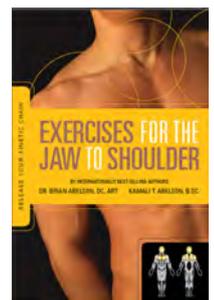
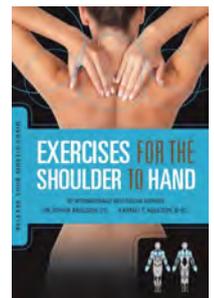
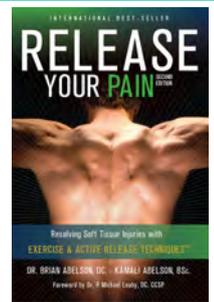
Scoliosis: What is it?

Scoliosis refers to an abnormal, sideways curvature of the spine. Medically it is defined as a spinal curve, with a rotational displacement, measuring more than 10 degrees to the right or left. Normally when we examine a patient’s spine from the back, it typically looks like a straight line. Patients with *scoliosis* however, have an “S” or “C” shaped curve to their spine. The spine is also rotated due to the twisting of

the vertebrae along the axis of the spine. This is a key point since it is important to understand that *scoliosis* is a three-dimensional curve even though we often think of it as two dimensional.

Adolescent Idiopathic Scoliosis

For the purpose of this article we will focus on the most common form of scoliosis, *adolescent idiopathic scoliosis*, which affects 2-3% of adolescents (that works out to about 6 million people in North America) each year. Approximately 80 percent of all *scoliosis* cases are diagnosed as *idiopathic* - referring to a disease or condition that has no known cause. Still, current research is beginning to suggest that the cause is multifactorial, involving neurotransmitters, hormones, and genetics. *Adolescent idiopathic scoliosis* most commonly occurs in individuals between 8-to-15 years of age. Signs and symptoms usually manifest during the adolescent growth spurt, and the risk of curvature progression increases during puberty due to the rapid growth and hormonal changes that occur throughout the body. Statistically, girls are 6-to-8 times more likely to be affected than boys. *Article continued on page - 3*



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Hip Extension - A Key Link (continued)

Muscles Used In Hip Extension

When running the majority of the required extension occurs through your hip. The primary muscles that move your hip back into extension are your Glutes (*Gluteus Maximus*). Your hamstrings also assist, by acting as secondary hip extensors. For optimal hip extension to take place, both of these groups of muscles require a strong stable base from which they can generate force. This base is your pelvis, which must be maintained in a stable neutral position. This requires:

- A strong stable core.
- Flexibility and strength in all the muscles that attach to the pelvis.
- Balance between opposing muscles. A combination of tight hip flexors and weak glutes often results in the development of abnormal motion patterns.
- Optimal joint mobility.
- Lack of myofascial restrictions. A restriction at any point along the hip's kinetic chain can result in muscular compensations and development of abnormal motion patterns.

Hip Compensation Leads to Injury

Human beings are masters of compensation. When one muscle stops functioning correctly, another muscle always compensates. For example, if the pelvis is tilted anterior (forward) the hamstrings tighten, this causes the muscles on the front of your legs (quadriceps) to work harder than they normally would. This increased stress on the quads will cause restrictions to form. These restrictions cause abnormal motion patterns, which then lead to a host of common knee injuries such as runner's knee, meniscus entrapment, or ligament injuries.

Sitting is one of the main contributors of hip dysfunction. Sitting for long periods of time causes shortening of our primary hip flexors (iliacus and psoas muscles). Your hip flexors are the oppositional or antagonistic muscles to the hip extensors. When your hip flexors become tight, they neurologically inhibit the gluteal muscles (primary extensors), resulting in weak hip extension and an overall decrease in running performance.

When the glutes do not provide the needed forward propulsion, other muscle in your lower extremity often try to compensate. For example, your calf muscles (*plantar flexors*) may take on more of the load than they can normally handle. In such cases, it does not take long before the calf muscles become stressed and injuries such as Achilles Tendonitis, and Plantar Fasciitis start to occur. Another common compensation is for the medial *quadriceps* (*Rectus Femoris*) to tighten up leading to a host of knee problems.

How We Can Help

Through a process of biomechanical analysis, musculoskeletal therapy, and a functional exercise programs, we have been very successful at bringing runners into a higher level of running performance. This success is largely due to our consideration of a much larger kinetic chain. Take a look at a few of the exercises (on the side panel) that we prescribe to address problems with hip extension. It is important to note, that our doctors customize our exercise routines based on each individual's unique set of muscular compensations and requirements. These are only a few examples from our large data base of the exercises.

Free Massages



Just by opening this newsletter, you have been automatically entered into a draw for a free one-hour massage at Kinetic Health.

So if the idea of free massages interests you or your friends, then be sure to sign up for our monthly newsletter. It costs nothing, and you could be rewarded with a great massage.

Congratulation to Rob for winning last month's massage draw. Enjoy!



Exercise Examples



Swiss Ball Hamstring Curls

Great exercise for strengthening and activating your hamstrings

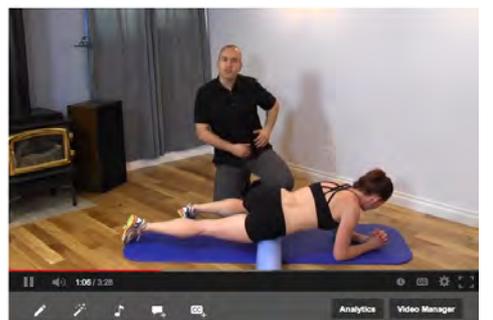
<http://youtu.be/jiq-Vv1-sac>



One Leg Split Squat

Great exercise for strengthening and activating your glutes. Also a great butt exercise.

<http://youtu.be/T--Sg-g0vnw>



Myofascial Release of the Hip Flexors

Great exercises that can help you release your hip flexors. <http://youtu.be/OC59W1zrLVM>

How can we help?

At Kinetic Health, we treat the body as one functional unit. From that perspective, when we look at individuals with *scoliosis*, we don't just see an abnormal curvature of the spine, but rather an entire body that has adapted to a structural deformity which has resulted in biomechanical compensations, dysfunction, and asymmetry (functional, muscular, and neurological).

Therefore, our treatment approach is integrated and specific to each individual patient's needs. When addressing the changes brought about by *scoliosis*, we look at the vertebrae and all the joints of the spine, all the interconnected soft-tissues including fascia, muscles, and nerves, as well as the overall health and conditioning of the patient. Our focus is to treat, rehabilitate, and enhance the quality of our patient's life.

Through Chiropractic Adjustments, we can effectively increase the range of motion of restricted segments of the spine and improve proprioception (i.e. awareness of movement and spatial orientation of one's own body arising from stimuli within the body itself). For example there are areas of the spine, just below the base of the skull, which are responsible for body positioning and balance. These respond very well to Chiropractic Adjustments which can have a considerable effect on helping the body find its equilibrium.

When addressing the soft-tissue structures that weave in and around the spine, it is important to understand that muscles, ligament, nerves, and fascia are affected differently depending on where they are positioned with relation to the abnormal spinal curvature. Muscles on the *inside of a curve* are often *shortened and contracted*, while muscles on the outside of the curve tend to be *over-stretched and weak*. In order to effectively treat these structures we employ various soft-tissue therapies (Active Release Techniques, Fascial Manipulation, and Graston) to break down the scar-tissue and soft-tissue adhesions that have formed as a result of the altered biomechanics of the spine. This allows for effective soft-tissue remodeling and healing, and impacts all areas above and below the sites of restriction that have had to compensate for structural changes brought about by *scoliosis*.

Rehabilitation



Rehabilitation is then focused on strengthening and lengthening all weak and contracted structures, while making sure not to over-stretch muscles and other soft-tissues that have already been elongated due to the convexity of the spinal curvature. Proprioception is also re-trained because it has been demonstrated that body positional awareness is crucial to the proper functioning of muscles, fascia, and the nervous system. In order to achieve this, we have patients perform exercises on wobble boards and balance balls, so that they are forced to recruit their core, hip, and spinal muscles and stimulate their nervous system to improve their posture and enhance their positional awareness.

As you can see, *scoliosis* is more complex than it appears on an X-ray (a simple two dimensional curve). We believe that it can be effectively treated, by addressing the body's interconnected anatomy as a single kinetic chain, especially if your goal is to treat the underlying cause of the condition, not just the symptoms.

If you have any questions with regards to this or any other musculoskeletal condition please feel free to contact us at **Kinetic Health (403-241-3772)** or you can find us online at www.kinetichealth.ca

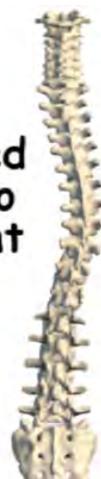
Normal Spine Curvature

- Even Shoulders.
- Straight spine no lateral curve.
- Pelvis level.



Scoliotic C - Curve

C-shaped curve to the right



Scoliotic S - Curve

S-shaped curve



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www.kinetichealth.ca

Welcome to the **Kinetic Health Clinic** website. Kinetic Health is located in northwest Calgary, in the community of Edgemont. Our site provides you with healthcare information about the conditions we treat, our treatment methodologies, conditions we can help resolve, contact information, and information about our staff. You can also download **Admittance Forms** for Dr. Abelson, Dr. Mylonas, and our Registered Massage Therapists.

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www.activerelease.ca

This popular site is dedicated to providing you with information about one of the most effective and popular treatment methods we use in our clinical practice - **Active Release Techniques (ART)**. We bring extensive expertise in ART. Dr. Abelson was an instructor in ART for over 10 years, has co-authored the international best-seller about ART "**Release Your Pain**", and contributed to the **ART Biomechanics Manuals** that are currently used to instruct ART practitioners. Both Dr. Abelson and Dr. Mylonas are fully certified in all ART techniques.



www.youtube.com/kinetichealthonline

This is the link to our **YouTube** channel. We are constantly updating our channel with videos about new exercises, conditions, biomechanical analysis, local races (marathons, triathlon's), and even cultural events and travel. Please check us out, and feel free to *share* our videos with anyone that you think could use this information.



www.kinetichealthcalgary.blogspot.ca

This is Dr. Abelson's blog, in which he shares his perspectives, opinions, and knowledge about a wide array of health conditions. If you have a specific health condition that you would like Dr. Abelson to cover in his blog, please send an email to kinetichealth@shaw.ca. If it is an issue than he has not already covered, he will do his best to cover the subject in a future blog. If it is a subject he has already written about, we will send you the link to that blog.



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