It was once said that “the hips don’t lie”. If only Shakira knew how true that is. The hips can provide some insight to potential injuries as well as performance expectations. The hips act as a bridge point between the lower extremity and the pelvis/trunk. The fact that the hip is a ball-n-socket joint enables it to be perfect for this job. A ball-n-socket joint has three degrees of freedom, meaning that it is able to move/perform in all three planes of motion relatively efficiently. In addition to serving as a bridge point, it also serves as a great source of power generation during closed kinetic chain (CKC) activities. To gain a deeper understanding of the hip, let’s take a look at the anatomy of this complex.
The hip joint is the union between the pelvis and the femur, with the pelvis providing the socket portion and the femur giving way to the ball portion. A ball-n-socket union offers great mobility, so we have ligaments in place to control the magnitude of certain motions at the hip. The ligaments of the hip complex are the iliofemoral (the strongest and checks hip extension – fig 1) pubofemoral (checks abduction and extension – fig 1), ischiofemoral (checks extension – fig 2), and the articular capsule (strong and dense unlike the feeble capsule at the glenohumeral joint). These ligaments all become taut with coupled movement of hip extension and medial rotation, making this the most stiff/stable position for the hip, relatively speaking.

As with most things, an entity’s greatest strength can also be its greatest detriment. Sometimes the resiliency of these ligaments hinders the mobility at the hip resulting in dysfunctional biomechanics in this region. Ligaments are non-contractile, but similar to muscles have an elastic component to them and as it is with other structures in our body fall subject to the S.A.I.D. (Specific Adaptations to Imposed Demands) principle and Wolff’s law. Both of these concepts have to do with the body’s response to stress. Wolff’s law relates to bones and states that bones respond along the lines of stress or lack there of placed upon them. Wolff’s law provides an explanation of Osgood-Schlatter’s disease in adolescent males, as well as osteoporosis in astronauts at space. The S.A.I.D. principle is often used to discuss training effect or lack thereof. It roughly states that your modality of choice will drive your results. So, you would not run a marathon to prepare for a power lifting meet and vice versa. With all of that said, let’s get back to the hip. The ligaments of the hip assist to provide great stability in an upright position. This is key in the transference of force/energy from the lower extremity through the torso to the upper extremity. Provided that the hips move into full extension. As modern man, we spend much of our day in a seated position. Over time this results, by way of the above noted concepts, in the shortening of the ligaments and muscles (hip flexors) about the hip. Now the resiliency of these ligaments, along with some assistance from the associated musculature to prevent excessive hip extension starts to work against you as they have become too short to allow the necessary hip extension to be biomechanically sound. This results in an anterior tilt of the pelvis which causes the lumbar spine to extend (increased lordosis – figure 3). When this
happens the lumbar spine starts to compensate for the lack of hip/pelvis mobility by becoming more mobile at the sake of its stability. This is largely why the incidence of low back pain is so prevalent in our society, because we use our back in a manner that is was not intended to be used. In addition, the knee and the foot/ankle are also adversely affected by a lack of hip mobility as they try to compensate for the hip. So it is of utmost importance that we keep our hips mobile so that we don’t predispose to ourselves structural dysfunction via arthrokinematic compensation. To keep our hips open, we must ensure that the musculature about the hip is firing appropriately.

Take a look at the density of the muscles about the hip and the construction of the ligaments about hip and pelvis and it will not take you long to the figure out that the hip region was made to handle and generate power. Unfortunately the evolution of modern man (fig 4) has turned a lot of these power houses off. Our adductors are weak, our gluteals are inhibited, and our hip flexors are tight. The muscular system of our hips is out of balance and as a result is failing us.
The tightness of the hip flexors helps to inhibit the gluteals and in some cases results in the over facilitation of the adductors and hamstrings which over time causes them to become weak secondary to over use. Decreased facilitation of the hips can result in dysfunction throughout the body. Decreased gluteal and hip external rotation facilitation can result in transverse plan breakdown throughout the lower extremities during closed kinetic chain activities. This breakdown can result in knee, ankle, and/or foot pain as these areas are exposed to excessive forces (some rotational) for which they are not built to sustain. When the hips lack sufficient extension force and/or stability in single leg stance, the muscles of the lumbar region (erector spinae, multifidii, quadratus lumborum, etc) become over active in a way that negatively reduces the lumbar region’s roll of stability in force production/absorption. With the lumbar region being part of the axial skeleton, the thoracic region, cervical region, and shoulder complex can be negatively influenced by hip dysfunction by way of its influence on the pelvis. The hip is a very important complex. Its dysfunction can manifest in a wide variety of problems throughout the body.

Another reason why our hips are lacking is the majority of resistive gym equipment found in commercial gyms requires that you sit to use them and/or don’t allow for full hip extension.

Chest Press – seated or supine, Lat Pulldown – seated, Leg press – lacks full hip extension (fig 5), Shoulder press machine – seated, Hack Squat – lacks full hip extension (fig 6), etc. They all do nothing to facilitate the hip in a functional manner. This is where training with a kettlebell (KB) can be beneficial. Prior to training with the KB, I would recommend that the person is proficient in exercises such as shoulder bridges, Cook hip lifts, prone planks, and facing the wall squats just to name a few. Exercises with KB such as swings, snatches (fig 7), Turkish Get-ups,
double KB front squats (fig 8), windmills, etc encourage proper hip activation and lumbar stability when performed properly. The physics involved in training with KBs encourages proper body mechanics. For example, too much anterior trunk lean with a double KB front squat will result in you losing your balance, dropping the KBs, in addition to creating a sore lower back. Proper power generation from the hips can be the difference in passing the RKC snatch test and failing it. To keep the tissue around our hips healthy, we must take part in a routine flexibility and soft tissue management program. This program should consist of stretches such as hip flexor (fig 10), piriformis, ITB/TFL, and adductor stretches, as well as soft tissue manipulation such as Active Release Techniques and self mobilizations (i.e. – lacrosse balls, The Stick (fig 11), etc). Although another topic, ankle health is a key ingredient to hip expression with lower extremity CKC activities.

Keep in mind that this article is just the tip of the iceberg, so to speak, when discussing the importance of controlled hip mobility relative to functional movement. May this discussion serve as a stepping stone in awakening us, thus transforming the way we view human movement, exercise selection, prehabilitation, rehabilitation, and performance enhancement.
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