

# Building a Better Lacrosse Athlete

By

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As it's popularity dramatically increases year after year, the competitive environment of "the fastest game on two feet" increases exponentially. From acceptance to Ivy league institutions to full college scholarships, and in some cases professional contracts, Lacrosse is a sport in which many young athletes are beginning to see the future potential. In these current days, it seems every kid whom chooses not to play baseball, picks up a stick, gloves, and mask and heads out for the Lax team.

With this popularity comes competition, and with this competition you will see young athletes practicing their stick work nearly every day as well as attending camps and seminars to hone those skills. With these fundamentals in place, how does the lacrosse player separate themselves from the competition? The answer is simple. Become more athletic. By increasing markers for athleticism such as acceleration, explosive power, strength, metabolic conditioning, etc..., the fundamentally sound lacrosse player can and will see greater success on the field. Let's take a look at some of the trainable aspects of building a better Lacrosse athlete.

1. **Balancing the athlete's structure:** If a muscle is tight, then the musculature which acts antagonistically to it's action may be weak or inhibited. For instance, we see this a lot in athlete's whom spend the majority of their workouts training the "mirror" muscles (Chest, biceps, and abs) while neglecting their structural antagonists including the external rotators, rhomboids, mid-trapezius, tricep and low back musculature. With all those tight muscles in the anterior part of the body, combine with weak and elongated musculature in the posterior, gravity slowly pulls one's posture into the shape of a C.

The potential for injury is greatly enhanced with these structural imbalances. For instance, the athlete whom demonstrates tight pecs/anterior deltoid combined with weak external rotators/mid trapezius may have an internal rotation about the shoulders, leading to a “Gorilla” like posture in their torso. Many therapists refer to this as upper cross syndrome. To add insult to injury, the hundreds of shots and long passes this athlete practices per day, further exacerbate the issue, particularly on the dominant shooting/passing side, as these motions are internal rotation dominant! This dysfunctional posture may lead to a decrease in performance, as proper range of motion about the shoulder capsule is inhibited. It may also become more difficult for the athlete to increase the velocity of their shot, while potential for shoulder injury is dramatically increased.

To combat this potentially “dangerous” situation, athletes need to achieve what the world’s most successful strength coach, Charles Poliquin, refers to as Structural Balance. Through his 30+ years of experience working with Olympic/Professional Athletes and teams in all sports, including numerous world record holders, gold medalists and Professional league MVP’s, coach Poliquin has developed a systematic approach to testing athletes for structural balance. After comparing the lifting and testing scores of thousands of the world’s most successful athletes, coach Poliquin found that ***those whom performed at the absolute peak levels of performance were those whom demonstrated certain strength ratios between agonist and antagonistic muscle groups***, in other words, they had Structural Balance. This is just one of the reasons why, “when a country wants a gold medal, they hire Charles.”

With proper structural balance testing, athletes are taken through a battery of exercises, each providing valuable information to the strength coach regarding muscular imbalances, compensatory movements and weakened musculature. This method is second to none in providing a qualified strength coach with the information they need to properly design a program and train the athlete. Remember, you are only as strong as your weakest link. If the athlete is thrown into a typical cookie cutter approach training regimen (as seen with the computer printout for small group training at many SAQ centers), without first correcting the structural imbalances, progress will be stalled and injury potential may rise rapidly.

One of the best things an athlete can do is find a knowledgeable strength coach whom is PICP certified. With the PICP certification, coaches learn to properly administer these crucial structural balance tests and interpret the results into an individualized (non-cookie cutter) program, designed to increase that individual athlete’s overall athletic ability while decreasing any risk of potential injury. Check out [www.apec-s.com](http://www.apec-s.com) as we have 9 PICP certified professional working under one roof!

- 2. Increase Low Back Strength:** If your low back is strong, then chances are you are strong. A bit simplistic, yes, but without strong low back musculature connecting your torso to your pelvis, you may get knocked over by a stiff breeze, never mind absorbing the impact of an opponent's cross check. All too often, the anterior carriage, particularly the abdominal musculature is the primary focus of coaches hoping to create better upright stability in their athletes. If the abs were the major stabilizers during upright pushing movements and impact absorption, then why does the low back musculature have much greater muscle activity during EMG studies on pushing tasks (5). Try this. Have your workout partner or teammate stand at arm's length. Place your hand on your stomach and have your partner lightly push you from the front or side. Did you feel your abs powerfully contract? Possibly not. Now try the same with your hand on your low back. You should have felt a powerful contraction of the low back musculature. Not only will a strong low back keep your risk of injury to a minimum, but it will also help in speed, acceleration, stabilization, and impact absorption, among other benefits.

To build a strong low back, it is wise to begin with the previously mentioned Structural Balance testing, as this will give the athlete insight into low back weakness from an upright position, as well as lower body muscular imbalances. An athlete may be found to demonstrate tight hip flexor musculature, which compromises his/her ability to maintain an upright posture during compressive loading exercises such as squats. If this athlete pushes through the incorrect technique, further damage to the low back may be experienced.

Some excellent exercises when performed properly and in the correct phase of training includes deep squats, deadlifts, back extension variations, reverse hyperextensions, and many strongman variations (See #4 for more on strongman training).

- 3. Avoid long distance running:** Unless you are training for a marathon, then why train like a marathon runner. The last thing an athlete participating in fast twitch dominant sport needs is excessive slow twitch development at the expense of their fast twitch counterparts. Lacrosse is a sport which is dominated by explosive (fast twitch) movements. If you want to slow down as an athlete, slow twitch training, combined with excessive amounts of fast food tacos and hamburgers, should do the trick. If you want to increase acceleration and to an extent, speed, increase your strength and power through proper weight training, sprint, and avoid

loooooooooooooooooooooooooooooo-sloooooooooooooooooooooooooooooo-distance training. If you want to perform like a sprinter, then train like one. If you want to perform like a marathon runner,... well you get the idea. Have you noticed that after an off-season of doing long slow distance running, when asked to perform multiple sprints, athletes often struggle more than expected. The sprints basically make their sprints crumble, creating an intense desire for them to go home and watch re-runs of the View to make themselves feel better. For an athlete involved in a fast twitch anaerobic energy system dominant sport, interval sprint training can be one of the most effective training methods to ensure your on-field condition.

Think fast twitch vs slow twitch. Which would you rather be, and which of these are those athletes whom are most successful in your sport? Don't neglect your strength training in place of muscle endurance training either, as this can also have a similar negative impact on overall athleticism.

4. **Strongman Training:** Strongman training builds functional strength! Functional strength is strength you can use on the field of play. A recent study by McGill et al found strongman training to be a highly effective training tool for increasing upright stability. The researchers stated *“each event challenges the body linkage and the stabilizing system in a different way so that the weak link will be found (9)”*. They concluded that the carrying events *“would enhance traditional lifting-based strength programs(9).”* Along with increasing the lacrosse athlete's upright stability on the field of play, strongman training also:

- **Increases lower back strength**
- **Increases core strength in an upright position**
- **Increases ankle integrity**
- **Increases grip strength**
- **Strengthens the joints and tendons**
- **Increases neuromuscular efficiency of co-activating muscles involved in upright stability.**
- **Increases functional strength of hip extensors**
- **Builds both lactic and alactic power and capacity.**
- **And if that wasn't enough, it builds mental toughness like no other training protocol.**

5. **Upright Core Training:** Are you tired of staring at the ground mindlessly counting dust particles, while holding an isometric prone plank hold for what seems to be an eternity. The whole time you are wondering if this is really doing anything for you. The sport you are playing is a standing sport with gravity's force vector going straight down your spine, rather than perpendicular through your spine like the current horizontal position you are holding. You are thinking: why am I doing this, and does this horizontal exercise really transfer to upright stability in a standing position? If you are wondering this, then you may realize the benefit to this exercise may not be worth the time counting strands of carpet, especially when compared to the benefits of upright compressive load training and carrying. For instance, squats and deadlifts at 80% of one's 1 rep max have been found to have statistically significant muscle activation of the core musculature when compared to horizontal isometric core targeted exercises (6).

Other studies have shown that *walking with a load further increased rectus abdominis activation by 132%*, when compared to standing (1). All the more reason to include strongman protocols into your training regimen, while cutting back on the time consuming horizontal isometric holds.

6. **Get a Grip:** Often overlooked or taken for granted, the strength of one's grip plays a key role in injury prevention and overall strength development (2,4,12,13) In his book Science of Sports Training, sport scientist Thomas Kurz recommended the measurement of handgrip strength using a hydraulic dynamometer to reveal the physical readiness of an athlete. This information provides valuable data to the coach regarding the athlete's ability to recover from workouts. This theory draws parallel to the findings of studies performed by Michiko et al (1999), Hunt et al (1985), and Frederiksen et al(2002).

Health of the rotator cuff has also been correlated to the strength of one's grip. Yasou et al (2005) found "grip strength had a significant correlation with the muscle strength of 45 degrees shoulder abduction and external rotation in the affected(injured) side (13)." A similar study performed by Budoff, results revealed an increased prevalence of rotator cuff weakness on the ipsilateral side of a hand injury or disorder (2).

Besides strongman training, another method of training ones grip strength is through the use of grip enhancers and free weight bars of varying thicknesses . According to Ratamess et al, "these bars have the potential of enhancing grip strength because of the higher degree of

difficulty performing exercises while grasping the bar in an area of range of motion where gripping ability is relatively weak. Studies have shown an ascending/descending strength curve such that grip force declines in proportion to the diameter of the bar or cylinder used (11).” In their study, Ratamess et al found a reduction in the 1 rep max of pulling exercises with greater bar thicknesses. Though their findings did not reveal any changes of 1 rep max in pushing exercises with greater bar thickness, *the neural drive of the hands and forearms to hold and stabilize the bar could have a positive transfer of training effect on performance.*

7. **Eat some Protein:** Here is a novel idea, try trading in the bagel for some high quality protein and fat. If you want to build muscle, you need the building blocks of muscle: Amino acids. Some simple steps to increase your protein intake include:

- **Protein at breakfast:** Try not to have the same thing every morning. For instance adding some cage free organic eggs on Monday morning, grass fed beef on Tuesday, Wild Caught Salmon on Wednesday, Bison on Thursday, and then back to the eggs on Friday should do the trick. This will help you to avoid the development of any food intolerances or low level food allergies.
- **Pre-Workout Protein:** Some good ideas for pre-workout snacks come from expert nutritionist Jonny Bowden and Coach Charles Poliquin. An apple with cashew or almond butter is a good pre-workout snack, as are some form of cold water small fish, such as sardines.
- **During Workout Protein:** Branched Chain Amino Acids are key here.
- **Post-Workout Protein:** Be sure to incorporate a post workout recovery shake after each workout, hard practices included. The sooner you can bring your body into an anabolic state, the sooner recovery begins.

As a Lacrosse athlete, remember, just as important as stick and skill work, increasing your athleticism should be of high priority.

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