

# PSPN Sports and Health Report

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## ACL Injuries: How Can They Be Prevented?

Written by Michael Millanes, DPT, from *The Physical Edge Performance Driven Physical Therapy and Fitness*, in Arcadia, California.

With the increase in participation of youth sports and the level of competition, the incidence of sports injuries has grown. ACL (Anterior Cruciate Ligament, one of the four knee ligaments) injuries can be especially devastating to an athlete's competitive season and sports career.

The ACL can be damaged via contact and non-contact mechanisms; the majority being non-contact injuries. Understanding the mechanism is an important factor in preventing these injuries. While most contact injuries cannot be prevented, non-contact injuries can be prevented by training athletes to have increased functional knee stability and improved neuromuscular control of their lower extremities. Athletes may be predisposed to ACL injuries because of inflexibility, instability, improper biomechanics or a list of other factors that should be assessed prior to starting an ACL Prevention Program. We recommend allowing 6 weeks to implement a warm-up, stretching, strengthening and plyometric program performed 3 times per week to effectively prevent knee injuries.\*

- Warm-up:** The warm-up is one of the most important parts of an athlete's prevention program. Proper warm-up should begin with an aerobic activity like jogging for 5-10 minutes with a 5 minute cool-down. Then incorporate dynamic stretching—stretching muscles while moving—to actually increase power, flexibility and range of motion. Dynamic stretches should include: walking, lunges, straight leg marches, back pedaling, lateral shuffling, carioca, skipping and drop steps.
- Functional Strengthening:** This portion of the program focuses on lower extremity strengthening to create a more stable knee joint. Athletes master low intensity bodyweight activities at high repetitions before adding resistance. One of the most important strengthening exercises that mimics sport specific activities is the lunge. Lunges should be performed in multiple planes: forward, forward diagonal, lateral, backward diagonal, and backward. Technique is vital; the knee does not go in front of the toes, keeping head, chest and shoulders up and back. Strengthening of the hamstrings is vital in stabilizing the knee during running and changes of direction. It is especially important to strengthen the hamstrings eccentrically. Three essential hamstring exercises include: Russian hamstrings (kneeling, having partner hold feet, and slowly lower body to the ground), single leg Romanian deadlifts (standing on box with weights in hand, knees slightly bent, and reach beyond toes), and curls on the physioball (supine, feet on ball, lift hips and curl heels, return to starting position).
- Plyometrics:** Plyometric exercises are used to build power, strength and speed. The most important element on the plyometric program is the landing. During landing, accept weight on the balls of your feet slowly rolling back to the heels with a bent knee and a straight hip. Buckling of the knees is never allowed. Plyometric exercises should be progressed from low intensity jumps, to multidirectional bounding, to single leg box jumps. To help prepare the ACL and surrounding muscles for sudden, unpredictable movements, emphasize lateral jumping and rapid jumps with changes in direction.
- Agility Drills:** Agility is the ability to keep the body under control during rapid changes in direction. It is important to strengthen and emphasize lateral movements to develop a strong base for ACL agility training. Overall athletic agility drills include: shuttle runs with forward/backward running, diagonal runs, and the multidirectional hand signal drill.
- Stretching:** The prevention program is completed at the end of the session with static stretching to achieve maximum muscle length which balances muscle strength and flexibility. Static stretching of the calf, quads, hamstrings, hip flexors, adductors and abductors is recommended at 3 repetitions for 30 seconds.

By following these simple steps, studies have shown a major reduction in ACL injury that ranged from a three to sevenfold decrease in ACL injury incidence.

For more information or questions for Michael regarding the ACL prevention program, please contact PSPN at 1-877-360-PSPN (7776). \*Always seek medical advice before beginning an exercise program.

## PSPN Asks the Experts...

### "What are the Most Common Sports Injuries?"

We asked our participating physical therapists, what are the most common injuries that you treat?

Here's what Ramon Lopez, from Lopez & Associates Physical Therapy and Sports Rehab in Redondo Beach, CA, had to say:



Ramon Lopez, MPT  
Physical Therapist,  
Lopez & Associates

"Student athletes often suffer from shoulder or knee injuries in sports like volleyball, baseball, tennis, soccer, basketball, lacrosse, track and field, and football. Shoulder injuries like rotator cuff tears/strains, labral tears, tendonitis, and bursitis usually occur in athletes who repetitively throw or swing their arms. This is caused by muscle imbalances and weakness in the shoulder stabilizing muscles, rotator cuff muscles, and core muscles resulting in overstraining the shoulder joint.

Knee injuries usually consist of tendonitis, sprains or strains, or tears in the meniscus or ligaments (i.e. ACL tears). A traumatic impact or an awkward fall can cause these injuries, which can be hard to prevent. However, aside from this, muscle imbalances can exist which can be corrected by doing specialized exercises to strengthen the hip and core muscles as well as the quad and hamstring muscles.

Physical Therapists are highly trained in evaluating and correcting these muscle imbalances as well as treating these types of injuries."

Thanks for the information, Ramon!

Vince Kame, Jr, Physical Therapist at Foothills Sports Medicine - Ocotillo in Chandler, AZ, shared the following helpful details!

"Very common injury problems this time of year with Little League Baseball winding down are shoulder and elbow injuries. This is usually caused by throwing too much or by using improper mechanics. Arm problems in youth can be prevented through proper training, strengthening and monitoring pitch counts. Strengthening of the Rotator Cuff muscles, the parascapular muscles that stabilize the arm as it moves, and the general upper body musculature will reduce the stress placed on the elbow and shoulder during the throwing motion. These are very specific exercises designed for the athlete in conjunction with a Sports Conditioning Specialist that work the muscles that accelerate or decelerate the arm during throwing. Throwing itself does not strengthen the arm sufficiently to reduce the stress placed on it. Throwing must be supplemented with a proper off-field strengthening program. For pitchers, the pitch count must also be monitored. Pitch counts for different ages can be reviewed at [usabaseball.com](http://usabaseball.com)."

Thanks, Vince!

For more information on the services Lopez & Associates and Foothills Sports Medicine offer, or questions regarding the helpful hints provided above, please contact PSPN at 1-877-360-PSPN (7776).



Vince Kame, PT-MS, ATC  
Physical Therapist,  
Foothills Sports Medicine -  
Ocotillo



Jon Hawkins (left)

S.T.A.R. Physical Therapy & Fitness Center, in Phoenix, AZ, had the honor of helping high school senior Jon Hawkins lead his basketball team to a perfect 30 and 0 season and ultimately to the 2009 Arizona State Championship. In fact, four out of the five starters for the Greenway High School boys' basketball team participated in Sports Performance Training at S.T.A.R. Jon was not only a leader on that state championship team, but he also displayed the determination and dedication necessary to deal with an injury during his season. His perseverance paid off when he was able to overcome painful patellar tendonitis.

He is no stranger to S.T.A.R. Physical Therapy & Fitness Center. He has been training at S.T.A.R. since junior high, putting in those extra hours to reach his full potential.

When a painful knee condition threatened to shorten his playing time, he jumped into physical therapy, working even harder with treatments and specific exercises to restore his knee to full function.

All that extra hard work paid off for Jon when he got to lift up the state championship trophy. Jon has continued his basketball career into college.

"If it wasn't for S.T.A.R. Physical Therapy I wouldn't be the type of basketball player I am today. During my years of working out here I put on a bunch of muscle, but added quickness, foot speed, and inches to my vertical jump, which is essential for basketball. But the biggest thing I gained was knowledge. They taught me how to train and push my body in ways that I never thought was possible. When I stepped on the court I realized just how much my training had improved my performance physically. I was not the slowest or leanest anymore, my whole body changed, including my confidence because of S.T.A.R. Physical Therapy. Not only are they great with training, but they also can treat injuries which is a great combination! I know there were times when I had quite a bunch of nagging injuries, and I was so grateful to be working out at a place that also cared greatly about treating those injuries. Again, without the help of the entire staff at S.T.A.R. Physical Therapy my goals of becoming the best basketball player I can be would not have been met without them. Thanks guys for your dedication and caring to make myself better!"  
Jon Hawkins

For information about the programs that S.T.A.R. Physical Therapy or Foothills Sports Medicine offer, or to find a PSPN provider sports program near you, please contact PSPN at 1-877-360-PSPN (7776).



Luis Manta (right - #21)

Luis Manta is a freshman at Hamilton High School in Chandler, AZ, and plays on Hamilton's varsity soccer team. He is one of two underclassmen to complete the Hamilton 500 (completing 50 reps of different exercises under 25 minutes). Luis has also helped his club soccer team win the State Cup. Since joining FAST's Sports Performance Program at Foothills Sports Medicine in Chandler, AZ, he has increased his vertical over 4 inches, his broadjump has increased 20 inches, and he has increased the amount of push-ups completed in 30 seconds from 25 to 36.

The F.A.S.T. Sports Performance Program is a training program that works on increasing speed, agility, power and strength. Luis' program emphasized proper biomechanics in his running form to increase his speed and agility, total body strength and power exercises to increase his vertical, broad jump and the number of pushups. From young, developing athletes and peak performing professionals, to recreational "weekend warriors," everyone can benefit from sports performance programs, such as Foothill's FAST training.

"F.A.S.T. gives you a necessary edge in order to perform at the top level. In a competitive sports environment you can do your best to avoid injury, however some instances cannot be prevented. After breaking my tibia and fibula I went to Foothills Sports Medicine in order to recover. After treatment they put me in the F.A.S.T. program. Being a competitive athlete I have been put into multiple recovery systems but, the Foothills staff not only put me back on the field but, have put me back on the field better than when I came off. With F.A.S.T. I have been able to mature as a player. In order to keep up with older kids on the varsity team I had to have an edge. F.A.S.T. gave me that edge and is training every angle of my game. I have worked on multiple areas like strength training for my legs, arms, and core. I have improved my balance and jumping ability.

"F.A.S.T. has even improved my sprinting speed. After training on my running technique I have been able to lead the scoring in multiple major tournaments. F.A.S.T. has helped me obtain many opportunities that I wouldn't have received without the program. F.A.S.T. has taken me to a whole different level of game. Thanks to Travis, Vince, and the rest at Foothills I have been able to strive toward goals that probably wouldn't have been possible previously." Luis Manta

Want to become the best you can be at your chosen sport, and prevent injuries? Enroll in a Sports Enhancement/Injury Prevention program using one of our PSPN providers!

### What is PSPN?

PSPN (Preferred Sports Provider Network) is a network of contracted physical therapy practices throughout the country who offer Sports Enhancement services at a discount. PSPN\* was created to bring awareness to the proactive athletic services our physical therapy practices provide. Not only do they provide injury and illness rehabilitation, they are also experts in strength, flexibility and agility improvement and injury prevention. Our providers have years of training and are truly the most experienced in providing quality preventive and sports fitness services.

\*PSPN is a service of PREFERRED Therapy Providers, Inc., the largest rehabilitation network of its kind representing private practice physical, occupational, and speech therapists throughout the country by contracting on their behalf with PPOs, Health Plans, and Third Party Payers.



### Strive for Athletic Excellence

Enroll in a Sports Enhancement Program using one of PSPN's network providers. Whether you want to improve your golf game, RBI, rushing yards, or any other sport, PSPN's network of providers can help enhance your sports performance and prevent injury. Our contracted physical therapy clinics offering sports enhancement programs have gone through rigorous credentialing and meet stringent quality standards. Their programs help athletes and those striving to increase their physical ability to become stronger and perform better, and at a discounted rate.

Enhance your performance.  
Become stronger.  
And stay healthy.



### Why use a PSPN Provider?

- PSPN providers are located within physical therapy clinics, and are highly trained Physical Therapists or Certified Athletic Trainers.
- On average, PSPN providers charge significantly lower than Athletic Training facilities.
- In addition, PSPN providers offer a 10% discount off of their already affordable prices.

Call PSPN to find a provider near you!

1-877-360-PSPN