



# ***NCSA – ACL PREVENTION*** **Conference Call In**

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# SiSu Systems ACL Prevention Program

## SiSu Systems ACL Prevention Package:

-	4 Weeks of Online Injury Prevention Workouts -	(\$140.00 Value)
-	DVD of SiSu Active Dynamic Running Series -	(\$30.00 Value)
-	DVD of SiSu Muscle Activation-	(\$30.00 Value)
	<b>TOTAL VALUE:</b>	<b>\$200.00</b>
	<b>Less NCSA Discount:</b>	<b><u>-\$70.00</u></b>
	<b>NCSA MEMBER COST:</b>	<b>\$130.00</b>

*\* Offer Valid for 7 days, pricing does not include taxes, shipping & handling*

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# Staggering Statistics

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- Approximately 100,000 ACL injuries occur each year in the United States.<sup>1</sup>
- 50% are in the 15 to 25 year-old age group.
- 70% of ACL injuries are non-contact-related and occur in all types of sports, at all levels of play.<sup>2,3</sup>
- Female athletes are 2 to 8 times more likely to experience a serious knee injury or ACL tear than male athletes.
- Over \$1 Billion was spent on ACL surgeries, rehabilitation, and related Medical expenses in 2006.<sup>4</sup>

# Important Vocabulary

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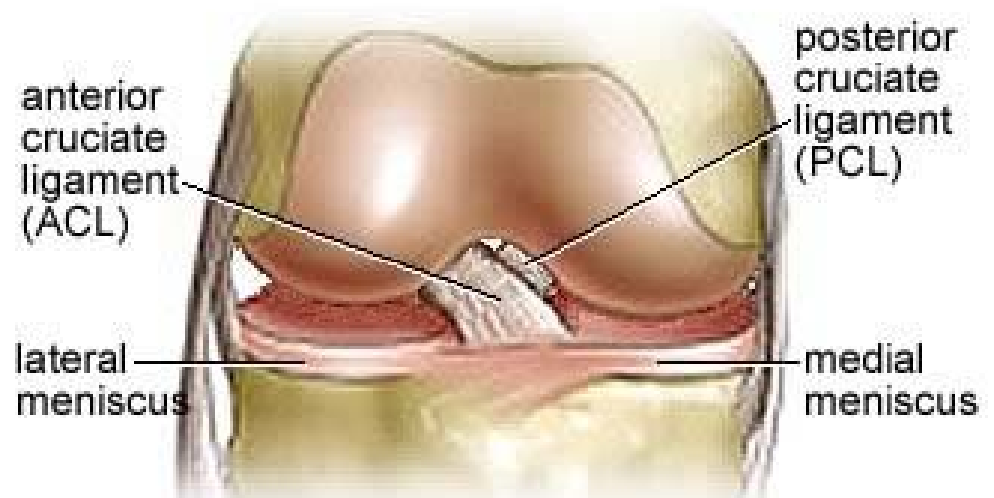
- **Proprioception** - The unconscious perception of movement and orientation in space from sensors within the body.
- **Neuromuscular** - Relating to the relationship between the nerves and muscles.
- **Ligament** - Connective tissue that extends from a bone to a bone. Example: ACL, PCL, LCL, MCL.
- **Active Flexibility** – Moving joint through its range of motion through controlled sport movement
- **Static Flexibility** – Holding a joint at its end state without movement

# What is your ACL

Your ACL stabilizes your knee from

- 1) inward (valgus) forces
- 2) frontal (anterior) forces

*\*unlike MCL and LCL, ACL damage usually requires surgery*



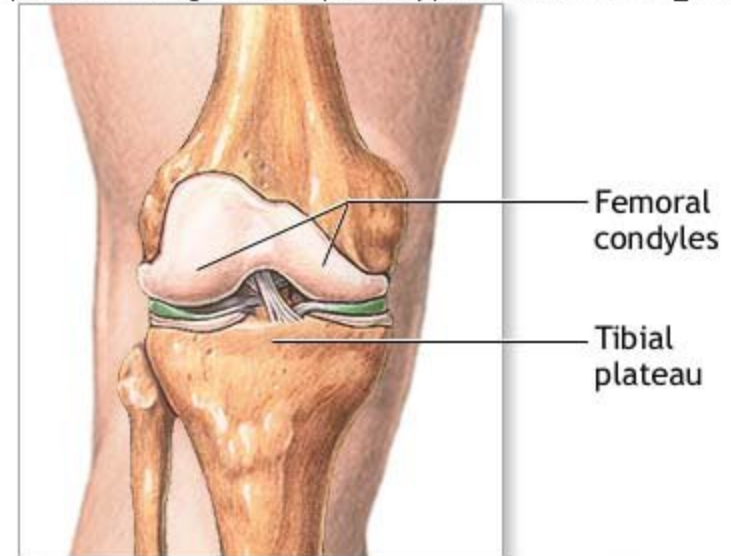
[http://www.aclsolutions.com/theacl\\_1.php](http://www.aclsolutions.com/theacl_1.php)

Frontal View of Left Knee

## What are risk factors - Anatomy

Femoral Condyle or Femoral “notch” is usually smaller in females and smaller framed males than adult males.

[http://www.nlm.nih.gov/medlineplus/ency/presentations/100088\\_1.htm](http://www.nlm.nih.gov/medlineplus/ency/presentations/100088_1.htm)



ADAM.

## Risk Factors – Anatomy & Gender

In athletes where hips are wider than knees, most women, the inward force is called a “valgus” force – the angle created is called “que” angle.

Athletes that are “knock kneed” have large valgus forces and large que angles.

These same athletes usually have lateral leg whip, poor recovery/turnover, and translates to poor arm mechanics as well.



## Risk Factors - Female

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Pelvic Size and Shape – Wider the Hips larger the risk

Hormonal Response – Ovulatory phase modifies estrogen, progesterone, and relaxin levels.

Proprioceptive Response – Improper Muscle Patterns

Single Sport Phenomena – Strong parts gets stronger, weak parts get weaker

## Preventative Programs

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- FIFA PEP Program – Santa Monica Orthopedics group ([www.aclprevent.com/pepprogram.htm](http://www.aclprevent.com/pepprogram.htm))
- University of Cincinnati – Knee Injury Prevention System (KIPS) ([www.uc.edu](http://www.uc.edu))
- SiSu Systems Active Dynamic Warmup – I & II ([www.sisusystem.com](http://www.sisusystem.com))

# Program Commonalities

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Plyometrics

Proper Running Mechanics

Proprioceptive Development

Nueromuscular Development

Proper Acceleration / Deceleration / C.O.D

Functional Strengthening

Increased Body Temperature

Active Range of Motion Development

# Preventative Measure - Plyometrics

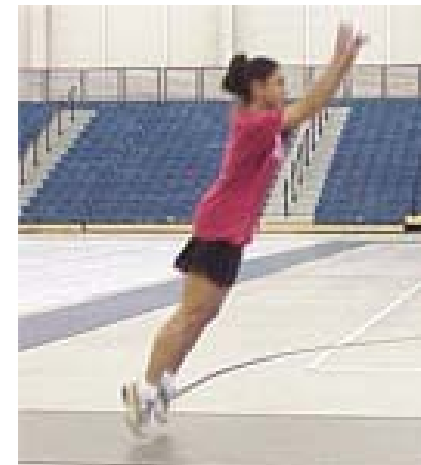
## Plyometric Benefit

- Stimulate Nervous System
- Force Body to React to Forces
- Create Muscle Impulse



## Plyometric Drills to Consider

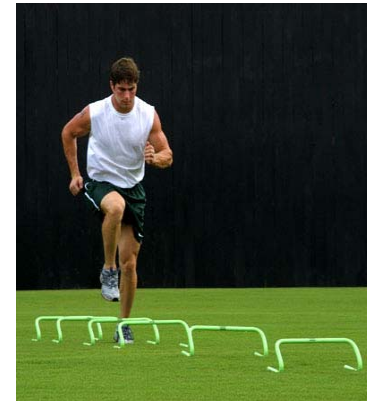
- Tuck/Scissor Jumps
- Broad Jumps
- Flings
- Jacks
- Pogo Hops
- Lateral & Forward Hops



# Preventative Measure - Mechanics

## Mechanics Benefit

- Create Efficient running motions
- Reduce Force angles through hips
- Sync Neurological Loop



## Speed Drills to Consider

- High Knees
- Lateral Shuffle
- Diagonal Run
- Crossover Run
- Backward Cycle
- Bounding



# Preventative Measure - Flexibility

## Flexibility Benefit

- Increased Active Range of Motion
- Manage large joint angles
- Support proper athletic movements



## Flexibility Drills to Consider

- Glute Stretch
- Hamstring Stretch
- Groin Stretch
- Quad Stretch



# Preventative Measure - Strength

## Strength Benefit

- Absorb forces that sport generates
- Manage your body angles better
- Increase Power Outputs



## Strength Drills to Consider

- Body Squats
- Lunges
- Calf Raises
- Assisted Glute/Ham Raises



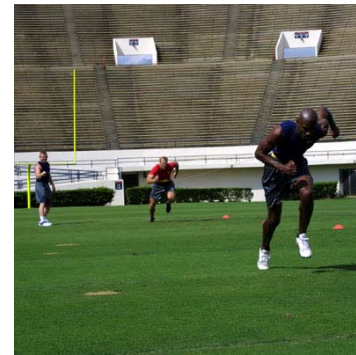
*4x BW of force when you sprint – 10x when you STOP*

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# Preventative Measure - Agility

## Acc/ Dec / C.O.D Benefit

- Manage body in transition
- Center of Gravity Management
- Base of Support Management



## Agility Drills to Consider

- Shuttle Run
- Diagonal Run
- W Drill
- Resisted Runs\*



*4x BW of force when you sprint – 10x when you STOP*

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## Holistic Approach

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- A good ACL Prevention Strategy Incorporates a multitude of protocols and can reduce risk by up to 88%<sup>1</sup>
- The order and intensity of those protocols are as important as the movements and patterns they are developing!
- A good program done poorly is just a poor program!
- Choose your program Wisely!!!



## Moving Forward

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Now that I want to start – what are the next steps?

The SiSu Systems Integrated Program!

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## The Research

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ACL prevention programs that include specific dynamic exercises can reduce your risk of injury.

- Cincinnati Sports Medicine Research Foundation (1999): untrained female athletes had a 3.6 times higher rate of serious knee injury during the season.
- Germany (2005): significant reduction of ACL injury for female handball players when trained in these types of exercises.
- Santa Monica Sports Medicine Research Foundation (2005/06): 88% decrease in ACL injury in 2005, 74% decrease in ACL injury in 2006 after incorporating these types of exercises.

# References

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