



# sports clearance:

return to sports decision making

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# when is it OK to return to sports?

A decision-based RTP model

# When can I play again?? " When ready " - the use of time as the sole determination of when an athlete may resume practice or play is a critical error

*Kevin Wilk, PT DPT FAPTA Return to Sport Participation Criteria Following Shoulder Injury: A Critical Commentary , August 2020*



Recovery for the youth athlete for ACL is typically slower than that of an adult

Weight-bearing and ROM restrictions

Meniscus/articular cartilage procedures

Delayed strength recovery

59% achieved  $\geq 85\%$  quad symmetry at 6 months



### Physiological factors

Decreased neuromuscular control

Rapid periods of growth

Slower strength recovery

Poor rates of passing RTS criteria

Higher reinjury rates (up to 32%)

### Psychological factors

Not being able to play

Social isolation

Self-esteem

Fear of pain/reinjury

Parental influence



# What is the likelihood of RTS after an injury?

## At what level??

Arthroscopic shoulder capsulolabral repair:  
86% RTS                    **73% same level play**

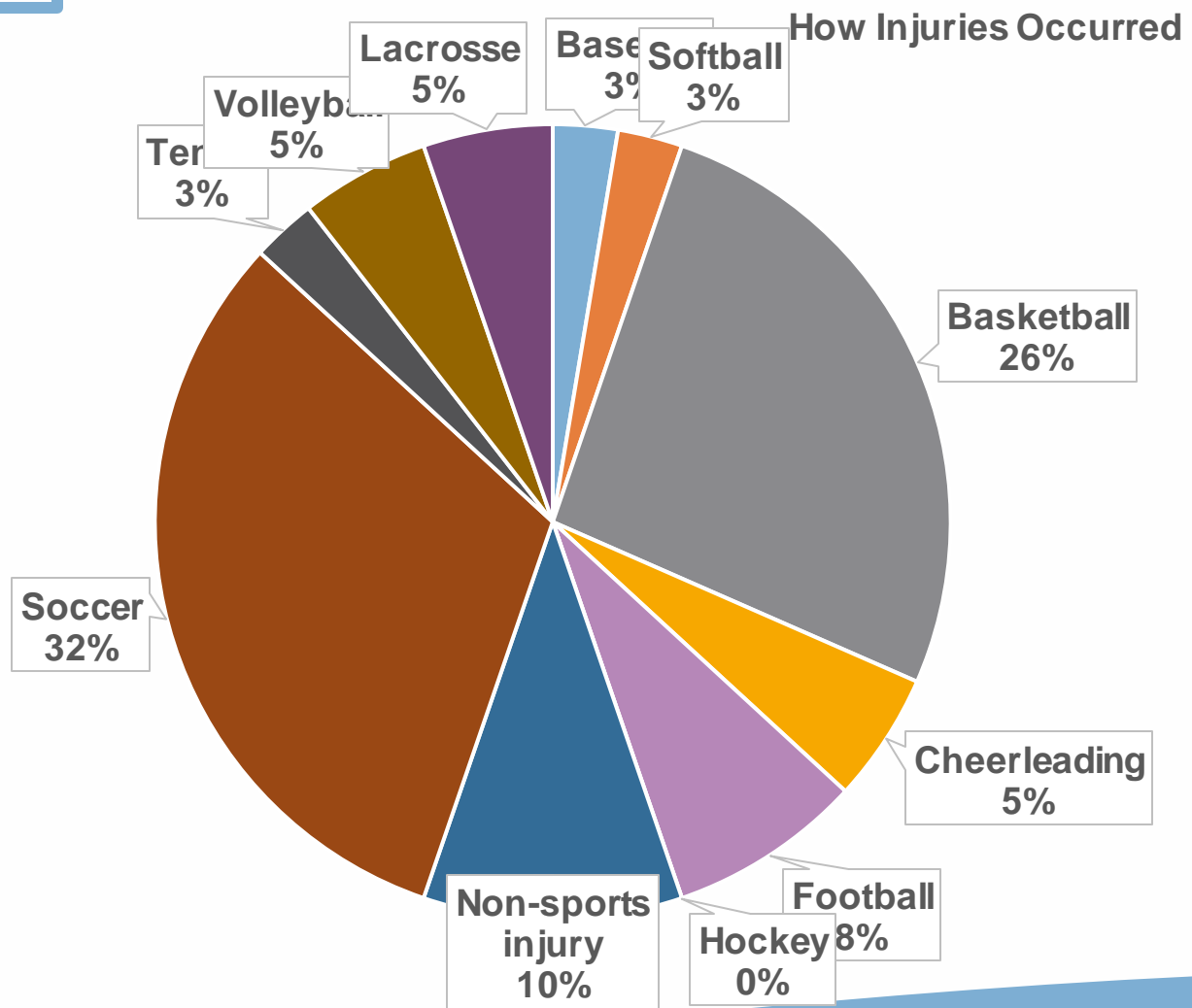
Arthroscopic Bankart repair:  
Satisfaction: 92.3%   **49.5% same level play**

Rehab < 6 months:   **23.1% significant reinjury**  
>6 months:        **9.6% significant reinjury**

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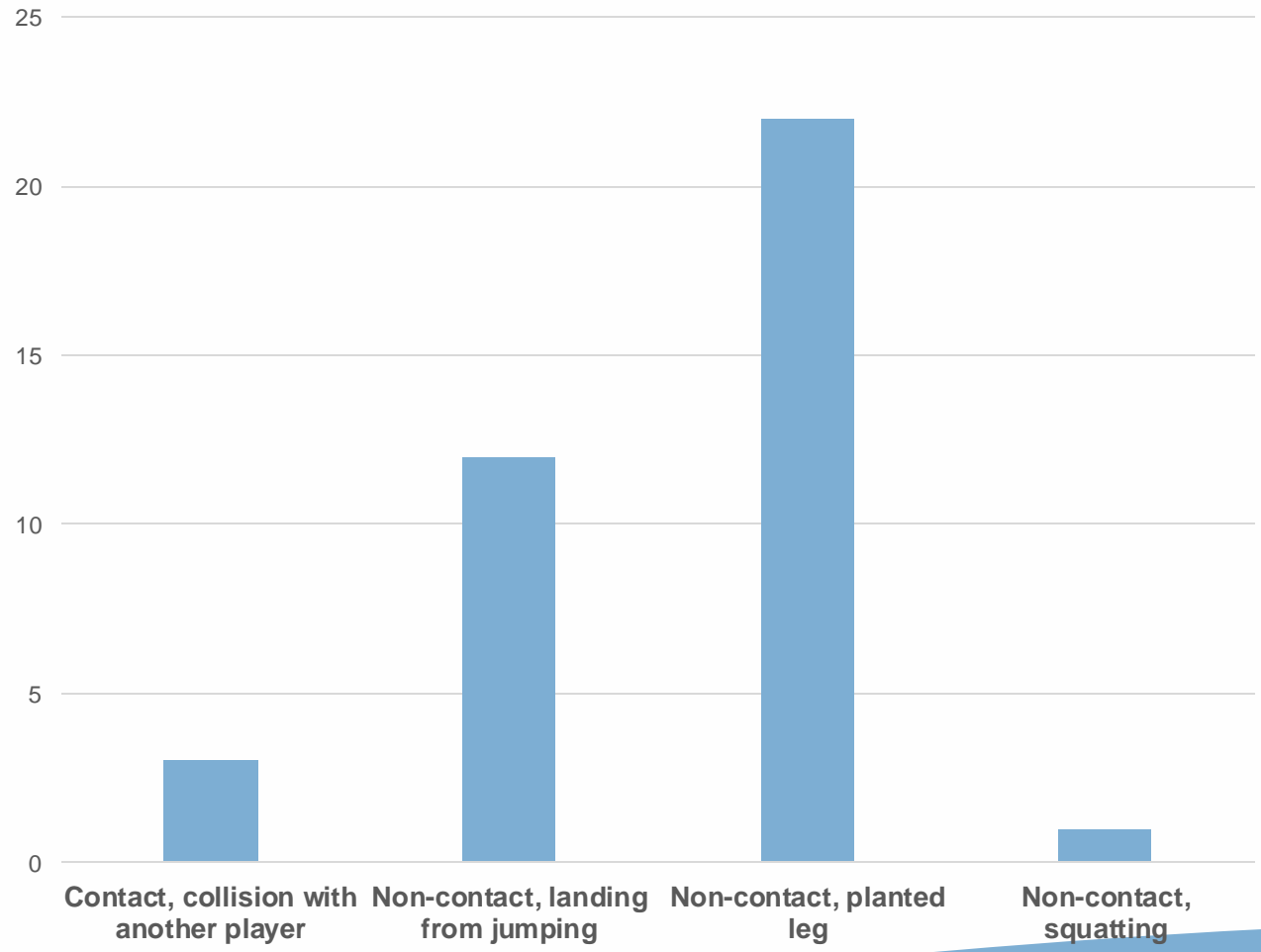


# DCH ACL prospective study



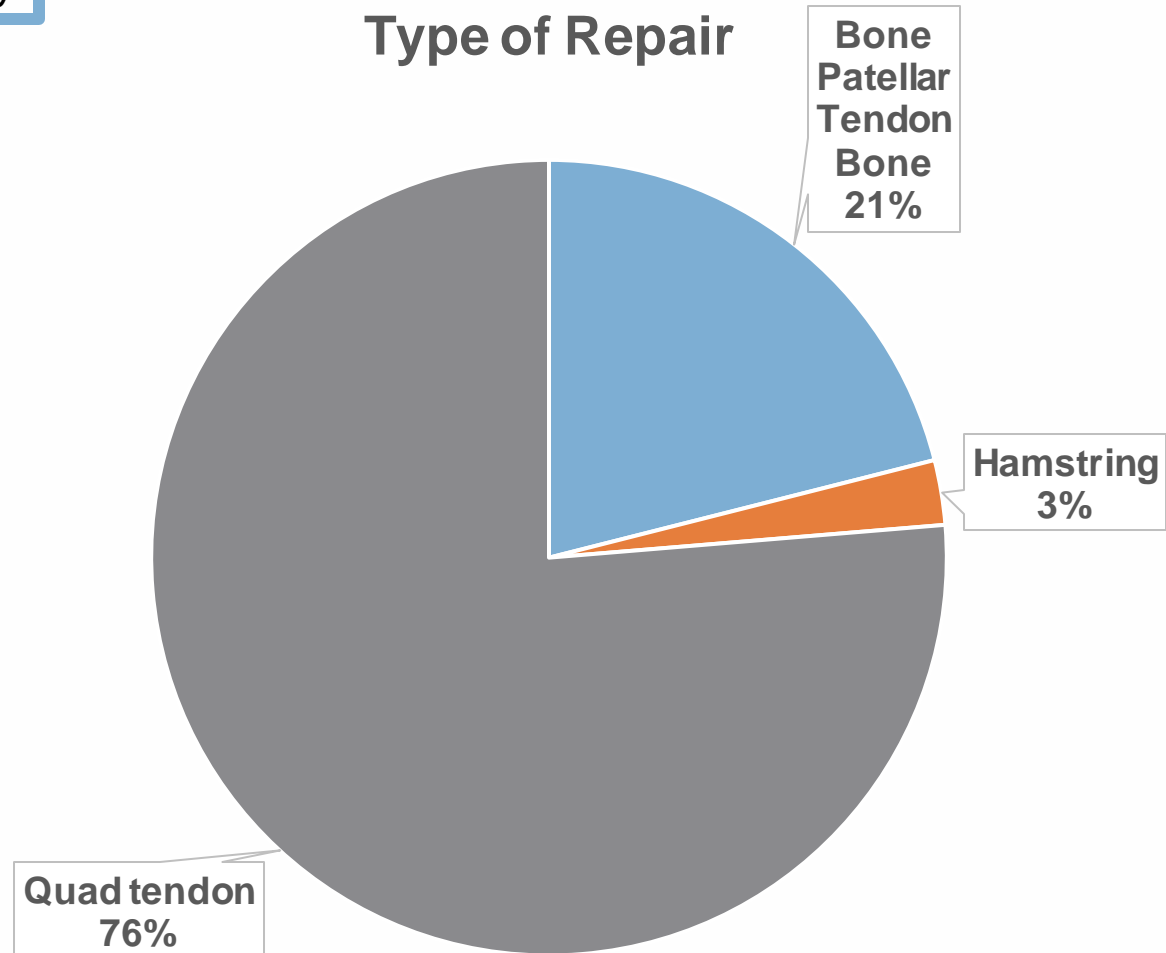
DCH ACL prospective study

### Mechanism of Injury



DCH ACL prospective study

Type of Repair





# ACLR

Return to sport: 71% - 83%



probability of RTS @12 months:



- Limb Symmetry Index  $\geq 90$  (2x)
- IKDC  $\geq 95$  (3X)
- Completes rehab!

Re-Injury Rate: 1.5% - 37.5%  
(graft rupture or contralateral side)

\*\* Flexion deficit of 5°:

**2x** risk of graft rupture

\*\* Anterior knee laxity > 3mm:

**2x** risk contralateral ACL tear

\*\* Female soccer player s/p ACLR:

**5x** higher rate of new ACL injuries

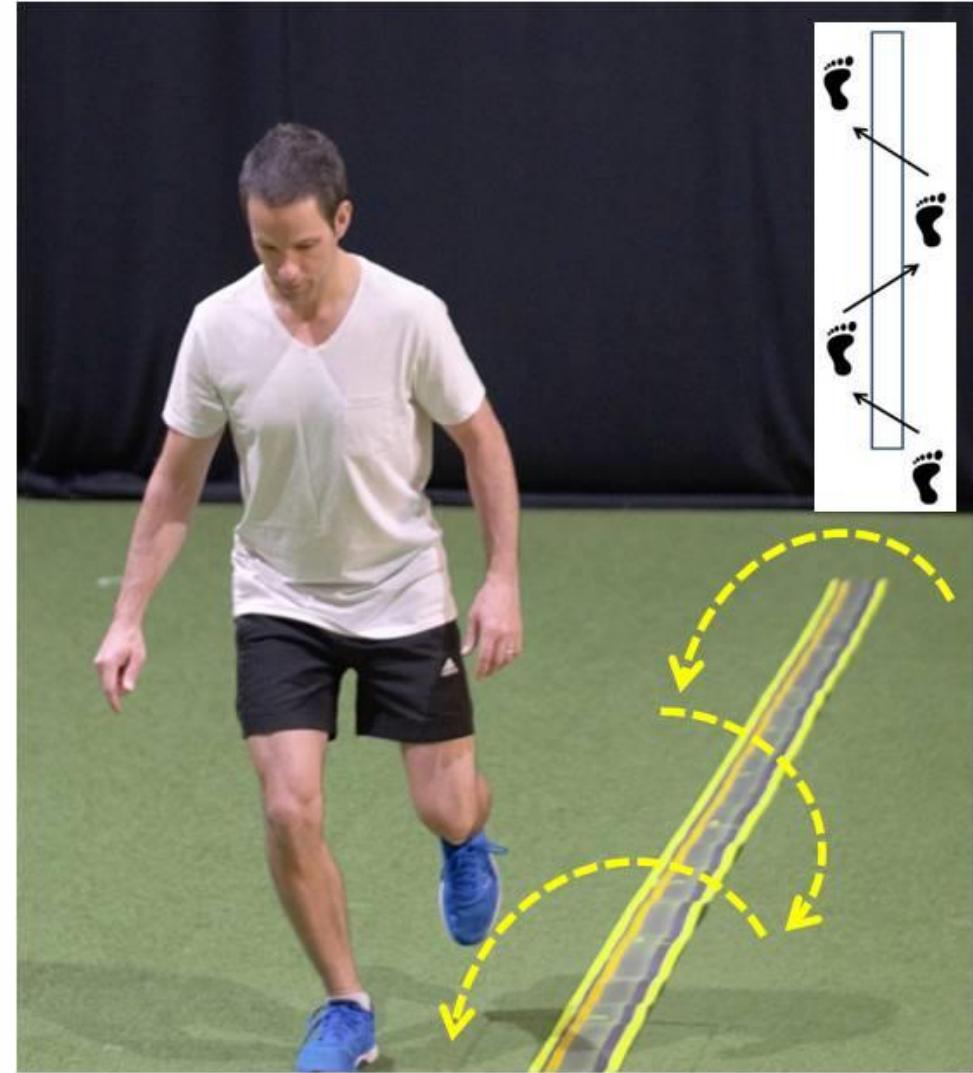


E. Carlos Rodriguez-Merchan *Return to Sports Activities and Risk of Reinjury Following Primary Anterior Cruciate Ligament Reconstruction*  
Aug 2022

The **Limb Symmetry Index (LSI)** can be calculated as the ratio of the involved limb over the uninvolved limb using almost any objective test.

- Knee extension isometric/isokinetic strength
- Knee Flexion isometric/isokinetic strength
- Single Leg Hop for distance
- Single Leg Side Hop for distance
- Crossover Hop for distance
- Triple Hop for distance
- 6 Meter Hop for time
- Lateral Hop test
- Single leg Vertical Hop test

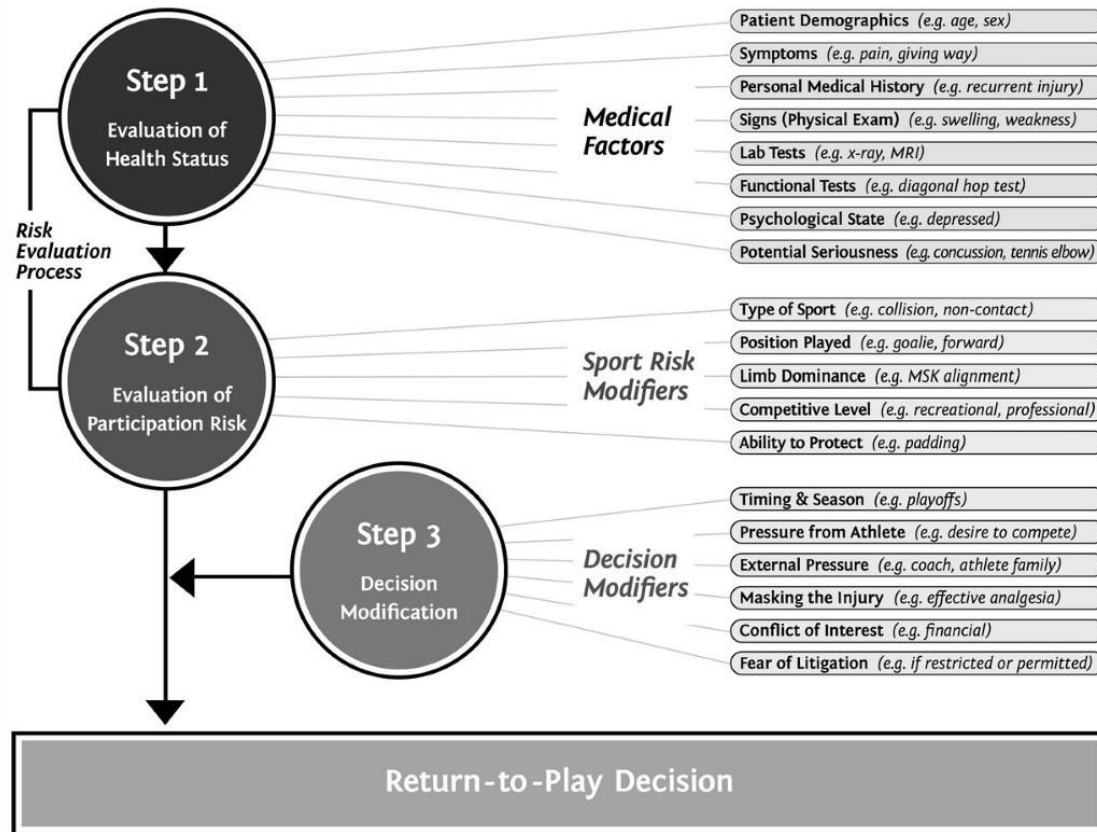
**IKDC** The International Knee Documentation Committee is a patient reported, knee-specific outcome measure that has been shown to be a reliable, valid and responsive tool for patients with knee conditions.



# Creighton decision-based RTP model

Creighton et al. (2010)

## Decision-Based RTP Model

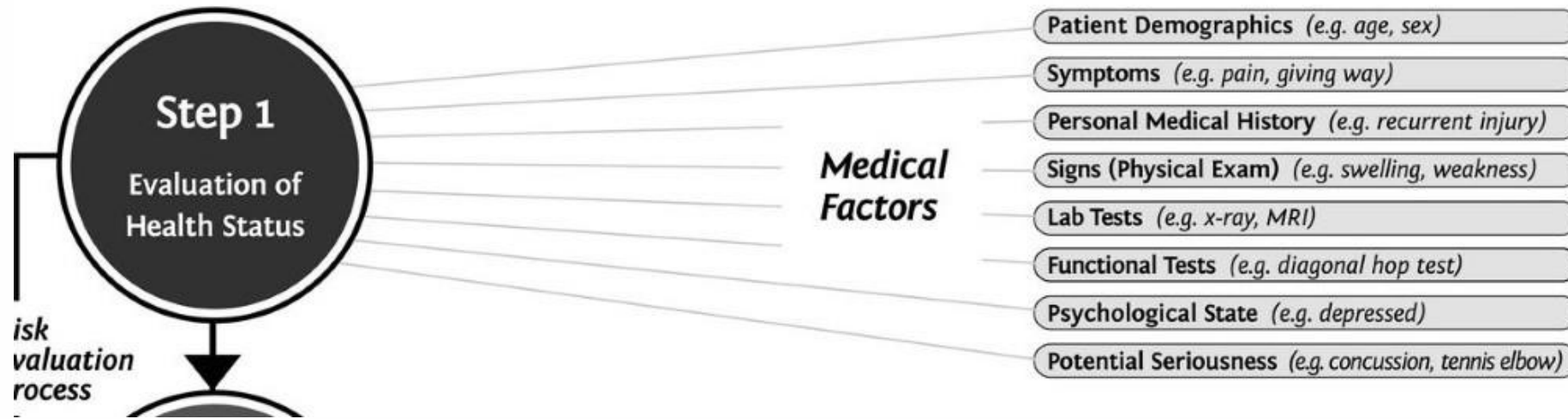


## General Decision-Making Factors

- Medical Factors
- Sports Risk Modifiers
- Decision Modifiers

# step 1 – evaluation of health status

medical factors



## Medical Factors

- Patient demographics
- Symptoms
- Personal medical history
- Signs (physical exam)

- Labs / imaging
- Functional screens / test
- Psychological state
- Potential seriousness / Long term considerations

# step 2 – evaluation of participation risk

## sports risk factors

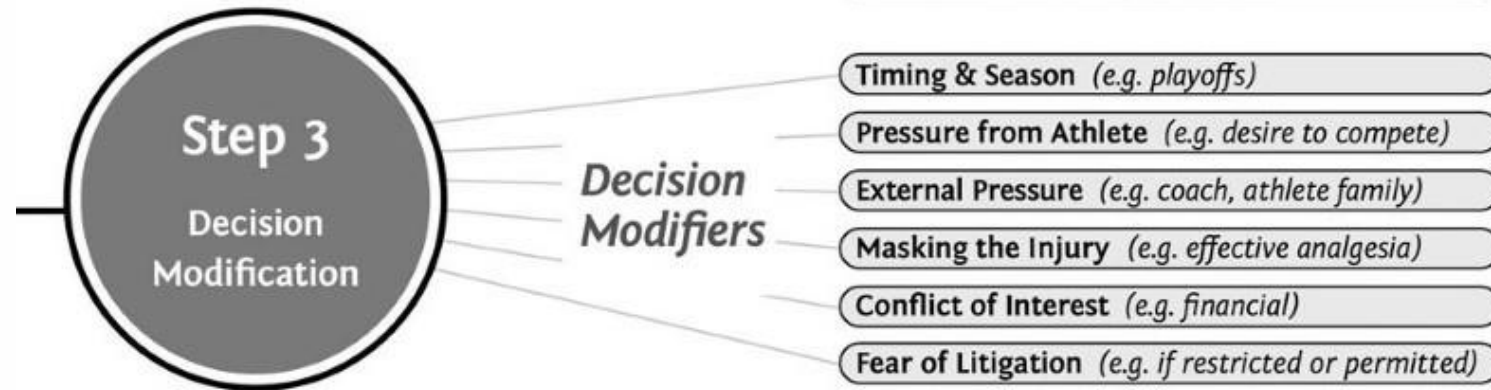


## Sports Risk Factors

- Desired sport(s) participated in
- Desired position(s) in the sport participated in
- Limb dominance
- Competitive level
- Ability to protect the injury / surgery

# step 3 – decision modification

## decision modifiers



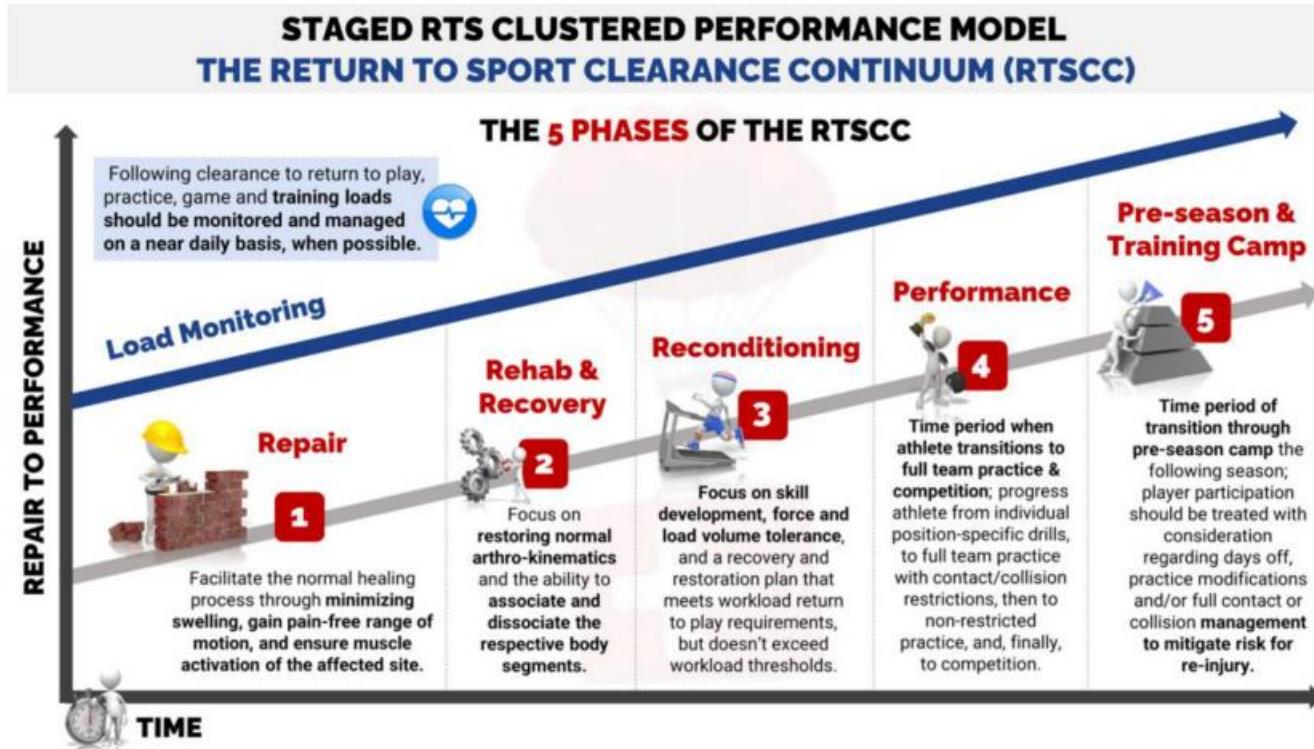
## Decision Modifiers

- Timing & Season
- Pressure from athlete
- External pressure
- Masking the injury
- Conflict of interest
- Fear of litigation

## return to sport clearance continuum

# return to sport clearance continuum

Draovitch et al. (2022)

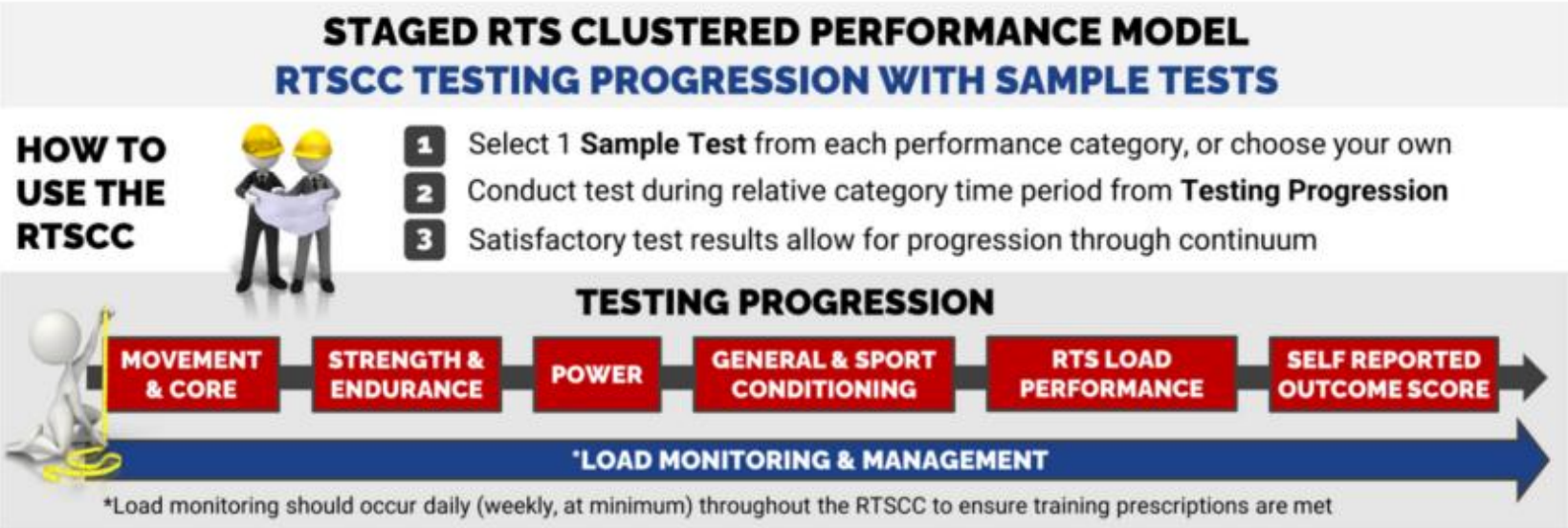


## Phases of RTSCC Thoughts


- Repair
  - Healing process
- Rehab & recovery
  - Restore normal pre-injury arthro-kinematics, restore associate / disassociate body segments.
- Reconditioning
  - Skill development, force and load volume tolerance
- Performance
  - Is the time between 1st RT practice/competition and subsequent RT practice/competition in the next season
- Pre-season & Training Camp
  - Re-evaluate ability to tolerate load and force volume form previous season



# progressive RTS screening



# participation specific breakdown

 Dayton Children's Hospital  
One Children's Plaza  
Dayton, Ohio 45404-1815  
Ph: 937-641-3000  
www.childrensdayton.org

**Ortho Rehabilitation Beavercreek**  
Dept: 937-641-3024

**Return to Sport Progression:**

The patient may participate in the following aspects of athletic participation:

General Warm-up:

Full participation in team general warm-up with NO restrictions

Notes: If there are change in direction (CID) or change in speed (CIS) aspects of this warm-up please understand that 75% of total speed and/or pace should be done.

Dynamic Warm-up:

Full participation in team dynamic warm-up with NO restrictions

Notes: The same focus for CID/CIS is in place for dynamic warm-ups as well.

Strength and Conditioning:

Full participation in team strength / weight room activities with NO restrictions

Full participation in team conditioning activities with small restrictions on CID / CIS as stated above

Team Drills:

Participation in team drills to include:

Individual skills – This category of athletic activity includes sport specific activities that are done without other player(s) or teammates. (Sports specific example: dribbling, passing, free throws, set shots)

Individual agility drills - (Sports specific example: ladder drills at 75 to 80% of her maximum speed with change in direction and change in speed drills)

Controlled one on one drills – These are individual drills that can be done with another teammate or player, that does not include contact, but should have a mechanism to control potential injury risk situation, which that could include direct supervision, repetitions and/or time. (Sports specific example: this can be chair drills, jab step drills, etc.)

Controlled team drills - These are drills that typical full player interactions that have set controls in place like direct

Dayton Children's Hospital  
1

General Warm up

Dynamic Warm up

Strength & Conditioning

Team Drills

Individual drills

Controlled drills

Non-controlled drills

Non-contact drills

Contact drills

supervision, repetitions and/or time. (Sports specific example: 5 on 0 offensive drills to include running offensive sets, inbounds plays, etc. There should be no defense involved in these drills)

Overall is doing well I would like to see her get involved in controlled basketball type drills and /or skills that don't have contact with them. Conditioning is also a focus for her at this time as well. If there are activities that she cannot perform, then skills or conditioning would be appropriate.

I am more than happy to answer any questions you might have. Thank you for your understanding as well as patience with this process.

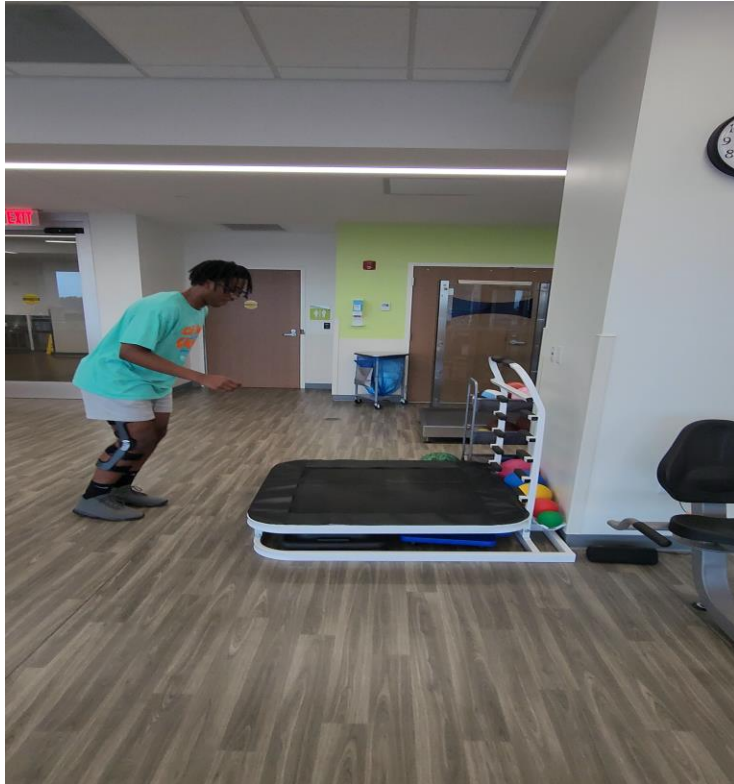
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Direct phone: (937) 947-0061 (call or text)

general case/clinical examples

# high school baseball player – aclr



# return to sport activities - aclr



# middle school basketball athlete - aclr



# references

Creighton, D., Shrier, I., Shultz, R., Meeuwisse, W., & Matheson, G. O. (2010). Return-to-Play in Sport: a decision-based model. *Clinical Journal of Sport Medicine*, 20(5), 379–385.

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