Risk and Rewards of Competition: Stemming the Tide of Injury

Central Connecticut State University
31st Annual Sports Medicine Symposium
Tuesday March 1st, 2016
New Britain, CT

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Disclosure

- I have no financial or other conflicts of interest to report

Athletic Injuries and Long Term Outcomes

- Complex issue influenced by many factors
- Culture of athletics & competition in US
- Not sure there is a right management answer
Athletic Endeavors

- We start kids very young
- Participate until very old
- Specialization

Different Levels of Competition

Injury Management

- How an Injury is Managed From the Start will Affect the Ultimate Outcome
  - Push too hard: Fail
  - Push too soft: Fail
Do Athletic Trainers Fuel the Issue

- AT’s work hard to speed recovery
- Embrace the tough guy or macho bravado – use it for rehab
- Think of athlete comes to you with pain – your try and eliminate it quickly

Collegiate Athlete’s Unique Demands

- Pinnacle of Career, last 4 years
- Never get a game or match back
- Can’t move a competition
- 52 weeks a year
- Train 50 weeks or 340 days
- 12 potential opportunities
- Average 6 min

Does How Fast One Returns to Sport Affect Re-Injury Rate

<table>
<thead>
<tr>
<th>ACL Reconstruction:</th>
<th>Rate of Re-Injury:</th>
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</thead>
<tbody>
<tr>
<td>Early Group: Between 2 &amp; 6 Months</td>
<td>4.9% Early Group</td>
</tr>
<tr>
<td>Late Group: After 6 months</td>
<td>4.7% Late Group</td>
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“These results indicate that the timing of return to sports does not influence the rate of subsequent injury.”
Parameters For Fast Return to Sport

- Return-to-sport guideline - Not time-specific guideline
- No Swelling, Full AROM, Symmetrical Strength
- Functional progression back into sports activities
- Mean time to light sports activities was 6.6 weeks
- Mean time to full competition was 5.4 months


Does How Fast One Returns to Sport Affect the Long Term Outcome

- 10 Year follow up on patients
- 66% involved in sports with jumping, cutting & pivoting
- 27% involved in lower level sports
- Level of function related to knee ROM


Long Term Effects of Orthopedic Injuries

- Ligament or cartilage injury increases risk of developing OA
- Incomplete injury recovery exacerbates this process
Ankle Injuries

- Most common sports injury
- Only 40% healed at 6 months
- High recurrence rates
- Reported diminished quality of life and reduced physical activity levels across lifespan
- High rate of CAL > risk of osteoarthritis.


Knee Injuries

- High risk of OA
- Estimated that 50% of individuals that sustain ligament or cartilage injury develop OA
- 10 to 20 years
- With pain & functional impairment

Amoaka, AO & Pijals, GG

Shoulder Injuries

- Subluxation vs Dislocation
- Labrum disrupted
- Functional vs non functional
- Boney involvement: Glenoid & Humerus
- Upwards of 90% recurrence rate in young athletes

Shoulder Instability: Risk

- Instability will happen again!!
- Number of instability episodes statistically influences the development of postoperative arthritis
- Increase risk of tissue, nerve & bone damage


Return to Play & Recurrent Shoulder Instability

- 45 collegiate athletes 1st time dislocation
- 73% Returned – 33/45
- 27% Had no recurrence – 12/33
- 64% Had instability episode – 21/33
- 67% completed whole season – 22/33


Hip Pathology

- Osteoarthritis and its precursors such as FAI are more prevalent in elite athletes compared with the general population.

Kapron, et al
- 95% of the 134 non symptomatic hips had at least one sign of cam or pincer impingement
- 77% had more than one sign

The Long Term Affect of Collegiate Injuries

- Collegiate athlete sustain more sever injuries with greater long term affects
- Athletes have more degenerative changes in their joints than non athletes
- Collegiate athlete have worse quality of life scores than non athletes later in life


Former Athletes vs General Population

Athletes 2x as likely to report exercise & ADL Limitations

<table>
<thead>
<tr>
<th>D1 Athletes</th>
<th>Non Athletes</th>
</tr>
</thead>
<tbody>
<tr>
<td>67% Major injury</td>
<td>28% Major injury</td>
</tr>
<tr>
<td>50% Chronic injuries</td>
<td>46% Chronic injury</td>
</tr>
<tr>
<td>70% Report practicing or playing w/ injury</td>
<td>33% Report practicing or playing w/ injury</td>
</tr>
<tr>
<td>40% Report diagnosis OA</td>
<td>24% Report diagnosis OA</td>
</tr>
</tbody>
</table>


Patient-Reported Outcome Measurement Information System

**Lifetime Health of College Athletes**

- Demonstrated a greater risk for joint health concerns later in life.
- HRQL did not differ.
- Similar life-span cardiopulmonary health.


**Strength of Being an Athlete**

**Muscle Function**

- Muscle deterioration in athletes occurs much later in life.
- If athlete stays active, deteriorates even slower rate than in non-athletes.

**Quality of Life Score**

- Individuals who have maintained muscle function and tone (fitness) may be able to ward off the effects of decreased health and disability.
- With proper muscle function and tone, health may be maintained.


**Are we Helping or Harming?**
CASE 1:

- 22 Year old 5th year senior
- 5th Day of preseason
- 8/11/14, Subluxes left shoulder

CASE 1:

- 48 Hours full AROM
- Returns to Non contact practice w/ harness
- 8/30/14 Cleared & plays in 1st game w/ out incident

CASE 1

- 9/21/14 – reports post game minor slippage
- Exam: Full AROM, Non Apprehensive, 5/5 Strength

- 10/11/14 – 3rd Quarter ant subluxation // Normal Exam, Harness re-adjusted and continues w/out incident
CASE 1

- 10/23/2014 - 2nd Quarter Ant Subluxation
- Normal Exam, Harness re-adjusted and continues w/out incident
- 2 Minutes before half posterior subluxation reduced on field

360 Degree Labral tear, Hill Sacks, Inferior Glenoid Rim Fx

CASE 1

- 10/28/2014 Surgery
- 12/9/2014 - Graduates and leaves to train for NFL
- 2015 First round draft choice
- Currently reports doing well & non symptomatic

CASE: 2

- 318 pound 22 year old Offensive lineman
- During 3rd quarter of a game, sustains right high ankle sprain
- Athlete soft casted and returned to finish game
- Post game compression, walking boot, and crutches
CASE: 2

Day 2
- X-Ray normal
- Walking boot for ADL
- Out of football activities 2 weeks
- Progress to limited non contact football activities week 3

CASE: 2

Week 4
- Scores 80% on Functional exam
- Cleared for limited contact in practice
- By end of week, cleared for game but does not play

CASE: 2

Weeks 5-8
- Limited in practice, full in games
- Continues rehab & Tx
- Functionally 90
- Season completed

Season completed
CASE: 2

- 3 1/2 Months post injury
- C/o continued stiffness and does not feel 100%
- Continue functional rehab
- Athlete reports feeling close to 100% at the start of spring football

CASE: 2

1 Year post injury
- Mild high ankle sprain on left side
- C/o continued ankle stiffness right side
- DF & IV decreased
- Functional assessment 95%

CASE 3

- June 2012
- Freshman physicals: athlete reports chronic hx shoulder subluxation
- 2+ Anterior shift
- Non Apprehensive, Full AROM, 5/5 Strength
CASE 3

- Reports Minor shifting w/ lifting & Football activities in season
- Maintains Strength & AROM
- 10/31/2012 - Instability episode stiff arming at practice
- Player adamant about finishing season

Post Season MRI & CT

CASE 3

- 12/14/2012 Surgery
- Later
- 1/22/2013 - Reports back to campus w/ severe scapular dyskinesis

Best Practices

- Every case is individualized
- Swelling, ROM, Strength, Function
- Don't lose focus on the individual
- Always be honest with outcomes
- No right or wrong
Questions


