

Risk and Rewards of Competition: Stemming the Tide of Injury

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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

**NO
PAIN
NO
GAIN**

- 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
- Cant 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

ACL Reconstruction:

- Early Group: Between 2 & 6 Months
- Late Group: After 6 months

Rate of Re-Injury:

- 4.9% Early Group
- 4.7% Late Group

"These results indicate that the timing of return to sports does not influence the rate of subsequent injury"

Shelbourne KD, et al. Am J Sports Med 2009;37(2):246-251.

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

Urbh, SC et al, Lower Extremity Review: Aug 2009. <http://jermagazine.com>

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

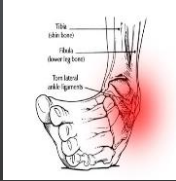
Shelbourne KD, Gray T. Am J Sports Med 2009;37(3):471-480

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 CAI, > risk of osteoarthritis.

Kaminski, et al, JAT 2013;48(4):528-545

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 & Pujalte, GG
Clin Med Insights Arthritis Musculoskelet Disord. 2014; 7: 27-32.*

Shoulder Injuries



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

Boone, JA & Arciero, R.A. Br J Sports Med 2010;44:355-360.

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



Boone, JA & Arcoor, R.A. Br J Sports Med 2010;44:355-360

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

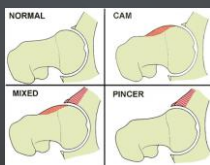
Dickens, et al. Am J Sports Med. 2014 Dec;42(12):2842-50

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



Kapron AL, et al. J Bone Joint Surg Am, 2011 Oct 05; 93 (19): e111

The Long Term Affect of Collegiate Injuries

- Collegiate athlete sustain more sever injuries w/ 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

Sorenson, SC, et al. J Athl Train. 2014;49(5):684-695

Former Athletes vs General Population

Athletes 2x as likely to report exercise & ADL Limitations

D1 Athletes

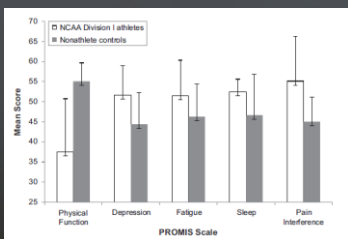
- 67% Major injury
- 50% Chronic injuries
- 70% Report practicing or playing w/ injury
- 40% Report diagnosis OA

Non Athletes

- 28% Major injury
- 26% Chronic injury
- 33% Report practicing or playing w/ injury
- 24% Report diagnosis OA

Simon, JE, Docherty, CI. Am J Sports Med. 2014 Feb;42(2):423-9

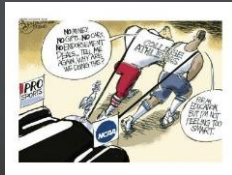
Patient-Reported Outcome Measurement Information System



Simon, JE, Docherty, CI. Am J Sports Med. 2014 Feb;42(2):423-9

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



Sorenson, SC, et al. J Athl Train. 2014;49(5):684-695

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

Simon, JE, Docherty, CL. Am J Sports Med. 2014 Feb;42(2):423-9

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

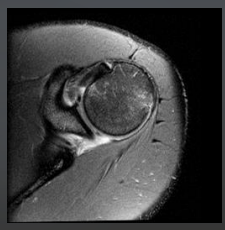


CASE 1

- 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



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



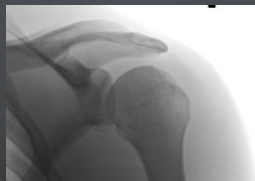
CASE: 2

- 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



Post Season MRI & CT

- 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

CASE 3



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



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