

OVERUSE, OVERTRAINING, AND BURNOUT

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DISCLOSURE

- No financial disclosure
- Personal and professional experience with sports related overuse, overtraining, and burnout

MY STORY



MARC'S STORY

- Club soccer teammate
- State player of the year, All-American
- "Elite" Division I school
- Graduated high school early and played well through the spring
- Limited in the fall. Redshirted.
- Transferred to a local DI school
- Didn't finish playing through college

OVERVIEW

- Definitions
- Prevalence
- Causes
- Signs/Symptoms
- Prevention/Treatment
- Resources
- Questions

DEFINITIONS

- Overuse
 - “Overuse injuries are sports-related microtraumas that result from repetitively using the same parts of the body, usually by overtraining.” Boston Children’s Hospital
 - Children at particular risk
 - "not small adults"
 - Often clinically follow a progression:
 - Pain after activity, then during activity without limitation, then during activity with limitation, then ultimately pain at rest.

OVERUSE

TABLE 1 Common Overuse Injuries in Young Athletes

Injury	Common Locations
Apophysitis	Calcaneus (Sever's disease), tibial tuberosity (Osgood-Schlatter disease), medial epicondyle
Bone stress injury (stress reaction, stress fracture)	Tibia, metatarsals, lumbar spine
Tendinopathy	Patellar tendon (jumper's knee)
Epiphysiolysis	Proximal humerus (little league shoulder), distal radius (gymnast's wrist)
Patellofemoral pain syndrome	Anterior knee
Osteochondritis dissecans or Panner's disease	Capitellum

DEFINITIONS

- Overtraining Syndrome
 - "Refers to the constellation of symptoms resulting from chronic excessive exercise with insufficient recovery to facilitate physiologic adaptation."
 - Overreaching
 - Functional vs. Non-functional

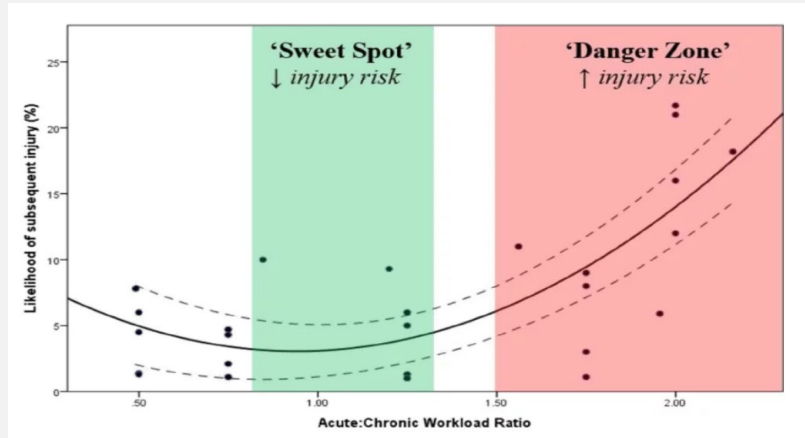
OVERTRAINING

- Often includes multiple body systems
 - Endocrine, Neurologic, Cardiovascular, and Psychiatric

OVERTRAINING

- ACWR
 - Acute on chronic workload ratio
 - Acute workload/chronic workload
 - Rolling Average
 - Work load in one week over the average work load of the prior 4 weeks
 - Exponentially Weighted Moving Average
 - More complicated but places a greater emphasis on recent activity
 - Better represents the "decay of fitness"

ACWR



DEFINITIONS

- Burnout
 - Spectrum that includes overtraining syndrome
 - In Athletes – Raedeke
 1. Emotional and physical exhaustion
 2. Reduced sense of accomplishment
 3. Devaluation of sport

PREVALENCE

- Overtraining syndrome
 - Over the course may be as high as 35% in young athletes

PREVALENCE

- Burnout
 - Syndrome experienced differently with the individual
 - Happens over the course of time
 - Makes it hard to sample
 - ABQ
- Attrition – Includes Burnout
 - 70% of youth athletes discontinue organized athletic participation by age 13
 - AAP Council on Sport Medicine and Fitness Sports Specialization - 2016

CAUSES

- Stress
- Parental pressure
- Coach pressure
- Peer pressure
- Identity/Autonomy
- Fear of failure/Perfectionism
- Professionalization of sports
- Sports specialization

CAUSES

- Stress
 - Sports are about stress
 - Pushing our bodies and mind "to the limit"
 - Cycle of failure and success
 - Physical and Mental stress are favorable, but only to a certain extent.
 - Dispositional optimism, mental toughness, and hope all protective in the face of stress

CAUSES

- Parental pressure
 - Good parental relationship with sports can be protective
 - Sports can help parents instill positive values/attributes
 - Poor relationship can be detrimental
 - When performance is the key metric of success vs. meeting personal goals

CAUSES

- Coach pressure
 - Similar difficult balance between pushing to achieve/meet goals and overworking
 - Negative perception of the coach leads to higher levels of burnout
 - Power hierarchy
 - Future sports success often based on coaches opinions/approval

CAUSES

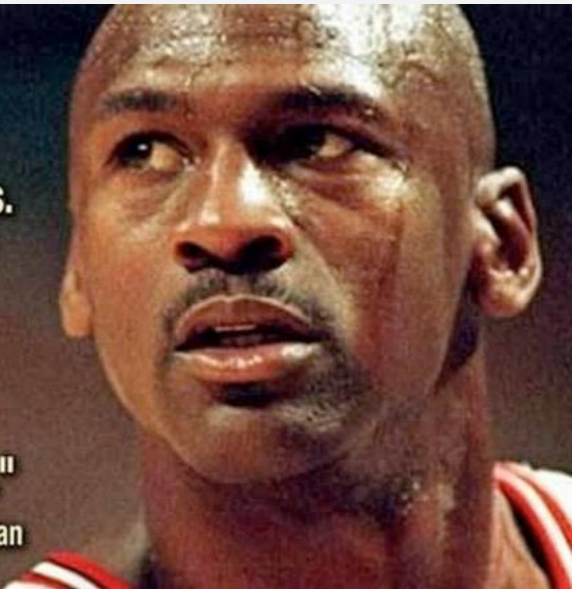
- Peer pressure
 - Social dynamic of sports
 - Especially within adolescents
 - Can lead to a sense of identity within a peer network

CAUSES

- Identity/Autonomy
 - Lack of a non-athlete identity/ability to separate self from sport
 - Self determination theory
 - Autonomy, Competence, Relatedness
 - Less self determination leads to burnout

CAUSES

- Fear of failure/Perfectionism
 - Mistake or failure to meet goals would lead to embarrassment or define them
 - Compounded with "letting down" parents, coaches, teammates
 - Perceived loss of future career/sports ambitions

A close-up photograph of Michael Jordan, looking slightly to the right with a serious expression. He is wearing a red and white striped jersey.

**"I've missed more than
9,000 shots in my career.
I've lost almost 300 games.
26 times I've been trusted
to take the game winning
shot and missed.
I've failed over and over
and over again in my life.
And that is why I succeed."**

~ Michael Jordan

CAUSES

- Professionalization of sports
 - Financial gain from sports is large and various entities try to take advantage
 - Particularly at younger/earlier levels



PROFESSIONALIZATION

- Madden San Miguel
 - "San Miguel's father, Jake San Miguel, who claims to have planned his son's life prior to his birth, trained him for a career in the National Football League (NFL) while the boy was still in elementary school, micromanaging his diet and exercise."

CAUSES

- Sports specialization
 - Directly associated with overuse injuries
 - Also carries its own psycho-social concerns discussed previously

SIGNS AND SYMPTOMS

TABLE 2 Burnout Symptoms

Fatigue
Depressive symptoms (eg, depressed mood, loss of interest in activities)
Loss of interest or motivation
Sleep disturbances
Irritability
Anxiety symptoms (eg, excessive worry, agitations)
Lack of concentration
Unexplained musculoskeletal complaints
Weight changes
Decreased academic or athletic performance
Decreased enjoyment in sports

DIAGNOSIS

- Important to rule out other causes of related symptoms
 - Both organic and underlying psychiatric care needs
 - Metabolic and inflammatory conditions
 - Hematologic condition
 - Psychiatric Conditions

PREVENTION/TREATMENT

- Requires awareness of the signs and symptoms by everyone who comes in contact with the player/patient
 - Coaches
 - Parents
 - ATCs
 - PTs
 - PCPs
 - Sports Physicians
 - Dieticians
 - Mental Health Providers
 - Friends

PREVENTION/TREATMENT

1. Promote the conduction of preparticipation examinations within the medical home to afford a more comprehensive approach to young athlete care that can incorporate guidance regarding overuse injuries, overtraining, and burnout.
2. Encourage athletic autonomy and intrinsic motivation, measure success on participation and effort, and foster positive experiences with parents, coaches, and peers, all of which can help prevent burnout.
3. Promote skill development and being well-rounded in physical activities while avoiding overtraining and overscheduling.
4. Encourage the athlete, parent, and coach to modify the causative factors and involve mental health professional professionals, if needed.

PREVENTION/TREATMENT

5. Encourage mindfulness tools.
6. Keep workouts interesting, with age-appropriate games and training, to keep practice fun.
7. Take adequate time off from organized or structured sports participation on a weekly and yearly basis.
8. Focus on wellness and teaching athletes to listen to their bodies.
9. Encourage further research to determine whether social determinants of health, including access to health care, and access to a variety of sports experiences influence the risk of developing overuse injuries, overtraining, or burnout.

RESOURCES

- AAP COSMF Clinical Report - Overuse Injuries, Overtraining, and Burnout in Young Athletes
- AAP COSMF Clinical Report - Sports Specialization and Intensive Training in Young Athletes

Understanding Athlete Burnout & Mental Health

Signs and Symptoms

- Problems with concentration, memory or ability to think clearly
- Changes in eating (overeating or loss of appetite)
- Unable to complete tasks
- Feeling overly worried
- Feeling sad, empty, hopeless or worthless
- Sensitivity to sound, sight, smell and touch
- Irritability and restlessness
- Loss of interest in activities previously enjoyed
- Withdrawn or disconnected from others
- Changes in sleep (difficulty sleeping or sleeping more than normal; sleeping during the day and awake at night)
- Changes in energy level

A combination of symptoms lasting longer than two weeks might indicate a mental health condition.

Signs and Symptoms that Require Immediate Attention

- Thoughts or plans of killing or hurting yourself or others
- Hearing voices or seeing things that no one else can hear or see
- Unexplained changes in thinking, speech or writing
- Being overly suspicious or fearful
- Sudden drop in school or work performance
- Sudden personality changes that are bizarre or out of character

Athlete Burnout

Athlete burnout is a syndrome of continual training and sport attention stress, resulting in staleness, overtraining and, eventually, burnout. Many athletes experiencing burnout report feeling trapped by circumstances of sports participation.

Signs and symptoms of burnout include:

- Leveling off or diminished performance or conditioning, including strength and stamina losses and chronic fatigue
- Physiological signs such as having a higher resting heart rate and blood pressure
- Cognitive issues such as difficulty in concentration, diminished work in school or forgetfulness
- Illnesses as a result of suppressed immune system
- Emotional issues such as disinterest, moodiness and irritability
- Low self-esteem, increased anxiety and depression as a result of falling short of sport demands

Best methods to prevent and treat athlete burnout:

Rest and time away from sports

If someone you know is in need of immediate crisis intervention, call or text 988 or go to your local emergency room.

Getting Help

There are many resources available to those in need:

- Primary care physician
- Local mental health centers
- Employee assistance programs
- Local Mental Health America affiliate
- Churches and worship centers

Source: Mental Health America, National Athletic Trainers' Association
 (Graphics provided by the National Athletic Trainers' Association (Updated 2022))

6 Ways to Reduce Overuse and Burnout Injuries in Young Athletes



- 1

Avoid sport specialization by participating in a variety of sports throughout the year
- 2

Limit training to no more than 18-20 hours/week
- 3

Limit practice to 1.5 hours/day and competitive games to 3x/week
- 4

Young athletes should have at least 1-2 days off/week to decrease risks of injuries
- 5

Young athletes should have at least 3 months off every calendar year, in increments of at least one month each, from organized sport training to allow for physical and psychological recovery
- 6

Focus on form and technique before intensity.

Developed by J. P. Barfield, D.A., FACSMT, Department of Physical Therapy, School of Health Sciences, Emory & Henry College, 2019



RESOURCES

- Changing the Game
 - Book and Website
 - Geared toward parents and coaches

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QUESTIONS

QUESTIONS

- For Dr. Brenner...