Athlete Health, Safety, and Performance Considerations

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JULY 26TH, 2026 | OKLAHOMA COACHES ASSOCIATION

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Thank You!

JAYHAWK ATHLETIC PERFORMANCE LABORATORY

Wu Tsai Human Performance Alliance

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Overview

- Background
- Today's Purpose (Learning Outcomes)
- Health Considerations & Activity
- Safety Considerations & Activity
- Performance Considerations & Activity
- Conclusions

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Background

Oklahoma State University (2026-pres.)

- Assistant Professor | Director OSU APL

University of Kansas (2023-2026)

- Assistant Professor | Assistant Director JAPL

University of Nebraska-Kearney (2022-2023)

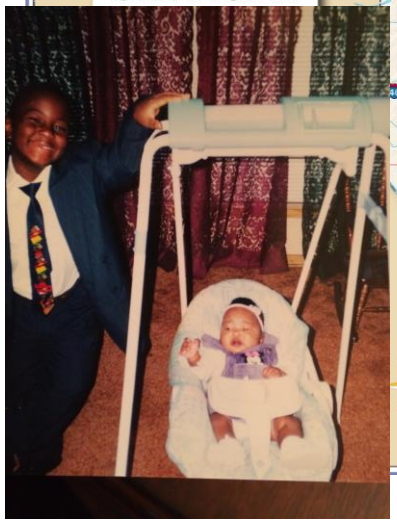
- Assistant Professor | Director LP

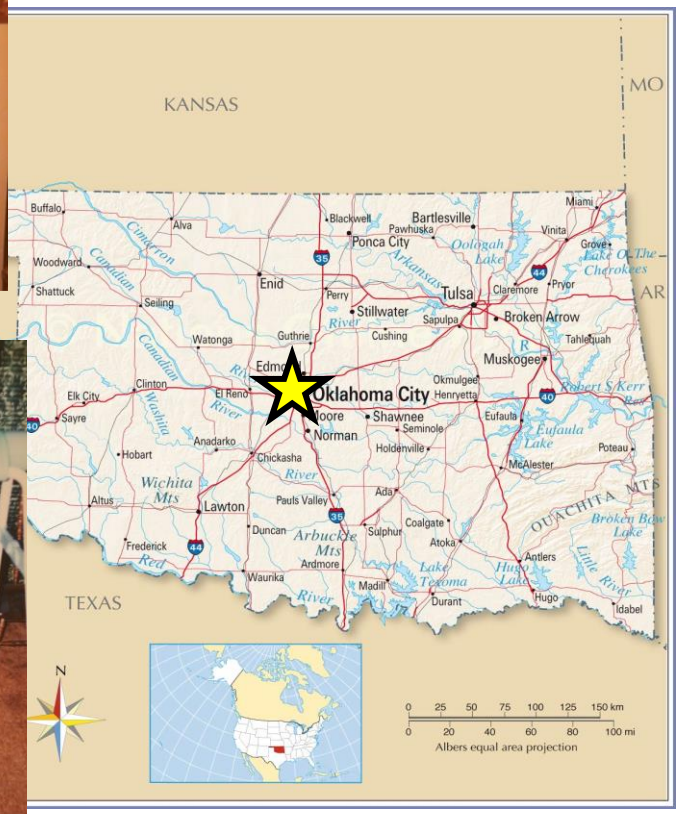
Oklahoma State University (2022, 2018)

- Ph.D. & M.S. Health and Human Performance

Midland University (2016)

- B.S. Kinesiology





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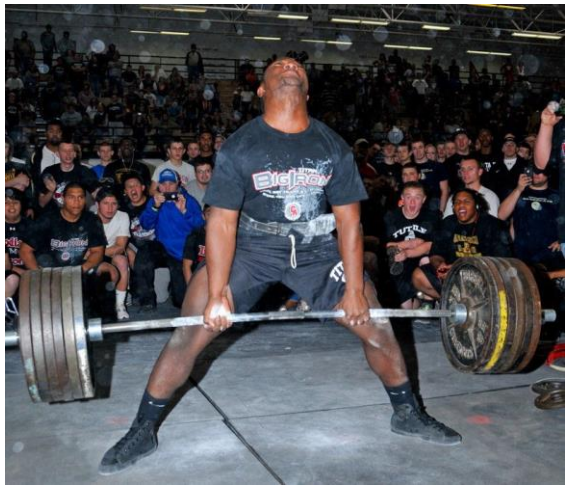
Background

ATHLETE

Carl Albert Football
2009 5A State Champions

Carl Albert Powerlifting
2011 5A State Champions



605lb. Deadlift
2011 State Powerlifting Meet

2x Team Captain
All-Conference

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Background

COACH

Jihad Woods
Pittsburgh Steelers

Bess Glenn
All-City VB

JJ McComas
State Champion, OSU Wrestling

Henry Hutchens
NEO A&M

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Background

SCIENTIST & PROFESSOR

T.J. Davis
2x MIAA OPOY

UNK WBB
MIAA Conference Champions

JAYHAWK ATHLETIC PERFORMANCE LABORATORY

JAYHAWK PERFORMANCE - FUN FORM FUNCTION

THUNDER OKC

KEARNEY COMBAT FIGHT TEAM

LOPER PERFORMANCE
DEVELOPING HEALTHY, FIT AND RESILIENT YOUNG ATHLETES

NCAA Division I

NCAA Division II

NAIA

USA BASKETBALL

MLS

NBA

NFL

SPELLMAN PERFORMANCE

NFL DRAFT 2022

USA

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Standing on the Shoulders of Giants

Coaches that always prioritized athlete health, safety, and performance.

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The Questions That Always Come Up

How do we win more games?

What do we need to do in the weight room?

How can we enhance strength, power, speed, etc.?

- Are athletes prepared for peak ***performance***?
- Are appropriate ***safety*** precautions being taken?
- Are athletes ***healthy*** and available for training and competition?

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Today's Purpose (Learning Outcomes)

Providing resources for….

- Enhancing athlete health
- Enhancing athlete safety
- Enhancing sports performance

Challenge you to….

- Self-assess
- Plan
- Implement

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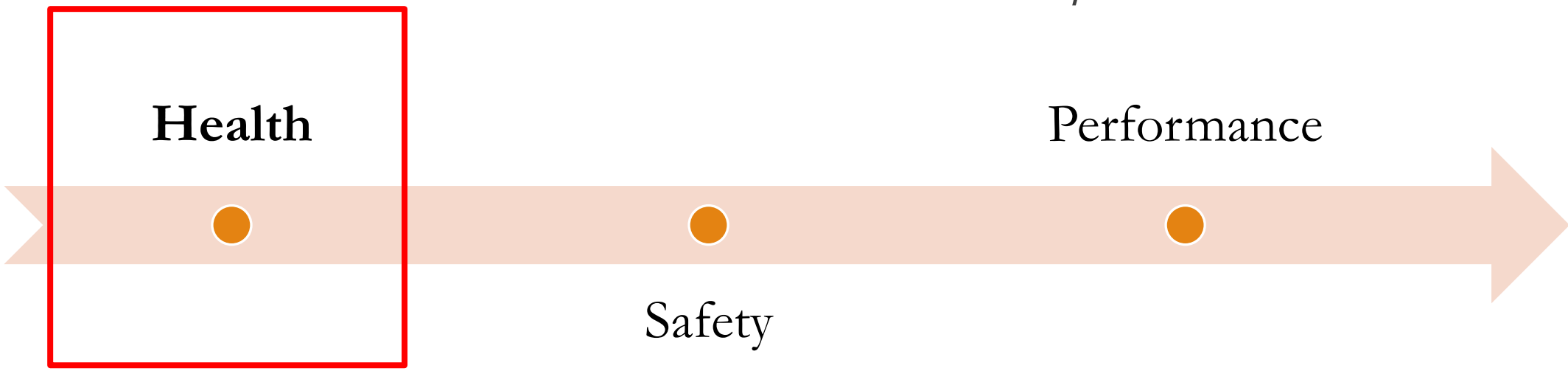
PART I: ATHLETE HEALTH

Health is a state of complete physical, mental, and social well-being, rather than merely the absence of disease or infirmity.



The best ability is availability.

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Why this topic?

OSSAA adopts new heat-safety measures ahead of fall sports season

Claremore Daily Progress, Okla.
Sun, Jun 21, 2026 . 3 min read

16-year-old from Bolton High School's football team dies from severe heat stroke, family says

USA SOFTBALL

Because I care.

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OSSAA Health Considerations

- **Pre-Participation Physical Examination –** must be signed by a licensed medical provider and the student's parent or guardian
- **Parental Consent –** parent or guardian consents to athlete participating in school sponsored athletic activities.
- **OSSAA Medical History –** requires disclosure of past injuries, surgeries, and current health conditions.
- **Concussion & Cardiac Arrest Acknowledgement –** fact sheets and signature forms verifying parents and athletes have reviewed the warning signs of **brain injuries and sudden cardiac arrest**.

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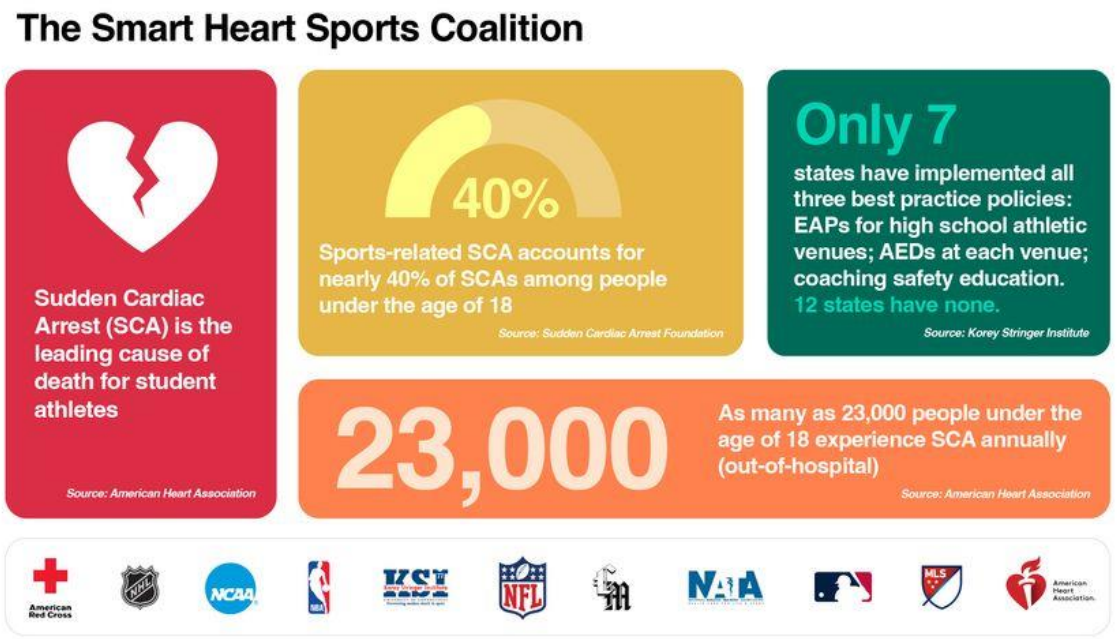
Health Considerations

Sudden cardiac arrest – when the heart stops beating, suddenly and unexpectedly

Warning Signs

- Fainting or seizures during exercise
- Unexplained shortness of breath
- Racing heart
- Dizziness
- Chest pain with exercise
- Extreme fatigue



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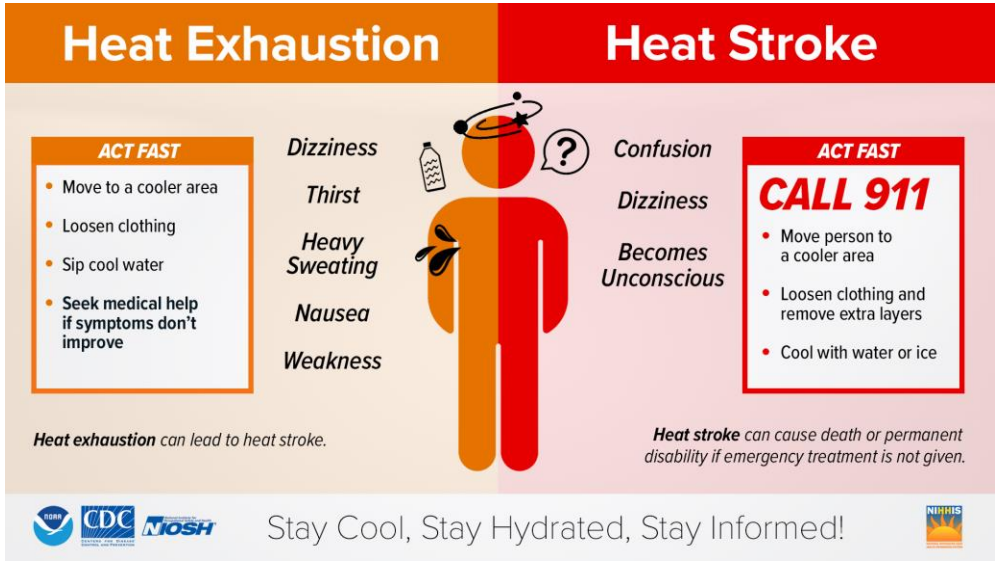
Health Considerations

National Federation of State High School Associations (NFHS) Sports Medicine Advisory Committee (SMAC)

Exertional Heatstroke (EHS) is the leading cause of preventable death in high school athletics. Students participating in high-intensity, long-duration or repeated same-day sports practices and training activities during the summer months or other hot-weather days are at greatest risk.



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Health Considerations

Managing health emergencies

- Emergency action planning and practice
- **Scheduling** – hottest part of the day 12p-6p
- **Hydration** – 8-12 oz 30 min. before and every 15 minutes during
- **Acclimatization** – slowly increase training intensity and duration over 14-days
- **Check, call, care**

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Health Considerations

Emergency Action Planning

- Identify risks
- Communication systems
- Roles/responsibilities
- Prepare through practice

EMERGENCY ACTION PLAN

SPORT: _____ YEAR: _____

1. FIRST TO ARRIVE ON THE SCENE PROVIDES FIRST AID.
2. SEND A COACH, MANAGER, OR UNINJURED ATHLETE TO NOTIFY THE ATHLETIC TRAINER (ATC) AND GET THE AED (IF NOT ON-SITE).
3. IF THE ATC CAN NOT BE LOCATED, THE HEAD COACH WILL BECOME THE LEADER.

LEADER: _____
- Will be in charge of the emergency situation and will instruct all others on the emergency team

LEADER'S ASSISITANT: _____
- Will assist the leader in the evaluation of the injured athlete

PHONE CALLER: _____
- Will go to the nearest phone and activate the EMS
- Will inform the dispatcher of:
  - The nature of the injury and age of the athlete
  - The location of the athlete and directions to the site
  - Will not hang up until the dispatcher advises him/her to do so

NEAREST PHONE: _____

AMBULANCE ENTRANCE: _____

PERSON TO MEET THE EMS: _____
- Will contact any necessary staff to assure access for the ambulance
- Will meet the ambulance at the designated entrance and lead them to the injured athlete

PERSON TO ACCOMPANY ATHLETE TO HOSPITAL: _____
- Will ride with the athlete in the ambulance in the event the parents cannot be located
- Will take the athlete's emergency info to the hospital

- It is the certified athletic trainer or coach's responsibility to inform the administrator of the incident
- It is the certified athletic trainer or coach's responsibility to inform the athlete's parents of the injury immediately.
- It is the certified athletic trainer's responsibility to document the circumstances surrounding the activity and all actions taken.
- Emergency medical info for each athlete is to accompany the team at all times.

EMS (Fire, Police, Ambulance): 911
Athletic Department:

Any High School:
Athletic Training Room:

ATC:
Nearest Hospital:

Site contact:

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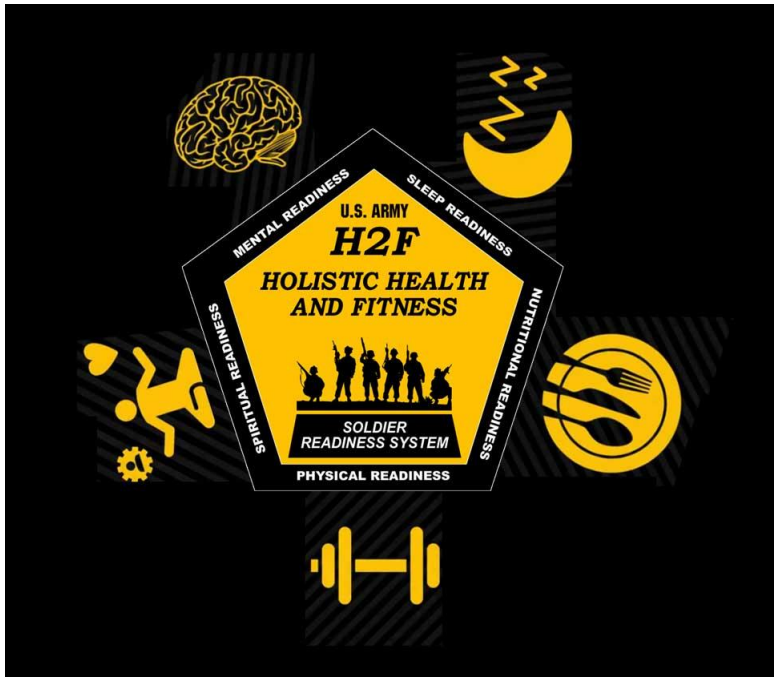
Health Considerations



Adapted from U.S. Army Holistic Health and Fitness (H2F)

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Health Considerations

1. **Mental readiness** – are athletes able to meet the mental demands of sport?
2. **Sleep readiness** – are athletes able to implement the requisite sleep principles and behaviors to support optimal performance?
3. **Nutritional readiness** – are athletes able to recognize, select, and consume the requisite food and drink to meet the physical and non-physical demands of sport?
4. **Physical readiness** – are athletes able to meet the physical demands of sport?
5. **Spiritual readiness** – have athletes developed the personal qualities needed to sustain a person in times of stress, hardship, and tragedy?

Adapted from U.S. Army Holistic Health and Fitness (H2F)

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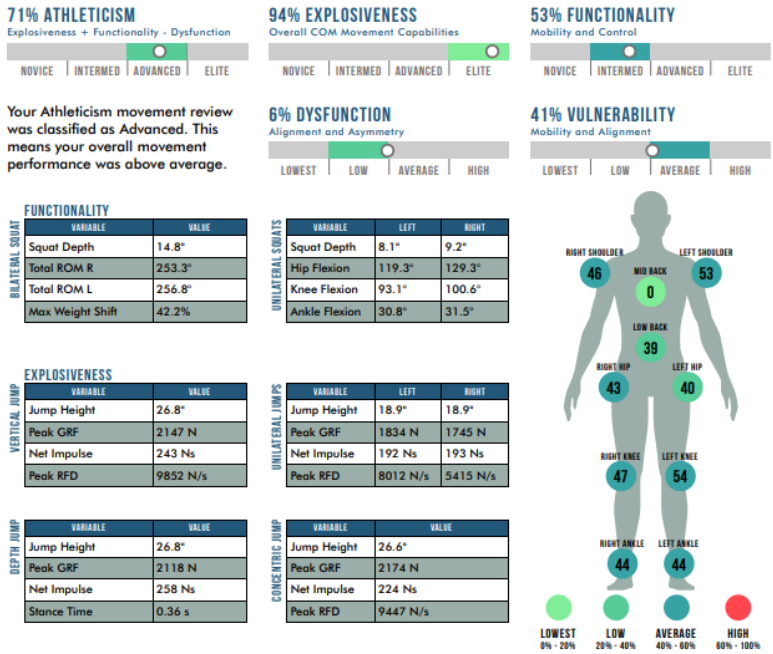
Case Study 1 – Athlete health characteristics



75% had at least 1 | 50% had >2 | Early identification and intervention

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Case Study 1 – Athlete health characteristics

New protocol in collaboration with sports medicine

- **Constant emphasis on athlete health and wellness**
- Athlete completes pre-participation screen before starting sport
- If in **green (1 or less)**, good to go, monitor as needed
- If in **yellow or red (2 or more)**, conversation and possible intervention (e.g., ATC supervised treatment, referral to primary care physician, etc.)

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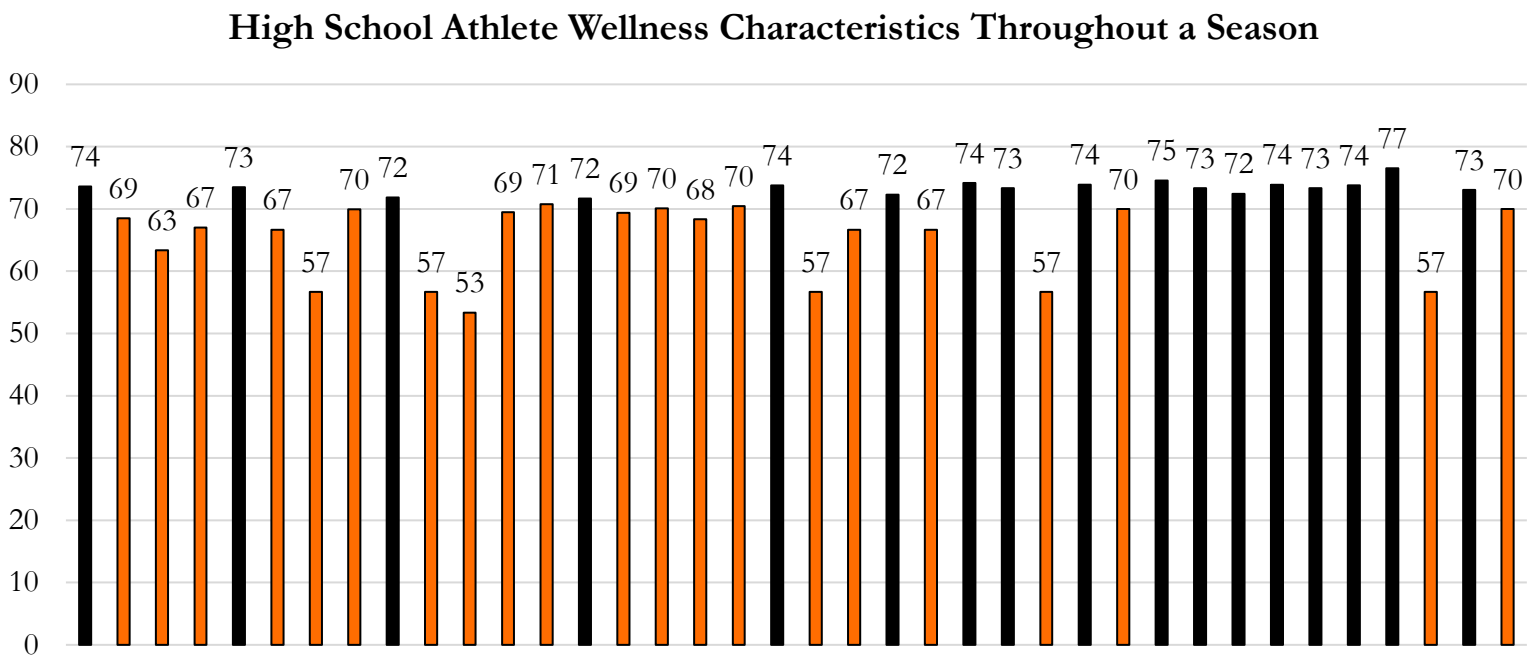
Case Study 2 – Athlete monitoring project

Wellness = sleep + nutrition + soreness + stress + mood



72% or C Average | Below average 55% of time | Proactive vs. reactive

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Case Study 2 – Athlete wellness characteristics

New protocol

- **Constant emphasis on athlete health and wellness**
- **Plan solution for each category**
- Athlete regularly completes survey
- If in **green**, good to go, monitor as needed
- If in **yellow or red**, conversation or rapid recovery (e.g., sleep, nutrition, stress)
- If consistently in **yellow or red**, modification to training, recovery, etc.

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Checkpoint 1 - Health Considerations Activity

Self-Assessment

- Mission statement
- Program goals & standards
- Staff preparedness
- Legal & ethical issues

Planning

- Emergency action planning
- Procedures
- Personnel
- Communication
- Equipment
- Contact Information

Implementation

- Who?
- What?
- When?
- Where?
- How?

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Health Considerations Resources

- OSSAA website (other → sports medicine)
- National Federation of State High School Associations, Sports Medicine Handbook
- NFHS's Sports Medicine Advisory Committee
- NFHSLearn.com courses + annual certification
- National Athletic Trainers' Association Position Statement: Exertional Heat Illness
- NFHS "Heat Illness Prevention" Online Course from NFHSLearn.com
- NFHS "The Collapsed Student" Online Course from NFHSLearn.com
- NFHS "Sudden Cardiac Arrest" Online Course from NFHSLearn.com
- NFHS "Emergency Action Planning for Afterschool Programs" Online Course from NFHSLearn.com
- NFHS "CPR and AED Training" Online Course from NFHSLearn.com

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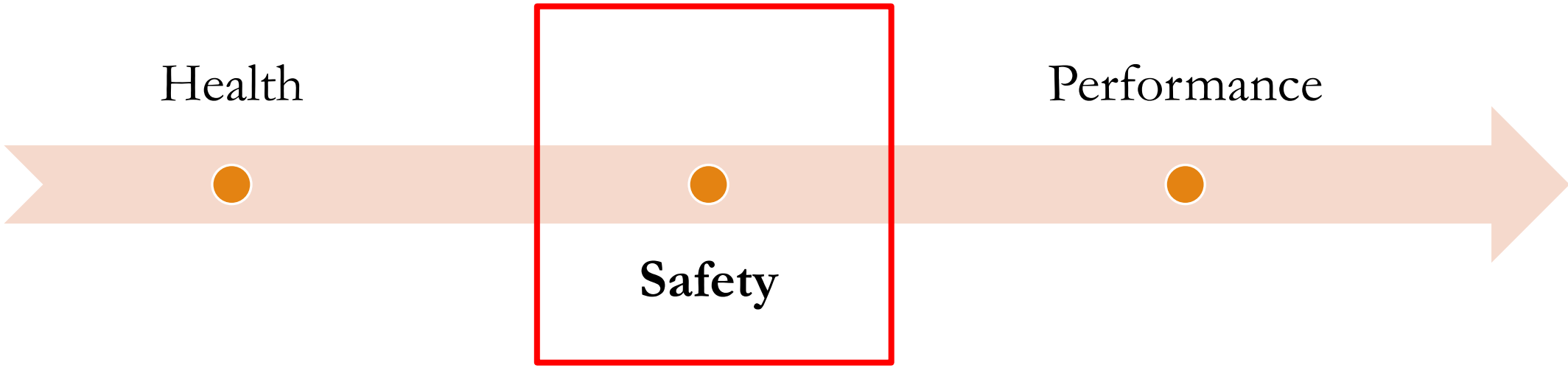
PART II: ATHLETE SAFETY

Safety is the practice of using rules, proper gear, and safe environments to protect athletes from physical injury, abuse, and harm during physical activities



Safety bridges the gap to performance.

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Why this topic?

Story by WSB-TV 2 ATLANTA

Youth athletics injuries rise as kids specialize earlier, train harder

OSSAA ADOPTS UPDATED EXTREME HEAT POLICY

Shane Hood

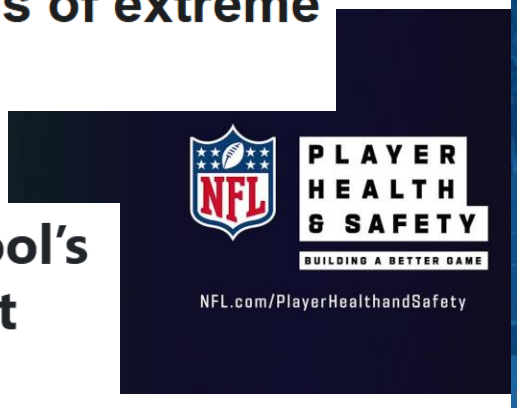
August 7, 2025

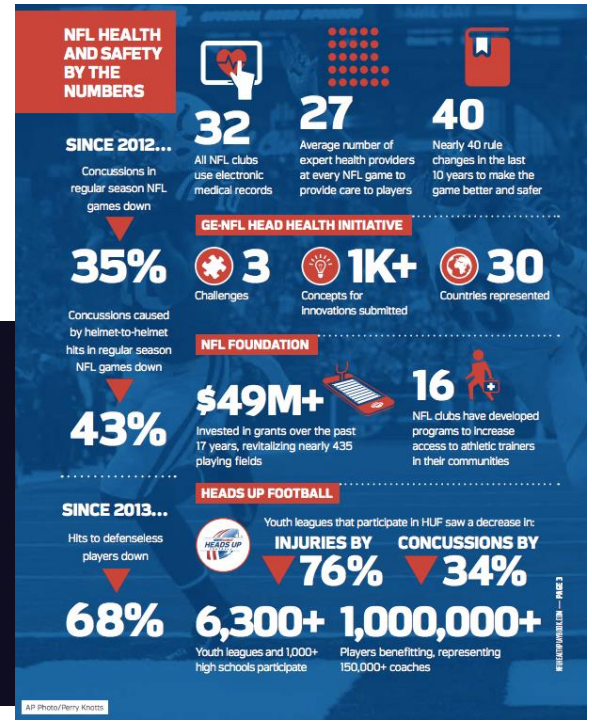
NOV. 21, 2025

Investigating the long-term impacts of concussions on youth athletes

Sources: Maryland OL Jordan McNair showed signs of extreme exhaustion

16-year-old from Bolton High School's football team dies from severe heat stroke, family says





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OSSAA Safety Considerations

- **Coach Education and Staff Training** – required training with a certificate of completion on file
- **Equipment and Facilities** – equipment and facilities regularly maintained
- **Extreme Heat Guidelines** – policies and guidelines to ensure athlete safety in hot environments
- **Concussion Management** - policies and guidelines to manage and reduce brain and spinal cord injuries
- **Athlete Acclimatization** – policies and guidelines for optimizing performance and minimizing the risk for exertional heat illness

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Safety Considerations

OSSAA Extreme Heat Policy Extreme Heat Guidelines

"the OSSAA recognizes that exertional heat related illness is the leading cause of preventable death in high school students participating in activities"

WBGT Activity Guidelines

Region 2	Region 3	Activity Guidelines
< 79.7	< 82.0	Normal Activities – Provide at least 3 separate rest breaks each hour with a minimum duration of 3 min each during the activity.
79.7 – 84.6	82.0 – 86.9	Use discretion for intense prolonged exercise; Provide at least 3 separate rest breaks each hour with a minimum duration of 4 min each.
84.7 – 87.6	87.0 – 90.0	Maximum practice time is 2 hours. FOR FOOTBALL: Players are restricted to helmet, shoulder pads, and shorts during practice. If the WBGT rises to this level during practice, players may continue to work out wearing football pants without changing into shorts. FOR ALL SPORTS: Provide at least 4 separate rest breaks each hour with a minimum duration of 4 min each.
87.7 – 89.7	90.1 – 92.0	Maximum practice time is 1 hour. FOR FOOTBALL: No protective equipment may be worn during practice, and there may be no conditioning activities. FOR ALL SPORTS: There must be 20 min of rest breaks distributed throughout the hour of practice.
> 89.8	> 92.1	No outdoor activity. Delay activity until a cooler WBGT is reached.

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Safety Considerations

OSSAA Extreme Heat Policy

Plans & Procedures

- Emergency action plan must include procedures to address exertional heat emergencies that include **onsite rapid cooling** using cold-water immersion or equivalent means.
- Rapid cooling zones must be available for each outdoor athletic and marching band contest, practice, workout, or conditioning session that is held in **WBGT of 82.0 degrees or higher.**
- **Rapid cooling zones are required** to have immediate availability of cold-water immersion tubs or tarps that can be filled with ice and water and wrapped around individuals to rapidly cool internal body temperature (TACO method) and are encouraged to include a combination of the following options: ice sponges, towels, water misters, and shade. The presence of an employee or volunteer trained to administer cold-water immersion is recommended.

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Safety Considerations

OSSAA Extreme Heat Policy

Plans & Procedures

- Coaches must adopt a heat injury prevention philosophy by always promoting unrestricted access to water and a student- athlete should never be denied access to water.
- Rest breaks must involve unlimited hydration intake and rest without any activity involved.
- For football, helmets should be removed during rest time.

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Safety Considerations

OSSAA Concussion Management

Warning Signs

- Headache or "pressure" in head
- Nausea or vomiting
- Balance problems or dizziness
- Sensitivity to light or noise
- Hazy, foggy, sluggish
- Concentration, memory, confusion

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Safety Considerations

OSSAA Athlete Acclimatization

"The OSSAA mandates a 14-day preseason heat-acclimatization period to safely build student athletes' tolerance to high outdoor temperatures and reduce the risk of heat illness."

Day	Sessions	Duration	Equipment
1-2	1	2.5	Helmets only
3-5	1	2.5	Helmets + shoulder pads
6	2	5	Full pads

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Case Study 3 – Athlete safety and performance

Original Research

the Journal of Strength and Conditioning Research™

Kinanthropometric Characteristic Comparisons of NCAA Division I Offensive and Defensive Linemen Spanning 8 Decades

Bert H. Jacobson, Jay Dawes, Doug Smith, and Quincy Johnson

School of Kinesiology, Applied Health and Recreation, Oklahoma State University, Stillwater, Oklahoma

Abstract

Jacobson, BH, Dawes, J, Smith, D, and Johnson, Q. Kinanthropometric characteristic comparisons of NCAA Division I offensive and defensive linemen spanning eight decades. *J Strength Cond Res* XX(X): 000–000, 2021—College football players have gained body mass, stature, and speed since the inception of the game. Of particular note is the body mass gain of NCAA Division I offensive linemen (OL) and defensive linemen (DL). The primary purpose of this study was to compare body mass and stature of OL and DL for each decade since 1950 and to subsequently compare speed using more recently available NFL Combine data to determine if the rates of gain have been consistent or is waning. Ten universities were randomly chosen from the "Power Five" conferences based on the prominence of their football programs. Recorded data included players' body mass, stature, and available 40 yd times. For each team, 8 OL and 8 DL were chosen, totaling 80 OL and 80 DL. Results indicated that body mass increased significantly ($p < 0.05$) for both OL and DL (57.9 and 54.4%, respectively). However, the rate of weight gain for either OL or DL was not linear. Both OL and DL consistently increased in height from 1950 with OL and DL increasing 12.7 cm (5.0 in) and 11.4 cm (4.7 in), respectively. In addition, 40 yd times have improved over the 3 available decades (2000–2020). The 2020 times were significantly faster than the 2000 for both OL and DL. These findings may have profound implications related to player safety. The overall increases in body mass of linemen in combination with greater speed may result in have devastating consequences to the human body in a contact/collision sport such as football. Indeed, new rules are being considered to reduce debilitating injures.

Key Words: American football, linemen, body mass, size

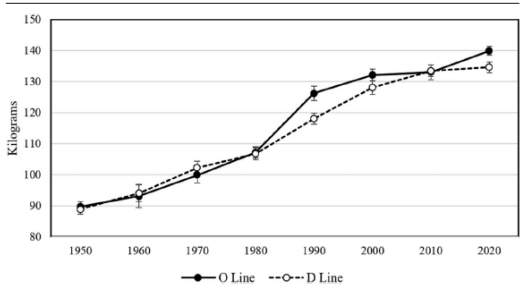

Figure 1. Offensive linemen and DL weight comparisons by position and decade. DL, defensive linemen.

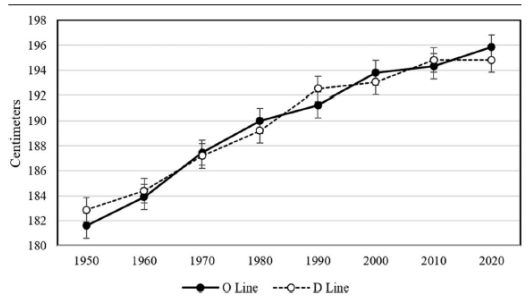

Figure 3. Offensive linemen and DL height comparisons by position and decade. DL, defensive linemen.

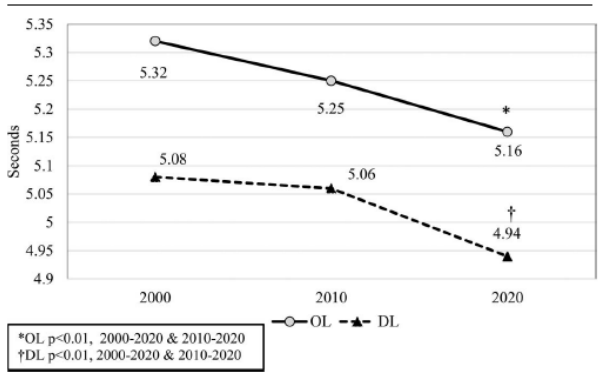

Figure 5. NFL Combine OL and DL 40 yd sprint time by decade.

Athletes are bigger, stronger, more powerful, and faster

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Case Study 3 – Athlete safety and performance

Enhancing athlete safety through coaching and equipment

- **Constant emphasis on athlete health and wellness**
- The sheer mass and speed of current football players have resulted in additional rules governing the game to reduce debilitating injures.
- Athletic coaches and support personnel need to be aware of the risks associated with extraordinary large bodies accompanied by increases in speed, which ultimately leads to greater collision forces.

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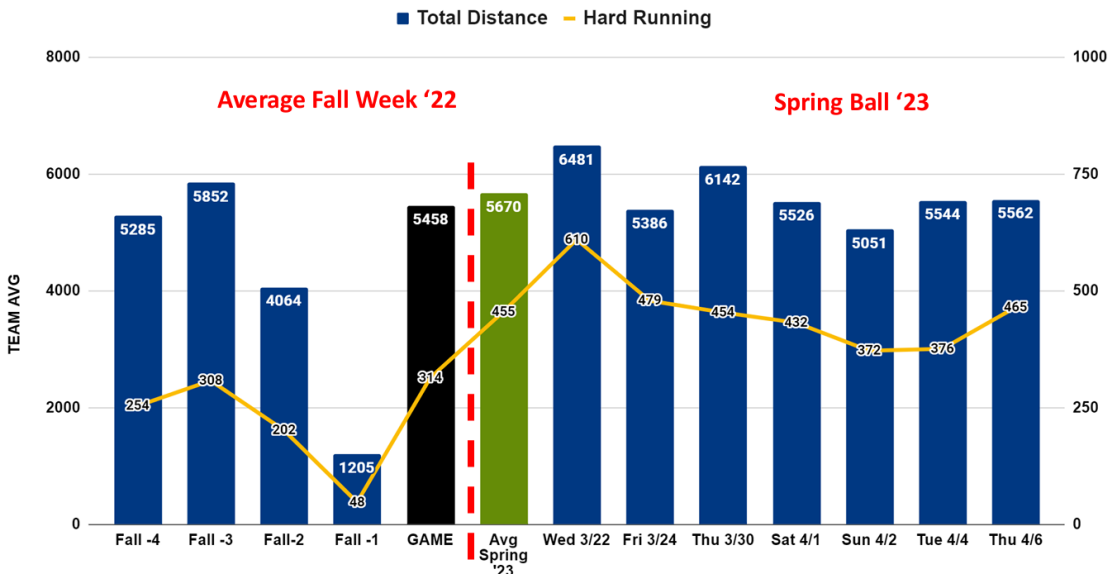
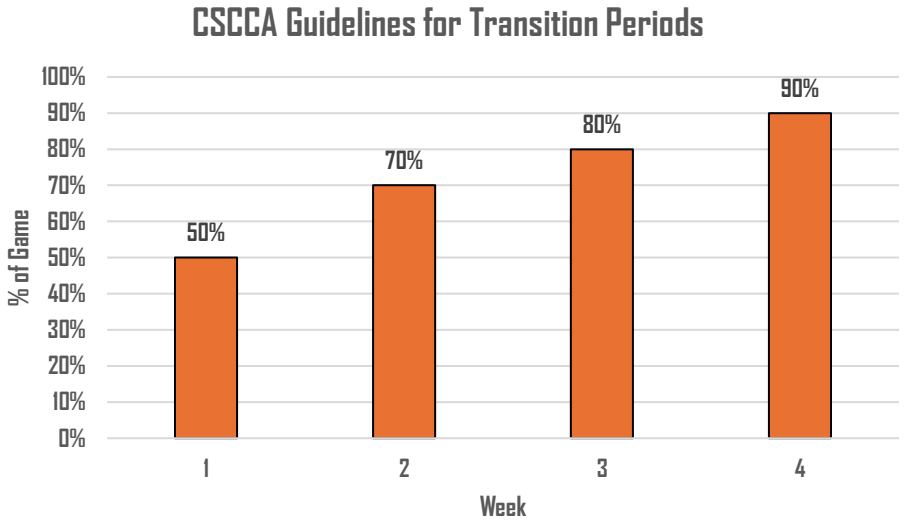
Case Study 4 – Acclimatization





Pre-season is the most dangerous part of the season

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Case Study 4 – Acclimatization

New protocol

- **Constant emphasis on athlete health and safety**
- **Mandatory Training**: All athletic coaches must annually complete **"A Guide to Heat Acclimatization and Heat Illness Prevention"** through NFHSLearn.com, and marching band directors must complete the **Band Safety course**. A certificate of completion must be retained on file at each member school.
- Start with the game and work back
- Time of day
- Game duration
- Number of plays, snaps, etc.

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Checkpoint 2 - Safety Considerations Activity

Self-Assessment

- Mission statement
- Program goals & standards
- Staff preparedness
- Legal & ethical issues

Planning

- Emergency action planning
- Procedures
- Personnel
- Communication
- Equipment
- Practice structure

Implementation

- Who?
- What?
- When?
- Where?
- How?

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Safety Considerations Resources

- OSSAA website (other → sports medicine)
- National Athletic Trainers Association
- National Strength and Conditioning Association
- National High School Strength and Conditioning Association
- Collegiate Strength and Conditioning Coaches Association
- USA Weightlifting
- John Hopkins Medicine Sports Safety
- Children's Safety Network

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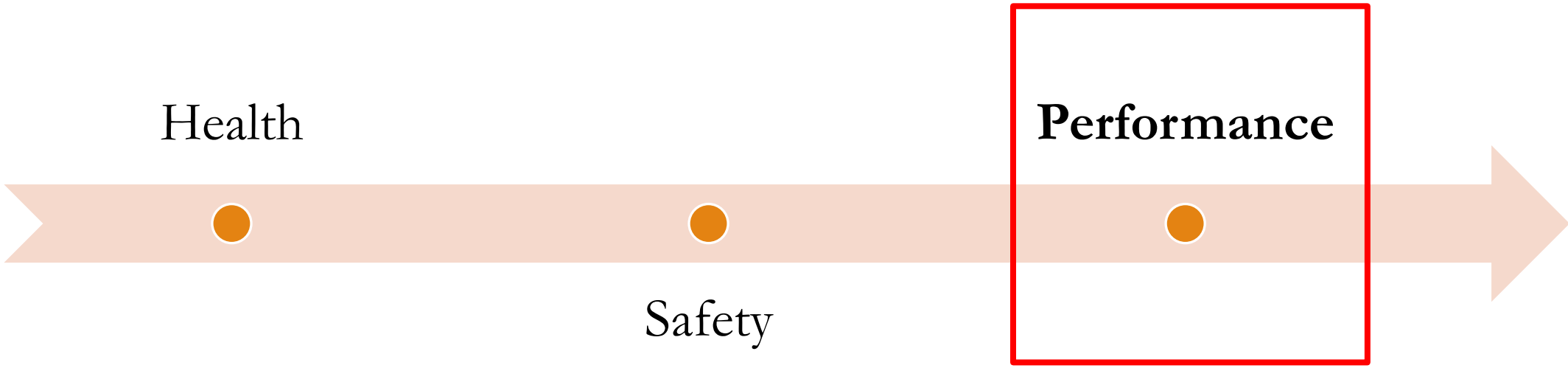
PART III: ATHLETIC PERFORMANCE

Athletic performance is an individual's ability to execute physical activities and compete effectively in sports



Athletic performance is the final destination.

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Why this topic?

Loper Performance
Speed School

Jose Hernandez
FAC MMA Double Champion

An issue we've all probably dealt with.

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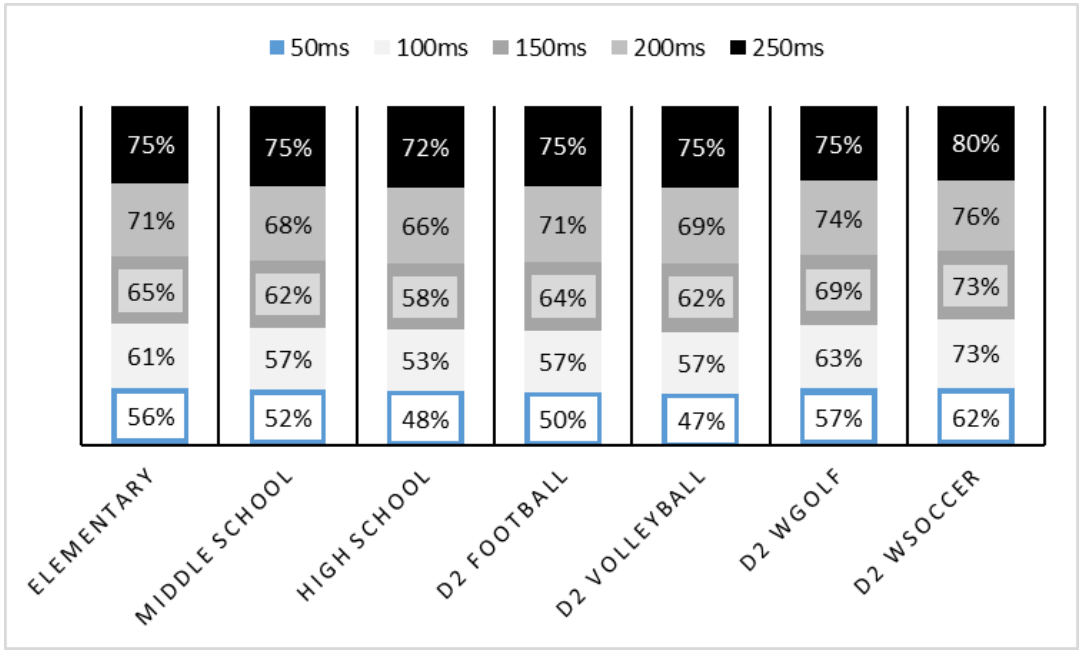
Why this topic?

Isometric Mid-Thigh Pull Characteristics of RT Youth vs. Adults



A solid foundation makes the game easier.

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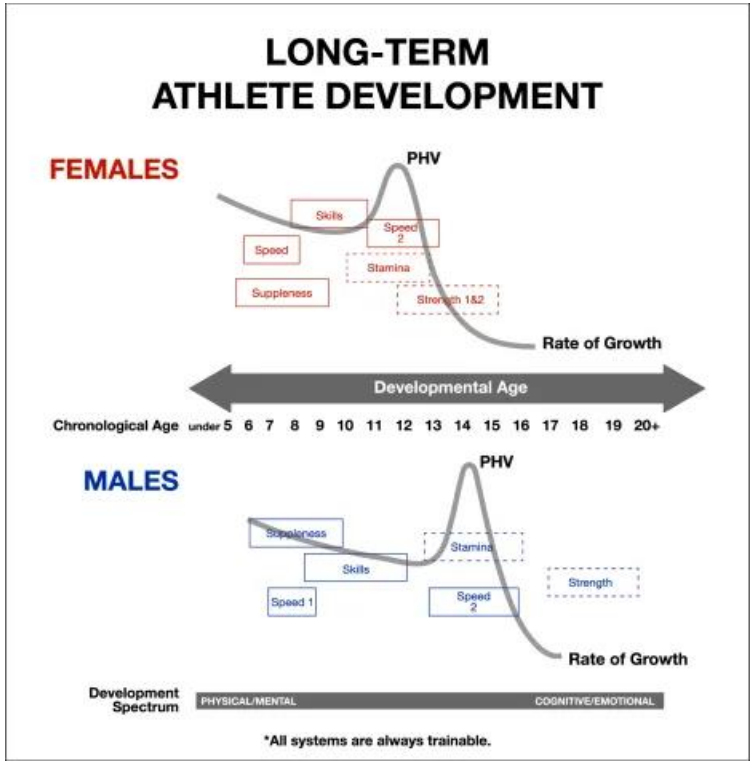
Performance Considerations

Term	DEFINITION
Long-term athlete development	a system of training, competition and recovery based on developmental age or maturity level
Needs analysis	Energy systems, movement demands, common injuries
Testing and assessment	Health, body size, flexibility, strength, power, speed, agility, endurance
Periodization	Organization of training (years, months, weeks, days)
Program Design	Exercise selection, order, intensity, volume, rest



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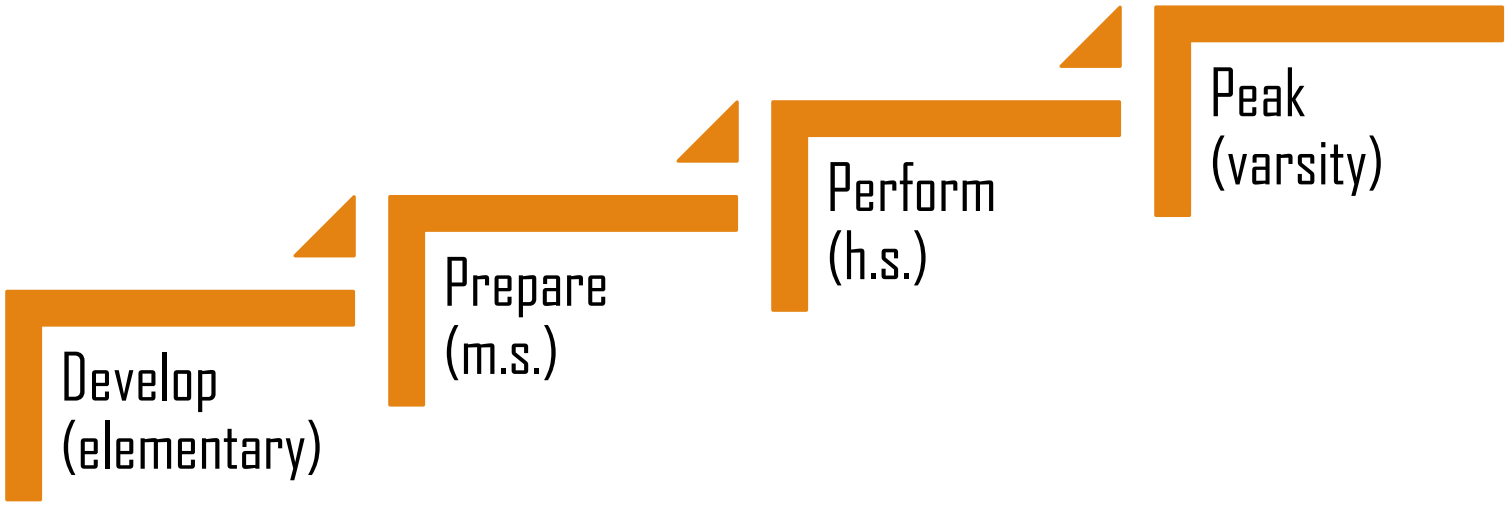
Performance Considerations



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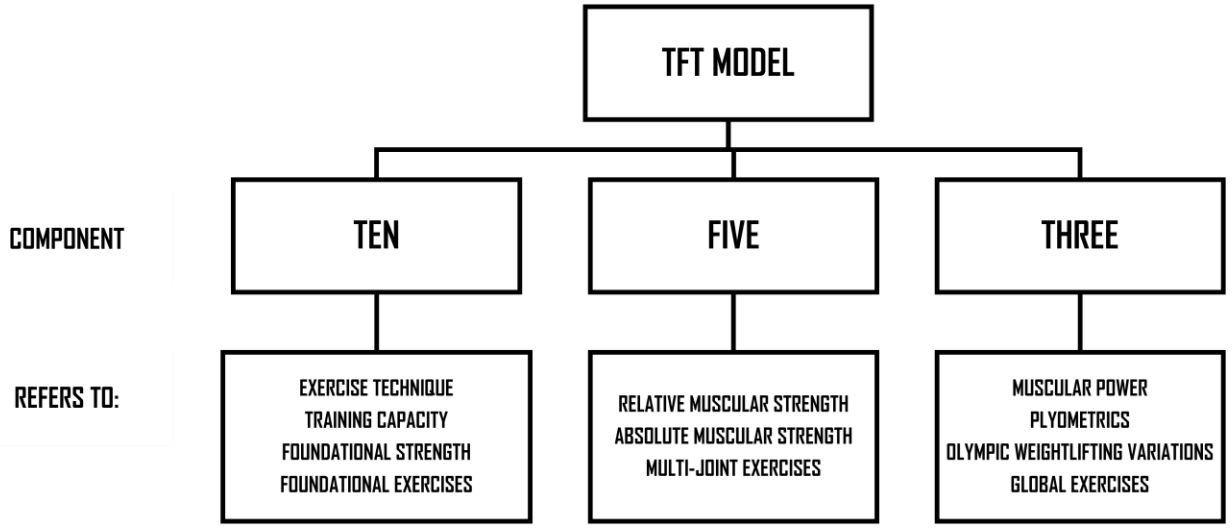
Performance Considerations



10's for function, 5's for strength, 3's for power

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Case Study 5 – Youth Resistance Training

JAYHAWK PERFORMANCE™
FUN FORM FUNCTION

Category	Exercises
ABC's	Agility, balance, coordination in dynamic warm-up
10's	Foundational movement patterns; squat, step, hinge, lunge, push, pull row
5's	Multi-joint compound exercises such as barbell squats, bench press, deadlift, overhead press, etc.
3's	Plyometrics, ballistic exercises, and Olympic weightlifting derivatives
Speed	Acceleration, max velocity, game-like

200 athletes | Ages 10-19 | 1 hour | 1 day/week

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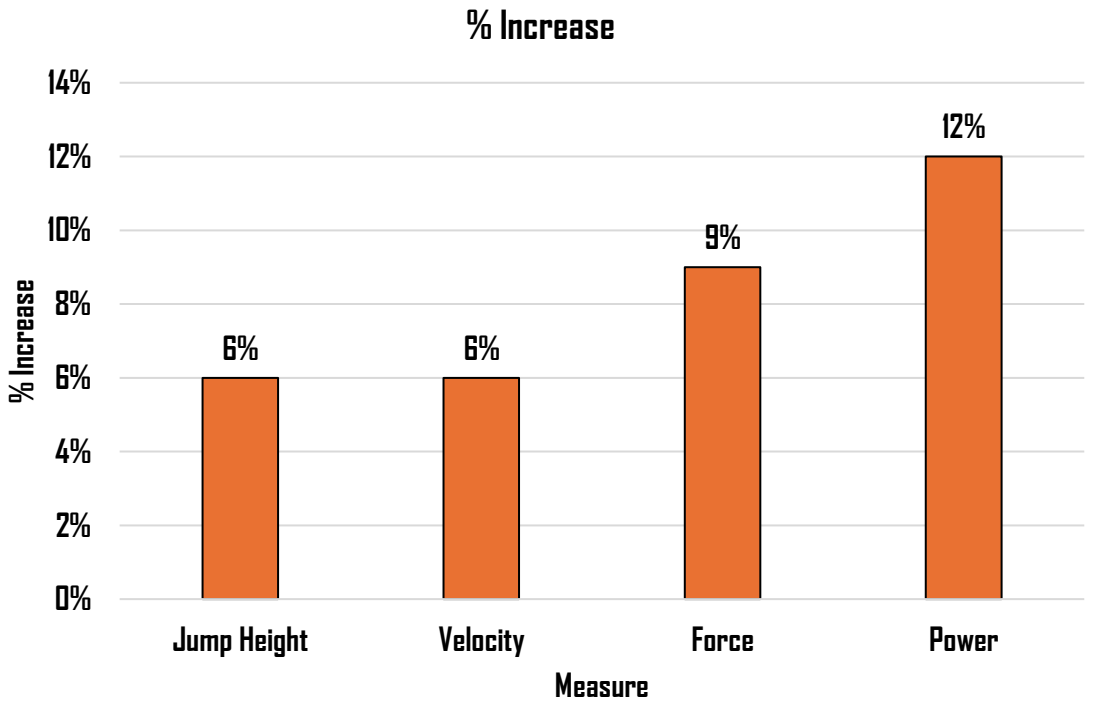
Case Study 5 – Youth Resistance Training



Fun | Form | Function | 0 training injuries | 70-80% attendance

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Performance Considerations Activity

Self-Assessment	Planning	Implementation
▪ Mission statement ▪ Program goals & standards ▪ Staff preparedness ▪ Legal & ethical issues	▪ Needs analysis ▪ Testing & assessment ▪ Program design ▪ Program implementation	▪ Who? ▪ What? ▪ When? ▪ Where? ▪ How?

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Performance Considerations Resources

- National Strength and Conditioning Association
- National High School Strength and Conditioning Association
- Collegiate Strength and Conditioning Coaches Association
- USA Weightlifting
- Athletics Canada

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Conclusions

Providing resources for….

- Enhancing athlete health
- Enhancing athlete safety
- Enhancing sports performance

Challenge you to….

- Self-assess
- Plan
- Implement

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OSU Resources

OSU programs coming soon…

- Coach education
- Physicals and athlete testing
- Strength and conditioning and monitoring
- Sport science research

Contact: quincy.johnson@okstate.edu if interested.

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References

1. National Federation of State High School Associations, Sports Medicine Handbook
2. NFHS's Sports Medicine Advisory Committee
3. NFHSLearn.com courses + annual certification
4. NFHS "CPR and AED Training" Online Course from NFHSLearn.com
5. OSSAA website (other sports medicine)
6. National Athletic Trainers Association
7. National Strength and Conditioning Association
8. National High School Strength and Conditioning Association
9. Collegiate Strength and Conditioning Coaches Association
10. USA Weightlifting
11. Athletics Canada
12. John Hopkins Medicine Sports Safety
13. Children's Safety Network

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Thank you for your time and attention ☺

Questions

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JAYHAWK ATHLETIC
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Wu Tsai Human
Performance Alliance

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