

# **Biometrics in Intercollegiate Athletics**

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# Context for Biometrics in Sport

- Age of Big Data and Analytics: Moneyball!
- Improve Sports Organizations
  - Marketing
  - Fan experience
  - Team Performance
    - Player performance
    - In-competition decisions
    - Management of team roster

# Player Performance: Biometrics

- Player performance depends on optimization of training and recovery, reduce injury risk and mental readiness.
  - Sleep
  - Load management
- Biometrics are a tool to gain a competitive edge through science.

# What are Biometrics?

- Biometric data: metrics related to human characteristics.
- Examples of biometrics related to sports:

Sleep

Heart rate

Distance run

Impact forces

Blood/urine markers

Throwing arm stress

Sweat loss/composition

Body composition

Nutrition

Electrocardiogram

# How are Biometrics measured?

- Blood or urine analyses
- Clinic or lab tests
- “Wearables”
  - Watches
  - Smartphones
  - Clothing
  - Equipment
  - Other sensors

# Biometrics Potential

- Monitor individual athletes (self or others)/team.
  - Recovery
  - Injury risk
  - Training
  - Performance
- Prediction of injury risk
- Develop/improve training, recovery and post-injury rehabilitation protocols

# Biometrics in Sports: Concerns

Biometrics appear the way of the future in athletic performance; *however*, there are important issues to consider before jumping in head-first!

# Biometrics in Sports: Concerns

- Institution, athletics program and individual athlete levels:
  - Athlete privacy
  - Data security, ownership, access and lifespan
  - Conflict of interest
  - Liability
- Professional sports leagues
  - National Football League
  - National Basketball Association



# Biometrics in Intercollegiate Athletics: Additional Concerns

- Data privacy and ownership issues
- Student-athlete experience:
  - Time-demands
  - Impact on mental performance
  - Privacy
- NCAA compliance

# **Biometrics and NCAA Bylaw 17**

**Countable Athletically-Related Activity  
(CARA)**

# Biometrics – When is it CARA?

- Use of wearable technology must be either:
  - Counted within CARA hours (maximum of 20 hours in-season/eight hours out of season); or
  - Voluntary:
    - Not be required to be reported back to a coach or other athletics department staff member by a student-athlete;
    - Not be reported back to the coach through the use of the device;
    - Initiated by student-athlete; and
    - No penalties for non-participation.

# Common Questions from Institutions and Conference Offices

- If data (e.g., heart rate and steps taken) collected by a wearable fitness device that are related to voluntary athletically related activity are viewed by a countable coach or a noncoaching staff member with sport-specific responsibilities, does it trigger countable athletically related activity?
- What if the above information is viewed by an athletic trainer?
- Can a student-athlete report wearable technology data information on Facebook?

# Biometrics: When is It Research?

- **Research** as defined by DHHS regulation: “a systematic investigation, including research development, testing, and evaluation, designed to develop or contribute to “generalizable knowledge.”
- Athletics staff often collaborate with faculty researchers to assist with collection and analysis of biometric student-athlete data for presentation and publication, i.e., research.

# Research Requirements

- Risks versus benefits evaluated by Institutional Review Board.
- Voluntary, Informed Consent: participants must be given the opportunity to choose what shall or shall not happen to them.
- For student-athletes in particular, the consent process must be structured such that granting consent is truly voluntary and informed.

# Concerns about student-athletes as research participants

- Is consent truly voluntary?
- Who will benefit from student-athlete participation?
- Will coaches know which student-athletes are participating?
- Will coaches see results?
- What if the study produces a finding that could impact a student-athlete's future professional athletic career?

Ideally, these questions should be considered **prior** to initiation of a research project to ensure the study is in the best interest of the student-athletes.



# Oversight of Research on Student-Athletes

- Decision makers might not have the needed expertise or knowledge to make fully informed decisions regarding student-athlete biometric data and/or research.
- Internal research: projects initiated by athletics or researchers from home institution
- External research: outside researchers



# Research Oversight Committee

- Membership:
  - Athletics
  - Faculty
  - Faculty athletics representative
  - Former student-athlete
  - Lay member
- Charge:  
***Protect the student-athlete, researcher, and institution by serving as a gatekeeper to access to student-athletes as research participants.***

# **Questions?**

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