



WHY THIS MATTERS



Athlete monitoring improves performance.



Reduces injury risk and supports recovery.



Many developing countries cannot afford advanced technologies.



Coaches need practical and sustainable alternatives.



This study shows low-cost monitoring methods can deliver meaningful athlete outcomes.

STUDY DESIGN

Cross-Sectional Observational Study

PARTICIPANTS (N = 186)



98
Athletes



42
Coaches



26
PE Teachers



20
S&C
Practitioners



Monitoring Period 6 Weeks

MONITORING TOOLS

- ✓ Session Rating of Perceived Exertion (sRPE)
- ✓ Wellness Monitoring Questionnaires
- ✓ Athlete Self-Reporting Forms
- ✓ Injury Surveillance Logs
- ✓ Coach Observation Records
- ✓ Field-Based Performance Assessments

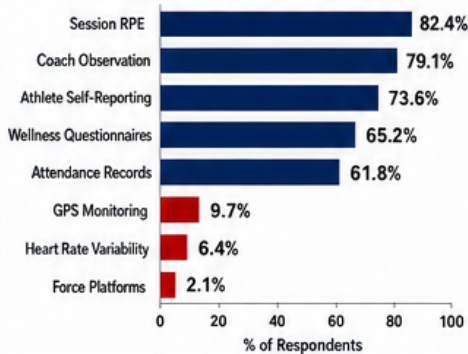
STUDY CONTEXT: GHANA



- Study conducted in football academies and schools across 5 regions of Ghana.
- Represents typical resource constraints faced in many developing sporting systems.

KEY FINDINGS

1 MOST FREQUENTLY USED ATHLETE MONITORING METHODS



Interpretation: Low-cost, practical methods are widely used and form the backbone of athlete monitoring in low-resource settings.

2 RELATIONSHIPS WITH ATHLETE OUTCOMES



ATHLETE READINESS
 $r = 0.63$
 $p < 0.05$



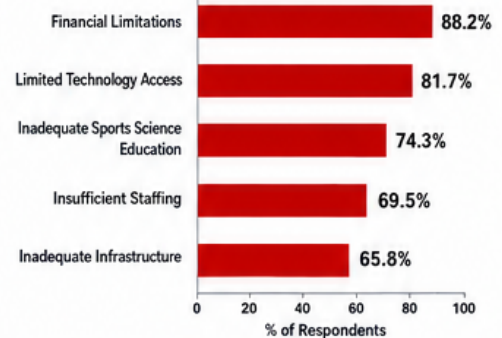
RECOVERY QUALITY
 $r = 0.58$
 $p < 0.05$



INJURY OCCURRENCE
 $\beta = -0.41$
 $p < 0.05$

Interpretation: Systematic monitoring is significantly associated with improved readiness, better recovery, and lower injury occurrence.

3 MAJOR IMPLEMENTATION BARRIERS



Interpretation: Resource constraints remain the principal challenge affecting the effective implementation of athlete monitoring systems.

THE GHANAIAN LOW-COST ATHLETE MONITORING MODEL



WHAT COACHES CAN DO TOMORROW

- | | |
|--|---|
| Use Session RPE after every training session | Maintain injury surveillance records |
| Introduce daily wellness monitoring | Use structured coach observations |
| Track sleep quality and muscle soreness | Adjust training based on athlete feedback |
| Encourage athlete self-reporting | Communicate monitoring outcomes regularly |

RECOMMENDATIONS

- 1 Introduce athlete monitoring into school sports programmes.
- 2 Train PE teachers and grassroots coaches in low-cost monitoring methods.
- 3 Develop national athlete monitoring guidelines.
- 4 Incorporate athlete monitoring into coach certification programmes.
- 5 Promote athlete welfare through evidence-informed decision-making.
- 6 Expand sports science education within grassroots sporting systems.

FINAL TAKE-HOME MESSAGE

“Effective athlete monitoring is not determined by the sophistication of technology but by the consistency of implementation.”

Simple systems applied consistently can improve readiness, support recovery, reduce injury risk, and enhance athlete welfare within resource-constrained sporting environments.



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