

Unit 19: Analysis of Sports Performance

Unit code:	M/502/5754
QCF Level 3:	BTEC National
Credit value:	10
Guided learning hours:	60

● Aim and purpose

The aim of this unit is to allow learners to explore the purpose and importance of sports performance analysis, highlighting the multi-dimensional demands and interdependence of the different factors involved.

● Unit introduction

In elite sport today, it can be the smallest margin between 'winning and losing' or 'success and failure', but the impact can be massive. Given the huge amount of time, dedication, investment and reward that is involved in sport today, sport performers, coaches, and managers need to understand the importance of observing, analysing and evaluating sports skills and techniques when trying to enhance performance.

It is important that all performances are analysed; if you were good, why were you good, and if you were not good, what was different?

If no evaluation takes place after performance then the performers may continue to make the same errors or not be able to take full advantage of opportunities when they arise.

Coaches, athletes and sports performers must have a thorough understanding of the demands of the sporting activity such as human movement, physiology, and the athlete's psychological make-up, as well as the technical and tactical requirements to be successful.

It is how these scientific concepts and factors are applied and interact within sports performance that allows for the analysis of performance. From this, learners should understand that sports performance is dependent on a multitude of factors for success.

Another important aspect of this unit is the level of analysis available to different types of sports performers. For example, a school child in a physical education lesson may perform a basic 1.5 mile run so that the tutor can assess their aerobic endurance. In comparison, an elite athlete will have access to the full range of scientific support, such as sports psychologists, physiologists with human performance laboratories, and comprehensive biomechanical analysis using various information technology hardware and software.

● Learning outcomes

On completion of this unit a learner should:

- 1 Know the performance profile of a sporting activity
- 2 Be able to analyse sporting performance
- 3 Be able to provide feedback to athletes regarding performance
- 4 Understand the purpose and resources required for analysing different levels of sporting performance.

Unit content

1 Know the performance profile of a sporting activity

Sporting activity: individual based, eg archery, shooting; specific position, eg goalkeeper; specific action, eg tennis serve

Performance profile: technical and tactical, eg shooting, crossing, catching, passing, tackling, heading, dribbling, striking, positional play, style of play; physical (health- and sports-related fitness); physiological, eg heart rate, warm-up, cool-down, lung function; psychological, eg motivation, anxiety, arousal, attention, confidence, aggression, relaxation, concentration; biomechanical (quantitative and qualitative), eg linear displacement, velocity of release

Factors influencing performance: intrinsic, eg age, health, diet, previous training, motivation, confidence, ability level; extrinsic, eg group dynamics, group cohesion, temperature, time of day

2 Be able to analyse sporting performance

Performance profile assessment: technical and tactical, eg notational analysis, tally charts; physical, eg multi-stage fitness test, repeated anaerobic sprint test; motor, eg T-run, Illinois agility run; physiological, eg heart rate monitor, peak flow; psychological, eg interviews, questionnaires; biomechanical, eg recording

3 Be able to provide feedback to athletes regarding performance

Feedback: strengths; areas for improvement; SMART (specific, measurable, achievable, realistic, time-bound) targets; goals (short-, medium- and long-term); recommendations, eg skills training, training for specific components of fitness, technique coaching specific to movement, psychological training (concentration, anxiety and arousal control)

4 Understand the purpose and resources required for analysing different levels of sporting performance

Levels of performance: foundation, eg school children, beginners; participation, eg Saturday league player, out-of-school club; performance, eg county or national standard; elite, eg Olympic/world-class athlete/professional

Purpose: eg talent identification, monitoring current fitness level, identification of strengths and areas for improvement, performance assessment, recovery after injury, assessment of health status, squad selection, goal setting

Resources: eg fiscal, equipment, IT software, time, facilities, human, scientific support and equipment

Assessment and grading criteria

In order to pass this unit, the evidence that the learner presents for assessment needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria for a pass grade describe the level of achievement required to pass this unit.

Assessment and grading criteria		
To achieve a pass grade the evidence must show that the learner is able to:	To achieve a merit grade the evidence must show that, in addition to the pass criteria, the learner is able to:	To achieve a distinction grade the evidence must show that, in addition to the pass and merit criteria, the learner is able to:
P1 describe the performance profile of a selected sporting activity	M1 explain the performance profile of a selected sporting activity	D1 analyse the performance profile of a selected sporting activity
P2 describe five factors that may influence the performance of an athlete		
P3 perform an assessment of a selected athlete undertaking sporting activity using three components of their performance profile, with tutor support [IE3, IE4, RL1]	M2 independently perform an assessment of a selected athlete undertaking sporting activity using three components of their performance profile	D2 analyse the performance of a selected athlete using three components of their performance profile.
P4 provide feedback to the athlete based on the assessment of their performance, with tutor support [EP2, EP3, TW6]	M3 independently provide feedback to the athlete based on the assessment of their performance.	
P5 explain the purpose of, and the resources required for, analysis at two different levels of sports performance.		

PLTS: This summary references where applicable, in the square brackets, the elements of the personal, learning and thinking skills applicable in the pass criteria. It identifies opportunities for learners to demonstrate effective application of the referenced elements of the skills.

Key	IE – independent enquirers	RL – reflective learners	SM – self-managers
	CT – creative thinkers	TW – team workers	EP – effective participators

Essential guidance for tutors

Delivery

Tutors should introduce the unit by discussing what can be analysed and what factors may influence sports performance. The use of examples would provide an excellent starting point, for example Sky Sports 'analysis' of performance, or tennis analysis from Wimbledon.

Although learners may have covered the basic principles from the different disciplines, there is a clear need for an applied input from tutors. For example, as the assessments are designed to be practical, it is important for tutors to dedicate time to the application of data collection. It is vital that learners are taught the techniques required for collecting and manipulating data, for example to record a multi-stage fitness test score and convert to a VO_2 max result (ml/kg/min).

To support the theoretical work, tutors should expose learners to as many practical sessions as possible. For example, learners may investigate the performance of the school or college rugby team. Learners may interview the players after the game to gain a psychological insight. In addition, tactical aspects may be assessed, for example the completed tackle-count.

As with all elements within the unit, it is essential that learners are exposed to as many real-life sporting situations as possible. This exposure could centre on feedback and level of analysis. Building on the rugby example, learners can provide verbal feedback to the team or individual through a formal post-match meeting. In comparison, other learners may write a small report, which could be offered to the rugby coach for future use. If verbal feedback is provided this must be supported by appropriate tutor witness statement.

As these examples show, this unit provides an ideal opportunity for integration and application within a team or individual sport.

Outline learning plan

The outline learning plan has been included in this unit as guidance and can be used in conjunction with the programme of suggested assignments.

The outline learning plan demonstrates one way in planning the delivery and assessment of this unit.

Topic and suggested assignments/activities and/assessment
Introduction and unit overview.
Assignment 1: Sporting Activity Performance Profile and Influencing Factors (P1, P2, M1, D1). Tutor introduces the assignment brief.
Understand performance profiling – group activities exploring the performance profile of different activities, considering technical, tactical, physical, physiological, psychological and biomechanical aspects.
Factors influencing performance – intrinsic and extrinsic (group discussions). Learners to individually design questionnaires.
Practical testing/analysis/observation of performance – learner activity and assessment.
Assignment 2: Performance Assessment (P3, P4, M2, M3, D2). Tutor introduces the assignment brief.
How to provide effective feedback using a number of practical scenarios – discussion of methods, techniques, dealing with issues, role play.
Conduct performance analysis generating primary data, using norm tables where appropriate, conduct interviews, use questionnaires.
Provide feedback to athletes regarding performance: strengths, areas for development, target setting, goals (short-, medium-, and long-term), recommendations.
Assignment 3: Levels of Performance (P5). Tutor introduces the assignment brief.
Group discussions, research and activities reviewing levels of performance, purpose of analysis, as well as resources available and required.
Practical administration/operation of performance analysis methods.
Evaluation of unit.

Assessment

To understand the performance profile learners should be encouraged to investigate an individual-based sport, a specific position, or an athlete depending on their own interest or area of expertise.

The evidence produced for P1 should clearly show that learners have described the performance profile of a selected sporting activity. Learners should look to cover at least five key components, one from each of technical and tactical, physical, physiological, psychological and biomechanical. As is clear from the assessment and grading grid, grading criteria M1 and D1 build on this descriptive work.

For M1, learners need to explain the performance profile they have selected. For example, greater discussion/justification will be required to state the key variables they have chosen, such as explaining why concentration is important for a scrum-half in rugby.

For D1, learners must analyse their performance profile. The analysis should include sport-specific examples to support the analysis, and can also be supported by existing research.

Criterion P2 is a stand-alone criterion, which may be suitable as the first assessment to provide an introduction to the unit; it requires learners to describe five factors that may influence the performance of an athlete. Once again learners can pick a sport/activity which they are interested in to help them meet this criterion. They should be able to distinguish which factors influence the performance of an athlete and should provide examples of both intrinsic and extrinsic factors.

For P3, learners will need to perform an assessment of an athlete/sports performer undertaking a selected sporting activity, with tutor support. Therefore, this activity is the practical element, which is driven by the selected variables described in P1. For evidence of the assessment, learners could include a copy of their raw data sheets, questionnaires or transcribed interviews. It is important that learners are clear that they only have to use three of the five components described in P1. For M2, learners need to perform an assessment of their selected sporting activity, showing autonomy throughout the process. For D2, learners need to analyse the performance of a selected athlete using three components of their performance profile. Learners will need to consider the bigger picture, for example when looking at a scrum-half's passing success they will also need to consider the impact on the game and team, such as the attacking play. Additionally, they may also consider the implications for the opposition. They will need to link their findings with appropriate sport and exercise literature to support their analysis.

Once the practical element is complete the learners should look to meet P4 where they should provide feedback to the athlete/sports performer based on their assessment, with tutor support. If feedback is provided verbally, tutors will need to confirm whether this criterion is met by providing a witness statement/observation record. For M3, learners need to provide feedback, showing autonomy throughout the process.

Criterion P5 is a stand-alone criterion and learners must explain the purpose of, and resources required for, analysis at two different levels of sports performance. Within this criterion learners should explore issues such as the purpose of analysis, and resources available for analysis to take place.

Learners should be encouraged to use the centre's own athletes to aid their assessment as this increases the availability of participants for testing.

Programme of suggested assignments

The table below shows a programme of suggested assignments that cover the pass, merit and distinction criteria in the assessment and grading grid. This is for guidance and it is recommended that centres either write their own assignments or adapt any Edexcel assignments to meet local needs and resources.

Criteria covered	Assignment title	Scenario	Assessment method
P1, P2, M1, D1	Sporting Activity Performance Profile and Influencing Factors	You are working as an accredited sports scientist with a regional elite squad. Design a presentation to give to coaching staff.	Presentation. Witness statement.
P3, P4, M2, M3, D2	Performance Assessment	The coaches now require you to assess performance.	Practical observation and assessment. Written report.
P5	Levels of Performance	On return to your governing body you have been asked to produce a document exploring the purpose of, and resources required for, analysing sports performance at different levels.	Information leaflets or booklet.

Links to National Occupational Standards, other BTEC units, other BTEC qualifications and other relevant units and qualifications

This unit forms part of the BTEC Sport sector suite and the BTEC Sport and Exercise Sciences sector suite. This unit has particular links with the following unit titles in the BTEC Sport suite and the BTEC Sport and Exercise Sciences suite:

Level 2 Sport	Level 3 Sport	Level 3 Sport and Exercise Sciences
Practical Sport	Sports Coaching	Sports Biomechanics in Action
Fitness Testing and Training	Practical Individual Sports	Sports Coaching
Effects of Exercise on the Body Systems	Practical Team Sports	Practical Individual Sports
Development of Personal Fitness	Fitness Training and Programming	Practical Team Sports
Psychology for Sports Performance	The Physiology of Fitness	Fitness Training and Programming
Technical Skills and Tactical Awareness for Sport	Psychology for Sports Performance	Anatomy for Sport and Exercise
	Research Investigation in Sport and Exercise Sciences	Sport and Exercise Physiology
	Laboratory and Experimental Methods in Sport and Exercise Sciences	Sport and Exercise Psychology
	Profiling Sports Performance	Applied Sport and Exercise Physiology
		Research Investigation in Sport and Exercise Sciences
		Laboratory and Experimental Methods in Sport and Exercise Sciences
		Profiling Sports Performance

This unit links with the National Occupational Standards (NOS) for:

- Coaching, Teaching and Instructing at Level 3.

Essential resources

Learners will need access to sports facilities and environments suitable for conducting performance assessment. They will also need athletes or sports performers to observe, and resources for recording practical sports performance including digital and/or video cameras.

Employer engagement and vocational contexts

This unit focuses on the practical analysis of sporting/athletic performance and will give learners the background knowledge and skills they will need to develop if they aim to work in coaching, sports development or become a performance analyst. Centres are encouraged to develop links with local sports development officers, local clubs, and sports 'professionals'. This could be via talks or visits to appropriate centres.

Indicative reading for learners

Textbooks

Bartlett R – *Introduction to Sports Biomechanics* (Routledge, 2006) ISBN 9780415339940

Bull S – *Sport Psychology: A Self-Help Guide* (Crowood, 2004) ISBN 9781852235680

Carling C, Reilly T and Williams A – *Performance Assessment for Field Sports: Physiological, Psychological and Match Notational Assessment in Practice* (Taylor and Francis, 2008) ISBN 9780415426848

Hall S – *Basic Biomechanics* (Mcgraw-Hill Education, 2002) ISBN 9780071240628

Hughes M and Franks I – *Notational Analysis of Sport* (Routledge, 2004) ISBN 9780415290050

Jones R, Hughes M and Kieran Kingston K – *An Introduction to Sports Coaching: From Science and Theory to Practice* (Routledge, 2007) ISBN 9780415411318

Journal

Peak Performance

Websites

British Association of Sport and Exercise Sciences	www.bases.org.uk
Sport England	www.sportengland.org
Sportdevelopment.co.uk	www.sportdevelopment.org.uk
Sports Coach UK	www.sportscoachuk.org
Talent Ladder (Gifted & Talented/TASS)	www.talentladder.org
Talented Athlete Scholarship Scheme (TASS)	www.tass.gov.uk
UK Sport	www.uksport.gov.uk/talent
Youth Sport Trust	www.youthsporttrust.org

Delivery of personal, learning and thinking skills

The table below identifies the opportunities for personal, learning and thinking skills (PLTS) that have been included within the pass assessment criteria of this unit.

Skill	When learners are ...
Independent enquirers	performing an assessment of a selected athlete undertaking sporting activity using three components of their performance profile, with tutor support
Reflective learners	performing an assessment of a selected athlete undertaking sporting activity using three components of their performance profile, with tutor support
Team workers	providing feedback to the athlete based on the assessment of their performance, with tutor support
Effective participators	providing feedback to the athlete based on the assessment of their performance, with tutor support.

Although PLTS are identified within this unit as an inherent part of the assessment criteria, there are further opportunities to develop a range of PLTS through various approaches to teaching and learning.

Skill	When learners are ...
Independent enquirers	researching factors that might influence performance
Creative thinkers	describing the resources required for the analysis of different levels of sports performance
Reflective learners	preparing to give the athlete feedback following analysis of performance
Effective participators	providing feedback to the athlete following analysis of performance
Self-managers	carrying out the performance observation/analysis.

● Functional Skills – Level 2

Skill	When learners are ...
ICT – Use ICT systems	
Select, interact with and use ICT systems independently for a complex task to meet a variety of needs	conducting performance analysis and preparing presentations
ICT – Find and select information	
Select and use a variety of sources of information independently for a complex task	researching to establish performance key factors and questionnaire design
ICT – Develop, present and communicate information	
Enter, develop and format information independently to suit its meaning and purpose including: <ul style="list-style-type: none"> • text and tables • images • numbers • records 	comparing fitness assessments to table of norms analysing/comparing athletic performance to 'standard' models
Bring together information to suit content and purpose	collating information and data for the delivery of performance feedback to the athlete
Present information in ways that are fit for purpose and audience	delivering feedback to the athlete
Evaluate the selection and use of ICT tools and facilities used to present information	deciding which data collection mode and data analysis tool to use for performance analysis
Mathematics	
Understand routine and non-routine problems in a wide range of familiar and unfamiliar contexts and situations	using fitness test data and table of norms
Select and apply a range of skills to find solutions	evaluating any test-retest data, eg statistical difference, percent changes
English	
Speaking and listening – make a range of contributions to discussions and make effective presentations in a wide range of contexts	delivering a presentation and providing performance analysis feedback
Reading – compare, select, read and understand texts and use them to gather information, ideas, arguments and opinions	developing performance profile documents and athlete questionnaires
Writing – write documents, including extended writing pieces, communicating information, ideas and opinions, effectively and persuasively	producing performance profile and performance analysis reports.