

LEVEL 5 ASSESSMENT SPECIFICATION

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Programme:	BSc Sport and Exercise Science, BSc Sport and Exercise Science (Sports Nutrition), BSc Health, Nutrition and Lifestyle, BA Physical Education		
Module:	Exercise Physiology		
Module code:	BMSS5001	Contribution to Overall Module Assessment (%):	50%
Lecturer:	Geraint Forster	Internal Verifier:	David Gardner
Assignment Title:	Case study report	Word count (or equivalent):	2,000
Submission deadline:	06/05/22	Return date of provisional marks & written feedback:	03/06/22
Submission method:	All written assessments, where practical and possible, must be submitted via Turnitin unless otherwise instructed by the Lecturer. (Please DO NOT put this assessment specification into Turnitin or it will match many similarities with other students' submissions.) Alternative submission method (if applicable): Late submission of the assessment will result in a late penalty mark. Penalties for late submission: Up to one week late, maximum mark of 40%. Over one week late, 0%. Only the Extenuating Circumstances Panel may approve a change to submission dates.		
Academic honesty / referencing:	Academic honesty is required. In the main body of your submission you must give credit to authors on whose research and ideas your work is based. Append to your submission a reference list that indicates the books, articles, etc. that you have used, cited or quoted in order to complete this assessment.		

Physiological demands of a netball player

The following assignment will outline the physiological demands of netball, whilst suggesting recommendations in relation to the areas in which they could focus on in order to meet their full potential.

The physiological response to any exercise is based on the intensity, duration along with the environmental conditions (Burton et al., 2004). During physical activity (PA), the body's requirements for oxygen are increased, as is the removal of carbon dioxide (Burton et al., 2004). Physical activity is one of the most effective ways to help prevent cardiovascular disease, there are two methods of exercise; aerobic and anaerobic exercises, both of which are differentiated based on the intensity, intervals and types of muscle fibres used (Wolters Kluwer, 2018).

Netball is a team game involving intermittent, high intensity style activity with a low intensity foundation (Farrow et al., 2005). Within the 7 different positions during a game of netball, are different physical demands in which the team has very clear roles to support the overall success (Whitehead et al., 2021a). Netball consists of a combination of speed, skill, balance, tactical awareness, and agility (Whitehead et al., 2021a). Centre position starts the game and is allowed anywhere on the court; based on the wider scale of this position, the assignment will have a main focus on the requirements of a centre netball player (Thomas et al., 2017).

Fitness testing identifies a person's strengths and weaknesses in relation to the many elements of sport-specific fitness (Thomas et al., 2017). Athletes' physical and physiological profiles must be understood due to the dynamic nature of the sport before recommendations regarding their location on the court can be made (Thomas et al., 2017).

Netball is mostly anaerobic, with numerous high-intensity movements necessitating a high level of strength, power, and lower-limb control (Farrow et al., 2005). In netball, strength is really important. Jumping to block shots or racing to get a loose ball requires lower-body force, while completing passes and shooting goals requires upper-body power (Whitehead et al., 2021a).

Methodology

Research design

In order to conduct a series of specially designed fitness tests, a person with a keen interest in netball was recruited, along with 9 other female health and nutrition students. The assessments' main goal was to compare and contrast students who were specifically interested in netball with students who were generally interested in sports.

Participants

Amongst a study of 17 male and female university students, 10 were chosen from three different degree programmes in health and fitness: physical education, health, nutrition, and lifestyle, and sports science to that outlines their physiological capabilities in relation to their chosen sport.

Anthropometry

Success in netball depends on physical characteristics like height and arm span (Whitehead et al., 2021b). These metrics can be applied to junior athletes to identify their potential (Whitehead et al., 2021b). Weight was measured in kilogrammes using weighing scales model Seca while wearing light clothing and no shoes. Once the subject's feet were shoulder width apart, their backs were against the stadiometer, and their heads were straight, the subject's height was measured using a Seca stadiometer. The Harpenden Skinfold Callipers were used to measure the skinfolds at the stomach, suprailium, tricep, and outer thigh. Following three iterations of the test on each site, an average value was used (Wolters Kluwer, 2018).

Aerobic/Anaerobic testing methods.

Aerobic fitness is an important aspect to the fitness of netball this is mainly down to the demand in stamina required to preserve the intensity of play throughout the game (Whitehead et al., 2021b). To measure the candidate's aerobic fitness levels, the Yoyo intermittent recovery test was carried out; this test took place weather dependant in either the sports hall of the university, or the tennis courts. Anaerobic capacity was measured via the Wingate Anaerobic Test using the Ergo medic Bike; the weight added was 7.5% of body weight (Wolters Kluwer, 2018). The test consisted of recording average and peak power, and percentage power drop (Wolters Kluwer, 2018).

Flexibility and agility

Flexibility is a measurement in which the range of motion of a specific joint is analysed. Flexibility is important in terms of being injury free and being able to move freely around the court (Chandler et al., 2014a). The range of motion at a particular joint is a measure of flexibility (Chandler et al., 2014a). The mere fact that someone has a wide range of motion at their shoulder joint does not imply that they are likewise "flexible" at their hip joint (Chandler et al., 2014a). Because of this, no one test can accurately assess a person's whole bodily flexibility (Thomas et al., 2017). The sit-and-reach test is the most commonly used measure of flexibility. The sit-and reach test requires the subject to reach forward, stretching the muscles of the low back and hamstrings.

For netball, the capacity for rapid direction change is crucial. The agility T test, which involves running forward, sideways, and backwards, was used to gauge this. The cones were arranged in a T configuration, with a distance of 10 yards between cones A and B and 5 yards separating cones B and C and D. The Balance Error Scoring System test was used to determine balance. Three positions—feet together, one leg raised, and one foot behind the other—were evaluated for one minute each on two distinct surfaces together with eyes closed/eyes open. Netball players need to maintain their balance since they frequently change positions within a limited base and engage in single-leg reaching movements when passing the ball. To successfully shoot the ball and keep a solid defensive stance posture, they require superb balance.

Strength and Endurance

A Hand Grip Dynamometer was used to measure strength during the hand grip test (Cronin et al., 2017). Then, participants pressed the dynamometer for three seconds while keeping their palms up and their elbows at a 90-degree angle (Cronin et al., 2017). Press-up and sit-up exercises lasting one minute were used to gauge strength endurance (Cronin et al., 2017). The key to a netball team's success in winning games is scoring and passing.

Using a 7-kilogramme medicine ball, the Medicine Ball Throw test was used to gauge upper body strength (Chandler et al., 2014a). On the starting line, participants sat cross-legged and executed a push throw at a about 45° angle (Wolters Kluwer, 2018). A tape measure was used to record the outcomes. The vertical leap test, which utilised a vertical jump pad with a waist belt containing a measurement cord and an LCD screen providing precise results, was used to gauge lower body power (Wolters Kluwer, 2018).

The speed of the game means that we are constantly requiring our muscles to make explosive efforts to sprint, change direction, jump and even throw (Wolters Kluwer, 2018). Using a timing system, a 30m sprint was performed, on the tennis courts of the university campus, sprints were performed and measured appropriately.

Results

The subject's interests in sports and activities were noted once the exams were finished for comparison reasons;

Table 1. students choice of sports or activity.

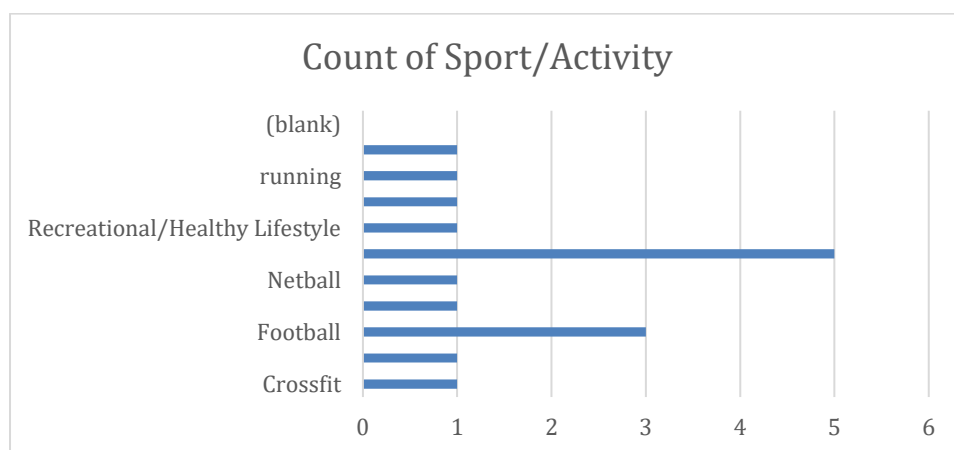


Table 2. Participants anthropometric measurements with netball player result.

Anthropometrics	Measurements	Mean $\pm$ SD	Netball individuals result
Weight	Cm	73.6 $\pm$ 17.6	63.6
Height	Kg	171.5 $\pm$ 11.7	163.5
Body Fat skinfold	%	21.2 $\pm$ 8.6	29.7

Table 3. Mean $\pm$ SD of aerobic and anaerobic capacity results with Netball player result

Anaerobic & Aerobic	Measurements	Mean $\pm$ SD	Netball individual result
YoYo Test	Kg/min	41.14 $\pm$ 3.0	39.1
WAnT PDrop Test	%	58.9 $\pm$ 2.5	56.51
WAnt PP	Watts	711.9 $\pm$ 209.2	575.66

Table 4. Mean $\pm$ SD of agility, balance and flexibility results with Netball player result

Agility, balance and flexibility	Measurements	Mean $\pm$ SD	Netball individual result
Agility T-test	Seconds	12.38 $\pm$ 1.5	12.56
BESS Score		13.90 $\pm$ 2.7	13
Sit and Reach	CM	24.35 $\pm$ 10.7	27

Table 5. Mean $\pm$ SD of power results with Netball player result

Power	Measurements	Mean $\pm$ SD	Netball individual result
Vertical jump	CM	36.13 $\pm$ 10.6	31
Medicine ball throw	CM	247 $\pm$ 53.0	200
Sprint	Seconds	4.72 $\pm$ 1.1	5.35

According to Hughes and Franks (2008), in order to create a sport-specific training programme for the best possible athlete preparation and conditioning, it is essential to comprehend the physical demands placed upon players of different court positions during competition (Whitehead et al., 2021b). According to reviews, footwork regulations and restrictions on player mobility across the court are part of the intermittent, invasive nature of the game of netball (Whitehead et al., 2021b). The lower extremity pressure that players experience while playing the game is the cause of the high prevalence of ankle and knee injuries seen in netball (Whitehead et al., 2021b). In order to prevent and lessen injuries brought on by lower extremity strain, it is crucial to have a thorough awareness of the physiological demands (Farrow et al., 2005). This will aid athletes in practising for and adapting to game-like scenarios before the actual game. According to Chandler et al. (2014), because the physical requirements of all playing positions are not well defined, previous research on the physical demands of netball grouped or only explored three playing positions (Chandler et al., 2014b). This causes a study gap. Chandler et al. (2014) also point out that it is difficult to construct tailored conditioning

programmes to maximise the training-induced adaptations without knowledge of position-specific demands (Chandler et al., 2014b).

The individual with a keen focus on netball came in below average in height and weight, but above average in skinfold body fat (Wolters Kluwer, 2018). Agility and balance essential assets for netball and the participants score sits within the average and above average for flexibility in the sit and reach test; a positive result as flexibility is a focal area for netball (Wolters Kluwer, 2018).

In the sprint the individual came above average with a time of 5.35 seconds. However, the medicine ball throw and vertical jump came in below average. As the research above suggests; In order to throw the ball with tremendous force, distance, and accuracy in netball, as well as to stand tall and maintain their position during the entire game, players must have a strong upper body (Chandler et al., 2014a; Davidson & Trewartha, 2008). Evidence suggests that the results from a YoYo test determines the endurance training that is designed for the individual based on their ability and strengths therefore performing the YoYo test is a crucial aspect to Netball training, this individual fell down slightly on the YoYo test coming just below average at 39.1, where the average score was 41.1. The way in which the individual changes direction and how timely this is done is an important part of all positions on the court (Davidson & Trewartha, 2008). The individual as stated above came below average in the vertical jump test; this is another important aspect on the court for all positions the ability to jump in a controlled, agile manor is essential. Squat jumps and box jumps are good drills to include into a training regime in order to approve upon the vertical jump distance (Farrow et al., 2005). The first step to training like a professional is making sure each of the following are addressed: Balance, Strength, Agility, Stamina/Endurance, and Power (Farrow et al., 2005). Netball is a comprehensive sport that requires players to have numerous athletic abilities (Farrow et al., 2005; Whitehead et al., 2021a). Stamina and agility drills should be paired with strength and conditioning training for netball (Davidson & Trewartha, 2008).

Word count - 1918

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STUDENT FEEDBACK FORM

This section details the *extent* to which the assessment criteria are demonstrated by you, which in turn determines your mark. The marks available for each category of skill are shown. Lecturers will use the space provided to comment on the achievement of the task(s), including those areas in which you have performed well and areas that would benefit from development/improvement.

Generic Assessment Criteria	Marks available	Marks awarded
1. Engagement with Literature Skills	20	
2. Knowledge and Understanding Skills	25	
3. Cognitive and Intellectual Skills	25	
4. Practical Application Skills	20	
5. Transferable Skills for Life and Professional Practice	10	

Assessment Mark (Assessment marks are subject to ratification at the Exam Board. These comments and marks are to give feedback on module work and are for guidance only until they are confirmed.)	Late Submission Penalties (tick if appropriate)		%
	Up to 1 week late (40% Max)		
	Over 1 week late (0%)		

