

Health and fitness assessment report

Student learning number – 2304980

Height and weight assessments were selected to assess body composition as the two variables can be used to assess BMI. This is relevant to human physiology and fitness as body composition has a major effect on performance according to NSCA (Anon, 2017). These assessments are practical in health and fitness settings with the use of a Seca weight scale (scale 875, Hamburg, Germany) and a stadiometer (Seca 213, Seca, Hamburg, Germany). The data collected provides meaningful information regarding the client's health and fitness status by calculating BMI providing specific information to the tester (Anon, 2019). The Queens College step test was selected to assess cardiovascular endurance. This test was selected due to minimal equipment, little time required along with being a more natural movement (McArdle et al, 1972). This is relevant to human physiology and fitness as cardiovascular endurance's step test assessment is the simplest to determine cardiorespiratory fitness in terms of maximum oxygen uptake (Nabi et al, 2015). The data collected provides meaningful information regarding the client's health and fitness status by calculating V02 Max, providing specific information to the tester and suggesting the fitness levels of their client (Bryan Mackenzie, 2019).

The grip strength test was selected to assess muscular strength along with client's preference and suitability. This is relevant to human physiology and fitness as the grip strength test is a measurement of maximum force under tension generated by the forearm muscle, therefore the grip strength method can be used as a screening tool for upper body strength (Beyer et al, 2018). Data collected gives meaningful information to the tester to compare client statistics compared to normative data (Bryan Mackenzie, 2002).

The maximum sit up test was selected to assess muscular endurance. This test was selected due to the lack of equipment and is an easy test to conduct and perform therefore being one of the quickest muscular endurance tests (Robert Wood, 2008). This is relevant to human physiology and fitness as the test measures the strength and endurance of abdominals and hip flexor muscles (Halpern et al, 2024). Data collected during the test allows the tester to gain a further understanding of the client's muscular endurance by comparing with normative data (Golding et al, 1986).

The sit and reach test was selected to assess a client's flexibility. This test was selected as it's inexpensive, easy to use and is a short test in order to gather data quickly (Tom Green, 2024). This is relevant to human physiology and fitness as the test assesses an individual's ability to move a series of joints through an unrestricted range of motion which is the definition of flexibility (Linker et al, 2011). Data collected during the test allows the tester to further understand the client's flexibility levels by comparing with normative data (Davies et al, 2000, p. 126).

The blood pressure monitor was selected to assess the client's blood pressure. The automatic monitor was selected due to personal preference. This assessment is relevant to human physiology as it highlights any underlying health issues to keep in mind when selecting assessment types and methods (Housh et al, 2016).

The height and weight assessments were measured barefoot in minimal clothing with removal of accessories. Testers ensured the clients positioning was correct with flat feet on the floor and a straight spine for the height assessment and ensured the client stood on the scale with both feet in equal position without holding onto anything before taking measurements. The tester used a Seca scale (scale 875, Hamburg, Germany) and a stadiometer (Seca 213, Hamburg, Germany).

Standardized and valid data collection played a key role when testing height and weight. By repeating the tests testers ensured data collected was valid and reliable. Measurement error would have resulted in inaccurate BMI levels therefore an incorrect comparison to normative data.

The Queens College step test was assessed using a: Polar H10 (Polar Electro, Warwick, UK), a metronome set at 96 BPM along with a 41.3 cm step (no reference given for the metronome and step. Testers allowed a 5 minute warm up of walking activities before assessment. The assessment began by setting a metronome at 96 BPM. Testers recommended using a 4 step cadence of 'up – up – down – down' cadence. The 3 minute timer began as the client placed his foot fully onto the step and repeated for 3 minutes. Testers measured the clients HR 5 seconds after activity (Mc. Ardle et al, 2007). Testers ensured data collected was valid and reliable by ensuring the client placed a full foot onto the step each time. Measurement error would have resulted in inaccurate HR readings, thus comparing normative data. Testers ensured the client held the dynamometer with their palm facing upwards with a bend of 90 degrees whilst the client squeezed maximally for 3 seconds (Housh et al, 2016). The assessment was repeated twice per arm, ensuring data collected was valid and reliable. Measurement error would have resulted in inaccurate strength levels, therefore an incorrect comparison to normative data.

The sit and reach test was assessed using a sit and reach box (Habidirect, Southam, UK). The test was measured barefoot with both feet vertically in line with the box. The client was given a 5 minute warm up based on walking and static stretching. The assessment began with full extension of the knees, feet no further than 8 inches apart with heels placed at the 23 CM mark. The clients' arms were fully extended forwards

with one hand over the other, palms facing down. Testers noted the results once the client reaches as far forward and possible and holds for 1 -2 seconds (Housh et al, 2016). The assessment was repeated three times to ensure data collected was reliable and valid. Measurement error would have resulted in inaccurate flexibility levels therefore an incorrect comparison to normative data.

The sit up test was assessed using a protective mat along with a 1 minute timer (no equipment reference given). The test was assessed in footwear and in minimal clothing with no accessories. The assessment began with knees bent, feet flat to the floor and fingers next to the ears. The client's heels were 18 inches from the buttocks with the testers weighing down on the feet. The testers began the 1 minute timer as the client began the movement. Testers counted the number of repetitions during the assessment (Housh et al, 2016). Testers ensured data collected was valid and reliable by ensuring the client precisely followed the exercise protocol. Measurement error would have resulted in inaccurate muscular endurance readings therefore an incorrect comparison to normative data.

Test	Subject result	Norm data comparison
Blood pressure	119/63 mm/Hg	Normal
BMI	20.9	Healthy
Strength	88.4 kg	20 th percentile
V02 max	45.81	Good
Muscular endurance	34	Below average
Flexibility	30	60 th percentile

The client's blood pressure readings can be interpreted by comparing with normative data. The client's readings of 119/63 mmHg was classified as “ normal “ when compared to normative data (Housh e al, 2016). Strengths and weaknesses were identified when assessing the client's blood pressure. The client's overall readings were identified as a strength along with the systolic reading of 119 mmHg being at top end range of the “ normal” classification . The client's diastolic reading on the other hand was identified as a weakness as a reading of 63 mmHg is at the lower end scale of the “normal” classification. Having a healthy blood pressure reading lowers the risk of cardiac injuries and illnesses such as a heart attack by 25 % (Jamil et al, 2018).

The client's height and weight data can be interpreted to assess BMI and compare to normative data. The client's BMI readings of 20.9 is classified as healthy (Housh et al,

2016). Strengths and weaknesses were identified during the data collection element of the assessment. The client's overall BMI readings were considered a strength due to a healthy classification. A potential weakness could be considered as the client is marginal from being classified as overweight or underweight. A classification of overweight would be 25 and could potentially become a factor dependent on any rational changes in nutrition patterns or training programs. A classification of underweight would be 18.5 and could potentially become a factor dependent on any rational changes in nutrition patterns or training programs. Having an unhealthy BMI level can have greater effect on an individual's health and could potentially result in illnesses such as diabetes type ii (Mark J et al, 2013).

The data collected from the VO2 Max assessment can be interpreted and compared to normative data. The client's result of 45.81 is classified as 'good'. Strengths and weaknesses were identified during data collection. The client's overall classification is considered a strength due to it being a strong classification along with it being consistent with data collected from other assessments (Housh et al, 2016).

The data collected from the muscular endurance assessment can be interpreted and compared to normative data. The client's muscular endurance reading of 34 was classified as 'below average'. Strengths and weaknesses were identified during data collection of this assessment. A classification of 'below average' was considered a weakness due to it being a low score and inconsistent with other assessments.

The data collected from the flexibility assessment can be compared with normative data. The client's results of 30 was classified as 60th percentile. Strengths and weaknesses were identified during assessment. The client's classification of 60th percentile is considered as a strength due to good levels of flexibility, along with the flexibility classification being greater when compared with the client's physical assessments (Housh et al, 2016).

Continuing to eat healthily, exercise and reducing sodium and alcohol intake is highly recommended. Sticking to an exercise program, along with a balanced nutritional intake, is a lifestyle change highly recommended to preserve or improve blood pressure levels.

Following a cardiovascular exercise program, eating a balanced diet with plenty of fruit and vegetables along with lowering saturated fat intakes would be beneficial when preserving a healthy BMI. There are several BMI specific exercise programs available worth considering.

Ensuring that enough macronutrients, such as carbohydrates, fats and protein, are in your diet is essential when building or strengthening muscles. Training specifically by using 3 phases is recommended, for example phase 1 being hypertrophy where you grow the muscle, phase 2 being the strengthening phase where the muscle gets stronger and phase 3 being the power phase where athletes become more powerful and explosive.

Consuming foods high in nitrates, for example beetroot, celery, spinach etc., is highly recommended as they can make more economical muscle movements and top end improvements in speed by increasing blood nitrate levels. Training at higher intensities at roughly 90-95% of MHR strengthens cardiac muscles and increases blood volume.

Consuming correct amounts of carbohydrates is highly recommended as complex carbohydrates provide long lasting energy. Here are some strategies to increase muscular endurance levels:

- Lowering weight to 70% of 1RM
- 3 or more sets
- 10-25 reps
- 30 seconds or less rest

A well-balanced diet aligned with the eat well guide is recommended to keep a strong and flexible body. Adding dynamic stretches to your training, doing yoga or Pilates are all recommended to improve flexibility.

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Equipment list

HR chest strap, Polar H10,(polar electro , Warwick , UK) Available at: <https://www.Polar.com/uk-en>

Seca weighing scale, Seca 875, (Seca Hamburg , Germany) Available at: <https://www.Seca.com>

Stadiometer, Seca 213, (Seca Hamburg, Germany) Available at: <https://www.Seca.com>

Handgrip dynamometer, Takei hand grip monitor, (Habidirect, Southam, Uk) Available at: <https://www.Habidirect.co.uk>

Bp monitor, boso medicus (Jungingen, Germany) Available at: [https:// www.boso.de](https://www.boso.de)

Sit and reach box (Habidirect, Southam, Uk) Available at: [https:// www.Habidirect.co.uk](https://www.Habidirect.co.uk)

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