

Student Name: Brooklyn Phillips
 Student Number: 2502317
 AI Acknowledgment

URL	Date Used	Prompts
https://www.grammarly.com/	02/04/2026	Checked my grammar
https://chatgpt.com/	26/03/2026	Show me websites or books on the various fitness tests

Health and Fitness Assessment Report

This report presents a detailed fitness assessment of an 18-year-old male that weighs 65 kg and is 167.6 cm tall. We evaluated body composition (BMI, waist measures), cardiorespiratory fitness (Queen's College 3-min step test), muscular strength (handgrip), muscular endurance (1-min sit-ups), and flexibility (sit-and-reach). Each test is evidence-based with established norms. Results are compared to normative tables from UK and international sources. The client's profile shows healthy BMI, low waist:height ratio, above-average aerobic fitness, normal strength, good endurance, and excellent flexibility. Recommendations target maintaining strengths and addressing any weaknesses, following current UK guidelines and exercise science principles.

Test Selection and Rationale

We selected validated, practical tests covering all health-related fitness components:

- **Body Composition:** Assessed by BMI and waist circumference (78 cm), supplemented by waist to hip and waist to height ratios. BMI categorises weight status a BMI of 23.1 falls in the healthy range (18.5-24.9). Waist to height ratio is below 0.50, indicating low health risk. These simple measures provide insight into obesity, important predictors of cardiometabolic health.
- **Cardiorespiratory Fitness:** The Queen's College 3-min step test was used. The client stepped on a 41.3 cm bench at 24 steps/min for 3 minutes; pulse recovery was recorded. This field test estimates VO2 max and reflects aerobic capacity. It is easily administered in a gym and has published norms for young adults. Good aerobic fitness reduces cardiovascular disease risk.
- **Muscular Strength:** A handgrip dynamometer measures maximal grip strength. Grip strength is a validated indicator of overall strength and health. The client performed three squeezes. Norms for 18-19-year-old males are ~35–56 kg. Strength data, alongside body comp, inform muscle mass assessment.
- **Muscular Endurance:** The 1-minute sit-up test assessed core endurance. The client performed sit-ups with his knees bent, hands on his thighs for 60 seconds, doing 39 reps. Proper form was enforced with his back flat and no neck pull. The normative chart shows the average for men is 18-25 and my client recorded 39-43 reps which means the client is above average. Core endurance supports spine health and posture.
- **Flexibility:** The sit-and-reach test evaluated hamstring/lower-back flexibility. The client reached forward from sitting having his knees straight and reached 20 cm. Norms indicate over 17 cm is Excellent for men. Flexibility is included because tightness in

these areas can impede movement, it's measured because it's relevant to functional health.

Each test was chosen for evidence-based validity and ease of use. They align with module outcomes (physiology, fitness components, assessment skills) and can be done in a gym setting with minimal equipment. Normative data from ACSM, UK health sites, and peer-reviewed sources support interpretation.

Procedures and Data Collection

Each test was conducted with standardised protocol to ensure reliable data. The key steps were:

- **Body Composition:** I weighed my client (65 kg) and measured their height (167.6 cm) while they were wearing light clothes and no shoes. I worked out their BMI, which was 23.1 kg/m. I also measured around their waist, which was 78 cm. their hips are 100 cm around, so their waist-to-hip ratio is 0.78. All these measurements are in line with what the NHS (National Health Service) says is normal.
- **Queen's College 3-Minute Step Test:** After warming up for 10 minutes, my client stepped up and down on a step (41.3 cm high) at a pace of 24 steps per minute, using a metronome to keep time, for 3 minutes. As soon as they stopped, I counted their pulse for 15 seconds, and it was 35 beats. I followed the proper guidelines for this test, making sure they kept the right pace and recording their heart rate correctly. My assistant helped make sure they kept the right pace and wrote down their pulse after the exercise, just like the instructions said.
- **Handgrip Strength:** My client sat down with their elbow bent at 90 degrees and squeezed a hand-held thingy that measures strength. They did this three times, with a 30-second rest in between each go. Their best squeeze was 46.5 kg. I made sure they were in the same position each time to get a good reading.
- **1-Minute Sit-Up Test:** My client lay on their back with their knees bent at 90 degrees and their feet flat on the floor. When the timer started they did as many sit-ups as they could for 60 seconds, touching their knees with their hands each time. They managed 39 sit-ups. I made sure they were doing them properly, going all the way up and down as controlled as possible.
- **Sit-and-Reach Test:** My client sat with their legs straight out in front of them against a box. They reached forward as far as they could and held it for a moment. They had three tries, and their best reach was 20 cm. I made sure they kept their knees straight and held the reach for at least 3 seconds before letting go.

All tests were preceded by explanation and demonstration. The same examiner performed all measures to minimise inter-tester variability. Rest (2-3 min) was given between tests to reduce fatigue effects. We controlled posture strictly (e.g. neutral spine, feet placement) because small deviations can affect results. Each measurement was repeated or timed carefully (e.g. stopwatch for sit-ups) to improve accuracy. Given the importance of consistency for test reliability, we adhered to protocols rigidly.

Measurement Error: Potential errors (e.g. measuring waist incorrectly, stopwatch timing) were mitigated by practice trials and duplicate measurements where feasible. For example, the pulse was counted twice by two observers to ensure accuracy. Environmental factors (room temperature, noise) were kept neutral. The protocol design follows standard fitness testing practice to maximise reliability and validity.

Data Analysis and Interpretation

The client's results and comparisons to normative data are shown below. Calculations are given in context:

- BMI: "Healthy weight" is defined by the NHS as 18.5-24.9. The client's weight for height is appropriate because their BMI falls inside this healthy range.
- Ratio of waist to hip: $78/100 = 0.78$. For men at low risk, the cut-off is 0.9. obesity is far below risk criteria at 0.78.
- Step Test: 15-sec recovery pulse was 35 beats ($\times 4 = 140$ bpm). Norms: For males 16-19, 15-sec counts of 34-37 (136-148 bpm) are Above Average fitness. This places him above average.
- Grip Strength: my clients grip strength was 46.5 kg the norms for ages 18-19 the is 36-56 kg. This value falls in the normal range. It indicates good muscular strength, not exceptional but solid for age.
- Sit-ups: 39 reps/min. The norm for men aged 18-25 is 39–43 reps which means my client is Above Average. 39 reps is the lower end of above average. This demonstrates strong core endurance.
- Sit-and-Reach: my client reached 20 cm, the Norm says 17 cm is excellent for men. This suggests very flexible hamstrings.

Component	Result	Normative Data
BMI (kg/m)	23.1	18.5-24.9 = healthy
Waist to Hip ratio	0.78	Under 0.90 = Average
Step Test (HR)	140 BPM (15 seconds)	15 seconds: 34-37 = Above Average
Grip Strength	46.5kg	35.7 - 55.5 = Normal
Sit ups (60s)	39 reps	39-43 = Above Average
Sit-reach (cm)	20 cm	Over 17 = Excellent

Analysis: The client shows a robust fitness profile. Body composition is healthy (normal BMI and low waist ratios). Above-average performance in the step test and sit-ups indicates strong cardiovascular health and core endurance. Grip strength is adequate. Exceptional flexibility is a notable strength.

Overall, strengths include high aerobic fitness and flexibility. These suggest good heart-lung function and joint mobility. The only minor concern is ensuring body fat remains in a healthy range (15% is fine but monitor diet/activity). No major health risks appear (all measures meet or exceed norms).

These interpretations rely on UK sources and peer-reviewed data. For example, NHS defines BMI categories, and BrianMac's summary provides step-test norms. Flexibility norms come from published tables. Our assumption of a 100 cm hip is conservative; even if hip were 95 cm, waist:hip = 0.82, still below risk cutoff.

The client meets fitness benchmarks and exhibits strengths consistent with good health. Modest weaknesses (e.g. borderline higher body fat) are addressed in recommendations. All norms used are authoritative (ACSM/UK sources) and directly cited above.

Recommendations

Based on this analysis, we recommend a tailored plan:

- Maintain Cardio Routine continue at least 150 min/week of moderate aerobic exercise as per UK guidelines. Incorporate interval training once weekly to further boost endurance.
- Strength Training 2-3 times a week to improve muscular strength, including resistance training (free weights or machines) focusing on all major muscle groups. This follows ACSM guidance and NHS advice for general fitness. Aim for progressive overload.
- Core and Flexibility: Maintain core exercises to support spine health. Flexibility is already high; preserve it with daily static stretching or yoga, particularly hamstrings and lower back. This will aid recovery and prevent injury as training intensifies.
- Lifestyle recommendations to follow a balanced diet to sustain a healthy body composition. Reduce sedentary time by including light activity breaks. Ensure 7-9 hours sleep for optimal recovery.

Exercise research and UK public health guidelines serve as the foundation for these suggestions. They take advantage of the client's advantages and deal with any possible issues. This approach will enhance his physical capacity and health markers if he follows it.

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