

Current Proposed Title (20 / 30 words):

Comparing Cardiovascular fitness in young males via recovery rate and the influence of demographic characteristics on their health and fitness

Background & Context (approx. 500 words)

(A list of references should be included)

The Physical Activity Guidelines Advisory Committee report (2008) propose that cardiovascular fitness (CVF) is a good component to measure the capacity of the cardiovascular and respiratory systems to provide oxygen during sustained physical activity, which indicates overall fitness levels. Physical activity (PA) also performs a significant responsibility in the maintenance of health and effective functioning in people of all ages; with the U.S. Department of Health and Human Services (HHS) (2008) insinuating that Physical activity is considered one of the key health indicators providing insight into the overall health of both groups of individuals and societies as a whole. PA is broadly acknowledged to nurture a host of health profits from regular participation. These benefits include the basics of improved mental health and wellbeing, a decreased risk in the development of chronic illnesses such as type 2 diabetes and coronary heart disease (CDC, 2017), hypertension and obesity. PA studies have also shown that muscular growth and cognitive function (Winter et al. 2007) have all been positively impacted as a direct result of consistent and regular exercise.

Despite the notion that regular PA welcomes a multitude of benefits to an individual's overall health and fitness, the DOH (2005) advocate that an insufficient numbers of adults here in the UK are active at recommended levels. Guidelines from the National Health Service (NHS) imply that at least 150 minutes of moderate-vigorous physical activity (MVPA) per week should be executed to maintain relative fitness levels. Worryingly, In Scotland, data from the Scottish health survey (2010) suggest that 55% of men failed to meet current recommendations for PA and that observed PA levels declined with age. Sedentary behaviour is a worldwide problem, with the World Health Organisation (WHO) stating that physical inactivity can be attributed for 3.2 million deaths related to health issues annually, making it the fourth leading risk factor for global mortality (WHO, 2012). In fact, Blair (2009) goes deeper into this argument; advocating Physical inactivity to be the biggest public health problem of the 21st century and that clinical and public health professions need to do more to curb this global issue.

Mullineaux, Barnes, & Barnes (2001) allude that Physical activity patterns contrast significantly across age groups and from one socio-demographic group to another. Socio-demographic characteristics including various types of activities and exercises, age (Van Dyck et al., 2015),

Body composition, educational attainment (Perez et al., 2018) and employment status (Cerin et al., 2017a) have all been found to have moderate positive and negative associations with PA. For example there is a general consensus, that people in higher socioeconomic positions for example education and occupation, are more likely to engage in moderately active leisure activities compared to those in lower socioeconomic positions (Beenackers et al. 2012). Interestingly, Wardle & Steptoe (2003) suggest that the high-educated participate more frequently in leisure-time physical activity than the lower educated because they have gained better health knowledge during their longer educational careers.

To summarize, most people believe that health and fitness are the same although fitness has also been defined as a sub-category of health. It is ideal to have both, but is it possible to be fit and not healthy? There seems to be a wide and diverse range of literature on the demographic influences on physical activity in health and fitness measures in men. This study will assess recovery rates among young males who participate in different levels of physical activity post submaximal exercise. This research will also seek to determine if any demographic characteristics through physical activity, plays a more prominent role in influencing health and physical fitness measures in a small collection of the male population under the age of 35 in the south west wales area.

Aims and Objectives (approx.. 250 – 500 words)

Gregory et al (2009) state that the PA levels of adults depends on many elements, among which the most applicable are the variety and intensity of PA, Age, Body composition and BMI, education level and employment status. With that in mind the main aim of this research is to assess cardiovascular fitness via recovery rate amongst young males under the age of 35, who participate in different levels of physical activity following submaximal exercise. This is to back up my hypothesis that individuals who regularly exercise will have a quicker recovery rate than sedentary individuals. Secondly, through this investigation I aim to assess the relationship between health and fitness, and provide data and evidence to explore what impact demographic characteristics may have on both, in each individual from this small sample of young male participants in the local region.

My first objective is to distribute a pre participation health questionnaire to assess the baseline health of my targeted study group. I believe this is an important and essential objective of this investigation because any participant, who provides any irregular responses that arise from this health instrument measurement, should be flagged and possibly removed from the study pending

further investigation. I want to make sure I'm getting the correct participants through to the next stage of my screening study and don't want to put any potential health risks on the partaker.

Once I have evaluated responses from the health questionnaire and determined my able participants, my second objective will be to invite all the participants to complete a fitness assessment questionnaire as part of the pre-test data collection to determine demographic characteristics of each individual.

My third objective is to invite all the participants to take part in a moderate-to-vigorous PA test. On the day of the test I will record each individual's height, weight, blood pressure, resting heart rate (RHR), and the body composition prior to conducting the PA test. On completion of gathering these quantities of information, I will then proceed to conduct the test on each individual.

My penultimate Objective is to measure each participant's heart rate recovery (HRR) and oxygen uptake (VO₂max) post-test. This should provide valuable information for the main aim of the study.

Finally, my last objective from this research study is to analyze and compare the data gathered from the results of the test against the different demographic characteristics answered in the pre-test fitness assessment questionnaire. From the data accumulated, my aim is to identify if any of the demographic variables have a stronger correlation in defining health and fitness measures.

Proposed plan of work including timetable

Proposal & ethics	October
Introduction and Literature	October to January
Main study Participant recruitment	November to December
Pre-participation health Questionnaire	December,
Fitness Assessment & Data collection	December to January
Queens college Step test	January to February
Data Collection (post main study)	February
Data Analysis	February
Results	February to March
Discussion	March to April
Final Conclusions	April

Bibliography and Appendices	April
Submissions	April
Proposed methodology (approx. 500 words):	
<u>Study Design</u> The study comprised of a quantitative approach with firstly questionnaires, and then fitness assessment data collected, analysed and evaluated. Following this, a physical fitness test will be conducted and results recorded. Participants will be voluntarily, and determined to partake in the test by successfully meeting the criteria in the pre participation health questionnaire <u>Participants</u> In total, I will aim for my sample size to be at least 50 male participants (>18 years of age) who reside in the south west wales area, to be examined between October 2018 & January 2019. The sample group will contain individuals who are currently students from the school of outdoor education at the university of wales Trinity Saint David. The trial group will also consist of individuals from a local football side who compete in a Saturday league in the city. Recruitment is on a voluntary basis and will be conducted by announcing the study via email, social media, word of mouth, and by asking contributors face-to-face if they wished to take part. Partakers will be accepted on to the study after signed consent and successful completion of the pre participation health questionnaire. Any participants who fail to sign the consent or fail the pre participation health questionnaire will be excluded from the study. All contributors will be asked to refrain from physical activity for at least 3 hours before testing and will undergo a small warm up prior to the test. <u>Measures</u> <u>Physical Activity Readiness Questionnaire (PAR-Q)</u> Participants will firstly be provided with a questionnaire prior to assessment and testing, and are encouraged to complete this as accurately as possible. Failure to achieve this may result in expulsion from the study. The physical activity readiness questionnaire (PAR-Q) as depicted in (appendix 1) will be used to determine an accurate reading of an individual's overall health to make sure they are ready to meet the minimum requirements to partake in this research study. A host of questions including health determinants, medicinal intake and preexisting/chronic health conditions are amongst the desirables. <u>Fitness Assessment and data collection</u>	

Participants who meet the criteria will be next given the opportunity to undertake the fitness assessment. Prior to commencement individuals will be required to complete section 1 of the assessment and data collection sheet as depicted in (appendix 2) prior to test. This will enable me to record and critically analyze gathered data in accordance with the chosen demographics.

Queen's college Step Test

On arrival, participants will have their height, weight, blood pressure, resting heart rate (RHR), and their body composition measured as shown in (appendix 2) by a medical professional. After the individual's data has been collected they'll be instructed to partake in a small 'warm up' prior to the test. The test to be used in this research study will be the queen's college step test is described an outlined in the link in (appendix 3). The objective of the Queen's College Step Test (McArdle et al. 1972) is to monitor the development of the contributors' cardiovascular system. This test requires the participant to step up and down on the step for 3 minutes at the rate of 24 steps per minute. On the command "GO", the stopwatch starts and the athlete commences the test. An assistant ensures the athlete maintains the required steps per minute pace. The assistant will then stop the test after 3 minutes and will record the individual's heart rate for 15 seconds to determine their Oxygen uptake (VO₂ max) and Recovery heart rate (RHR).

Data Analysis

Using a quantitative method, Once all data has been collected, it will be logged on to a Microsoft excel spreadsheet to be analysed. Participants will be numbered (e.g. Participant 1, etc.) and all demographic characteristics will all be included as variables. Data analysis will then be performed using the SPSS software (version 24.0; IBM Corp, Armonk, NY) after being exported from Excel.