Self-reported fitness levels, actual fitness levels and recorded energy expenditure on graded hiking trails

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Abstract
Introduction: Lack of information regarding the ability to complete a hiking trail creates perceived and real danger, and uncertainty for inexperienced hikers. The use of a standardised grading system linked to fitness tests will assist hikers in making informed decisions regarding hiking trails that are suitable for them in terms of the required time and fitness level needed to complete the trail without undue physical exertion. Objectives: (i) To establish a profile of hikers; (ii) to determine if a correlation exists between the International Physical Activity Questionnaire (IPAQ) self-reporting physical activity (PA) questionnaire, the fitness grading classification of the Step-up Test proposed by De Villiers and Thiart (1988), the Cooper Test on the one hand, and on the other the heart rate (HR) of a hiker during the hike, and the rate of perceived exertion (Borg scale (RPE)) during two differently graded hiking trails; (iii) to determine if the calculated energy expenditure (EE) of a hiker is consistent with the Hugo calculations; (iv) to conduct an analysis of the use of the IPAQ as well as the actual fitness tests to predict the perceived exertion; (v) to determine whether the exertion levels on the two hiking trails can be predicted through the information gained from the physical fitness/PA tests. Methods: A Prospective Descriptive design was used in this study. Fifty (n=50) participants (37 female and 13 male participants) completed the pre-hike tests, (IPAQ and Demographic Information, Medical history and Hiking Questionnaire, Step-up Test and Cooper Test), as well as the hiking of two graded hiking trails. Correlations between relevant sets of variables were calculated, together with the associated p-value. ANCOVAs were used to investigate if the exertion levels on the two trails, as characterised by the minimum HR, average HR, maximum HR and Borg Scale (RPE) at the end of the trail, could be predicted by the pre-hike fitness tests/PA (IPAQ, Step-up Test and Cooper Test). F-statistics and associated p-values for all model effects are reported. Stepwise backward model selection was performed, and based on the final selected model, the predicted values of the dependent variables were calculated for the different levels of the fitness test/PA variables selected for the final model. Results: Trail 1 (grading 3 ("easy") according to Hugo's grading system) covered a grassland distance of 6.91 km, with average altitude of 1393m, and an average completion time of 97.5 minutes. Trail 2 (grading 5.4 ("moderate")) was a mountain hike of 10.88km, with average altitude of 1978m and average completion time 297.6 minutes. No significant positive correlations were found between pre-hike IPAQ, Step-up Test, Cooper Test and Borg scale (RPE). The exertion levels on the two hiking trails (Trail 1 and Trail 2) can be predicted by information based on the pre-hike fitness tests. The analyses of data for both trails separately, and then jointly, yield essentially similar results: For Trail 1, the Step-up Test was selected as the only predictor of both average HR (p=0.0026) and maximum HR (p=0.0015). No predictor was selected for Borg scale (RPE) at the end of the trail. Similarly, for Trail 2, the selected predictors of average HR were the Step-up (p=0.0607) and Cooper Tests (p=0.0005), while the Step-up Test was the only selected predictor for maximum HR (p=0.0070), and the Cooper Test the only selected predictor for Borg RPE at the end of the trail (p=0.0043). For example, for Trail 2, the selected model predicts a maximum HR of 154.5 bpm for a participant who attained a "Very Good" grading in the Step-up Test. However, the maximum HR increased to 176.5 bpm for a participant with a "Poor" grading in the Step-up Test. It is clear that the predicted maximum HR indicates that an unfit hikers' maximum HR could become dangerously elevated on low classification fitness levels. The indicated increase in maximum and average HR in the Step-Up Test is due to lower fitness levels as indicated by lower ratings in the categories of the tests. Therefore, significant predictors of exertion during hiking could be identified, using simple pre-hike fitness tests. These observations were robust to different methods of analysis. Conclusion: Simple, pre-hike fitness tests can be used to predict exertion on hiking trails with known ratings. The results of such predictions can be used to recommend hiking trails to hikers with varying fitness levels for safe use. Currently the Step-up Test of De Villiers and Thiart (1988) is the best predictor available.

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A new report says fitness trackers don't measure the calories our body burns while exercising so accurately. This means people may make poor decisions about their diet. The study, from Stanford University, evaluated five popular trackers. These included the Apple Watch, Fitbit Surge and Samsung Gear S2. The researchers observed 60 volunteers as they walked, ran and cycled with the devices. Researchers found that none of the devices had an error rate below 20 per cent. Dr Euan Ashley said: "People need to know that on energy expenditure, [the trackers] give rough estimates." Finally, physical fitness refers to a set of attributes people have or achieve, and are related to their ability to perform physical activity. There is health-related physical fitness, (cardiovascular fitness, body composition, flexibility, muscular endurance, and muscular strength) and skill-related physical fitness (agility, balance, coordination, power, speed, and reaction time). The effects of physical activity which falls under the category of health-related physical fitness is examined in this paper. Website Textbook excerpt Poster Report. Blog post Brochure. Advertisement. adhere, energy balance, expenditure, gait, mobility, morbidly Providing obese, privacy, proprioceptive training, psychosocial, sedentary, reassurance self-esteem, trust, weight-supported exercise, well-being. 5 Training and Chronic Condition 2. Excerpt. The series is organized into three levels of difficulty and offers a minimum of 400 vocabulary terms and phrases. Every unit includes a test of reading comprehension, vocabulary, and listening skills, and leads students through written and oral production. Included Features Fitness goals are important on several counts. They hold us accountable, expand our definition of possible, and encourage us to push through temporary discomfort for longer-lasting change. But figuring out how to set fitness goals you'll actually want to attain can be part art, part science. Mark DiSalvo, NYC-based certified strength and conditioning specialist, explains it this way: A good fitness goal can be "your North Star when you have bad days," he tells SELF. In other words, a goal, if thoughtful and well structured, can give you the extra incentive to keep going when motivation wa