FEASIBILITY OF MUSCULAR FITNESS TESTING IN CARDIAC REHABILITATION WITH PORTABLE MOVEMENT SENSOR TECHNOLOGY

Robert Scala*, 1Frank Paul, 1Casey Filler, 2Zeyu Song, 1Katlin Moore, 1Molly Tomah, 1McNerdy Mariah, 1Kaley Repp, 1Cynthia Ivy, 1Regis Fernandes, 1Bryan Taylor. 1Mayo Clinic, 13400 E Shea Blvd Scottsdale AZ 85259, US; 2Midwestern University, 9555 N 59th Ave, Glendale, AZ 85308, US; 3Northern Arizona University, 5 Paseo del Norte, Flagstaff, AZ 86011, US

10.1136/heartjnl-2023-BACPR.19

Background An age-related decline in musculoskeletal health has a detrimental effect on physical function (PF) in the elderly. Technology-based muscular fitness testing may provide objective performance metrics that are not available with standard clinical tests.

Aim This investigation evaluated the feasibility of using movement sensor technology (MST) to measure muscular power (MP) on entry to early outpatient cardiac rehabilitation (CR).

Methods Descriptive statistics quantified outcomes in a 4-month retrospective chart review. The single repetition maximal effort chair-to-stand (CTS) and the standing static chest throw (SCT) test with a 2 or 3 kg weighted ball was conducted in patients with no physical restrictions. Patients within 12-weeks of open-heart surgery did not perform the SCT. A MoveFactorX Inertial Measurement Unit (IMU) sensor was attached to the lower back or embedded inside the ball. Near real-time three-axis accelerometry and gyroscope data was sent from the sensor to an application on a tablet via Bluetooth technology. Seventy-five patients (77% male, mean age=69 years) were instructed to perform 1-2 sets of 3 repetitions with 2-second recovery intervals and the highest score was reported.

Results The CTS mean relative peak power was 8.4 watts/kg (SD=4.9) for all subjects (n=71) with 9.1 watts/kg (SD=4.6) and 5.8 watts/kg (SD=4.8) for men (n=54) and women (n=17) respectively. The SCT mean absolute peak power was 297.6 watts (SD=125.5) for all subjects (n=49) with 330.8 watts (SD=109.7) and 132.0 (SD=38.4) for men (n=41) and women (n=8). Technical issues or physical limitations prevented some patients from attaining a test score. A wide range of scores was observed in this CR population.

Conclusion It was feasible to use portable MST to objectively quantify MP as a measure of PF in the majority of patients. Further research is needed to better understand the application of MST in the clinical setting.

PROTEIN INTAKE, GRIP STRENGTH, AND QUALITY OF LIFE IN OLDER ADULTS: AN EVALUATION OF AN OVER 60’S COMMUNITY EXERCISE PROGRAMME

Tom Butler*, 1Oriagh Murray, 1Georgie Stratford, 1Maisie Burke, 1Paul Corless. 1Faculty of Health, Social Care and Medicine, Edge Hill University, Ormskirk, Lancashire, L39 4QF, UK; 2Cardio Respiratory Research Centre, Edge Hill University, Ormskirk, Lancashire, L39 4QF, UK; 3On the Pulse Health Training, 10 Attlebridge Gardens, Great Sankey, Warrington, WA5 3YD, UK

10.1136/heartjnl-2023-BACPR.21

Background Community exercise programmes have been shown to confer multiple cardiovascular health benefits and improved quality of life (QoL) in older adults. However, the components of such programmes likely determine their effectiveness on health outcomes.

Aim This study aimed to assess the effects of attending an open community exercise class for individuals over 60 years old on grip strength, QoL, and nutritional intake.

Methods Participants were recruited from an over 60s exercise class in the Northwest of the UK. Those meeting the entry criteria of being aged over 60 were assessed for dietary intake using multiple 24-hour recalls, while grip strength was measured using a digital dynamometer. Grip strength was compared to age- and sex-matched 50th centile values. Nutritional intake was evaluated using Nutritics® software, and protein intake was compared to calculated values based on recommended levels. Quality of life was assessed using the EQ-5D-5L questionnaire. EQindex (a measure of QoL) was calculated and compared against age- and sex-matched values. The study received approval from the Health Research Ethics Committee at Edge Hill University.