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Evaluating Questionnaires for Muscle-strengthening and Physical Activity Assessment: A Literature Review

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ABSTRACT

Physical activity and muscle-strengthening exercises are vital components of a healthy lifestyle. Accurate assessment of these activities is essential for monitoring health outcomes, designing exercise interventions and understanding the impact of physical activity on overall health. A few questionnaires are available to assess physical activity levels, with varying emphasis on muscle-strengthening exercises. These include the Muscle-Strengthening Exercise Questionnaire (MSEQ), the International Physical Activity Questionnaire (IPAQ), the Global Physical Activity Questionnaire (GPAQ), and the One Repetition Maximum (1RM) Questionnaire. This review examines the characteristics, effectiveness, and limitations of these tools, focusing on their ability to assess muscle-strengthening activity and overall physical activity. A comprehensive literature review was conducted to identify full-text articles published in English within the databases PubMed, EMBASE, and EBSCOhost. The search strategy focussed on studies exploring the use of the MSEQ, IPAQ, GPAQ, and 1RM Questionnaire for assessing physical activity or muscle strength. No time-related, geographical, or study-design-related exclusions were applied to the search criteria. The review focussed on the methodologies used to validate each questionnaire, their reliability in different populations, and their utility in clinical and research settings. A total of five observational studies were identified, and the selected studies were analysed to assess the strengths, weaknesses and contextual applicability of each tool in assessing physical activity and muscle-strengthening exercise. The review found that the MSEQ and 1RM Questionnaire are more focussed on directly assessing muscle-strengthening activities and muscular strength, while the IPAQ and GPAQ provide broader assessments of overall physical activity, including walking and moderate-to-vigorous intensity exercise. The IPAQ and GPAQ were found to be more generalisable for large-scale epidemiological studies, whereas the MSEQ and 1RM are more effective for individualised or clinical muscle-strengthening interventions. The reliability of MSEQ is 0.76-0.91 related to IPAQ, GPAQ, and 1RM Questionnaire. To conclude, while the MSEQ and 1RM Questionnaire offered valuable insights into muscle-strengthening exercises and strength, the IPAQ and GPAQ provided broader physical activity profiles. Future studies should focus on cross-validating these tools in diverse populations and settings to improve their generalisability and applicability in clinical practice.

Keywords: Exercise therapy, Muscles, Muscle strength, Outcome assessment, Survey and questionnaires,