Tutorial 5: Musculoskeletal Fitness Assessment

The purpose of this laboratory is to conduct musculoskeletal fitness testing according to the Canadian Physical Activity, Fitness and Lifestyle Approach (CPAFLA).

Musculoskeletal fitness is essential to optimal health, athletic fitness and performance. Assessment of musculoskeletal fitness consists of 4 components: muscular strength, muscular endurance, muscular power and muscular flexibility. Muscular strength is defined as the ability of the muscle to produce its maximal force, muscular endurance is defined as the ability of the muscle to maintain submaximal force levels for an extended amount of time and muscular power is defined as the ability of the muscle to produce a large amount of force quickly (Thompson, 2009). Muscular flexibility is considered a component of musculoskeletal fitness, however, it will not be assessed during this lab. In this laboratory, muscle strength of the upper body will be measured via grip strength of the right and left hands, pushups and curl-up tests to measure muscular endurance and a vertical jump, to assess muscular power of the legs. Certain precautions should be taken with populations with low back conditions, arthritis and osteoporosis or low bone density (Arraiz, *et al*, 1992). Many health benefits are associated with musculoskeletal fitness, such as reduced coronary risk factors, increased bone mineral density (reduced risk of osteoporosis), increased flexibility, improved glucose tolerance, and greater success in completion of activities of daily living (ADL) (Kell, *et al*,2001). Improved musculoskeletal is associated with an enhanced health status; thus, maintaining musculoskeletal fitness can increase overall quality of life.

**Results: Musculoskeletal**

Client: Stephanie Kendall

Age: 20

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| --- | --- | --- | --- |
| **Musculoskeletal** | **Value** | **Score** | **Comment** |
| Grip Strength (R + L combined) | 83.0 | Excellent | Grip strength is a good indicator of overall muscle strength. |
| Push Ups | 10 | Fair | \*Will be focusing on strength training during program. |
| Partial Curl-ups | 25 | Excellent | Strong abdominals contribute to overall back health. |
| Vertical Jump (cm) | 14.5 | Very Good | N/C |
| Peak Leg Power (watts) | 4000 | Excellent | N/C |

**References**

Arraiz, G.A., Wigle, D.T. & Mao, Y. (1992). Risk assessment of physical activity and physical fitness in the Canada Health Survey mortality follow-up study. *J Clin Epidemiol*, 45(4): 419-428.

Kell, R.T., Bell, G. & Quinney, A. (2001). Musculoskeletal fitness, health outcomes and quality of life. *Sports Med*, 31(12): 863-73.

Thompson, J. (2009). Conference on “Multidisciplinary approaches to nutritional problems” Symposium on “Performance, exercise and health”. *Proceedings of the Nutrition Society*, 68: 29-33.