

## Effect of Various Durations of Type 2 Diabetes on Muscle Performance

**Authors :** Santosh Kumar Yadav, Shobha Keswani, Nishat Quddus, Sohrab Ahmad Khan, Zuheb Ahmad Shiddiqui, Varsha Chorsiya

**Abstract :** Introduction: Early onset diabetes is more aggressive than the late onset diabetes. Diabetic individual has a greater spectrum of life period to suffer from its damage, complications, and long-term disability. This study aimed at assessing knee joint muscle performance under various durations of diabetes. Method and Materials: A total of 30 diabetic subjects (18 male and 12 females) without diabetic neuropathy were included for the study. They were divided into three groups with 5 years, 10 years and 15 years of duration of disease each. Muscle performance was evaluated through strength and flexibility. Peak torque for quadriceps muscle was measured using isokinetic dynamometer. Flexibility for quadriceps and hamstring muscles were measured through Duncan's Ely's test and 90/90 test. Results: The result showed significant difference in muscle strength ( $p < 0.05$ ), flexibility ( $p \leq 0.05$ ) between groups. Discussion: Optimal muscle strength and flexibility are vital for musculoskeletal health and functional independence. Conclusion: The reduced muscle performance and functional impairment in nonneuropathic diabetic patients suggest that other mechanism besides neuropathy that contribute to altered biomechanics. These findings of this study project early management of these altered parameters through disease-specific physical therapy and assessment-based intervention. Clinical Relevance: Managing disability is more costly than managing disease. Prompt and timely identification and management strategy can dramatically reduce the cost of care for diabetic patients.

**Keywords :** muscle flexibility, muscle performance, muscle torque, type 2 diabetes

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