Correlation between Lumbar Bone Mineral Density and Diabetic Polyneuropathy

*Soheir M Abd El Rahman,PhD* 1*, \*Hayam M Sayed,PhD* 2*,Nashwa S Hamed,PhD*2*,Raafat M Fawzy PhD*1

1*Physical Therapy Department for Biomechanics; Faculty of Physical Therapy, Cairo University,* 2*Physical Therapy Department for Neuromuscular Disorders and its Surgery, Faculty of Physical Therapy, Cairo University*.

**Abstract**

 **Background:**  Decreased bone mineral density (BMD) is one of the major risk factors which may lead to fracture of the lumbar spine. Major health care providers are working to investigate the effect of type 1 diabetes mellitus on bone mineral density at lumbar vertebrae. The lowering BMD can expose diabetic patients to the risk of future fracture and low back pain. The aim of the study is to investigate the correlation between BMD and diabetic polyneuropathy, and the incidence of low back pain. **Subjects**: fourteen young females with diabetic polyneuropathy patients as a study group with duration of illness ranged from 5 to 7 years of diabetes and another fourteen matched healthy (non diabetic) females as control group were randomly participated, the age ranged from 30 to 35 years old.. The BMD of lumbar vertebrae L2-3, L2-4, L3-4 were measured through dual energy x-ray absorptiometry (DEXA) using diagnostic world health organization reference of T-scores. **Results**: The bone mineral density values at lumbar vertebrae L2-3, L2-4, and L3-4 were significantlylower in young diabetic females compared to healthy control subjects (P<.000).**Conclusion:** it was concluded that in young females with type 1 diabetic polyneuropathy was associated with lower bone mineral density values at lumbar vertebrae which may expose them to low back pain and increase the risk of lumbar fracture, hence those patients should offered appropriate preventive measures.

**Keyword:** Polyneuropathy, bone mineral density, lumbar vertebrae, low back pain