

Bone Mineral Density of the Lumbar Spine, Femur in Elite Egyptian Male Swimmers

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Abstract : Introduction: Physical activity has been shown to have a positive effect on bone mineral density (BMD) and bone mineral content (BMC) among children, adolescents, and adults. Sports characterized by little or moderate weight bearing or impact have a low osteogenic effect. However, the action of such sports on bone turnover remains unclear. Swimming, as a non-weight-bearing sport, has been considered to be insignificant in the maintenance of bone mass. Purpose: To examine this issue we measured (BMD) and (BMC) of the lumbar spine, proximal femur via dual energy x-ray absorptiometry in the group of elite male swimmers, and determine the effect of swimming training on bone health and compared the results with matched controls group in age, body weight and height. Materials and Methods: Twenty-five male swimmers (age 20.7 \pm 0.8 years) training for 12-15 hours/week; and the controls group consisted of 25 non-active male (age 21.3 \pm 1.3 years) were studied BMD and BMC of lumbar spine, femur were assessed via (DXA) absorptiometry. Results: There was significant difference between swimmers and control group in BMD and BMC, BMD of Swimmers was significantly greater than controls at all sites. The lumbar spine (1.08 \pm 0.022 vs., 0.717 \pm 0.057 g/cm²), right proximal femur (1.02 \pm 0.044 vs., 0.771 \pm 0.027 g/cm²), and left proximal femur (1.374 \pm 0.0212 vs. 1.01 \pm 0.041 g/cm²). Swimmers were significantly taller, and had greater BMC and BMD compared to the controls group (P<0.001). Conclusions: These results suggest that swimming training may be beneficial in the prevention or therapy of OSTEOPENIA, and may lead to increased (BMD) and (BMC) for male swimmers. Swimming may be an effective non-pharmacological intervention for the adults and adolescent. Further research with younger athletes of another type of aquatics sport is warranted to better identify the periods of BMD development during which Aquatics sport has the greatest impact on bone health.

Keywords : bone mineral density, lumbar spine, femur, swimming, DXA absorptiometry

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