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**Study of 2384 young men indicates that physical activity is the strongest predictor of bone mineral density in young Swedish men**

*The research was carried out during mandatory testing of young men for selection to military service. During the years 1998-2000 roughly 95% of the male population aged 18-20 years attended this test, making the systematic selection of every 5<sup>th</sup> conscript from this cohort highly representative of the total population of young men in Sweden. The results have been recently published in the medical journal, Osteoporosis International, volume 21, issue 3.*

Täby, Sweden – Bone density scans of young Swedish men indicate that physical activity during childhood and adolescence is the strongest predictor of bone mineral density (BMD) in young men.

The 2384 male military conscripts were classified into groups based on previous physical activity. The groups were: always inactive (268), ceased to be active (575), Exercise 1-5 years (456), Exercise 6-10 years (470) and Exercise >10 years (615). There were no significant differences in age, height, or weight between these 5 groups.

After adjusting for age, height, weight, calcium intake and smoking, adjusted BMD in the calcaneus was significantly higher in subjects with the longest activity duration, i.e. >10 years. BMD was lowest in the “always inactive” group and became progressively higher in every group based on their increasing levels of past physical activity. The authors add, “In order to elucidate whether the association between physical activity and BMD was mediated by muscle strength or physical capacity, we included these characteristics in our regression analysis. Muscle strength did not markedly attenuate the association between physical activity and BMD. This result suggests that it is the physical activity-induced gains in muscle strength that results in bone mass gains.”

Bone scans were performed using the DXL Calscan bone densitometer (Demetech AB, Sweden). The authors point out that, “Calcaneus BMD, measured with Calscan has been demonstrated to be highly correlated with BMD values of the spine, hip, and forearm. Calcaneal BMD has also been demonstrated to be a good predictor of fracture risk in postmenopausal women.”

An interesting point the authors present in their conclusion is that BMD was shown to be significantly higher in men who had “ceased to be physically active” compared to those who were “always inactive”. This suggests that physical activity during our growth years confers a lasting positive effect on bone density and supports the idea that physical activity is especially important during childhood and adolescence for the formation of strong bones.

**About the study**

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**About Demetech & DXL Calscan**

Demetech develops, manufactures and markets systems for the diagnosis and early detection of osteoporosis. Demetech is headquartered in Sweden and was founded in 1996. Dual X-ray and Laser, commonly called DXL, is a uniquely accurate technique for reducing errors in bone mineral density scanning. The DXL method uses 3 inputs in its algorithm (2 different X-ray energies and a laser measurement) to overcome the soft tissue inaccuracies inherent to the 2-input DXA technique. DXL Calscan is the first and only instrument using DXL technology and it now has over 30 published clinical studies supporting its use in clinical practice.

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