

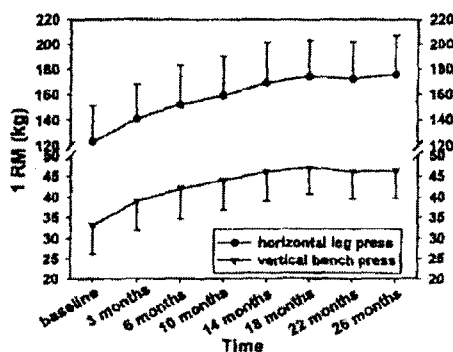
EXERCISE PREVENTS BONE LOSS IN EARLY POSTMENOPAUSAL WOMEN- 2 YEAR RESULTS OF THE EFOPS STUDY

Kemmler W¹, Engelke K¹, Weineck J², Kalender WA¹. ¹Inst. of Medical Physics, ²Inst. of Sport Sciences, Univ. of Erlangen, Germany

Purpose The Erlangen Fitness Osteoporosis Prevention Study (EFOPS) is a three-year controlled exercise trial in 137 early (1-8 years) postmenopausal osteopenic women ($-1 > \text{DXA-T-Score} > -2.5$ at L1-L4 or total hip) focusing on the prevention of bone loss.

Material and Methods: The training group (n=86) underwent a vigorous, combined high impact, strength, and endurance training (2 joint exercise sessions + 2 individual home sessions). 51 age-, BMD-, and BMI-matched subjects served as control. Both groups were individually supplemented with Ca and Vit D. After 2 years 50 women exercising more than twice weekly completed the training group, 33 remained in the control group. Amongst others we determined BMD by DXA and QCT, dynamic and isometric strength, and CHD-risk factors.

Results: The figure shows dynamic strength increases in the training group within 26 months for two representative exercises.



The table shows changes between

baseline and year two for some relevant parameters. The last column lists significant differences between the groups (* p<.05; ** p<.01; *** p<.001).

Variable (%-changes)	Exercise (n=50)	Control (n=33)	p
L1-L4: BMD (DXA)	+0.7 ± 2.9	-2.3 ± 2.4***	***
Total hip: BMD (DXA)	-0.4 ± 2.5	-1.7 ± 2.9**	*
L2-L4: trabecular BMD (QCT)	+0.4 ± 3.7	-6.5 ± 6.1***	***
L2-L4: cortical BMD (QCT)	+2.8 ± 4.1***	-1.7 ± 4.4	**
Cholesterol (total)	-5.0 ± 14.6*	+4.1 ± 13.7	*
Lumbar spine: pain-freq. index	-40 ± 22***	+23 ± 21***	***

Conclusions: Our results show that even in early postmenopausal women a dedicated exercise program can offset bone loss. Muscle strength, CHD risk factors and back pain were significantly improved in the exercise group.

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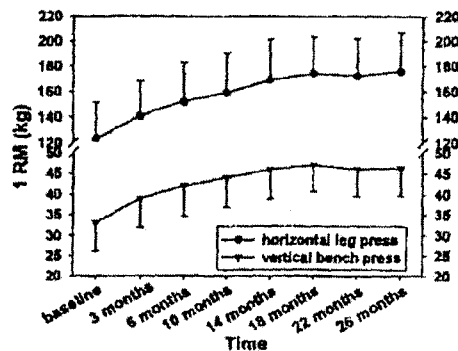
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