A comparative study of the effects of bone invigorating exercise and calcium supplement on postmenopausal women's bone metabolism biochemical markers

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A case-control study was carried out in 75 women teachers in postmenopausal age in Tsinghua University. Subjects were divided into three groups: 1. The exercise group performed bone-invigorating exercise (E); 2. The "exercise + Ca" group performed bone-invigorating exercise and was given calcium supplement (ECa) and 3. The control group did not have either and lived their normal way of life (C). The comparative results between the pre-experiment status of bone metabolism biochemical markers and the post-experiment status indicated: 1. Blood bone mineral biochemical ingredients were constant, which was important for bone metabolism. 2. Exercise had slight influence on bone formation biochemical markers. Comparison made before and after exercise showed serum BGP and ALP of control group remained unchanged, while those of the exercise groups and "exercise + Ca" group increased slightly (P>0.05) 3. Exercise had great effect on the bone reabsorption biochemical markers. Comparison showed that after the experiment, the levels of Blood TRAP, Urine Ca/Cr and HOP/Cr increased in control group. Those three indicators of exercise group and "exercise + Ca" group decreased with statistical significance (P<0.05). It was also found that the change in the "exercise + Ca" group was greater than the exercise group. It can be concluded that exercise can facilitate the maintenance of bone mass in postmenopausal women through inhibiting bone reabsorption in metabolism. Ca supplement will further enhance the effect of exercise. (HKJSMSS 2001;12:34-41)