

# Synergy of high protein intake and exercise in youth enhances bone structure and strength

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A study presented during the World Congress on Osteoporosis, Osteoarthritis and Musculoskeletal Diseases in Seville shows that high levels of protein intake (HProt) enhance the positive impact of high physical activity (HPA) on bone structure and strength in healthy pre-pubertal boys.

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Researchers from the University of Geneva in Switzerland and Eindhoven University in the Netherlands tracked 176 healthy pre-pubertal boys (average age 7.4 years) to mid-adolescence (average age 15.2 years). Compared to moderate protein intake, HProt in combination with HPA was associated with microstructural changes to bone mineral content and [bone mineral density](#) at the hip.

At 15.2 years, at distal tibia, HProt-HPA vs MProt-HPA was significantly associated with larger cross sectional area and higher trabecular number. Under MProt and HProt, increased physical activity was associated with greater stiffness and failure load.

The positive microstructural changes, which are thought to confer greater mechanical resistance to weight-bearing bones, tracked from pre-puberty to mid-late puberty.

The study results suggest that synergies between high levels of [protein intake](#) and rigorous [physical activity](#) during youth may help prevent osteoporosis later in life.

**More information:** OC 11 Tracking of environmental determinants of bone structure and strength development in healthy boys: an eight-year follow up study on the positive interaction between physical activity and protein intake from prepuberty to mid-late adolescence. T. Chevalley, J. P. Bonjour, B. Van Rietbergen, S. Ferrari, R.

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