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Study Finds Calcium-Rich Whey Permeate Helps Maintain Bone Mineral Density

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The calcium-rich whey permeate supplement used in the study featured Arla Foods Ingredientsâ?? Capolac, a calcium-rich milk-based ingredient

Twice-daily supplementation with calcium-rich whey permeate supports the maintenance of bone mineral density in postmenopausal women, a clinical study has found.

In the early menopausal years, women experience a rapid loss of bone mineral density, which is an indicator of bone health. This is partly due to a significant decline in oestrogen levels, which accelerates bone breakdown and increases the risk of osteoporosis.

The RENEW project (valoRization of dairy side-streams to fight calcium dEficits iN postmEnopausal Women) set out to establish if calcium-rich permeate from whey production could be used as a bioactive food ingredient to counteract bone loss in postmenopausal women.

In the 12-month intervention study, participants were randomised to a placebo or 800mg of calcium, either from calcium carbonate or from calcium-rich whey permeate (taken alone or with inulin), divided into two doses per day. They all also received vitamin D, which contributes to the maintenance of normal bones.

In total, 316 postmenopausal women completed the study. In the group receiving whey permeate high in calcium (n=78), bone mineral density was maintained. Conversely, participants in the placebo group (n=75) showed a reduction in bone mineral density after 12 months. In addition, blood markers of bone turnover indicated a noticeable slowing of bone loss by the third month of the whey permeate intervention. Adding inulin to the calcium-rich whey permeate did not provide any additional bone health benefits.

The calcium-rich whey permeate supplement used in the study featured Arla Foods Ingredients' Capolac, a calcium-rich milk-based ingredient, and Variolac,a lactose-based ingredient. Commenting on the findings on World Osteoporosis Day (20th October 2026), the nutrition leader highlighted the potential of calcium-rich whey permeate at a time when the condition is increasingly prevalent.

Simon Bøge Riis, Nutrition Scientist (PhD) at Arla Foods Ingredients, said: “Globally, approximately one in five older adults has osteoporosis. It’s especially common among postmenopausal women and across Asia, underscoring the need for effective nutritional strategies to support bone health. This research demonstrates that twice-daily supplementation with calcium-rich whey permeate can deliver remarkable improvements in bone turnover markers and maintain bone mineral density in postmenopausal women.”