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Low estimates of dietary acid load are positively associated with bone ultrasound in women older than 75 years of age with a lifetime fracture.

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Dietary acid load from Western diets may be a risk factor for osteoporosis. It can be estimated by net endogenous acid production (NEAP). No data currently exists for NEAP estimates and bone indices in the very elderly (i.e. ≥ 75 y). The aim of this study was to determine the association between NEAP estimates by using the potential renal acid load (PRAL) equation and quantitative bone ultrasound (QUS) measurements at the heel [broadband ultrasound attenuation (BUA)] in Caucasian women. We assessed NEAP and QUS in 401 very elderly Swiss ambulatory women. We evaluated dietary intake and NEAP estimates with a validated FFQ. QUS was measured using Achilles (Lunar). We identified 2 subgroups: 256 women (80.6 y \pm 3; BUA, 96.8 dB/MHz) with a fracture history and the remaining 145 (79.9 y SD 2.9; BUA, 101.7 dB/MHz) without. Women who reported having suffered a fracture had lower BUA ($P < 0.001$) than nonfractured women but did not differ in nutrient intakes and NEAP. Lower NEAP ($P = 0.023$) and higher potassium intake ($P = 0.033$) were correlated with higher BUA, which remained significant even after adjustment for age, BMI, and osteoporosis treatment. BUA was positively correlated with calcium ($P = 0.016$) and BMI ($P < 0.001$). Women who reported no fractures had no significant correlations between nutrient intake, NEAP, and BUA. Low nutritional acid load was correlated with higher BUA in very elderly women with a fracture history. Although relatively weak compared with age and BMI, this association was significant and may be an important additional risk factor that might be particularly relevant in frail patients with an already high fracture risk.