

Due to its high resolution, micro-CT (Computed Tomograph) scanning is the key to assess bone quality of sham and OVX (ovariectomized) rats. Combination of basic X-ray physics, such as the energy- and chemistry-dependence of attenuation coefficients, with results from ashing tests on rat bones, delivers mineral, organic, and water volume fractions within the voxels. Additional use of a microelastic model for bone provides voxel-specific elastic properties. The new method delivers realistic bone mass densities, and reveals that OVX protocols may indeed induce some bone mass loss, while the average composition of the bone tissue remains largely unaltered.