Fig. 2 Apparatus for bone strength tests. (A) Apparatus for three-point bending test. Each bone sample was fixed in an immobilization device having two supporting points, 15 mm apart. While placing the physiological curvature upward, the center of the diaphysis was compressed from the upward direction at a crosshead speed of 2 mm/min. (B) Apparatus for penetration test. After thoroughly removing the surrounding soft tissue from each femur, a 5 mm long cylindrical femur sample was prepared by cutting the bone perpendicular to its bone axis at the level of intercondylar fossa and at 5 mm medial to the fossa. The upper and lower cross-sections were parallel. While placing the distal end of this test piece upward, a 2 mm rod was impacted perpendicular to the surface into the marrow at a crosshead speed of 1 mm/min.