This work presents an efficient and original hyperbolic shear deformation theory for the bending and dynamic behavior of functionally graded (FG) beams resting on Winkler - Pasternak foundations. The theory accounts for hyperbolic distribution of the transverse shear strains and satisfies the zero traction boundary conditions on the surfaces of the beam without using shear correction factors. Based on the present theory, the equations of motion are derived from Hamilton\'s principle. Navier type analytical solutions are obtained for the bending and vibration problems. The accuracy of the present solutions is verified by comparing the obtained results with the existing solutions. It can be concluded that the present theory is not only accurate but also simple in predicting the bending and vibration behavior of functionally graded beams