

The objective of this paper is to investigate the effectiveness of a Multilayer Perceptron (MLP) to discriminate subjects with and without osteoporosis using a set of five parameters characterizing the quality of the bone structure. These parameters include Age, Bone mineral content (BMC), Bone mineral density (BMD), fractal Hurst exponent (Hmean) and cooccurrence texture feature (CoEn). The purpose of the study is to detect the potential usefulness of the combination of different features to increase the classification rate of 2 populations composed of osteoporotic patients and control subjects. k-fold Cross Validation (CV) was used in order to assess the accuracy and reliability of the neural network validation. Compared to other methods MLP-based analysis provides an accurate and reliable platform for osteoporosis prediction. Moreover, the results show that the combination of the five features provides better performance in terms of discrimination of the subjects