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### Original Article

#### THE PLASMA ANTIOXIDANT ACTIVITY OF SUPEROXIDE DISMUTASE ENZYME IN OSTEOPOROSIS

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#### Abstract:

Osteoporosis is a metabolic disease characterized by reduction in bone density and susceptibility to deformity and fracture. Some studies show that osteoblasts can create inter-cellular free radicals that lead to cellular death. Superoxide dismutase (SOD) plays an essential role in cell defense against reactive oxygen metabolites. The purpose of this study was to measure the plasma SOD activities in Iranian women with osteoporosis compared to the control group. SOD activity was measured spectrophotometrically at 540 nm in 192 women. Plasma activity of SOD (mean  $\pm$  SD) was  $1.72 \pm 0.79$  mg protein in the control group,  $2.05 \pm 0.87$  mg protein in patients as a whole [(mild osteopenia + severe osteopenia and osteoporosis) (T-score  $< -1$ )] and  $2.32 \pm 0.91$  mg protein in patients with severe osteopenia and osteoporosis (T-score  $< -1.7$ ). In this study, that plasma activity of SOD was significantly higher in patients than in controls. Furthermore, this difference was more prominent between the controls and patients with severe disease (T-score  $< -1.7$ ) than patients as a whole. T-score of femur adjusted for age and body mass index (BMI) showed negative significant correlation with plasma activity of SOD.

#### Keywords:

[Osteoporosis](#)

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