Visfatin, a novel adipokine, is increased in obesity. It is not well known whether resistance training induced change in adipose tissue and blood lipids decrease plasma visfatin; thus, the purpose of this study was to examine the effect of 8 weeks’ resistance training on plasma visfatin in middle-aged men. Nineteen healthy middle-aged men (aged 39.2 ± 4.6 years; height 173.8 ± 6.5 cm; BMI 24.8 ± 2.8 kg/m²; mean ± SD) participated as subjects in this study. The subjects were randomly assigned to training group (n=9) or control group (n=10). Resistance training was performed for 3 days a week at an intensity corresponding to 65–80% of one-repetition maximum, 8–12 repetitions, 2–4 sets for 8 weeks. The results showed that body fat percent, WHR and plasma visfatin were decreased (p<0.05) in the training group. Maximum oxygen consumption, on the other hand, increased significantly (p<0.05) in the training group compared with the control group. Plasma visfatin levels at baseline were positively correlated (p<0.05) with body fat percent and triglyceride concentration. In conclusion, it was seen that 8 weeks resistance training induced change in adipose tissue decreased plasma visfatin in middle-aged men.