

**Fat oxidation during and following low-, moderate- and high- intensity exercise:  
focused on the intensity of maximal fat oxidation**

Hiroki Tabata<sup>1</sup>, Hyeon-Ki Kim<sup>1</sup>, Naoya Endo<sup>1</sup>, Masayuki Konishi<sup>2</sup>, Shizuo Sakamoto<sup>2</sup>

<sup>1</sup>Graduate school of Sport Sciences, Waseda University

<sup>2</sup>Faculty of Sport Sciences, Waseda University

Many guidelines for exercise prescription recommend moderate intensity for prevention and treatment of obesity. The intensity of maximal fat oxidation (Fatmax) is the exercise intensity which induces the highest rate of fat oxidation during exercise. Fatmax can be observed at low- to moderate-exercise intensity. In contrast, moderate- to high- intensity exercise elicits an increase in fat oxidation following exercise. Thus, exercise prescription should be considered not only during exercise but also following. The purpose of our study is to clarify ideal exercise intensity which elicits maximal fat oxidation and apply to guidelines for exercise prescription to obesity. In the first study, we tried to reveal the intensity within moderate

which induces maximal fat oxidation during and following exercise. Eight men performed two intensity exercise (Fatmax vs 65%VO<sub>2</sub>peak) on the treadmill matched for energy expenditure. Total fat oxidation was significantly higher in Fatmax trial than in 65%VO<sub>2</sub>peak trial. Noradrenaline and FFA concentrations were significantly higher in 65%VO<sub>2</sub>peak trial than in Fatmax trial immediately after exercise. These findings suggest that Fatmax is more effective intensity for fat oxidation than 65%VO<sub>2</sub>peak within moderate. Now we conducted additional study to compare total fat oxidation of Fatmax and 85%VO<sub>2</sub>peak exercise matched for energy expenditure.