Testosterone is a steroid hormone with powerful androgenic and anabolic effects. It is generally known that testosterone can help to build muscle mass and change body composition in favor of fat-free mass. Additionally those effects can be enhanced if combined with strength training. Testosterone exerts its hypertrophic effects on muscles in an anabolic as well as an anti-catabolic manner, leading to increased protein synthesis and decreased protein breakdown; and furthermore leading to an activation of resting myogenic stem cells supporting hypertrophy. In sports the use of testosterone as an illegal drug to enhance physical performance is not limited to competitive athletes. The misuse has already infiltrated recreational sports, especially the fitness and bodybuilding area, bringing up diverse health-related side effects. The reasons for testosterone abuse are mainly its mentioned effects on strength and muscle mass, and in many cases the desire to be attractive. Of course, the benefits are expected to be inferior to those from an exogenous testosterone abuse; but the main goal has to be to maximize muscle growth in a natural, legal and healthy way.
The aim of this chapter is to shed some light on optimizing muscle growth. The authors discuss the role of food on testosterone level(s) and the hormonal changes that occur in response to resistance training combined with immediate post-exercise food intake, while emphasizing testosterone.