Endothelial nitric oxide synthase g894t (rs1799983) gene polymorphism in polish athletes

1. Introduction

Nitric oxide (NO) is a gaseous free radical that serves as a multifunctional messenger [1]. NO mediates crucial features of neuronal communication, blood vessel modulation and immune response [2]. It is a factor in common pathological conditions such as hypertension and atherosclerosis [3]. Nitric oxide is generated from arginine by a family of three distinct calmodulin-dependent nitric oxide synthase (NOS) enzymes (isoforms): endothelial (eNOS), neuronal (nNOS, or brain bNOS) [4] and inducible (iNOS) [2] and each of the isoforms is encoded by distinct genes on different chromosomes, NOS3, NOS1, and NOS2, respectively [5].

Blood flow is essential for the delivery of nutrients, maintenance of fluid balance, and the removal of metabolites; the delivery of blood flow to skeletal muscle is, therefore, a prerequisite for maintaining physical activity [6,7]. Nitric oxide has been shown to be one of the most important intrinsic factors in regulating basal vascular tone, a balance between constrictor and dilator influences, however, the results regarding the increase in muscle blood flow with exercise (hyperemia) are less concordant [8]. Moreover, NO has been shown to exert several other distinct effects on various aspects

Keywords: Nitric oxide • Genotype • Genetic Variation • Athletes • Physical Fitness

© Versita Sp. z o.o.