

第 73 回スポーツサイエンス研究会

The 73rd Sport Science Seminar

宮下政司、曹振波、中田大貴

Masashi Miyashita, Cao Zhen-Bo, Hiroki Nakata

早稲田大学スポーツ科学学術院

Faculty of Sport Sciences, Waseda University

スポーツ科学研究, 7, 25, 2010年, 受付日:2010年1月6日, 受理日:2010年1月6日

12月8日(火)、早稲田大学所沢キャンパスにて、「第73回スポーツサイエンス研究会」を開催した。Semmelweis 大学(ハンガリー)より Professor Zsolt Radak をお迎えし、「Exercise and Hormesis」というテーマで、運動におけるDNAの酸化的損傷のメカニズムをマウスやヒトでの実験結果より紹介して下さった。以下は講演の要旨である。

Exercise and Hormesis

Zsolt Radak

Semmelweis University, Hungary

Physical inactivity leads to increased incidence of a variety of diseases and it can be regarded as one of the end points of the exercise-associated hormesis curve. On the other hand, regular exercise, with moderate intensity and duration, has a wide range of beneficial effects on the body including the facts that it improves cardio-vascular function, partly by a nitric oxide mediated adaptation, and may reduce the incidence of Alzheimer's disease by enhanced concentration of

neurotrophins and by the modulation of redox homeostasis. In addition, it appears that oxidation of guanine in DNA, RNA and telomere can also be described by hormetic dose response. Exercise-induced repair of DNA damage varies in nucleus and mitochondria, which could have special role in oxidative stress related adaptation. Single bouts of exercise increase, and regular exercise decreases the oxidative challenge to the body, whereas excessive exercise and overtraining lead to damaging oxidative stress and thus are an indication of the other end point of the hormetic response. Based upon the genetic setup, regular moderate physical exercise/activity provides systemic beneficial effects, including improved physiological function, decreased incidence of disease and a higher quality of life.

海外より第一線で活躍している研究者をお招きし、講演していただくことは外国へ行く機会が限られている学生にとって大いに刺激となり、研究会の開催は非常に重要な教育的位置づけとなっている。