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Invited Speaker

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Dr. Chen Chee Keong is Professor of Sports Science in the Exercise and Sports Science Programme, School of Health Sciences, Universiti Sains Malaysia (USM). He obtained his Bachelor of Education (Physical Education) from Universiti Pertanian Malaysia; Masters in Sports Science (Health & Fitness) from University of Essex, United Kingdom; and PhD in Sports Science from USM. His research interests include effects of exercise-induced oxidative stress, antioxidant supplementation on sports performance, health and fitness among sedentary population. To date, he has obtained 30 research grants as the principal or co-investigator. His academic work includes 55 papers in international peer-reviewed journals and conference proceedings. He was a former international volleyball referee. He is the past President of the Asian Council of Exercise & Sports Science (ACESS). He was appointed as a visiting research fellow in the University of Essex, United Kingdom in 2013. He also serves as an editorial board member for international and national journals.

Effects of Antioxidant Supplements on Sports Performance and Health Status

Abstract. Reactive oxygen species (ROS) include free radicals which are atoms or molecules with an unpaired electron. Free radicals are highly reactive and cause cellular damage in our body. On the other hand, antioxidants are substances that scavenge free radicals and offer protection from the deleterious effects of free radicals. Oxidative stress occurs when the production rate of reactive oxygen species exceeds the body's antioxidant capacity to neutralize or scavenge them. Free-radical damage has been postulated to initiate cellular differentiation, ageing, mutagenesis, pathophysiology of several diseases including certain cancers, atherosclerosis, rheumatoid arthritis and neurodegenerative disorders. Epidemiological studies have shown a positive correlation between the consumption of antioxidants such as vegetables and fruits on the prevention of diseases like atherosclerosis, cancer, diabetes, arthritis and also ageing. Oxidative stress induced by strenuous exercise has also been demonstrated in a number of well-controlled studies. For example, significant increase in serum F_2 isoprostanes and lipid hydroperoxides (indicators of oxidative stress) following exhaustive exercise indicate that exhaustive exercise induces free radical production. Some researchers have hypothesized that free radicals may damage the sarcoplasmic reticulum resulting in reduced calcium release during depolarisation of the muscle and consequently lead to muscular fatigue. Studies which have shown beneficial effects of antioxidants on skeletal muscle endurance performance include administration of N-acetylcysteine via venous infusion during exercise. Besides that, other antioxidants such as pycnogenol, quercetin, beetroot juice, cashew apple juice, resveratrol, Montmorency powdered tart cherries and citrus flavonoid extract have also been shown to improve various endurance performance in humans. My research team have carried out several studies on the effects of various nutritional supplements with antioxidant properties on endurance performance in the School of Medical and Health Sciences, Universiti Sains Malaysia. These supplements include palm vitamin E, caffeine, panax gingseng, *Eurycoma Longifolia Jack*, honey and bee bread. The main findings of these studies will be presented in my invited lecture.