EUGMS column

The International 21st Puijo Symposium “Physical Exercise, Ageing and Disability – Current Evidence”, June 28th – July 1st 2011, Kuopio, Finland

The 21st Puijo Symposium was organized by the Foundation for Research in Health Exercise and Nutrition, Kuopio Research Institute of Exercise Medicine, in collaboration with the Department of Clinical Physiology and Nuclear Medicine, Kuopio University Hospital. Puijo Symposium has a history of twenty successful and memorable symposia hosted by The Secretary General of The Symposium, professor Rainer Rauramaa and his co-workers at The Kuopio Research Institute of Exercise Medicine in Kuopio, Finland. For the first time, this well-established meeting for the most renowned experts in physical activity and exercise physiology focused on physical exercise, ageing and disability. This topic was chosen because of growing process of demographic changes and increasing proportion of older people in developed societies. The president of this symposium was professor Mai-Lis Hellelänius from Karolinska Institut, Sweden. Puijo Symposium was, once again, financially supported by The Ministry of Education and Culture in Finland, as well as by the City of Kuopio.

The International 21st Puijo Symposium was dedicated to Dr. Heikki Pekkarinen, the Secretary General of The 20th Puijo Symposium, which was organized in June 2009. He passed away December 2009, the day before Christmas Evening.

Since the very first Puijo Symposium in 1976, the congress has been strongly supported by two eminent leaders in the field, Dr. Martti J. Karvonen and Dr. Ralph S. Paffenbarker Jr. In honour of their commitment, guidance and support, every Puijo Symposium carries competitions named according to these two gentlemen. Young investigators, 35 years of age or less, are invited to compete for the Martti J. Karvonen Young Investigators Award.

All submitted abstracts are eligible for Ralph S. Paffenbarger Jr. Poster Award. An independent international jury always makes the nominations for these two prestigious awards.

The first day of the symposium, on Wednesday, June 29th, after opening ceremony, three sessions were hold. The first session “Setting The Scene For Age” chaired by Dr. Steven N. Blair, had two fantastic introductory lectures. During the first address “Population ageing – a growing socio-medical and economical challenge” Prof. Jean-Pierre Michel (Switzerland), President Elect of the European Union Geriatric Society, presented all the most important epidemiological and medical data on the ageing world. In the second lecture, Dr. William L. Haskell (USA) summarized current scientifically-based exercise recommendations for senior citizens. Dr. Haskell was chair of the Physical Activity Guidelines Advisory Committee for the US Department of Health and Human Services. During 2008–2010, he was a scientific advisor to the World Health Organization for the development of WHO Global Recommendations on Physical Activity for Health.

During the second session “Overview Of Exercise Physiology in Ageing” chaired by Dr. Heikki Tikkanen, three lectures were presented. Dr. Kai Savonen (Finland) updated on “Regulation of muscle energy production at rest and during exercise”. Dr. Barry Franklin (USA), past President of the AACVPR and of the ACSM, past Editor-in-Chief of the Journal of Cardiopulmonary Rehabilitation, author and editor of 27 books on exercise physiology and rehabilitation, presented “Essentials of resistance exercise training in health and disease”. During the last decade, resistance training becomes an integral part of physical conditioning in older subjects. Physical activity is also the best-known medicine in the prevention of cardiovascular disease; from exercise training in the prevention of the development of atherosclerosis in obese children and adolescents to the management of patients with hypercholesterolemia, diabetes, coronary disease and end-stage heart failure patients awaiting cardiac transplantation. This was depicted during the third presentation of the session by Dr. Danny Green (UK, Australia), who discussed exercise training effects on artery function and structure.

The third session (Chairpersons Dr. Tomasz Kostka, Poland and Dr. Jari Parkkari, Finland) concentrated on “Pathophysiological Mechanisms Of Ageing Related Diseases”. Prof. Tommy Cederholm (Sweden) highlighted problems of sarcopenia, cachexia and pre-cachexia. Especially, he outlined the importance of inflammatory activities in non-malignant cachexia. Exercise, effects on articular cartilage and bone were presented by Prof. Ilkka Kiviranta (Finland), one of the pioneers of the autologous chondrocyte transplantation. After musculoskeletal, neurological consequences of ageing with possible alleviation by physical exercise were further discussed. Brain function in the aged and pathophysiological impact of age-related changes was described by Prof. Hilkka Soininen (Finland). Dr. Marten Munneke, Coordinator of the Parkinson Centre of the Radboud University in Nijmegen (The Netherlands) presented the role of exercise in neuromuscular coordination in patients with Parkinson’s disease. Finally, the role of exercise in modern cardiology was outlined by Dr. Paul Thompson, (USA). Dr. Thompson is Director of Cardiology and The Athletes’ Heart Program at Hartford Hospital, Editor of the book “Exercise and Sports Cardiology”, Past President of the American College of Sports Medicine.

This intensive scientific programme of the first day was completed by the splendid reception of the City of Kuopio. During the ceremony, with the presence of His Royal Highness, Prince Daniel from Sweden, three highly influential person in their fields of expertise, Dr. Paul Thompson (USA), Dr. Petteri Paronen, Mayor of the city of Kuopio, and Mr Sauli Niinistö, past chairman of the Finnish Parliament, were knighted as new Honorary Horse Collar Knights by The Grand Master of The Horse Collar Knights, Dr. Osmo Hännä assisted by The Master of Ceremonies, Dr. Rainer Rauramaa. The ceremony took place under the supervision of
four previous Honorary Horse Collar Knights, Dr. Arthur S. Leon, Dr. William Haskell, Dr. Steven N. Blair and Dr. Ilkka Vuori.

Thursday, June 30, started with a “Special Morning Opening” at 7.00: Taiji & Qigong: presentation and interactive demonstration by Dr. Yang Yang (Director of the Center for Taiji & Qigong Studies, New York, USA).

After this early morning warm-up, the first session “Exercise, Functional Capacity And Ageing: Mechanisms Of Action And Current Evidence” continued with evidence-based mechanisms of beneficial influence of physical activity on various systems of ageing human body. Prof. Harri Suominen (Finland) presented prerequisites of bone health in the aged. Prof. Michael Kjaer (Denmark) in his lecture “Exercise, sarcopenia and muscular strength” continued the topic of regenerative and ageing processes in both tendon and skeletal muscle in relation to exercise and training. Evidence of the beneficial nature of physical activity over the whole life span for soft and hard tissue health and the deleterious consequences of long-standing immobilization were presented. Dr. Sarianna Sipilä (Finland) concentrated on “Exercise and functional capacity among high risk groups” especially discussing rehabilitation and physical activity interventions among older frail people. Paul Thompson (USA) discussed the effects of statins on skeletal muscles and problem of exercise-induced statin myopathy. Dr. Thompson’s research and clinical interests in exercise originate from his personal interest in distance running. He has completed the last 13 Boston Marathons. The main take-home message from his presentation is that while he generally praised statins, he stressed the potential muscle-oriented side effects in heavily training statins users. One practical advice from Dr. Thompson is to take statins every 2nd-3rd day while exercising intensively. During the final presentation of the morning session, Prof. Ilkka Vuori, Former and Founding Director of the UKK Institute for Health Promotion Research in Tampere, Finland, recapitulated current knowledge on exercise vs. pharmacological approach in musculoskeletal problems including rheumatic and autoimmune diseases as well as diseases of the bone.

After morning session, very moving ceremony took place: Heikki Pekkarinen Memorial Award. The first Award was presented to Dr. Saija Karinkanta from the UKK Institute for Health Promotion Research, Finland.

Afternoon session “Exercise, Cardiometabolic Health And Ageing: Mechanisms Of Action And Current Evidence” was co-chaired by Dr. Arno Schmidt-Truckssäss (Switzerland) and Dr. Tomi Laitinen (Finland) and gathered outstanding lecturers. Cardiac performance and functional capacity in the aged was depicted by Dr. Arthur S. Leon (USA). Metabolic health in the aged was discussed by Dr. K. Sreekumar Nair (USA) while problem of exercise and metabolic control was presented by Dr. John Hawley (Australia). Topic “Vascular health and ageing” was presented by Dr. Julio Panza (USA) and continued by Dr. Douglas R. Seals (USA) with “Exercise and vascular health” lecture. Overall, this session provided an excellent update on the role physical activity in prevention and treatment of cardiometabolic disorders in older population.

On Friday, July 1, Dr. Yang Yang allowed us to sleep bit longer and we started Taiji & Qigong exercises at 7.30. Being fully awoken by Dr. Yang Yang, we were able to participate in the first session “Exercise, Cognitive Function And Ageing – Mechanisms Of Action And Current Evidence” chaired by Dr. Hilkka Soininen (Finland). Dr. Arthur Kramer (USA) started with the portrayal of exercise training influence on brain plasticity and cognition. Exercise and fitness impact on cognition and quality of life was described by Dr. Pirjo Komulainen (Finland) who reported the results of the “DR’s Extra Study”. Finally, potential benefits of exercise vs. pharmacotherapy for cognitive problems were discussed by Dr. Miia Kivipelto from Sweden.

“Exercise In Broader Perspectives” session chaired by Dr. Markku Alen (Finland) concentrated on economic aspects of physical activity. Prof. Hannu Valtonen (Finland) presented data on effectiveness of exercise therapy in chronic diseases. Data is becoming available on the high cost-effectiveness of physical activity interventions compared to traditional drug-based treatment regimens in cardio-metabolic diseases. The cost-effectiveness of worksite physical activity promotion programmes was discussed by Prof. Willem van Mechelen (The Netherlands). He convincingly showed that physical activity should and can be efficiently implemented at the worksite. Strategies in searching for evidence were depicted by Prof. Timo Lakka from Finland who made clear that arguments for health prevention should be based on scientific evidence in order to argue for the application of physical activity in the public.

During afternoon sessions “Ralph S. Paffenbarger Jr. Poster Award” and “Martti J. Karvonen Young Investigator Award” ceremonies were chaired by Dr. Katrina Kukkonen-Harjula (Finland). Fifty-six posters from 16 countries participated in poster competition. The international jury had difficult task while the scientific level was very high – many of the studies had been just published or were in press in the most prestigious journals. Finally, in “Ralph S. Paffenbarger Jr. Poster Award” the jury awarded first price to the study “BDNF and cognitive function during two years – The DR’s Extra Study” presented by Dr. Pirjo Komulainen and colleagues from the Kuopio Research Institute of Exercise Medicine (Finland). This study showed, for the first time, that brain-derived neurotrophic factor, regulated by physical exercise, is a biomarker of memory and general cognitive function in women during two-years follow-up. The second price was given to the study “Efficacy of a multifaceted intervention program to increase physical activity in PD: the ParkFit trial” presented by AD Speelman from The Netherlands. In this large Dutch study, the authors proved that Parkinson’s disease patients can improve their outdoor activities with a multifaceted 6-month intervention program based on promotion of physical activity.

Martti J. Karvonen Young Investigator Award went to Dr. Reija Kouki, Kuopio University, Finland, who presented results of a substudy of The DR’s Extra Study investigating the association of diet, fitness and metabolic syndrome. She showed that higher levels of cardiorespiratory fitness are associated with a lower prevalence of metabolic syndrome in older individuals independent of diet.

This busy day was completed by the marvelous evening with the banquet at Haminalahdi Hunting Club and midnight cruise from Haminalahdi to Kuopio Harbour.

Saturday, July 2, started with “From Theory To Clinical Practice: Critical Evaluation Of The Randomized Controlled Trials On Exercise In The Aged” session chaired by Dr. Olli Heinonen (Finland). Physical exercise guidelines for clinicians in cardiometabolic aspect were presented by Prof. Mai-Lis Hellenius (Sweden) and concerning musculoskeletal problems by Prof. Urho Kujala (Finland). Both made clear that exercise is a medicine and should be recommended equally or in addition or instead of drug treatment. Potential biomarkers of influence of physical exercise on cognitive function were discussed by Dr. Neill Graff-Radford (USA).

Guidelines session was continued by Prof. Steven N. Blair (Past-president of the National Coalition for Promoting Physical Activity, American College of Sports Medicine and American Academy of Kinesiology and Physical Education, one of the most highly cited exercise scientists in the world). Dr. Blair presented “The Toronto Charter for Physical Activity” with a special emphasis on evidence behind and relevance for old adults.

Pujo Symposium Honorary Lecture was delivered by Prof. Marja-Riitta Taskinen (Emerita Professor of Medicine at the Department of Medicine, Division of Cardiology, University of
Helsinki). Prof. Taskinen, past-president of the European Atherosclerosis Society, presented current understanding of lipoprotein abnormalities, genetics and pathophysiology of type 2 diabetes.

Symposium was recapitulated by Prof. Rainer Rauramaa together with several invited participants and lecturers and closed by a president of the 21st Puijo Symposium – Prof. Mai-Lis Hellenius. The symposium substantially underlined exercise as a powerful mean in prevention and treatment of non-communicable diseases giving the public best arguments for its implementation on the individual level and in different settings.

During the symposium, we had the unique possibility to discuss current and latest research findings from exercise physiology, sports medicine and preventive gerontology in wider aspects of epidemiology and clinical studies in geriatrics. Both the scientific program and warm and friendly atmosphere provided by our hosts gave us all a memorable week.

The International 22nd Puijo Symposium “Physical Exercise in Clinical Medicine – Critical Appraisal of Randomized Controlled Trials” will be organized June 24–28, 2014 in Kuopio, Finland.

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