Physical activity and arterial health – does age matter?

Arno Schmidt-Trucksäss
Department of Sport, Exercise and Health, Faculty of Medicine, University of Basel, Switzerland

The current overaging of many industrialized countries is a growing major challenge for many health care systems generating a need for more efficient and cost-effective interventions. Important aims are to keep older people out of the care system and let them live independently at home. At the same time the increased life expectancy intensifies the necessity for prevention of non-communicable diseases as early during the life span as possible.

Before this background established arterial biomarkers like arterial stiffness and wave reflection might be suitable to reflect the life-time burden of risk factors, cardio-vascular and other chronic diseases before manifest disease or major health events. Their predictive power for future cardio-vascular events is independent of classical risk factors and has been demonstrated in several medium to large scale prospective cohort studies.

An important pillar of prevention and treatment of early-onset cardiovascular disease with an association or effect on vascular biomarkers is physical activity. This “drug” is cheap, easy to access and available nearly for everybody and everywhere. Positive and negative effects of physical activity or inactivity on the organism may be visualized by a change of vascular biomarkers.

However, age is an important determinant of arterial stiffness and wave reflection. Age may overlay the effect of physical activity and exercise training on arterial structure and function which is known to differ remarkably between younger and elder individuals. Thus one important question is whether the effect of physical activity and exercise training on arterial properties is still visible in elderly people. Does it make sense to exercise at advanced age? The results from our lab and the analysis of our cohort data point out, that it is never too late to get up from the chair. The aim of the lecture is to give a comprehensive overview of a more personalized age-adapted prescription of exercise training and to show what type of exercise is clinically best suitable in relation to widespread age-associated co-morbidities like hypertension.