

Biomarkers in CVDs Prevention through Nutrition and Physical Activity

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Editorial

To understand how individually dosed and programmed physical activity in conjunction with moderate hyper-protein diet induces physiological cardiac growth using biomarker of myocyte proliferation is innovative approach in CVD prevention.

The main objective of our project is to support multidisciplinary research team that will use innovative and scientific approach to increase knowledge on the validation the roles of biomarkers, microRNAs (focused on MiR-17-3p) in exercise and specific diet-induced cardiomyocyte proliferation.

Given the limited regenerative capacity of cardiac hypertrophy, it's unclear whether this results in prevention of CVDs. The roles of MicroRNAs in cardiac response to physical activity and nutrition are unknown. The clinical relevance of the circulating MicroRNAs (miR-17-3p) is confirmed with the fact that it's increased during physical activity in patients with heart diseases.

The specific circulating biomarker MicroRNAs (miR-17-3p) responses is identified during individually dosed, programmed physical activity and moderate hyper-protein diet in patients with heart failure. In this controlled clinical trial is included 73 subjects during the period of 3 months.

Numerous experimental studies have confirmed that factors responsible for physiological hypertrophy may be antagonist to development of pathological cardiomyopathy. Regular individually dosed, programmed physical activity and specific diet induces physiological cardiac growth including an increase in markers of myocyte proliferation.

The project includes a systematic exploration and validation of biomarkers to obtain a good coverage of the specific diet and physical activity in patients with initial phase of heart disease (for example high normal or moderate arterial hypertension) exploring myocardial effects using biomarker MicroRNAs (miR-17-3p) and biomarkers of food intake.

Understanding how individually dosed and programmed physical activity and specific diet have positive effects on cardiac growth may help to identify innovative therapeutically concept to prevent the CVDs as consequences of pathological stress. MicroRNAs (MiRNAs) are central regulators of gene expression and their deregulation can results in CVDs.