

## PROTEOMICAL ANALYSES OF MIOCARDIUM ADAPTATION TO EXERCISE OVERLOAD

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In myocyte, heart power is determined by myosin, a mechanoenzyme that strictly interacts to actin molecules. Given the complex nature of muscle modifications by exercise at molecular levels, this report aims to analyze by proteomics techniques, the modification in myosin expression in response to exercise adaptation. During ten weeks, four groups of Wistar male rats were submitted to five weekly swimming training sessions with thirty minutes each one, following crescent overloads of 2,5; 5; 7,5 and 10% (w:w). After training, animals were sacrificed and the *ventriculum* immediately removed and frozen. SDS-PAGE and 2-DE analyses showed a larger myosin expression (220 kDa and pI 5.0) at 7.5 and 10% exercise overload. This result was supported by peptide mass fingerprinting, which was utilized for myosins identification. Furthermore, histochemical analyses were also done showing significant tissue differences in same treatments, supporting molecular data. In summary, only severe endurance training (7.5 and 10%) caused a quantitative transformation in the expression of heart MYH. These data suggest that intense exercise could be better than low overload for heart workload, leading to a new approach for training and rehabilitation guides for sports and healthy exercise programs.