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**Introduction:** Very strenuous exercises can be performed on an isokinetic dynamometer in order to evaluate the resistance to fatigue of different muscular groups. Good cardiac function is necessary in order to perform these very intensive exercises; otherwise an acute myocardial dysfunction could theoretically appear in predisposed patients.

**Objective:** Our study aimed to observe the cardiovascular impact (by biological point of view) of maximal intense isokinetic eccentric and concentric protocols performed by a population of sedentary young men.

**Methods:** → 2 populations of young sedentary men: 12 subjects (22.5±1.15 yo) for the eccentric protocol and 18 subjects (22.4±2.6 yo) for the concentric protocol.

→ These subjects performed an intense maximal isokinetic exercise of the quadriceps muscles involving 30 knee flexions–extensions for each leg.

→ Resting (T0) and post-exercise (just after (T1), 3 hours (T2) and 24 hours after the exercise (T3)) blood samples.

→ Measurement of biomarkers for cardiovascular risk (highly sensitive troponin T (hs-TnT), N-Terminal Brain natriuretic peptide (NT-proBNP), myoglobin (MYO)), for inflammation (highly sensitive C-reactive protein (hsCRP)), muscle damage (creatine kinase (CK)) and for oxidative stress (myeloperoxidase (MPO), lipidic peroxides (POXL), reduced (GSH) and oxidized glutathione (GSSG)).

→ Haemodynamic parameters were measured continuously using a Portapres, and respiratory parameters were measured using a Sensormedics Vmax 29C.

**Results:** All the physiological parameters measured presented statistically significant changes.

**For the eccentric exercise:**

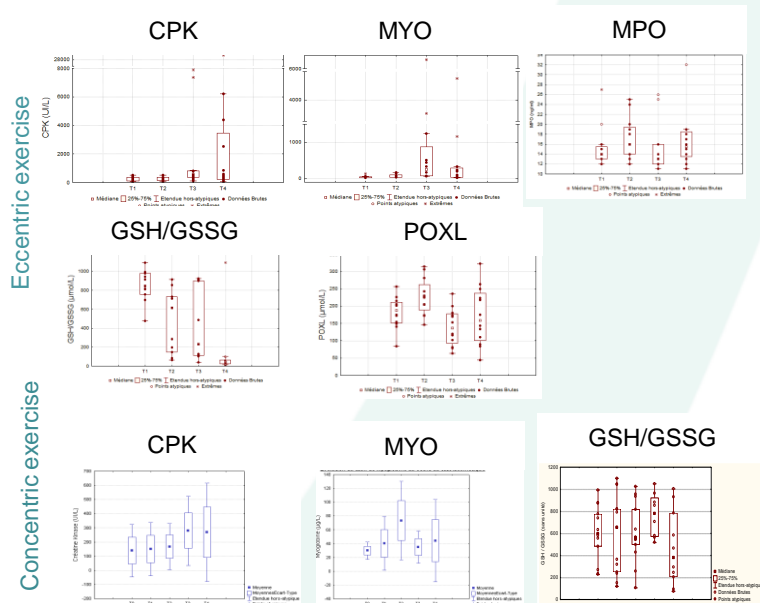
→ no significant modification in cardiac (NT-proBNP, hs-TnT) and inflammation (hsCRP) biomarkers.

→ significant increase for CK (T3), MYO (T2), MPO (T1), POXL (T1), GSSG (T3) and ratio GSH/GSSG (T2-T3).

**For the concentric exercise:**

→ significant increases for the CK (T1-T2-T3), MYO (T1-T2), GSH/GSSG (T1).

Evolutionary trends were also observed for the following biomarkers: NT-proBNP (T1-T2-T3), MPO (T2), and GSSG (T4).



**Conclusions:** No modification in cardiac biomarkers was observed after the maximal eccentric isokinetic exercise but some variations can be observed for these biomarkers after the concentric exercise. However, these changes do not exceed the reference values in healthy subjects. We were thus able to prove that the exercise could be performed without any risk to cardiac function in young sedentary subjects. Nevertheless, a significant level of oxidative stress was induced by both exercises.