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European Journal of Sports Medicine

Volume 3, Supplement 1, September 2015

The European Journal of Sports Medicine (EUJSM) is the official journal
of European Federation of Sports Medicine Associations (EFSMA).



EUROPEAN FEDERATION OF SPORTS MEDICINE ASSOCIATIONS
9th European Congress on Sports Medicine
EFSMA 2015 CONGRESS

September 10 - 12, 2015
Antwerp, Belgium



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ISSN: 1792-4979

randomised crossover study. During 60 min of rest, blood pressure (BP), mean arterial pressure (MAP), rate pressure product (RPP) and heart rate (HR), were recorded along with pulmonary gas exchange.

RESULTS: Two volunteers completed at time of submission: Mean (SD) diastolic blood pressure was 80 (12.9) v 73 (5.5) mmHg for conditions 1 v 2 respectively. Mean arterial pressure 89.7 (0.6) v 83.9 mmHg. Mean (SD) heart was 55 (1.09) v 55 (0.95) for conditions 1 v 2 respectively, whilst Mean (SD) total peripheral resistance (TPR) was 2.35 (1.82) and 1.23 (0.03) for condition 1 v 2 respectively.

DISCUSSION: Early results suggest that DNS is a fast acting agent that positively influences cardiovascular workload. Diastolic BP is lowered, indicative of an increased filling time, therefore reduced stress on the cardiovascular system, as shown in reduction in MAP. A reduced TPR 2.35 v 1.23 (mmHg.min/l) further suggests a vasodilatory effect of dietary nitrate supplementation on the cardiovascular system.

CONCLUSIONS: Early results suggest that DNS is a fast acting, naturally occurring product that positively influences cardiovascular workload. Further work is on going to ascertain the benefits in supplementation.

PP-17

IMPACT OF AN ULTRA-TRAIL OF 330 KM ON PLASMA LEVELS OF CARDIAC BIOMARKERS

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INTRODUCTION/AIM: While a moderate exercise produces beneficial effects on the cardiovascular system, consequences of a supraphysiological effort are not yet clear. The aim of our study was to evaluate the consequences of such an effort on cardiac markers, markers of inflammation but also markers of renal function.

This project also studied the evolution of new biomarkers of cardiac fibrosis such as the ST2 and galectin-3.

MATERIAL AND METHODS: 51 people attending the Tor des Géants (330 km, with an altitude range of 24,000 meters) have been followed. The study is conducted on 33 participants having reached at least half of the race (148.7 km). Blood and urine samples were collected at four different times: before the race, halfway, at the finish and three days after arrival. Several biomarkers were assayed on different analyzers such COBAS®, KRYPTOR®, VIDAS® and ETIMAX®. Meanwhile, the ST2 was measured manually.

RESULTS: During this ultra-endurance effort, the plasma levels of cardiac markers (hsTnT, NT-proBNP, copeptin, H-FABP, ST2, Gal-3), muscle (CK, myoglobin) and inflammation (CRP DFO, GB) have increased significantly to halfway (148.7 km). Meanwhile, the markers of renal function (urinary NGAL and plasma and urinary creatinine) have only slightly varied, excepting plasma creatinine.

CONCLUSIONS: The study suggests that there is no permanent structural damage at the myocardium level. However, the low pace adopted by the runners, due to fatigue, caused an inflammatory response as well as muscle damage less important than a shorter race. Nevertheless, an endurance race as the Tor des Géants means an intense physical and psychological effort.