



Gene expression, biochemical markers and physiological parameters to evaluate the militar adaptation to the long and hard exertion.

Predict the performance for the stressful and exigent military exercises.

## Health in Ultra Endurance Events: SUMMIT Lab® Project

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### Background

High-intensity physical activity for an extended period of time could result in adverse physiological consequences without adequate pre-exercise preparation and pre-screening analysis. Good nutrition with supplements, proper resting time and enough training hours are the ingredients for a healthy performance.

### Methods

Sample: Three hundred randomly selected runners participated in the testing (212 men and 88 women) from 15 different races in Europe between 2012 and 2016. Time for measure: before the race (basal values), immediately after completing the race (post-race), 24h and 48h post-race.

- **Barcelona Marathon (42km):** Salive samples were drawn to identify levels of total IgA in saliva (determined by ELISA) and levels of fucosylated and sialylated IgA (determined by lectin-ELISA) and how influence the supplementation of Ambrotose® gliconutrients [1].
- **Ultra Cavalls del Vent (100km):** Venous blood samples were drawn from the antecubital vein at rest in a sitting position and collected into PAXgene Blood RNA Tubes and serum tubes to clot and then were centrifuged [2].
- **Camí de Cavalls (185km):** Tetra-polar L-BIA measurements at 50 kHz with phase-sensitive analyzer (BIA-101 Anniversary Sport Edition; AKERN-Srl, Florence, Italy), were made on the right and left calf [3].
- **Volta Cerdanya (85km):** ECG analysis consisted of standard and speckle tracking echocardiographic assessment of the right ventricle (RV) and the left ventricle (LV) [4].

### Conclusions

- A high incidence of respiratory infections after a marathon were observed. However, participants with Ambrotose® had a trend to develop lower respiratory infections.
- Elite performance is mainly related with training. We can measure quantitatively the effect of training through a specific gene expression profile.
- L-BIA serves for tracking a training or a race, and for the assessment of muscle injury from early detection to full recovery with coming back to train.
- Some individuals showed worse RV adaptation during exercise independent from the training volume done or the elite profile.

### References

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### Results

