The interaction between bone and energy metabolism may be enhanced in high demanding physical activities.

We hypothesize that genetic background may modulate the exercise-associated bone and energy responses of mountain cycling ultramarathon.

**METHODS:**
- **Participants:** 2548 G/A (rs2167270)
- **Participants were also categorized according to the number of courses completed (9 or courses).**
- **Genotype frequencies**

**RESULTS:**
- **ALL ATHLETES**
- **LEP-2548 G/A (rs2167270)**
- **BGLAP-298 T/C (rs1800247)**

**CONCLUSIONS:**
- **The LEP, ADRB2 and BGLAP genetic polymorphisms, related to bone and energy metabolism, may modulate the performance of competing athletes.** This work supports a hypothesis of the influence of a co-modulatory action between genetic factors and mediators released during a strenuous exercise for long periods of time.

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