

**THESE D'EXERCICE EN MEDECINE**

**en vue de l'obtention du grade de Docteur en médecine**

Par

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**L'IMPACT DU PROTOCOLE D'HYDRATATION « A LA SOIF » SUR LA NATREMIE DES COUREURS DE L'ULTRA-TRAIL DU MONT BLANC<sup>®</sup> 2015**

***Abstract : NATRITRAIL STUDY***

The sport of ultra-trail is constantly increasing. With potential losses of up to more than 0.5 to 2 liters per hour, hydration is paramount. However, hyper-hydration is the main risk factor for exercise-associated hyponatremia (EAH) whose impact could reach 51% in some ultra-trails. Fortunately most of these are asymptomatic but 14 deaths have been directly attributed to associated complications: cerebral edema and exercise-associated hyponatremia encephalopathy (EAHE). Recently, hydration strategy consisting in "drink to thirst" has demonstrated its superiority in preventing the EAH. However, these studies have been conducted on desert races in exceptional temperature and humidity conditions. Natrtrail study assessed whether this hydration protocol "to thirst" was robust and applicable to racing conditions of the Ultra-Trail du Mont-Blanc .

Natrtrail study is a prospective study, single-center, single-blind, comparative, consisting of 196 riders divided into two arms depending on the hydration protocol chosen, « at thirst » or « according to another protocol ». The primary endpoint was the correlation of the change in serum sodium and hydration protocol.

The results of the study showed no superiority of the hydration protocol « at thirst » in serum sodium runners. Included 196 runners, 100 runners were included in the group « at thirst » and 96 riders in the group « other protocol ». The riders of the group « at thirst » tended to lose more weight than others, still remaining within acceptable dehydration averages lower than 3%. No significant difference was observed on the characteristics, changes in serum sodium, the success of the race or adverse effects between the two groups. The incidence of EAH was particularly low at this edition, calculated at 1.5%.

This low incidence of EAH can be explained by the exceptional temperatures of this edition, the altitude profile of the race and its impact on the thirst but also by the many efforts put in place to reduce risk: publicized medical conferences,

savory substitutions for supplies, information campaign. However, hydration thirst remains a hydration method of choice in the prevention of the EAH. The salt substitute is not sufficient to compensate for the hyper-hydration, promotes this approach is essential to ensure the health of riders, as recalled this year the recommendations of the consensus conference in Carlsbad.