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# The effect of endurance training in salivary flow and pH

## Translantional research and innovation in Human in health sciences


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**Introduction:** Endurance sports popularity has been going among recreation practitioners(1). It is known that salivary flow and pH can be influenced by sports practice due to sports drinks intake during the training. These individuals are also more exposed to dehydration (increase in water loss in sweat but also by respiratory system diffusion)(2,3).

**Purpose:** The aim of this work was to quantify the Stimulated Salivary Flow Rate (TFSE) and the salivary pH in endurance sports athletes before and after sports practice.

**Material and methods:** This transversal study had been approved by Egas Moniz Ethical Committee (process number 531). The convenience sample (n=65) consisted of female and male athletes which had consent their participation in the study. The stimulated saliva collection procedure had taken place before (T0) and after (T1) the training, in the morning, and the total volume had been calculated in order to evaluate the Rate of Stimulated Salivary Flow (TFSE). Simultaneously the salivary pH had been measured using a portable potentiometer in T0 and T1. The collected data had been analyzed through descriptive statistics and using frequency, dispersion and central tendency models.

**Results:** 55% of the individuals are male, in average 31.5 years old (±0.7 years). The average TFSE in T0 was 2.17 mL/min (±0.6 mL/min) and in T1 was 1.5 mL/min (±0.6 mL/min) (Fig.2 and 4). The average pH in T0 was 7.4 (±0,2) and in T1 was 7 (±0.4) (Fig.1 and 3).


*Fig.1 - Mean value of salivary pH Before and After the training.*


*Fig. 2 - Mean value of the Stimulated Salivary Flow Rate (TFSE) before and after training.*

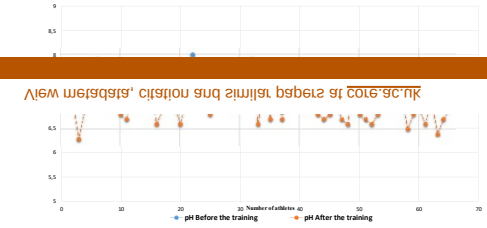


*Fig. 3 - Salivary pH before and after training.*

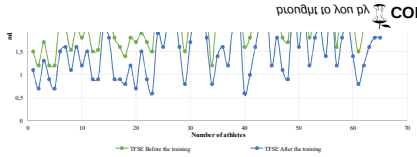


*Fig. 4 - Stimulated Salivary Flow Rate (TFSE) before and after training.*

**Discussion and Conclusions:** In spite the TFSE had decreased after training, these measures are still within the considered normal range. This result reflects that the practice of endurance sports in our sample did not change in a an acute and significant way the stimulated salivary flow rate. The decrease in pH values was not significant. Other studies had shown that the salivary flow and pH can be decreased depending also on the beverage intake during the session (4).


**References:**

1- Saris, W. H. M., Antoine, J.-M., Brouns, F., Fogelholm, M., Gleeson, M., Hespel, P., … Stich, V. (2003). PASSCLAIM - Physical performance and fitness. European Journal of Nutrition, 42 Suppl 1, I50–I95. https://doi.org/10.1007/s00394-003-1104-0.

2- Mulic, A., Tveit, A., Songe, D., Sivertsen, H., & Skaare, A. B. (2012). Dental erosive wear and salivary flow rate in physically active young adults. BMC Oral Health, 12(1), 8. https://doi.org/10.1186/1472-6831-12-8.

3- Int J Sports Med. 2006 Jun;27(6):500-4. Effect of exercise and fluid consumption on salivary flow and pH. Horswill CA1, Stofan JR, Horn MK, Eddy DE, Murray R.

4- Frese, C., Frese, F., Kuhlmann, S., Saure, D., Reljic, D., Staehle, H. J., & Wolff, D. (2015). Effect of endurance training on dental erosion, caries, and saliva. Scandinavian Journal of Medicine and Science in Sports. https://doi.org/10.1111/sms.12366