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Autor(es): Silva, Edgar T; Minari, Andri A; Caris, Aline V; Santos, Samile A; Ravacci, Graziela R; Tufik, Sergio; Santos, Ronaldo VT

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**RESEARCH IN SPORT
AND
PHYSICAL ACTIVITY**

EFFECT OF PROBIOTICS SUPPLEMENTATION ON FUNCTION OF MONOCYTES AND URTI AFTER MARATHON

Edgar T Silva¹; Andr¹ A Minari¹; Aline V Caris¹; Samile A Santos¹; Graziela R Ravacci²; Sergio Tufik¹; Ronaldo VT Santos³

KEYWORDS: Exercise, Immune System, Probiotics Supplementation, Immunosuppression.

170 • The performance of strenuous physical exercise induces acute physiological and biochemical responses with several immunosuppressant capacities. Probiotic supplementation is an attempt to mitigate the inflammatory effects of exhaustive exercise on the innate immune system. Thus, the objective of this study was to verify the effects of probiotics supplementation on the cytokines production and the incidence of Upper Respiratory Tract Infections after marathon race. Fourteen runners were supplemented during thirty days (2.0 g/day of *Lactobacillus Acidophilus*, *Lactobacillus Casei*, *Lactobacillus Lactis*, *Bifidobacterium Lactis* e *Bifidobacterium Bifidum* 109 CFU or 2.0 g/day of corn starch). Posteriorly, they ran a marathon (42,195 m). Before the race, immediately after the exercise and 1 hour after exercise, 30 ml of blood were collected for determination of cellular function and plasma cytokine dosages. A questionnaire was applied about URTS during seven days after the strenuous exercise. The normality of the data was checked using the Shapiro-Wilk's test and for statistical analysis we used the repeated measures Anova Two Way, with Post-Hoc Fisher's LSD. The level of significance was $p \leq 5\%$. In our results, the production of cytokines stimulated with LPS in the placebo group had increase of IL-6 ($p < 0.05$) after the race and significant decrease of TNF-alpha ($p < 0.05$), not being watched modifications in the levels of IL-1 and IL-10. In the probiotic group were not found differences on the levels of IL-1, IL-6 and TNF-alpha, however, the results point to an increase in the production of IL-10 after the Marathon ($p < 0.05$). In plasma levels were not found significant differences

¹ Department of Psychobiology, Universidade Federal de São Paulo, Brazil.

² Department of Gastroenterology, School of Medicine, University of São Paulo, Brazil; ³Departamento de Biociências, Universidade Federal de São Paulo, Brazil.

Email: edgar_tds@hotmail.com

in both groups at concentrations of IL-2, IL-4 and IL-6. However, in the placebo group was observed increase of IL-10 ($p < 0.05$) and in the probiotic group TNF-alpha increase after a Marathon ($p < 0.05$). Moreover, the supplementation of probiotics is associated with a smaller amount of upper respiratory tract symptoms and severity when compared with the placebo group ($p < 0.05$), besides presenting a shorter recovery and a lower percentage (17.28,58%) of incidences of opportunistic infections. These results demonstrate that the marathon race generates a transient immunosuppression. It was evidenced in the placebo group that strenuous exercise affects the innate immune system. This dysfunction can therefore increase the risk of opportunistic infections in the upper respiratory tract. However, supplementation with probiotics during 30 days preserved the response of monocytes and decrease the incidence of opportunistic infections in athletes after the marathon race, being possible strategy to minimize the effects caused by exhaustive exercise on the immune system.