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CAN INULIN-ENRICHED CEREAL PRODUCTS IMPROVE MUCOSAL IMMUNITY IN ATHLETES?

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Rationale: Upper-respiratory tract infections (URTI) are common in athletes given their training regime, travel, and exposure to stressors¹. While probiotic supplementation has been shown to improve mucosal immunity in this group², it is not known if prebiotic supplementation would be as effective. Research shows prebiotics could modulate immunoglobulin A (IgA) secretion, a marker associated with reduced URTI incidence^{1,3}. This study investigated whether inulin can increase mucosal immunity and reduce URTI episodes.

Methods: Double-blind randomised controlled trial with university rugby players (volunteers), who were allocated to placebo or intervention for 8-weeks. Participants were given pre-packaged daily doses (133g) of either placebo (porridge oats) or intervention (porridge oats + 6% inulin) to be incorporated into their usual diet. Salivary IgA secretion rate was measured before and after the intervention period (Salimetrics® oral swabs and ELISA). Participants used a validated log to record their URTI symptoms throughout the study period, which was used to calculate episodes (>2 days symptoms). Differences between groups were analysed with one-way ANOVA on post values, adjusted for baseline values (SPSS). This study was approved by the University of Exeter's Ethics Committee (191023/A/02)

Results: A total of n=27 male players (20±0.8 years old) took part in the study. There were no significant differences in salivary IgA secretion rate between groups after intervention (post-intervention 51.8, 95%CI 11.0-92.4 vs control 65.9, 95%CI 21.9-109.9 µg/min), p=0.32. URTI episodes did not differ between groups at the end of intervention (intervention = 1.4±0.7 vs control=1.9±0.7 episodes), p=0.22. Intervention participants (66%) consumed >80% daily dose in 5 or more days/week, compared to 30.0% of control participants.

Conclusion: Inulin intervention (12/g day) did not increase salivary IgA after 8-weeks, and did not result in lower incidence of URTI episodes. As URTI episodes fluctuate during the season, future studies should include longer intervention periods. These should also measure gut microbiome metabolites and additional immunological markers to help elucidate potential mechanisms.

References: 1.Keany et al. *J Sci Med Sport*. 2018

2.Jäger et al. *J Int Soc Sports Nutr*. 2019

3.Yamamoto et al. *Nutrients*. 2016

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