Baker's Yeast Beta Glucan Supplementation Increases Salivary IgA and Decreases Cold/Flu Symptomatic Days After Intense Exercise


Brian K. McFarlin1, Katie C. Carpenter2, Tiffany Davidson3, & Meredith A. McFarlin1

1Applied Physiology Laboratory, College of Education, University of North Texas, Denton, Texas, USA
2Department of Kinesiology, Health Promotion, and Recreation, University of Minnesota, Minneapolis, MN, USA
3Laboratory of Integrated Physiology, University of Houston, Houston, Texas, USA

Address correspondence to: Brian K. McFarlin, PhD, FACSM, FTOS, Assistant Professor, Department of Kinesiology, Health Promotion, and Recreation, College of Education, University of North Texas, 1921 Chestnut Street, Denton, TX 76203, USA (E-mail: brian.mcfarlin@unt.edu).

ABSTRACT

Strenuous exercise, such as running a marathon, is known to suppress mucosal immunity for up to 24 hr, which can increase the risk of developing an upper respiratory tract infection (URTI) and reduced performance capacity (Allgrove JE, Geneen L, Latif S, Gleeson M. Influence of a fed or fasted state on the s-IgA response to prolonged cycling in active men and women. Int J Sport Nutr Exerc Metab. 2009;19(3):209–221; Barrett B, Locken K, Maberry R, Schwamman J, Brown R, Bobula J, Stauffacher EA. The Wisconsin Upper Respiratory Symptom Survey (WURSS): a new research instrument for assessing the common cold. J Fam Pract. 2002;51(3):265; Carpenter KC, Breslin WL, Davidson T, Adams A, McFarlin BK. Baker's yeast beta glucan supplementation increases monocytes and cytokines post-exercise: implications for infection risk? Br J Nutr. 2012;1–9). While many dietary interventions have been used to combat postexercise immune suppression, most have been ineffective. The key purpose of this study was to determine if baker's yeast ß-glucan (BG) could positively affect the immune system of individuals undergoing intense exercise stress using two experiments. In the first (E1; N = 182 men and women), BG was compared to placebo supplementation for the incidence of URTI symptoms for 28 days postmarathon. In the second (E2; N = 60 men and women) changes in salivary immunoglobulin A (IgA) were evaluated after 50-min of strenuous cycling when participants had been supplemented for 10 days with either BG (250 mg/day) or placebo (rice flour). For E1, subjects reported URTI symptoms using a daily health log. For E2, saliva was collected prior to, immediately, and 2-hr postexercise using a salivette. Data for E1 and E2 were analyzed using separate analyses of variance (ANOVAs) with repeated measures (p < .05). In E1, BG was associated with a 37% reduction in the number of cold/flu symptom days.
postmarathon compared to placebo ($p = .026$). In E2, BG was associated with a 32% increase in salivary IgA ($p = .048$) at 2 hr after exercise compared to placebo. In summary, the present study demonstrates that BG may reduce URTI symptomatic days and improve mucosal immunity (salivary IgA) postexercise.