Exercise Your Gut Feeling

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Exercise Your Gut Feeling
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**Question:**
In adult athletes, does the use of probiotics as supplementation versus the absence of probiotic supplementation improve athletic recovery?

**Background:**
- **Probiotics:** “live microorganisms which, when administered in adequate amounts, confer a health benefit on the host” (Sivamarithi, Kesika, and Chayyasut, 2019, p. 1).
- **Athletic recovery:** a multifaceted (physiological, psychological) restorative process relative to time” (Kellman et al. 2017, p. 1).
- **Increased stress** is placed on the body with intense, prolonged exercise (Rawson et al., 2018).
- An athlete’s body must have the time to recover in order to continue training and to improve in performance.
- **Dietary supplements** like probiotics are being added to athletes’ diets to prevent and manage health issues related to training.

**Study**

**Probiotic Supplements Beneficially Affect Tryptophan-Kynurenine Metabolism and Reduce the Incidence of Upper Respiratory Tract Infections in Trained Athletes: A Randomized, Double-Blinded, Placebo-Controlled Trial**

**Description:**
Level II, randomized double-blinded, placebo-controlled trial that studied the effects of probiotic supplementation for 12 weeks on the occurrence of upper respiratory tract infections in adult athletes after intense exercise

**Results:**
Athletes who took the probiotic supplementation daily for 12 weeks were found to have a lower frequency of upper respiratory tract infections based on the subjective report of symptoms, however no athletic performance benefits were shown (Strasser et al., 2016).

**Probiotic Streptococcus thermophilus FP4 and Bifidobacterium breve BR03 Supplementation Attenuates Performance and Range-of-Motion Decrements Following Muscle Damaging Exercise**

**Description:**
Level II double-blind randomized, placebo controlled, crossover design trial that tested the effects of probiotics on muscle function, soreness, range of motion and acute inflammatory response following exercise in adult male athletes

**Results:**
Athletes who took probiotic strains B. breve BR03 and S. thermophilus FP4 supplementation for 21 days were found to have greater range of motion, greater muscle function, and lower inflammatory markers following exercise (Jager et al., 2016).

**Probiotic Bacillus coagulans GBI-30, 6086 reduces exercise-induced muscle damage and increases recovery**

**Description:**
Level IV case control study that compared effects of a probiotic + protein supplementation vs protein alone for 7 weeks on muscle soreness, recovery, markers for inflammation, and performance testing.

**Results:**
Athletes who took the probiotic + protein supplement experienced decreased muscle soreness and increased recovery at 72 hrs post-exercise (Jager et al., 2016).

**Lactobacillus fermentum (PCC) supplementation and gastrointestinal and respiratory-tract illness symptoms: a randomised control trial in athletes**

**Description:**
Level II double-blind, randomized control trial that looked at effects of supplementation with Lactobacillus fermentum on upper respiratory tract infection (URTI) and gastrointestinal (GI) symptoms in healthy, physically active athletes over a 15-week training period.

**Results:**
The 4-week supplementation of probiotics was found to neutralize the oxidative stress levels in athletes during exercise due to the effects of increased plasma antioxidant levels associated with supplementation (Martarelli et al., 2011).

**Effect of a Probiotic Intake on Oxidant and Antioxidant Parameters in Plasma of Athletes During Intense Exercise Training**

**Description:**
Level II randomized control trial that studied the effect of Lactobacillus rhamnosus IMC 501 and Lactobacillus paracasei IMC 502 supplementation on oxidative stress in twelve adult male athletes for 4 weeks during intense physical activity

**Results:**
The 4-week supplementation of probiotics was associated with a reduction in the number of days and severity of respiratory illnesses in distance athletes and is possibly linked to an enhancement of systemic immunity (Cox et al., 2008).

**Oral administration of the probiotic Lactobacillus fermentum VRI-003 and mucosal immunity in endurance athletes**

**Description:**
Level II double-blind, placebo-controlled crossover trial that evaluated Lactobacillus fermentum VRI-003 (PCC) supplementation on respiratory tract infections and mucosal immunity for a 4-month period in 20 elite athletes

**Results:**
Prophylactically supplementing with PCC was associated with a reduction in the number of respiratory-tract infections in distance athletes and is possibly linked to an enhancement of systemic immunity (Cox et al., 2008).

**Conclusion:**
- **Overall,** the results of these studies do not definitively support the impact of probiotics on adult athletic recovery.
- The incidence of upper respiratory tract infections and GI upsets may decrease with probiotic supplementation leading to decreased recovery time.
- **Muscle range of motion and muscle function** were found to increase whereas inflammation and muscle soreness decreased with supplementation.

**Application:**
- **Nurses** should be aware that adult athletes are supplementing with probiotics to prevent and manage health issues related to training.
- **Nurses** could modify their nutritional education towards athletes to help them in reaching their full potential regarding the use of probiotics.
- **Nurses** can explore the impact of probiotics on adult diets in order to better guide patients on this novel supplementation.
- With the research that is available, nurses could further research using larger sample sizes while continuing the randomized control trials.

This work is not original. This is a systematic review of published research conducted by professionals. Guidance was provided by Stephanie Burkholder, professor of NU307: Evidence-Based Practice Research Methods.