

Irritable Bowel Syndrome Disrupts Mental and Physical Function in Female Endurance Athletes

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ABSTRACT

Irritable bowel syndrome (IBS) is common among female endurance athletes. This disorder, characterized by recurrent abdominal pain, inflammation, and disturbed bowel function, can also contribute to severe anxiety, depression, and fatigue. Quercetin has been used to combat pain, inflammation and fatigue in healthy athletic populations, but its efficacy in female endurance athletes with IBS is unknown.

PURPOSE: To determine whether quercetin improves the physical or mental health of female endurance athletes with IBS. **METHODS:** 7 female endurance athletes (age: 21.0 ± 0.5 yrs; weight: 56.0 ± 2.2 kg; bodyfat: $17.9 \pm 1.5\%$; VO_{2max} : 47.7 ± 1.2 ml/kg/min) consumed quercetin (1g/d) for 21 consecutive days. 3 had previously been diagnosed with IBS (Rome III criteria); the other 4 served as controls. Subjects completed questionnaires (Medical Hospital Anxiety & Depression Scale, Fatigue Impact Scale, IBS-Symptom Severity Scale, IBS-Quality of Life) and exercise (45 minutes at a workload equivalent to 70% of their VO_{2max}) on the 1st and 21st days of supplementation. Saliva samples were collected before and after each exercise bout and assayed for cortisol. **RESULTS:** IBS-associated gastrointestinal distress, social functioning, and quality of life were worse ($p < .05$) in athletes with IBS than those without. Athletes suffering from IBS also maintained a higher ($p < .05$) heart rate and VO_2 (ml/kg/min) than their healthy counterparts during exercise. Salivary cortisol levels increased ($p < .05$) from pre to post-exercise on both the 1st ($13.5 \pm 4\%$) and 21st ($38.3 \pm 4\%$) days of supplementation in athletes with IBS; cortisol levels did not change with exercise in control subjects. **DISCUSSION:** Collectively, our results suggest that female endurance athletes with IBS work harder and experience more stress in response to a matched bout of submaximal exercise. This has multiple implications on athletic performance and warrants further investigation. 1 g/d dietary quercetin supplementation does not appear to benefit athletes suffering from IBS.