

# Journal of Sports Medicine and Allied Health Sciences: Official Journal of the Ohio Athletic Trainers Association

Volume 8  
Issue 1 2022 OATA Annual Meeting and Clinical Symposium Special Issue

Article 1

May 2022


## Establishing Safe thresholds to Improve Exercise Capacity in Collegiate Athletes with Inflammatory Bowel Disease (IBD): A Critically Appraised Topic

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### Recommended Citation

Roberts, Emily C.; Toonstra, Jenny; and Cripps, Andrea (2022) "Establishing Safe thresholds to Improve Exercise Capacity in Collegiate Athletes with Inflammatory Bowel Disease (IBD): A Critically Appraised Topic," *Journal of Sports Medicine and Allied Health Sciences: Official Journal of the Ohio Athletic Trainers Association*: Vol. 8: Iss. 1, Article 1.

DOI: <https://doi.org/10.25035/jsmahs.08.01.01>

Available at: <https://scholarworks.bgsu.edu/jsmahs/vol8/iss1/1>



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## ***Establishing Safe Thresholds to Improve Exercise Capacity in Collegiate Athletes with Inflammatory Bowel Disease (IBD): A Critically Appraised Topic***

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### ***CLINICAL SCENARIO***

Crohn's Disease (CD), Ulcerative Colitis (UC), and Indeterminate Colitis (IC) are forms of Inflammatory Bowel Disease (IBD), a complex auto-immune disorder of the GI tract. IBD can present several challenges to athletic participation due to unpredictable disease activity and uncontrollable systemic symptoms that severely impact daily activities and limit exercise/sports participation. Limited studies and a lack of standard guidelines for physical activity (PA) and exercise are additional barriers for patients. The limitation of studies and absence of standard guidelines are a particular concern for Athletic Trainers who may encounter collegiate athletes with IBD and must navigate the return-to-play process following a disease flare-up or surgery. Limited sources have determined that exercise interventions (e.g., combined endurance and resistance training) of low-to-moderate intensity are safe and feasible for IBD patients, particularly those with inactive or mild-to-moderate disease activity.<sup>1</sup> In theory, these types of interventions could promote improvements in exercise capacity in IBD patients.

### ***FOCUSED CLINICAL QUESTION***

Is there evidence to suggest that established safe exercise-intensities promote improvements in exercise capacity in collegiate athletes (18-24 years of age) with IBD?

### ***SUMMARY of Search, "Best Evidence" appraised and Key Findings:***

- Seven studies were reviewed that specifically focused on the effects of exercise interventions in IBD patients and assessed at least one measure of

exercise capacity: Of the seven studies reviewed, there were four RCTs, two case-control studies, and one pilot cohort study.<sup>2-8</sup>

- Three of the RCTs included only CD patients, and one of the case-control studies included only female IBD patients.<sup>2,4,5,7</sup>
- Three studies included patients who had inactive or mild disease activity.<sup>2,5,7</sup> Two studies included only patients with inactive disease.<sup>3,8</sup> One study included both patients with inactive and active disease but did not specify the severity in patients with active disease.<sup>6</sup> One study did not report disease activity of the patients.<sup>4</sup>
- The most common exercise interventions used for IBD patients were aerobic training and resistance training: Two studies used aerobic training interventions; three studies used combined aerobic and resistance training interventions; and two studies used resistance training interventions.<sup>2-8</sup>
- All studies observed improvements in at least one measure of exercise capacity: Examples include improvements in body composition, cardiorespiratory fitness, muscle function, and bone health.<sup>2-8</sup>

### ***CLINICAL BOTTOM LINE***

Aerobic exercise, resistance training, and combined exercise promotes improvements in cardiorespiratory fitness, muscle function, and body composition changes in the general IBD patient population. The exercise interventions reflect lower intensities than what collegiate athletes would be accustomed

to, limiting the applicability of these findings specifically for collegiate athletes with IBD. However, there may be underlying practical implications for Athletic Trainers to use these exercise thresholds for gradually returning athletes to sport specific activities following resolution of disease activity or recovery from disease-related surgery. When collegiate athletes with IBD present with a flare-up, it may be necessary to restrict sports participation until disease activity is controlled. Once a flare-up is resolved, combined low-to-moderate aerobic and resistance training can be initiated to address limitations in exercise capacity, and progressions back to sport specific activities can be gradually introduced once baseline performance levels are reestablished. This may help ensure that athletes are ready to return to normal activities, reduce the risk of injury, and reduce the risk of symptom exacerbation in response to a sudden increase in training load, intensity, and volume.

### **STRENGTH OF RECOMMENDATION**

There is variable evidence (ranging from level 4 to level 2 evidence) that suggests low-to-moderate aerobic and resistance exercise is feasible and effective in promoting improvements in exercise capacity in IBD patients.

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**KEY WORDS:** *Inflammatory Bowel Disease (IBD), exercise, physical activity, exercise capacity, Ulcerative Colitis (UC), Crohn's Disease (CD), collegiate athletes, sports participation, sport*