# OVERTRAINING SYNDROME IN A 21-YEAR-OLD MALE COLLEGIATE SOCCER ATHLETE

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## BACKGROUND

### PATIENT

- 21-year-old Division III male soccer athlete with no past medical history or underlying conditions.

### Evaluation

- Patient reports of his legs "feeling heavy" after waking up that day and did not recall there being any specific mechanism that could have caused this.
- Patient stated that he pulled himself from the game after only playing 15 minutes secondary to him feeling as if he was not performing at the same level as he typically does.
- Patient reported feeling as if his quadriceps were firing at all times and even while sleeping.
- Visual inspection was unremarkable.
- Patient presented with an antalgic gait during gait analysis.

## DIFFERENTIAL DIAGNOSIS

- Overtraining Syndrome (OTS)
- Quadriceps Strain
- Delayed Onset Muscle Soreness (DOMS)

## UNIQUENESS

- Preventative measures for OTS include maintaining an adequate caloric intake and staying hydrated, getting an adequate amount of sleep, and promotion of mental toughness.[1]
- This patient has been a 4-year member of the team and has stayed mentally driven with what is expected from him by the coaches and fellow teammates.
- This patient also reports maintaining a healthy diet while also staying adequately hydrated as well as maintaining a good sleeping pattern by getting an adequate amount of sleep.

## TREATMENT

### INITIAL CARE

- Patient was advised to rest and not participate in his sport until symptoms subside.
- The Athletic Trainer (AT) educated him on what the condition is.

### TREATMENT

- Patient was referred by the AT to see an Internist at the college's health center to rule out any metabolic disorders such as anemia, thyroid or adrenal disease, and/or diabetes mellitus or insipidus.[1]
- The AT educated the patient on appropriate nutrition, hydration, and proper sleep as well as responding to life stresses from coaches and peers.
- The AT informed the patient of the campus counseling center in the event he needed to talk to a professional about their mental health.

### RETURN TO PLAY

- Patient was instructed to check in with the AT staff daily on how he felt.
- Once symptoms subsided, the patient was allowed to practice as tolerated.

## CONCLUSIONS

- Overtraining syndrome is a condition that has an effect on both the athlete's psychological and physiological health.
- This is a result of the athlete constantly being under-recovered in addition to experiencing nonfunctional overreaching.[2]
- This condition could lead to burnout.
- Burnout is a syndrome that occurs in response to chronic stress of constant demands placed upon the athlete from their sport without proper recovery.[4]
- ATs should educate themselves further on this condition as well as educate both the coaches and athletes on what OTS is and how it can be prevented.
- Understanding that everyone has different requirements for what to include in their diet based upon factors such as age, gender, activity level, height and weight, will allow ATs to ensure athletes are maintaining an adequate diet.
- Utilizing heart rate and blood pressure variability (HRV and BPV) as well as baroreflex sensitivity (BRS) can provide a guide to help avoid OTS.[6]

## RELEVANT EVIDENCE

- Studies have shown that overuse injuries in collegiate athletes are more prevalent in females than males.
- Yang et al[3] determined that based off AEs collected by the NATA, overuse injuries when comparing females to males were 24.6 per 10000 AEs 10 13.2 per 10000 AEs.
- According to Birrer et al[5], of the 139 elite athletes that were tested, 54 (39%) reported feeling fatigued every day and a decrease in their performance for an extended period of time.

## REFERENCES

1. Kreher, JB, Schwartz, JB. Overtraining syndrome: a practical guide. Sports Health, 2012; 128-138.
2. Kellman M, Bertollo M, Bosquet L , et al. Recovery and performance in sport: consensus statement. International Journal of Sports Physiology and Performance, 2018; 240-245.
3. Yang J, Tibbetts AS, Covassin T, et al. Epidemiology of overuse and acute injuries among competitive collegiate athletes. Journal of Athletic Training, 2012; 198-204
4. Sitzler B, Neal T. Burnout in athletes. National Athletic Trainers' Association. Available at https://www.nata.org/blog/beth-sitzler/burnout-athletes. Accessed November 18, 2019.
5. Birrer D, Lienhard D, Williams CA, et al. Prevalence of non-functional overreaching and the overtraining syndrome in swiss elite athletes. Swiss Magazine for Sports Medicine and Sports Traumatology, 2013; 23-29.
6. Baumert M, Bretchel L, Lock J, et al. Heart rate variability, blood pressure variability, and baroreflex sensitivity in overtrained athletes. Clinical Journal of Sports Medicine, 2006; 412-417.