This prevalence of individual components of the Female Athlete Triad was alarmingly high among this sample of high school athletes (N=589). We recommend that coaches, athletic trainers, parents, and athletes work together to recognize its symptoms and prevent its development.

**Study Background**
Several studies of the Female Athlete Triad have been reported for college athletes, but the prevalence of this syndrome among high school athletes is unknown. Given that the majority of college athletes with disordered eating behaviors and menstrual irregularities report that these conditions began during adolescence, investigations of the triad are needed in younger athletes, especially in light of the rapidly growing participation and competitive nature of high school athletics.

**Design And Setting**
This was an observational study where data were collected in 6 high schools in San Diego County, CA.

**Objective**
The purpose of this study was to determine the prevalence of the female athlete triad syndrome among high school athletes representing multiple sports.

**Results**
The percentages of athletes classified at risk were as follows: disordered eating (DE): 17.8%; Menstrual irregularity (MI): 22.4%; low bone mineral density: 22.2%. Moreover, 10 (5.7%) of the girls met two of the three criteria for the triad; whereas, only two girls (1.1%) met all three criteria. In a related sub-study in which lean-build (LB) athletes were compared to non-lean-build (NLAB) athletes were compared to non-lean-build (NLAB), the prevalence of MI was higher in LB (26.7%) than NLAB (16.6%) athletes (P=0.01). Further, athletes with DE were over two times more likely (OR=2.3, 95%CI: 1.3, 4.2) to report oligo/amenorrhea than athletes without DE.

**Conclusions**
The data suggest the need for screening female high school athletes for disordered eating behaviors and menstrual irregularities. Interventions are needed to prevent the long-term health consequences associated with the Female Athlete Triad Syndrome.

**Introduction and Rationale**
Several studies of the Female Athlete Triad have been reported for college athletes, but the prevalence of this syndrome among high school athletes is unknown. Given that the majority of college athletes with disordered eating behaviors and menstrual irregularities report that these conditions began during adolescence, investigations of the triad are needed in younger athletes, especially in light of the rapidly growing participation and competitive nature of high school athletics.

**Objectives**
The purpose of this study was to determine the prevalence of the female athlete triad syndrome among high school athletes representing multiple sports.

**Methods**

**Grant Information Summary**
An Investigation of the Female Athlete Triad Among High School Athletes

**Practical Significance Statement**
This prevalence of individual components of the Female Athlete Triad was alarmingly high among this sample of high school athletes (N=589). We recommend that coaches, athletic trainers, parents, and athletes work together to recognize its symptoms and prevent its development.

**Subjects**
Fine hundred eighty-nine female high school athletes (age 15.3 ± 1.7 yr; height 165 ± 7 cm; mass 5.4 ± 8.9 kg) representing 10 interscholastic sports including: cross-country running, track & field, soccer, basketball, volleyball, swimming, tennis, softball, lacrosse and field hockey participated in this study.

**Measurements**
Questionnaires for disordered eating behaviors (EDE-Q), menstrual history/status, and sport participation; bone mass by DXA (n=170).

**Results**
The percentages of athletes classified at risk were as follows: disordered eating (DE): 17.8%; Menstrual irregularity (MI): 22.4%; low bone mineral density: 22.2%. Moreover, 10 (5.7%) of the girls met two of the three criteria for the triad; whereas, only two girls (1.1%) met all three criteria. In a related sub-study in which lean-build (LB) athletes were compared to non-lean-build (NLAB) athletes were compared to non-lean-build (NLAB), the prevalence of MI was higher in LB (26.7%) than NLAB (16.6%) athletes (P=0.01). Further, athletes with DE were over two times more likely (OR=2.3, 95%CI: 1.3, 4.2) to report oligo/amenorrhea than athletes without DE.

**Conclusions**
The data suggest the need for screening female high school athletes for disordered eating behaviors and menstrual irregularities. Interventions are needed to prevent the long-term health consequences associated with the Female Athlete Triad Syndrome.

**Principal Investigator:**
Jeanne F. Nichols, Ph.D, FACSM

Dr. Jeanne Nichols is Professor of Exercise and Nutritional Sciences and Co-Director of the Center for Optimal Health and Performance at San Diego State University. Dr. Nichols’ research focus is on exercise and bone health, primarily among adolescent athletes. Her professional memberships include Fellow status with the American College of Sports Medicine, the California Governor’s Advisory Committee on Physical Fitness, the American Society for Bone & Mineral Research, and the International Society for Clinical Densitometry. She serves on the editorial board for the ACSM Health & Fitness Journal, and is a reviewer for several other exercise science, health promotion, and sports medicine journals.

**Publication & Presentation List**


**Printing by:**
Ellington Printery, Ellington, CT

**Funded by:**
NFL Charities

**Supporting and advancing the Athletic Training profession through research and education.**