Disordered Eating, Age at Menarche and Menstrual Irregularity in Female Collegiate Athletes

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**Context:** Female athletes have an increased risk of developing disordered eating behaviors, amenorrhea, and osteoporosis; the three disorders of the Female Athlete Triad. Any disorder may occur individually; however if two or more disorders develop, the athlete’s overall health worsens.

**Objective:** This study examined disordered eating, age at menarche and menstrual irregularity in female college athletes.  
**Design:** Descriptive survey.  
**Setting:** 3 Division II colleges.  
**Patients or Other Participants:** A convenience sample of 97 athletes (age=19.1±1.3 years, height=169 (7.1) cm, mass=63.9±11.3 kg) from 6 sports: basketball (17), volleyball (17), track (14), cross country (18), softball (23), and soccer (8).  
**Interventions:** The independent variables were sport and menstrual regularity v. menstrual irregularity. Menstrual irregularity was defined as cycles not occurring every 25-35 days. All data were collected by Certified Athletic Trainers from each school. A MANOVA examined the effect of sport and menstrual regularity on disordered eating scores, age at menarche, and BMI. A single-sample t-test compared the mean age of menarche to the population mean. Pearson correlations identified relationships between variables.  
Reliability scores of the EAT-26 have ranged between .70 and .88.  
**Main Outcome Measures:** The Eating Attitudes Test consisted of 26 questions scored as “always” (3), “usually” (2), “often” (1), “sometimes” (0), “rarely” (0), or “never” (0). Item #25 used reverse scoring.  
**Results:** Fifteen out of 97 athletes (15.5%) were classified as having an eating disorder using the EAT-26. Menstrual irregularity was self-reported by 23 (23.7%) of the athletes. Significant effects were found for sport (\(\Lambda_{15,232}=.721, p=.02\)) and menstrual regularity (\(\Lambda_{3,84}=.865, p=.007\)). Follow-up univariate ANOVAs revealed that age of menarche was significantly higher for athletes with menstrual irregularity (\(F_{1,86}=12.24; p<.001\)) compared to athletes with menstrual regularity and the BMI values for softball were significantly higher than cross country (\(F_{5,86}=3.29; p=.009\)). A significant difference was found (\(t_{9}=3.82, p<.001\)) between the mean age at menarche in the athletes (13.4±1.8) when compared to the population value of 12.7. A significant negative correlation was found (\(r_{95}=-.300, p=.003\)) between BMI and age at menarche, athletes with lower values of BMI experienced a later age at menarche. A significant correlation was found (\(r_{95}=.253, p=.012\)) between disordered eating scores and age at menarche.  
**Conclusions:** This sample size revealed that female athletes are experiencing menstrual irregularity and eating disorders. It is recommended that athletic trainers provide preseason physical screening for amenorrhea, refer athletes with disordered eating for treatment, and educate athletes and coaches on proper nutrition for sports performance.  
**Word Count:** 399