

Multiple Stress Fractures and Low Energy Availability in Female Recreational Runners

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ABSTRACT

Low energy availability (LEA) is the underlying factor for Relative Energy Deficiency in Sport which includes a facet of bone health. Stress fractures (SF) are common injuries among runners. The prevalence of coexisting LEA and multiple SF in recreational runners is unknown. **PURPOSE:** The purpose is 1) to assess the prevalence of multiple SF and risk of LEA among recreational female runners 2) to compare current eating disorders, body weight dissatisfaction, and restrictive eating behaviors between females with a history of SF and those with ≤ 1 SF. **METHODS:** Female noncompetitive, recreational runners (running > 10 miles/week, 18-25 years old) completed an online survey that included the Disordered Eating Screening Assessment (DESA-6) and Low Energy Availability in Females Questionnaire (LEAF-Q). **RESULTS:** 458 females qualified and divided into two groups ≤ 1 lifetime stress fractures (≤ 1 SF) (n=309) and ≥ 2 lifetime stress fractures (≥ 2 SF) (n=149). The prevalence of females at risk of LEA by the LEAF-Q was significantly higher in the ≥ 2 SF group at 85% compared to 49% in the ≤ 1 SF group ($p=0.01$). 14% (n = 21) of the ≥ 2 SF group reported secondary amenorrhea compared to 6% (n=19) in the ≤ 1 SF group ($p<0.01$, $\chi^2=7.96$). Intentionally restricting specific foods, food groups, or the amount of food consumed to lose weight ($p<0.01$, $\chi^2=36.30$) and currently having an eating disorder ($p<0.01$, $\chi^2=73.70$) were significantly different between the ≤ 1 SF group and the ≥ 2 SF group. However, fear of weight gain in the off-season ($p=0.59$, $\chi^2=0.29$) and weight dissatisfaction in the past three months ($p=0.21$, $\chi^2=1.55$) were not different between the two groups. **CONCLUSION:** Those with ≥ 2 SF were highly identified as at risk of LEA by the LEAF-Q. Despite the two groups reporting similar levels of fear of weight gain and weight dissatisfaction, the ≥ 2 SF group restricted food suggesting they acted upon the fear. They also reported having secondary amenorrhea and currently having an eating disorder.