Diet and Female Athletes

Study suggests link between poor eating and a vulnerability to stress fractures in women's sports

BY CURTIS L. TAYLOR. STAFF WRITER 09/18/2006

Female athletes on low-calorie diets participating in cross-country, field hockey, soccer or other college sports may be more likely to get a stress fracture, according to a new study.

Researchers at Saint Louis University in Missouri found an association between decreased estrogen production in female athletes linked to insufficient calorie intake and athletes reporting more exercise-related pain in their lower legs.

"It appears there is a relationship between how you eat, which can then interrupt the menstrual cycle and bone density ... which can contribute to a stress fracture," said Mark Reinking, chairman of the department of physical therapy at the university. "Once we understand more, we can do a better job of preventing those types of injuries."

The participants, 76 women on intercollegiate teams in the fall season, were measured and completed a questionnaire that included age, year in school, sport, history of exercise-related leg pain and menstrual history. Athletes then completed a self-report survey on eating behavior.

All were monitored for leg pain during the season, with 26 percent reporting pain. All had a prior history of leg pain, according to the study published in the American Journal of Sports Medicine.

Researchers found that most of the athletes were in the normal weight range. The women were measured using the standardized Female Athlete Screening Tool, which includes age and weight.

But the five athletes who developed stress fractures had abnormal scores on the eating behavior questionnaire and also showed decreased bone mineral density, which researchers said suggested that poor eating habits may have been involved in the injury.

Other associated risk factors included pronation or flat feet and irregular menstrual cycles.

"This is rampant ... recreational female athletes with stress fractures and other leg pain that can be traced to poor diet," said Dr. Andrew Feldman, director of sports medicine at St. Vincent's Medical Center in Manhattan. "I see it every day in my practice with women who are training or working out who are not college athletes."

"This had been a taboo subject for so long," he said. "People with this problem are in denial. I have had women storm out of my office when I talk about it."

Previous studies have hypothesized that women experience a "female athlete triad" or syndrome that includes eating disorders, irregular or halted menstruation, and osteoporosis.

Dr. James Penna, the assistant doctor for team sports at Stony Brook University, said that about two female athletes end up with stress fractures each year and a significant percentage report shin splints or lower leg pain.

"This is something we are always concerned about, but there is no big trend in malnutrition in our female athletes," said Penna, program director of orthopedic surgery. "We don't ignore eating disorders, which can have disastrous consequences at this age."

Reinking said, "There is a lot of pressure out there for weight loss ... in women, but eating well is important for an athlete."