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RISK FACTORS FOR LEG PAIN IN FEMALE COLLEGIATE ATHLETES IDENTIFIED

Female soccer players found to be at least risk; eating disorders linked to stress fractures

Rosemont, Ill. – September 13, 2006 – Female college athletes participating in three popular fall sports – cross-country running, field hockey and volleyball – are more likely to experience exercise-related leg pain than those who play soccer, according to a study in the September issue of *The American Journal of Sports Medicine* published on behalf of The American Orthopaedic Society for Sports Medicine by SAGE.

Other risk factors for exercise-related leg pain (more commonly known as "shin splints") were a prior history of this condition and excessive pronation (a rolling inwards) of the foot, concludes author Mark F. Reinking, PT, PhD, SCS, ATC, of the Department of Physical Therapy, Saint Louis University, St. Louis, Mo. Age of athlete, body mass index, menstrual function and bone mineral density were among the factors found not to be related to leg pain among the female collegiate athletes studied.

"Exercise-related leg pain (ERLP) is often described qualitatively as 'common' in athletes," says Dr. Reinking, "but this is only the second study of its kind to quantitatively describe the condition and identify the risk factors for it. The history and incidence data from this study support the notion that ERLP is common among female athletes."

ERLP is a term used to describe lower extremity overuse conditions in which pain is felt below the knee and above the ankle bone and is associated with exercise. Although it is often thought to be related to external factors such as training volume, playing/training surface or footwear, there is little scientific evidence to support these elements as risk factors for ERLP. Rather, internal factors such as excessive foot pronation, menstrual function, and bone mineral density have been found to be associated with this condition.

Dr. Reinking studied 76 female college athletes playing one of 4 fall sports at a Midwestern NCAA Division I school (29 soccer, 18 field hockey, 18 cross-country and 11 volleyball athletes). Data were collected on the athletes' years in school sports, menstrual history, bone mineral density, body mass index, incidence of prior leg pain, and the degree of foot pronation. Additionally, athletes completed a standardized questionnaire on their eating behaviors.

Three-quarters of the female athletes reported a history of ERLP, with cross country runners having the highest percentage (94.4%) and soccer players the lowest (55.2%). All athletes were then monitored for ERLP during one intercollegiate sports season. Of the 76 athletes, 20 (26.3%) experienced ERLP during the season; all had reported a prior history of ERLP. There was a striking contrast between the low incidence of ERLP in soccer (3.4%) and its incidence in the other 3 sports (27.3% - 50%). Dr. Reinking also found a strong correlation between excessive pronation and both a prior ERLP history and reported ERLP during the playing season.

Athletes who developed stress fractures showed an interesting finding. These athletes had higher (more abnormal) scores on the eating behavior questionnaire and also showed decreased bone mineral density,

findings suggestive of disordered eating habits. The type of sport played was not correlated with high scores on the eating behaviors survey.

Flexibility of the calf muscles had no effect on the development of ERLP. "I found no relationship between calf muscle flexibility and the development of leg pain," Dr. Reinking says. "This is consistent with other findings which indicate there is no relationship of flexibility to athletic injury."

"Factors related to the development of overuse injuries (such as ERLP) are not well studied in collegiate athletes," writes Dr. Reinking. "However, this information is essential in developing effective prevention and treatment strategies. The results of this study may prompt further research into the use of orthotic devices to control foot pronation to prevent ERLP as well as early identification of and interventions for eating disorders in athletes."

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The American Journal of Sports Medicine is the monthly peer-reviewed scientific journal of the American Orthopaedic Society for Sports Medicine (AOSSM). AOSSM is a world leader in sports medicine education, research, communication, and fellowship. The Society works closely with many sports medicine specialists and clinicians to improve the identification, prevention, treatment, and rehabilitation of sports injuries. Please visit www.sportsmed.org. To contact author Mark Reinking PhD, call AOSSM Director of Communications and Member Services, Patti Davis, at 847/292-4900 or email patti@aossm.org.

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