

# Elite female athletes' health risk

18 November 2013



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Young female athletes representing South Australia in aesthetics sports such as gymnastics are putting their health at risk due to calcium and iron deficiencies, a Flinders University study has found.

The study analysed and compared the daily dietary intakes of three groups of teenage girls; 15 [elite athletes](#) participating in aesthetic sports (gymnastics and trampolining), 15 [elite athletes](#) involved in team sports (soccer and field hockey) and 15 age-matched non-athletes.

The athletes were members of the South Australian Sports Institute (SASI) and played at the state and national level.

Participants were asked to keep a food diary for four days to provide a snapshot of their regular macronutrient intakes, including carbohydrates, fats and protein, as well as their micronutrient intakes, vitamins and minerals.

Flinders Nutrition and Dietetics lecturer Dr Kathryn Jackson, who conducted the study with former Nutrition and Dietetics student Courtney Woolford, said iron and calcium intakes were alarmingly lower among the aesthetic sports athletes than the other two groups, while macronutrient intakes and total calories were also lower.

"Aesthetic athletes often restrict their food intake to stay lean but we were particularly interested in their calcium and iron intakes because these key minerals are very important, especially in adolescent girls, for good health, growth and bone strength," Dr Jackson said.

"The aesthetic athletes' overall dietary intakes were alright so they're not malnourished but the key minerals were too low, putting them at risk of osteoporosis later in life but also at risk now of anaemia caused by iron deficiency," she said.

"While the aesthetic athletes had significantly lower calcium and iron intakes than the team sports players and non-athletes, all three groups failed to meet the recommended dietary intakes of iron and calcium for their age.

"This means the entire age group needs to make better food choices and be better educated because they're still growing – however it's all the more crucial for elite female athletes because they also do heavy training."

While overall macro and micronutrient intakes were significantly lower among the aesthetic athletes, Dr Jackson said it was surprising to find their diets were as high in fat as the other two groups.

"We assumed they would limit fats to restrict body weight but they followed a very low carbohydrate diet instead, which isn't good for athletes because carbs provide energy."

Dr Jackson now plans to survey similar athletes from SASI in 2014 to determine both diet and supplement intakes.

"We now know these athletes aren't getting enough iron and [calcium](#) from the food they eat but they might be relying on supplements to meet their daily requirements.

"If that's the case we'd rather they obtain key nutrients from food because [food](#) has other health benefits that supplements don't."

The findings were presented at the 2013 Sports Dietitians Australia national conference in Melbourne in October, and will be submitted for publication in an international [sports](#) nutrition journal.

Provided by Flinders University

APA citation: Elite female athletes' health risk (2013, November 18) retrieved 30 May 2022 from <https://medicalxpress.com/news/2013-11-elite-female-athletes-health.html>

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