Department of Sports and Health Sciences

Key words Sports nutrition, Female athlete, Junior athlete, Lifestyle-related disease, Eating behavior, Eating habit

Doctor of Engineering /
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Education

Health and Sports Course, School of Regional Development Studies, College of Human and Social Sciences, Kanazawa University, Department of Food and Nutrition, Jin-ai Women's College, Department of Health and Nutrition, Jin-ai University, Graduate School of Engineering, Fukui University of Technology(Doctoral Course)

Professional Background

Utic Co.,Ltd.(Track and Field club), Omi Education Corporation, Sole proprietorship(Athlete's Table), Medical Corporation Sakura-kai Fujisawa Pediatric Clinic,(Registered Dietitian), Fukui University of Technology(Part-time lecturer)

Consultations, Lectures, and Collaborative Research Themes

Nutritional support for athletes, Health problems for female athletes, Prevention of lifestyle-related diseases

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Main research themes and their characteristics

「Research of Disordered Eating in Young Female Athletes」

In recent years, the success of female athletes has attracted much attention. Behind their glory, many female athletes suffer from the health problems. The American College of Sports Medicine (ACSM) cited the following conditions as health issues specific for female athletes: "low energy availability (lack of available energy)", "hypothalamic amenorrhea", and "osteoporosis" (Fig. 1). Of these, the causes of the "Low energy availability" are diverse. Eating disorders and Disordered Eating , which is positioned as a precursor to eating disorders, are one of them. Eating disorders are twice as common in female athletes than in the general female population, women in their 10s and 20s are more likely to develop the disease than women in their 30s and older. Therefore, early detection and improvement of Disordered Eating are important in preventing eating disorders.

Eating disorders are mental illness, there are diagnostic criteria. On the other hand, the definition of Disordered Eating is ambiguous, and there are few indices to evaluate it. Also, nothing evaluates that of female athletes. Therefore, it may not be possible to detect female athletes with Disordered Eating in the field of sports. Currently, junior high and high school female athletes are active in school club activities. In this case, most of the instructors are teachers. If school teachers have knowledge about Disordered Eating , it is thought that it can contribute to early detection and improvement, but the degree is not clear. Therefore, after surveying the degree of recognition of school teachers' awareness of Disordered Eating , we decided to create items to evaluate the possibility Disordered Eating. The scores for dietary behavior was significantly higher in Registered Dietitian than in the teachers (Fig. 2). Especially, "Generally, female athletes are more aware of abnormal dietary behavior than ordinary female students" and "Intentionally increasing the amount of exercise to expend energy is also a form of eating disorder" were not recognized. Therefore, it was suggested that early detection and improvement of Disordered Eating are difficult under present conditions.

Next, We developed Items of Disordered Eating for Athletes (IDEA) to evaluate the possibility of Disordered Eating. Female athletes with subjective awareness of or previous experience of being evaluated for abnormal eating behaviors and registered dieticians with experience working with female athletes with eating disorders or abnormal eating behaviors who provided free-form responses to an online survey on characteristic behaviors and thought patterns of people who may have abnormal eating behaviors. As a result, 69 items were obtained. Furthermore, as a result of investigating whether or not they had experience with each item, significant differences were found in 19 items. In addition, 8 of them could be combined into 4 items. Finally, 15 items related to eating behavior, body weight, and self/other evaluation were selected (Table 1). Finding more scientific evidence would increase the accuracy of screening and aid in establishing items that can be used by peaple who do not necessarily have expert knowledge about abnormal eating behaviors. Furthermore this may ultimately aid in the early detection of abnormal eating behaviors and eating disorders among female athletes and enable the provision of support to them, consequently helping to save their lives and improve their competitive performance.

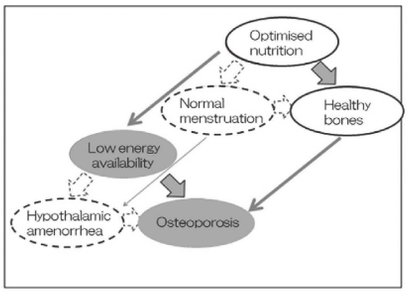

Fig.1 The Female Athlete Triad

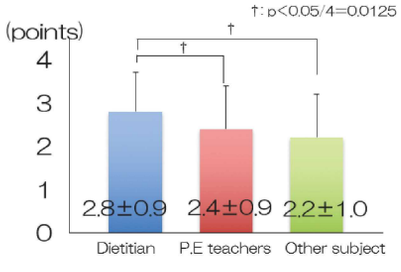

Fig.2 Awareness of eating behavior

Table.1 Items of Disordered Eating for Athlete (IDEA)

a)	I skip or reduce the quantity of the next meal after binge eating
b)	There are days when I binge eat and days when I fast
c)	I feel despair or regret after binge eating
d)	I do not think it is good to eat too much
e)	I have a fear of gaining weight
f)	I always want to control my body shape
g)	I want to increase my calorie consumption than I take in
h)	My mood changes with changes in my weight
i)	My body feels heavy during matches when my weight has increased
j)	I think my performance increases when I lose weight
k)	I am happy when other people comment that I have become slim
l)	I want to have the body shape that is considered ideal by other people
m)	I compare my body shape with others
n)	I am conscious of my body shape because others have criticized it in the past
o)	I can never be satisfied with my body shape

Major academic publications

Asana Ikari, Hiroki Sugiura, Yuki Samejima, and Kei Sokura (2021) Levels of awareness among school teachers regarding female athletes and nutritional science. World Journal of Nutrition and Health, 9(1):1-6

Asana Ikari, Hiroki Sugiura, and Kazuo Fujisawa (2022) Investigation of questionnaire items to evaluate potential abnormal eating behaviors in female athletes: Based on a study of female athletes with subjective awareness of abnormal eating behaviors. Journal of Food and Nutrition Research, 10(10):727-734