

# WOMEN AND SPORT

SCIENTIFIC REPORT SERIES

ISSUE 5.1 • YEAR 2014



## EATING DISORDERS IN FEMALE ATHLETES

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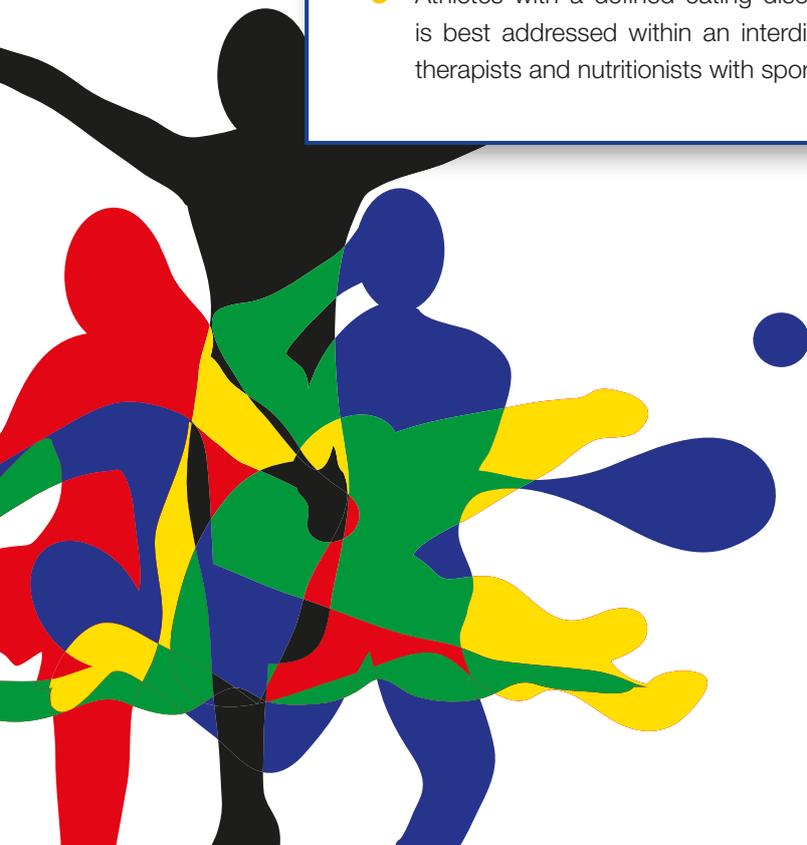
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## SUMMARY

A common focus for both sportspeople and those with eating disorders is the body and food. The text examines the relationship between eating disorders and sport, particularly elite and professional levels of sport. The diagnostic definitions and descriptions, psychology and prevalence of eating disorders are presented, along with the sport-specific risk factors. Practical implications for the identification and treatment of eating disorders in athletes are also discussed.

### TAKE HOME MESSAGES:

- Eating disorders are more prevalent among athletes than in the general population.
- Athletes often ignore the signs and symptoms of eating disorders because, to some extent, disordered eating is regarded as a 'natural' part of being an athlete.
- Young athletes have less support options and fewer opportunities for consultation and adequate treatment, which, together with their increased vulnerability, makes their medical risk greater than that of adult athletes.
- Eating disorders in various forms can be understood as manifestations of an underlying self-disorder. Symptoms are interwoven with identity and deficits in the psychological self, and are often expressed by impaired regulation of emotions, low self-esteem and high dependency on others.
- A well-known treatment complication is unstable or absent motivation for recovery. The symptoms of eating disorders are destructive, but because they may simultaneously function for self-cohesion and affect regulation, they may be subjectively experienced as constructive.
- The most effective treatment for eating disorders is psychotherapy, which can occur in several contexts, including individual, group or family therapy. Different therapeutic modalities may also be employed, such as psychodynamic psychotherapy, cognitive therapy or mentalisation-based therapy.
- Athletes with a defined eating disorder require specific treatment, which is best addressed within an interdisciplinary team that includes psychotherapists and nutritionists with sport-specific education.



## INTRODUCTION

Not surprisingly, eating disorders are more prevalent in athletes than in the general population. If we consider the two cultures of sport and eating disorders, we find many similarities, particularly if we look at the elite and professional levels of sport. In both sport and eating disorders, body and food are central themes—nutrition generally plays a big part in athletes' training programs. In both areas, we also find performance pressure and big demands on the participants. Both athletes and those with eating disorders use the body as a tool through which to achieve: perhaps performance or self-esteem. A key concept is control of emotional and cognitive processes through bodily characteristics and behaviours.

The similarities between sport and eating disorders may partly explain an additional problem: athletes often ignore the signs and symptoms of eating disorders. To some extent, disordered eating is regarded as a 'normal' part of being an athlete, and some sports subcultures normalise behaviour indicative of eating disorders. Some athletes find training or exercise insufficient to achieve their ideal bodyweight or body fat proportion. Therefore, to meet their goals, they diet and use harmful—though often ineffective—weight-loss practices such as restrictive eating, vomiting, laxatives and diuretics.

In terms of addressing disordered eating behaviours, young athletes have less support and fewer opportunities for consultation and adequate treatment, which, together with increased vulnerability, makes their medical risk greater than that of adult athletes. Age and severity of the disorders also seem related, with those who enter their sport at a very young age being more likely to use extreme weight-loss methods later in their sports career. Therefore, athletes at the junior level should be monitored carefully for any emerging symptoms.

Helping and treating people with eating disorders can be very challenging, in both practical and intellectual terms. Few symptoms create stronger reactions in helpers than those of eating disorders, particularly anorexia nervosa, and few require more forbearance and self-questioning. A major challenge in therapeutic enterprises for eating disorders is to establish a good working alliance. Patients rarely seek treatment on their own initiative. Their motivation to change is generally low and/or unstable, and despite the seemingly improved quality of available treatments for eating disorders, the high therapy dropout rate is a major problem.

The clinical picture for eating disorders is complicated by many factors. The disorders can be viewed as a continuum from lighter forms to the most severe. Severe eating disorders may last for decades, cause patients to withdraw from normal social and family activity, and destroy and break up families. These disorders mostly start during adolescence—a critical phase for many young people—when huge physiological and psychological changes occur in both the body and the identity. In addition, the adolescent brain is still maturing, and the psychological consequences of impaired bodily health intensify the symptoms.

Here, we will look at the diagnostic definitions and descriptions, psychology and prevalence of the major eating disorders, their treatment, and the special considerations for athletes. In female athletes, the so-called female athlete triad, that is, the combination of symptoms of eating disorders and amenorrhea associated with poor bone health (osteopenia, osteoporosis) has traditionally received most prominence. Text 5.2 presents more detail on the triad and recent research in this area.

## DEFINITIONS AND DESCRIPTIONS OF EATING DISORDERS

We will briefly define and describe the various clinical phenomena that are categorised as eating disorders. For more information, see the diagnostic systems ICD-10 (*The international statistical classification of diseases and related health problems, 10th revision*) and the DSM-IV (*The diagnostic and statistical manual of mental disorders, 4th revision*). Although most eating disorders affect physical bodily functions to some extent, they are primarily mental disorders characterised by emotional and cognitive disturbances. Affected individuals become preoccupied with bodyweight and appearance, and are frequently overwhelmed by anxiety in the form of weight phobia and fat phobia. Many also feel strong compulsion related to food and their body. Severe restriction of food intake, anorexia nervosa, is the rarest but often the most dramatic eating disorder. Overeating with purging, bulimia nervosa, or without purging, binge eating disorder, occur far more frequently.

### Anorexia nervosa

Anorexia nervosa is characterised by refusal to maintain a healthy bodyweight, an obsessive fear of gaining weight, and often an unrealistic perception of current bodyweight. Women with anorexia usually stop menstruating (amenorrhoea), which leads to bone loss. The condition places great stress on the heart, increasing the risk of heart attacks and related heart problems. The risk of dying is greatly increased in individuals with this disease, and anorexia has the highest mortality rate of any psychiatric disorder.

There are two subtypes of anorexia nervosa: (1) the restricting type: during the current episode of the disorder, the person has not regularly engaged in binge eating or purging behaviour (i.e. self-induced vomiting, the misuse of laxatives, diuretics or enemas, or excessive exercise); and (2) the binge eating/purging type: during the current episode of the disorder, the person has regularly engaged in binge eating or purging behaviour.

### Bulimia nervosa

Bulimia nervosa is characterised by recurrent binge eating followed by compensatory behaviours such as purging. Persons with bulimia may also fast for a certain amount of time following a binge.

### Binge eating disorder

This form of disordered eating is not listed in the ICD-10, only in the DSM-IV. Binge eating disorder is also called compulsive overeating and is characterised by binge eating without compensatory behaviour. Becoming overweight or obese are common consequences.

### Self-harm

The definitions of eating disorders have changed over the last few decades to now include a coexisting element of self-harm in some cases. Extra vigilance is therefore required on the part of health care professionals working with these athletes. Self-injury is often used as a regulatory mechanism to endure, deflect and express inner psychological pain. The most common forms of repetitive self-harm are cutting, burning or beating oneself. However, high-intensity training can also be used as part of a self-harming ritual.

### **Other psychiatric conditions**

Severe forms of disordered eating behaviour and clinical eating disorders often coexist with other psychiatric conditions. The most common comorbidities include depression, anxiety, substance abuse, personality disorders and post traumatic disorders.

## **THE PSYCHOLOGY OF EATING DISORDERS**

Eating disorders in various forms can be understood as manifestations of an underlying self-disorder. Symptoms are interwoven with identity and deficits in the psychological self. Clinically, this can be expressed in various forms.

### **Impaired affect regulation and low self-esteem**

Based on observation of patients, there is sound evidence to support categorising eating disorders as disorders of self-regulation, and of affect regulation in particular. Persons with eating disorders often lack capacity to tolerate, modulate or adequately express affects, demonstrated both through their affective and cognitive either-or, all-or-nothing styles. Low self-esteem is one of the most common features. In clinical encounters, patients may oscillate between restrictive silence and outbursts of both positive and negative affects, for example, excitement, enthusiasm, fear, rage and shame. Persons with eating disorders may attempt to drown out their anguished feelings by frantic self-stimulatory activities. This motivation could be seen as a common denominator behind behaviours such as starvation, bingeing, vomiting and hyperactivity. The symptoms can be seen as misguided attempts to organise emotions and other internal states more meaningfully. The absence of reliable internal self-regulation may cause the person to feel inadequate, ineffective and out of control.

### **Concretism**

One key clinical feature in eating disorders is the concreteness of psychic symptoms. Inner life is not symbolised or mentalised, but concretised. In other words, mind is expressed through bodily characteristics. The person has a cognitive and emotional over-concern with bodily qualities such as body shape and weight. Many people with eating disorders describe this concern as obsessive, and experience the here-and-now of their bodies as a ruthless reality from which it is difficult to escape. A central theme in such concretisation of inner life is control. The control of food and the body represents a desire to control the emotions and relationships.

### **Dependency on others**

Many people with eating disorders may be described as outer-directed, in the sense that low self-esteem induces a great need for attention, tokens of esteem, praise and comparison, and great interest in compensating for low self-esteem through performance, achievement and skills—as in sports and competitions. The individuals are highly dependent on others and their peer group because they are unable to comfort or trust themselves. Many have a sensitivity and drive to satisfy other peoples' needs. This may be expressed as an (apparent) high compliance with people and helpers. However, the clever child may also tend to be the clever patient. A clinician may conceive this as pseudo-compliance; actually, there is no sound working alliance, but more an ambiguous form of politeness—saying 'yes', but meaning 'no'.

### Ambivalence towards recovery

Another limitation in the healing processes is the possible restorative function of symptoms. Although the symptoms are actually destructive, they may function in self-cohesion and affect regulation. Therefore, the person may subjectively experience the symptoms as constructive, which contributes to an unstable or absent motivation for recovery. Thus, the disorder is a 'foe', but also a 'friend'.

## SPORT-SPECIFIC RISK FACTORS

As in all psychiatric disorders, the aetiology of eating disorders is multi-factorial, and genetic, biological, relational and socio-cultural risk factors are involved. These include attachment patterns, child neglect, trauma and personality traits. A special relationship exists between sports and disordered eating behaviours, in terms of both risks and performance. The sports world often places an over-emphasis or hyper-focus on the body and nutrition, both aesthetically (e.g. gymnastics) and performance-wise (e.g. the myth of higher achievement through lower weight in some endurance sports). At the peer-group level, conversation often revolves around nutrition, weight, performance and appearance, and the athletes often compare themselves to each other. We often see what we can call 'lack of norms for normalcy'. In these subcultures, where the aim is to achieve ever more, both athletes and coaches may lose contact with what is normal, for example, the normalisation of purging techniques.

In the sporting arena, although dieting per se may not be the focus, but many performers are told to 'lose weight'. However, the athletes receive little or no guidance in this regard. It is very worrying to see how unprofessionally some 'professional' teachers and trainers behave. Additionally, some of the coaches and leaders also have abnormal eating patterns. Anecdotal evidence suggests they set their own standards for body shape and weight, and then pass on abnormal eating habits and dieting myths to the new generations of performers.

In addition to the pressure to reduce weight, athletes are often pressed for time and must lose weight rapidly to make or stay on the team. Consequently, they often experience frequent periods of either restrictive dieting or weight cycling. Weight cycling has been suggested as an important risk or trigger factor for athletes to develop eating disorders. A sudden increase in training load may induce caloric deprivation in endurance athletes, which in turn may elicit biological and social reinforcements that lead to the development of eating disorders. Female athletes with eating disorders have been shown to start sport-specific training at an earlier age than do healthy athletes. Also, if female athletes start sport-specific training before puberty, they might not choose the sport most suited to their adult body type. Longitudinal studies with close monitoring of a number of sport-specific factors (volume, type, and intensity of the training) in athletes are needed to clarify the role played by different sports in the development of eating disorders.

Another type of risk is injury, illness or overtraining that can lead to loss of control over food. An injury can curtail the athlete's exercise and training habits. A highly active person is likely to gain weight during immobilisation for an injury and will be keen to return to pre-injury weight quickly. Poor nutritional intake may hinder recovery, and vicious cycles may be repeated. These athletes should be monitored especially closely during their recovery. Similarly, be aware that some behaviours may change throughout a season. During the months of intensive training and competition, discipline and routine are emphasised, which

can lead some athletes to overindulge during the off-season, when supervision is less strict. Other athletes may react in the opposite way, eating well during active training months, and being more restrictive during the less active off-season.

Despite the above, a high prevalence of eating disorders in sport does not necessarily mean that sport is 'toxic'. For example, young people with predisposing factors such as dysfunctional families, psychiatric disorders in the family or trauma may be drawn to the athletic cultures. As one athlete said of her bulimic condition: 'I would have got it anyhow'. Risk-taking youths may seek out sport as a coping mechanism or alternative social environment, thereby living out personal problems within an athletic context. Here, they might find supporting milieus, including feelings of protection and secure adult figures. Athletes interact with people who care for them and are genuinely interested in them. They also have a defined peer group, and the opportunity to use physical activity on a very intense level may help regulate and control psychological tension and difficult thoughts and feelings.

## PREVALENCE OF EATING DISORDERS AMONG ATHLETES

Various kinds of sports such as aesthetic, power, endurance, weight-class and ball sports place different demands on the athlete. A diverse array of sportspersons, from elite athletes to recreational sports people, has been studied, along with dancers. Female athletes have been studied more than their male counterparts. However, some of the research tools used to examine the prevalence of eating disorders have not been validated for use with athletes. Neither the Eating Disorders Inventory (EDI) nor the Eating Attitudes Test (EAT) were designed for use with a specific sporting population, and may not detect the special problems experienced by athletes and performers. Also, obtaining accurate figures for prevalence is difficult because athletes may have a different perception of eating disorders, and many deny or want to conceal that they have a problem.

Estimates of the prevalence of the symptoms of eating disorders among female athletes range from less than 1% to as high as 75%. In a Norwegian study, 20% of elite athletes suffered from eating disordered symptoms, compared to 9% in a control group of non-competing women. Furthermore, this study showed that eating disorders are more frequent among female elite athletes competing in aesthetic and weight-class sports than among other sport groups in which leanness is considered less important. However, eating disorders are not isolated to these disciplines. Eating disorders can affect athletes in any sport, just as they can affect young people in general. Moreover, these research figures are based on questionnaires, not on clinical interviews, which tends to overestimate the actual prevalence. Estimates of actual prevalence for females are 0.2–0.4% for anorexia nervosa, 1–2% for bulimia and 1.5–3.2% for binge eating disorder.

## ASSESSMENT

The behaviours associated with disordered eating are often hidden. This may be due to lack of insight into the illness or to deliberate masking of behaviour and symptoms to avoid possible negative consequences, especially within the competitive athletic context. There are, however, some early signs that may raise suspicion of an eating disorder, and monitoring of athletes, if grounded in genuine concern for both individual and environmental health, can be necessary. Athletes may seek help only if their performance is stagnating or worsening. Although many athletes initially react with denial, confrontation of those with suspicious

habits is often the most important step—feeling ignored and invisible is often worse than being confronted. Many have a desire to be discovered, and lose faith in coaches and managers who downplay the issues due to lack of competence or a desire to avoid conflict.

### **The clinical encounter**

Dialogue is essential to develop transparency and build a trusting relationship between athlete and clinician. A discussion of eating disorders often revolves around feelings of shame, behaviours that the athlete will not or cannot let go of, and lack of insight into the severity and consequences of the disorder. Consultation with health care workers with experience of eating disorders may instil confidence in the athletes. A first encounter should often only aim to ensure their willingness to return for further discussion. Developing a therapeutic alliance and motivating the athlete to change the behaviour usually take time and must be developed over several clinical encounters.

An approach that emphasises psychological analysis and promotion of self-reflection and examination of the athlete's relationships to others should be driven by genuine empathetic curiosity and avoid strict definitions, interpretations or categorisation of disorders. However, pointing out and discussing observed conditions such as weight loss, social isolation, and reduced performance is appropriate.

The primary goal is always to perform a comprehensive assessment of the athlete's life and overall condition, which requires an assessment of life choices and feelings, and determination of the extent and nature of weight-related and eating-related problems. Close relationships, the social environment and any other mental health issues should be addressed, as well as the menstrual condition and the female athlete triad (see Part B of this text).

### **Early signs**

Anorexia and related restrictive disorders are often identified through weight loss. However, in some sports, low body weight is associated with better peak performance. For example, rhythmic gymnastics encourages an unhealthy ideal body image through its subjective scoring system. Bulimia, unlike anorexia, can often go unnoticed because a majority of patients diagnosed with bulimia are of normal weight. Finally, binge eating disorder may present as either obesity or rapid fluctuations in weight.

We can divide the signs and behaviours associated with eating disorders in athletes into four categories.

#### ***Food-related behaviours***

Examples of suspicious food-related behaviours are numerous, and include eating less, preferring to eat alone, modifying and being more selective in the variety of cuisine, choosing 'light' products, being irritable during meals, denying hunger, expressing guilt after eating, leaving the room immediately after meals, and obviously overeating.

#### ***Mood and behaviour***

Examples of suspicious behavioural signs include mood swings; expressions of self-deprecation; rigidity in daily routines; frequent weight checks; extra willingness to do active errands; collection of nutritional, diet, body and training information from blogs, magazines and books; insistence on being correct even when obviously wrong; extra helpfulness in an attempt to offset guilt; social withdrawal; and other forms of self-destructive behaviour.

### ***Physical signs***

Examples of suspicious physical signs include weight loss and weight fluctuation, lack of menstruation, dizziness, fatigue, abdominal pain and bloating after consuming small amounts of food, low body temperature and cold intolerance, poor peripheral circulation, flat and lifeless hair, tension headaches, muscle aches, and swollen cheeks.

### ***Sports performance***

Individual athletic performance usually fluctuates to some degree, but significantly unstable performance may represent underlying disordered eating. As one athlete in a sport with stringent weight restrictions said about the vomiting associated with competition, 'It is certainly not surprising that it changes the standings'.

### **Structured clinical tools**

Several self-report questionnaires and structured clinical tools are available to assist health care professionals assess the possibility of eating disorders. The EDE and EDE-Q are commonly used. The Eating Disorders Examination (EDE) is a structured clinical interview designed to identify the diagnostic category of an eating disorder. The Eating Disorders Examination Questionnaire (EDE-Q) is a self-report questionnaire.

These assessment tools have been developed in response to requests for quality assurance. They provide a basis for accurate assessment and increase the efficiency of the information collection process. However, widespread application of such tools may undermine clinical expertise, and quality assurance should not be confused with quality.

### **Dietary history**

A complete nutritional assessment should include a general history, a clinical examination for symptoms and signs of insufficiency, anthropometry (especially height and weight measurement), blood tests, and a thorough nutritional history. Several methods exist to assess dietary intake. The goal of any method is to obtain a picture of the individual's meal patterns, food choices, and intake of both macronutrients and micronutrients. For best results, a trained clinical nutritionist should perform the dietary assessments. Coaches should not be responsible for nutritional assessment or follow-up in any way.

### **Physical examination**

A general physical examination is an essential component of the overall assessment, as well as blood tests. Blood tests are routine and simple clinical investigations. For athletes, we recommend a general haematology panel (blood screen) to rule out anaemia, a creatine kinase (CK) level to guide physical activity targets, liver enzymes to look for malnutrition, and a ferritin level for iron status in those with high-intensity training schedules.

Thyroid gland function (T3 and T4 levels) is relevant to psychiatric disorders. The low levels found in underweight athletes are usually due to a normal regulatory response to other abnormal hormonal levels, and should therefore be treated with weight gain and nutritional assessment, and not with thyroid hormone (thyroxine) supplementation. In fact, thyroxine treatment in these athletes may lead to an increased metabolic rate, thereby causing further weight loss. For this reason, thyroxine abuse is a well-known method of weight reduction in sports environments. Electrolyte analyses, especially potassium levels, can unmask vomiting and laxative or diuretic abuse. In male athletes with weight loss, testosterone levels should be measured.

## Weight and body composition

All medical parameters for nutritional assessment have weaknesses. In females, amenorrhoea is a pivotal warning sign, and the restoration of regular menstruation is a prerequisite for good health. Several other measurements such as body mass index (BMI), BMD, and body composition can be used to aid in assessment of nutritional health.

Body Mass Index is defined as weight (kg)/height (m)<sup>2</sup>. A BMI of less than 18.5 is defined as underweight, and a BMI between 18.5 and 24.9 is defined as normal weight by the World Health Organization. Because BMI norms are based on population-wide statistics, they do not account well for behavioural and genetic variations seen at an individual level. Also, athletes with heavy training schedules may have an artificially high BMI because muscle is heavier than fat. Therefore, BMI is best used as a repeated measure to assess change within the individual over time, rather than for direct comparison with population norms.

Although separate population scales exist for young people, BMI remains a poor measure of body composition in growing children. Percentile growth charts, already well established for the general assessment of the height and weight of newborns and young children, may also be used for assessment.

Dual-emission X-ray absorptiometry (DXA) scanning measures BMD to assess osteopenia and osteoporosis and is useful for repeated measurements. The lumbar spine (lower back) is often the first area to show a decrease in density, and is therefore carefully followed with DXA in those at risk. In athletes, remember that normal density values may actually indicate bone loss because athletes tend to have higher than expected baseline values from participation in bone-building, high-impact activities. DXA scan results can also provide guidelines for the choice of strength training exercises and intensities.

## TREATMENT

Athletes with a defined eating disorder require specific treatment, which is best provided by an interdisciplinary team that includes psychotherapists and nutritionists with sport-specific education. Members of the team should understand their individual responsibilities within the treatment plan, and the member with primary medical responsibility must be clearly identified.

### Psychotherapy

The most effective treatment for eating disorders is psychotherapy, which may include individual, group or family therapy. Different therapeutic modalities may be used, including psychodynamic psychotherapy, cognitive therapy or mentalisation-based therapy. In Norway, the psychotherapeutic services at the Norwegian Olympic Centre are a pragmatic combination of several approaches. In some contexts, treatment also incorporates the sports psychology community, with an increased focus on performance psychology. As previously described, any therapeutic approach must maintain an inviting and safe atmosphere, while ensuring clarity and demarcating safe therapeutic boundaries.

### Nutritional therapy

Nutritional goals for those with restrictive eating generally focus on increasing energy availability. As described in Text 13 on the female athlete triad, there is a risk of impaired bone health. Research within this relatively new field has shown that female athletes require

a lean body mass of 30 kcal/kg to restore menstruation, and 45 kcal/kg to increase BMD (bone mineral density). Lean body mass includes all fat-free tissues, including water, muscle, bone, connective tissue and internal organs. In athletes with amenorrhoea and/or stress fractures, additional supplementation may be required to achieve a recommended calcium intake of 1000–1500 mg/day, a vitamin D intake of 400–800 IU/day, and a vitamin K intake of 60–90 micrograms/day.

In our experience, optimisation of nutrition combined with weight-bearing exercise in athletes who have not yet reached peak bone mass (25–30 years) can limit the loss of bone tissue and, in some cases, even increase BMD. Although currently very little research supports this approach, several case studies have reported positive findings.

### **Who should approach the athlete?**

Coaches and managers must be alert to possible issues within their sport and for seeking advice on promoting a culture of open communication with their athletes about these important issues. Lack of information and initiative on the part of coaches and managers can cause eating disorders to become taboo topics, thereby making athlete recognition and acknowledgement of any difficulties much more challenging. Although their role is important in identifying the problem and initiating communication, coaches and managers should never assume a primary role in the treatment and follow-up of their athletes with eating disorders. For elite athletes, addressing any eating issues within the context of sports health care is important, because many practitioners within the general health care system attempt to significantly restrict physical activity as part of the treatment. In fact, facilitation of physical activity while addressing eating issues is, in many cases, the most appropriate measure, and to simply demand a reduction in activity can significantly affect an athlete's motivation to cooperate with a treatment plan.

In the general treatment of eating disorders, the patient's family is usually involved, even when the patient is over 18 years of age. In the athletic population, it is also important to involve the network of coaches, managers and assistants. Communication between health professionals and this extended athletic 'family' is especially important, because the former group is primarily concerned with the athlete's health and the latter group with the athlete's ongoing performance; a breakdown in communication between these two groups with conflicting priorities can be dangerous.

### **Educational initiatives for sports groups**

Sports groups must maintain thorough and up-to-date knowledge about the availability of educational resources in the community. Sports organisations with both clinical and academic expertise should provide resources in the form of publications (internet- and/or paper-based), seminars, teachers and guidance counsellors. Sunn Jenteidrett (Healthy Girls Sports) is an example of an online Norwegian resource with counselling available through a telephone hotline.

## **GUIDELINES FOR TRAINING AND COMPETITION**

To help health professionals, coaches and sports leaders, the team for eating disorders at the Norwegian Olympic Centre has proposed guidelines for training and competition. The guidelines should not be regarded as hard and fast rules—they should be applied only with

due consideration of the athlete's physical and mental health and other relevant factors, and in collaboration with the health care team and the support network.

### General guidelines

- Health always takes priority over performance
- Assessment and care should address both physical and mental health
- Young athletes should be evaluated more stringently than older athletes
- Decisions should be made as a team and in dialogue with the athlete, family and coaches
- Written contracts should be drawn up in difficult cases
- Consider more than just the athlete. Discuss and address possible consequences for the team and for the sport
- Ongoing assessment is based on the level of progress in relation to the overall medical condition.

### Specific guidelines

For exercise and physical activity:

- Activity should be adjusted to an agreed-upon intensity and type.

If competition denial is being considered:

- Removal of an athlete from competition is a very difficult but occasionally necessary decision, both for the athlete's health and for the possible effects on the athletic environment
- Guidelines for the decision to remove an athlete from competition are proposed in two categories:
  - 'Red light': conditions which should always lead to a ban
  - 'Yellow light': conditions which require close monitoring and may progress to a ban if no improvements are seen

Red light conditions are:

- Athletes of both sexes who meet the medical criteria for the psychiatric disorder anorexia nervosa. An additional criterion that should be used to diagnose anorexia is a BMI less than 17.5. A ban in this case is justified by explicit consideration of the athlete's overall health, of their competitors, and of the more overarching goal of a sport founded on sound values and principles
- Athletes with serious physical complications from weight loss or lack of energy availability, such as cardiac dysrhythmias, major oedema (fluid accumulation) in the body or fainting
- Athletes with other serious eating disorders; restrictions may be appropriate in athletes with severe bulimia nervosa who are frequently vomiting and have electrolyte disturbances
- Athletes with at least three of the criteria described below as 'yellow light'

Yellow light conditions are:

- Women with amenorrhoea and a BMI below 18.5 and/or a body fat percentage below 12%
- Men with a BMI below 18.5 and/or a body fat percentage below 5% and low testosterone

- Amenorrhoea for 6 months or more (3 months for athletes under 18 years) due to low energy availability over time
- Reduced bone mineral density
- Athletes with physical complications based on professional medical assessment, such as electrolyte imbalance or anaemia. Stress fractures should always be assessed as a possible expression of low energy availability over time
- Uncooperative athletes or those showing a lack of progress in treatment
- Athletes clearly having a negative effect on other team members by exhibiting behaviours such as restrictive eating, maintenance of low weight, and excessive focus on matters pertaining to weight and food. These athletes can be very high performers and the decision to ban them can therefore be very difficult
- Athletes who are unable to maintain a positive energy balance over time and are unresponsive to training, or showing fatigue and intolerance
- Athletes participating in sport activities that perpetuate their eating disorder.

The sensitive issue of competition ban must be subject to ongoing review.

## CONCLUSION

There is a well-documented increased prevalence of eating disorders among athletes compared with the general population. Eating disorders in athletes can easily be missed unless they are specifically searched for. If untreated, such disorders can have long-lasting physiological and psychological effects and may even be fatal. A team of qualified health care professionals in close collaboration with the athlete, the family and the support systems in sports should undertake treating athletes with eating disorders. Ideally, helpers should also be familiar with, and have an appreciation for, the athlete's sport.

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