NUTRITION FOR GYMNASTICS

Gymnastics embodies seven different and unique disciplines: sports acrobatics, rhythmic gymnastics, sport aerobics, trampoline sports, cheerleading and men's and women's artistic gymnastic programs. As there are very different demands across gymnastic disciplines, this fact sheet will focus specifically on artistic gymnastics.

Training

Elite gymnasts train in excess of 20-30 hours per week. Typically, daily training sessions are scheduled morning and afternoon lasting for 2-3 hours each session. During training sessions, gymnasts repeatedly practice entire routines or a skill or sequence within a routine, develop new skills, improve strength and flexibility and assist in choreographing routines.

Physical Characteristics

Physical attributes necessary for competition success in female gymnasts have significantly changed over the past thirty years. The progressive increase in the difficulty of skills since the 1950's and 60's has increased the physical demands and the acrobatic nature of the sport. Today's elite female gymnasts are small, lean (low percent body fat), and well-muscled which results in a high power-to-weight ratio. Generally, female gymnasts reach their peak power-to-weight ratio prior to puberty and are ready for elite international competition at the minimum age requirement.

Male gymnasts have also changed over the years and are now smaller than the gymnasts of the 1950's. Male gymnasts are lean and heavily-muscled, yet possess adequate flexibility and agility to perform the required skills at elite international competition. Modern male gymnasts tend to achieve an optimal power-to-weight ratio during their twenties.

Common Nutrition Issues

Adequacy of Daily Energy and Nutrient Intake

As female gymnasts develop into elite senior competitors, they may receive regular assessment of body weight and body fat levels in order to maintain a lean, muscled physique. Female gymnasts typically consume diets low in energy (kilojoules), placing them at risk of inadequate nutrient intakes such as carbohydrate, calcium and iron. It is important for female gymnasts to eat nutrient-rich, low-fat foods at meals and snacks in order to meet their daily nutrient needs. High fat snacks (i.e. chocolate, pastries, potato crisps) and nutrient-free carbohydrate foods and fluids (i.e. soft drinks, lollies) are not encouraged as regular snack foods, but rather as occasional food choices.

Unlike female gymnasts, male gymnasts often consume diets higher in energy to ensure they maintain muscle mass and promote muscle development when necessary. Many adolescent male gymnasts struggle to consume enough food to keep pace with the added demands of growth and training. As a result, male gymnasts may supplement their dietary intake with

energy-dense, nutrient-rich snacks and fluids such as liquid meal supplements to keep pace with daily fuel needs.

Between Meal Snacks

Gymnasts have a busy lifestyle, juggling training with school, university or work commitments. Consequently, most gymnasts snack on the move - on the bus between training and school or in the car on the way to work. Choosing nutrient-rich snacks that provide adequate energy and are rich in carbohydrate and protein is crucial for gymnasts aiming to maximise their recovery between training sessions and meet their daily nutrient requirements. Excellent 'on the move' snacks include low-fat yoghurt, fresh, canned and dried fruit, lean cold meat and salad sandwiches, breakfast cereal, fruit or muesli bars and low-fat cheese with low-fat crackers.

Bone Mineral Development

Weight bearing activity, dietary calcium intake, menstrual status, and overall nutritional adequacy of the diet are all major factors determining bone mineral development in female athletes. Studies suggest that repeated high impact and weight-bearing activity, such as that seen in gymnastics, increases bone mineral development. As dietary calcium plays a crucial role in promoting optimal bone mineral development, dietary calcium intake should be assessed in athletes with low energy intakes. It is important for female gymnasts to consume calcium-rich foods at meals and snacks to meet their daily calcium needs.

Vitamin D is also an important nutrient for bone development. The primary source of Vitamin D is through exposure to sunlight. Since elite gymnasts spend limited time outdoors (due to training and study schedules), they are at risk of compromised Vitamin D status. Refer to the Vitamin D factsheet in the supplements section of the AIS website for more information.

Eating behaviours

Female gymnastics is a sport where athletes are required to maintain a low body weight-to-height ratio if they wish to perform at a high level, particularly as they mature into late adolescence and reach their peak performance years. This fact alone places these athletes at greater risk of developing disordered eating behaviours than athletes involved in other sports. It is important to have a weight management plan involving the doctor, the sports dietitian, the coach, the gymnast and their parents to ensure that athletes develop normally during their adolescent years.

Fluid Balance

Due to the short, explosive nature of exercise performed by gymnasts and the fact that gymnasts train and compete in indoor facilities, sweat losses tend to be small compared with those of other athletes. Despite lower sweat losses, it is still important for gymnasts to stop regularly during their long training sessions to replace lost fluid. Interestingly, it has been

observed that some gymnasts concerned with their weight reduce their fluid intake in order to reduce body weight. For these athletes, it is crucial to point out that a decrease in weight as a result of sweating is purely a reflection of lost fluid, not a decrease in body fat stores.

This fact sheet is based on National team athletes and is therefore specific to these athletes.