The Sports Medicine Strand of the XIIth Congress covered eight areas of concern for the female: (1) Dance Injuries; (2) Sports Injuries; (3) Menstruation; (4) Pregnancy; (5) Nutrition; (6) Aging; (7) Exercise Physiology; and (8) Sports Psychology. Thirty-nine papers were presented.

**Dance Injuries**

Dancers are subjected to many of the same injuries noted in sports. Many dancers, unlike their sporting counterparts, begin their training at a very young age. According to Phillips (Australia), flexibility, proprioception and strength may be affected by growth, thereby, maximizing the potential for injury. The analysis of technique by teachers should prompt the modification of dance classes in an effort to reduce injury. Significant injuries are seen in the second metatarsal (Crichton, Australia), back (Vass, Australia) and hip (Way, Australia). According to Crichton, classical ballet is a cause of major stress to the dancer's feet accounting for either stress fractures of the second metatarsal or traumatic synovitis of the adjacent Lisfanc's joint. Predisposing factors for these stress fractures include: (1) amenorrhea, (2) anorexia nervosa, (3) Morton's foot, cavus foot, and (4) anterior ankle impingement. Vass noted among Australian professional dancers that the rate of back injury (34%) was higher than any other area of the body. She stated that lumbar spine/pelvic area involvement with alignment asymmetries and/or muscle and neural tension imbalances are frequently seen in the clinical setting. Way concluded that pain in and around the hip is a common occurrence among classical dancers. Because dancers strive to maximize the amount of turnout to achieve the balletic positions required, it is not unusual to note injuries of the hip, lower limb, and lumbar spin. All presenters seemed in agreement that proper assessment of the cause of dance injuries by the physiotherapist and/or teacher needs to occur through observation of the mechanical aspects of the dancer's technique in the identification of technical problems(s).

**Sport Injuries**

Training programs for the reduction of injuries to female athletes continues to be a concern of sports medicine researchers. Fitzpatrick (Australia) established an injury profile through a four year study of female triathletes. As expected, differences were noted between those injuries sustained in training and those in competition. Differences were noted in the profiles between injuries of female triathletes and their
A relationship was noted between the type and severity of injury and the level of training.

Otago (Australia) and McKay (Australia) provided information from two studies conducted on netballers. It was reported that injuries to the lower limb were common and that these injuries may be related to such factors as court surface types, competitive levels, playing position, and time of injury. Further research is needed relative to injury rate, type and severity as well as the associated risk of injury in netballers.

Lythgo (Australia) discussed interesting facts for consideration in shoe design and playing surfaces; some of the considerations were the results of injuries of netballers. Lythgo concluded that the appropriate shoe design is dependent upon several factors: (1) anatomical concerns; (2) training regimen; (3) nature of the activity; and (4) properties of the playing surface. Netballers require a combination of side-to-side and forward-backward movements; appropriate shoe wear would be an important factor in the reduction of injury. Presenters were consistent in their recommendations of the importance of constant intervention and surveillance of injuries of female athletes and the need to make appropriate changes in footwear and training programs for the female.

**Menstruation**

Concerns among researchers about the effects of exercise upon the menstrual cycle have abounded for several years. Ey (Australia) discussed the level of knowledge that female athletes have about their own hormones and the effects upon their sporting performance. A lack of knowledge was noted among all ages (12 yrs to 65 yrs) and also at different levels of participation. Drinkwater (United States) expressed concerns of amenorrhea, seen most often in females who participate in activities that involve strenuous training, and an emphasis on low body weight. Drinkwater pointed out that some theories on amenorrhea relate to individual characteristics of the athlete which can or cannot be modified. Those that cannot be modified include age, parity, previous menstrual irregularities, and age of menarche; those that can be modified are diet, body fat, and training programs. Drinkwater stated that at present the only residual effect appears to be a decrease in bone density. More recently, reports suggest a possible negative effect on serum lipids.

Two investigations dealing with bone density were reported. Roberts (Australia) found no difference in bone mineral density of young ballet dancers (X= 16.7 yrs) from their matched controls. It was reported that of the 12 subjects, 3 stress fractures occurred. McCrory (Australia) examined a cross section of elite female track athletes with reference to the effects of menstrual status and use of oral contraceptives (OCP) on bone mineral density (BMD) as well as the incidence of stress fractures. A significant difference (p<0.01) was found in the group taking the OCP;