

## CONFERÊNCIAS

### OPTIMIZING THE BIOMECHANICS OF ROWING

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In recent years, rowing has been revolutionized by innovative advances in equipment design and manufacturing technology. Despite these high-tech achievements, it is the direct rower-ergometer and rower-boat interactions during training and competition that determine the potential for success. Little attention has been devoted by coaches and crew members to a detailed biomechanical analysis of rowing with different training modalities, crucial for the maintenance of an affective and safe rowing technique. During ergometer training, there is a tendency for competitive and recreational crew members to sacrifice technique in an attempt to maximize output. Poor postural habits may result, adversely affecting technique and potentially leading to injury. In rowing, technique rather than force, is still the decisive factor for a winning performance. Research can aid in the advancement of rowing to an even higher level through an analysis of the biomechanical principles that govern the sport. An understanding of kinematic and kinetic parameters critical to safe and affective rowing techniques will improve training regimes, competitive strategies and ultimately, athletic performance of recreational and elite rowers. The contribution of biomechanics research in the area of education and training in sport sciences may help to reduce the incidence of injury caused by poor rowing techniques and to curtail medical costs. On-line computer-aided analysis may represent an invaluable objective tool for selecting crew members and determining boat positioning by identifying complementary techniques. The technological improvements in the areas of training and safety in all training modalities can only encourage further participation, with hopes of enriching this sport discipline for all those involved.

### SPORT AND ITS PHYSIOLOGICAL CHARACTERISTICS

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There are two main levels of sports participation: - (1) recreational, where enjoyment and health-benefits are most important, and (2) competitive, where winning is the main objective. There are a large variety of *different* sports, each one having unique physiological requirements. For example, the successful marathon runner requires a high level of aerobic endurance and low body mass, while for shot-putting high mass and anaerobic power output are necessary. Athletic success depends upon an optimum combination of skill, psychological and physiological factors, that are appropriate to each particular sport. Physiological factors which improve performance at sport include having appropriate: - body size, body shape, body fat level, static-strength, high-speed strength, flexibility, endurance (three different kinds), power-output, speed, posture-and-body mechanics, for the sport being undertaken. The above are known as **COMPONENTS OF PHYSICAL FITNESS**. In any athlete the components of fitness are influenced by two factors: *genetic* and *environmental*. Genetic factors have by far the greatest influence. They determine the athlete's gender, physique, heart size, biochemistry and muscle fibre-type distribution, amongst other factors. To have a chance of success the athlete must select a sport that suits their genetic make-up. The main environmental factors that influence fitness are (1) training (2) diet. Sports injuries are a major negative effect on sport because they disrupt training and reduce physical fitness. Physiotherapists can play a major role in helping athletes by giving advice on (1) the optimum way to train (2) the prevention of sports injuries.

#### REFERENCE

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