Coaching Technology: Muscle stimulation
by Chris Lee
In: Modern Athlete and Coach 40 (2002), 2, 13-16

The author summarizes recent scientific findings on neuromuscular stimulation programs commonly used by European athletes. In the introduction the author is identifying basic questions on sport specific muscle exploitation and why electromuscular stimulation (EMS) is used. In the following the author describes what is new on EMS and the implication for the use of EMS in sport. He gives brief glimpses into the evidence: that tetanic contractions of fast and slow fibres can be achieved at different frequency of stimulation and that a large volume of work has been shown to result in a consistent improvement in sport performance from swimming to basketball (jumping) to weight lifting. Another advantage achieved by EMS is the increase of blood supply and oxidative capacity. Finally, EMS-training allows, by the use of computerised devices, additional training to take place without the fear of injury or excessive stresses on joints, ligaments and muscles.

Foundational concepts of sprinting: spatial and movement perspectives
by Curtis Collier
In: Track Coach (2002), 159, 5071-5077

The author defines 31 basic components involved in sprinting, such as acceleration phase, active landing, alignment, backside, core, front side, full-speed phase etc.

In the following the author lists and explains 10 critical concepts, which form a model for the development of sound, optimal sprint mechanics. 1. A sprint has three distinct phases, 2. Sprinting has both pushing and pulling characteristics, 3. Sprinting involves both backside and front-side mechanics, 4. Full speed is the result of a series of highly active and complex movement patterns, 5. The sprinter's body must be like a pillar, 6. As the sprinter progresses through the three phases of sprinting, the body angle gradually increases, 7. As the sprinter progresses through the three phases of sprinting, foot/leg recovery gradually increases from lower to higher, 8. As the sprinter progresses through the three phases of sprinting, there is a gradual shift in the ground contact point to the front side, 9. Proper arm position and action is an important element of sprinting, 10. Each sprinter must find his/her own unique and optimal relationship between stride length and stride frequency. The author stresses that this paper provides a framework for coach and athlete to use the same terminology while teaching and learning sprinting from a spatial and movement perspective.
Water training for young and developing athletes
by John Boxhal
In: Modern Athlete and Coach 40 (2002), 1, 29-32

Water training, besides being used as a rehabilitation tool can be successfully exploited to provide variety and fun to the training and development of young athletes. After a description of the characteristics of the water running technique, aspects of breathing and floatation, typical training sessions with warm-up, running in deep water drill, strength exercises and group games are described. The author gives some guidelines for planning and organisation. He concludes that while water training provides an excellent variation from ‘regular’ training, it should not be used as a substitute to running on the track. Coaches should observe closely any variations in the athletes’ running technique once they return to track running.

Conditioning sites of stress in javelin throwers
by Lindsay Burgoyne
In: Modern Athlete and Coach 40 (2002), 2, 10-12

The unique demands placed on an athlete in the javelin throw are responsible for injuries peculiar to this event. The text sums up common javelin injuries and provides a selection of conditioning exercises that can be used to reduce the risk. As common injuries the author describes, for example, injuries that occur in both knee and ankles especially in the delivery phase. Injuries occur in the adductors, iliopsoas and abdominal muscles especially after crossover drills or a hard throwing session. Stress injuries also occur to the lower back as the hips are driven forward - the back is forced into hyperextension as the hip and shoulder axis are separated. As most common injuries the authors identifies the rotator cuff where tendons are impinged due to several external rotations causing inflammation and swelling at the top and front of the shoulder. In the following, the authors identify injury sites and specific conditioning methods for ankle, knee/hip, groin, shoulder, elbow and back. The article is based on an extract from the author’s Level III dissertation under the Australian Track and Field Coaches Association’s National Coaching Accreditation Scheme.