



**BIOMECHANIK DER SPORTARTEN
BAND 1: BIOMECHANIK
DER LEICHTATHLETIK
(Biomechanics of Track and
Field Athletics)**

**Rainer Ballreich and Angela Kuhlow
(Herausgeber)**

Biomechanics is one of the sport-scientific disciplines which has become more and more important during the last years as a training and competition accompanying diagnostic measure. The I.A.A.F. followed this trend by carrying out a biomechanical project of measurements and fast information during the 1st World Junior Championships in Athens, Greece 1986 (see NSA N. 2/1986, p. 136).

Biomechanics is a sport-scientific discipline that has to give hints for the practice of training. For the future the main target is also to close the gap be-

tween theory and practice. This is true of the level of communication between scientist and coach, as well as of the transfer of the biomechanical results to the coaches working with athletes. The authors and editors of this book tried to solve these problems in order to address as many readers as possible: coaches, athletes, sport physicians and sport scientists.

The mentioned events are treated in a uniform way and many specific trainings hints are added. Results of the research carried out during the last years on German and international top performers are presented and discussed.

The editors brought together the large experience of specialists on the different events from various biomechanical institutes (Institut für Sportwissenschaften der Universität Frankfurt, Institut für Biomechanik der Deutschen Sporthochschule Köln, Institut für Leichtathletik und Turnen der Deutschen Sporthochschule Köln) of the Federal Republic of Germany, cooperating with the Deutscher Leichtathletik-Verband.

Contents of the book:

Sprint - Biomechanics of the Sprint: posing the problem; general characteristics of the sprint: progress of speed, intermediate times, characteristics of stride; characteristics of selected passages of the sprint: start, cinematographic and kinetics of stride, the stride during the phase of maximum speed; literature.

Biomechanics of Hurdling (100 m and 110 m): posing the problem; general characteristics of hurdling: intermediate times, progress of speed; characteristics of selected passages of the hurdles: the run between the

hurdles, length of stride, progress of speed and support forces, clearing the hurdle: cinematographic and dynamics; literature.

Jumps - Biomechanics of the Long Jump: introduction; approach, acceleration, preparation phase for the takeoff; takeoff; flight, preparation of landing; landing phase; example of an individual biomechanical diagnosis of technical and/or condition deficits; literature.

Biomechanics of the High Jump: introduction; (bio)mechanic basics: approach, takeoff; practical hints for training: approach, takeoff and flight; literature.

Biomechanics of the Triple Jump: introduction; partition of the length of hop, step and jump; approach: acceleration, preparatory phase for the takeoff, practical hints for training; the hop: takeoff and flight phase; the step: takeoff and flight phase; the jump: takeoff and flight phase, landing; practical hints for training of hop, step and jump; literature.

Biomechanics of the Pole Vault: introduction; phases of the event; ap-

proach: acceleration, phase of preparation of the plant, practical hints for training; takeoff with practical hints for training; phase on the pole with practical hints for training; clearing the bar with practical hints for training; literature.

Throws - Biomechanics of the Shot Put: introduction; complex biomechanical influence magnitudes; practical hints for training; technique of the glide; shot path; development of speed of the shot; different phases of the whole movement; practical hints for training; comparison of glide-technique and rotation-technique; literature.

Biomechanics of the Javelin Throw: See the translated chapter in this issue of NSA.

A second edition later on will have the other events not included in this book such as Middle and Long Distance, Steeple, Discus and Hammer.

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