

# 田径运动技术

北京体育大学出版社

## 英汉双语教程

孙南 马元康 编著

THE TECHNIQUES OF ATHLETICS

*IAAF RDC · Beijing Supporting Project*

国际田联地区发展中心·北京资助项目

# **The Techniques of Athletics**

**English-Chinese Bilingual Textbook**

## **田径运动技术——英汉双语教程**

**孙 南 马元康 主编**

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**北京体育大学出版社**

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## 致 辞



中国国家教育部提出：高等院校的专业课要逐步实行双语教学。为响应这一精神，国际田联地区发展中心·北京（IAAF RDC·Beijing）组织编撰了这本英汉田径运动技术双语教程。这是一件很有意义的事情，它不仅对体育院校的学生学习田径专业英语将起到积极的作用，同时也为以后推出更理想的英汉田径教程有所铺垫。我衷心希望通过这一努力会使更多的人更有效地参与国际田径事务的交流，为田径运动的发展作出更积极的贡献。

国际田联副主席 楼大鹏

2003年6月18日

### MESSAGE



The Chinese Ministry of Education has advocated that in the universities and superior education institutions gradually all the professional courses should be taught in dual language. In order to follow this spirit, the IAAF Regional Development Centre · Beijing has edited this athletics technical teaching material in dual language, Chinese and English. This is a very meaningful effort, it will not only be helpful to the students majoring in athletics in the universities and colleges of physical education in learning English, but also pave the way for even better athletics teaching material in Chinese and English in the future. I sincerely hope this work will encourage more people to be actively involved in this exchange of knowledge in international athletics and contribute to the further development of this sport.

LOU Dapeng

Vice President, IAAF

18 June, 2003

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# 序

双语教学不是什么新鲜事，自国人学习外语以来，采用的就是双语教学，母语与所学外语。然而，时间进入21世纪，人们提及的双语教学已不再仅仅是用于外语学习，而是扩展到了专业课程的学习。这里所指的双语大都具体指中文与英文。

大凡学生入校后都要花极大的精力学习英语，不少有识之士曾呼吁不要把大学的专业学习变成了英语学习。的确，随着经济全球化的进程，英语的作用愈加重要。然而，需要弄清楚的是，熟练掌握英语是为了帮助我们学习欧美的现代科技，帮助我们理解不同文化的同时使我们的文化被世人了解。因此，学习英语也就不是单单掌握语言的问题，而是必须把语言的掌握与专业知识的学习相结合。只有这种结合才能加速“面向现代化、面向世界、面向未来”人才的培养。专业课程的双语教学正是这种结合的具体体现。

体育是一种超越种族、超越地域的全球文化现象，相互理解是体育竞赛得以顺利进行的第一步。在多数国际体育组织以英语作为正式语言的背景下，要适应经济全球化、科技革命及2008年北京奥运会的挑战，就必须用英语掌握专业知识与技术。这就是为什么北京体育大学要积极创造条件使用英语进行部分课程的双语教学。

随着体育实践的发展和科学技术的进步，体育科学体系逐步完善和建立起来。在我国，体育学已成为博士学位授予的一级学科，已列为社会科学研究基金一级学科。在教育部本科专业目录体育学下就设立了体育教育、运动训练、社会体育、运动人体科学、民族传统体育5个专业，在体育学博士学位一级学科下设有体育教育训练学、体育人文社会科学、运动人体科学、民族传统体育学4个二级学科。在这样庞大的体系中要挑选出适合双语教学的课程绝非易事。要双语教学就必须有双语教材。北京体育大学从双语教材入手，艰苦准备，精选内容，严挑人员，组织策划出版了体育专业中英文双语教材系列。

这套系列教材，将面对21世纪的体育进行较深入的探讨。每本教材的作者既是相应课程和学科的专家，又精通英文。在本套教材的编写中我们要求作者语言通俗、生动、鲜明、准确、精炼，符合中英文两种语言各自的特点。当然限于水平，也是第一次尝试，本系列教材不尽如人意的地方在所难免，还希望读者和学界朋友提出批评和指正。

在本教材系列付梓的时候，我们要特别感谢北京体育大学出版社的领导和编辑，这套教材系列得以和读者见面，是和他们的努力分不开的。

钟秉枢

北京体育大学教学指导与教材建设委员会主任委员

2003年4月26日

## Foreword

Bilingual teaching is rarely a new approach. It has been adopted in the teaching of foreign languages. Yet, it is a recent innovation to teach major curriculum subjects in both English and Chinese in the universities in China.

It is noticeable that students often spend a certain amount of time in learning English from the day of being admitted into the colleges. Some people have even voiced warnings about too much emphasis on foreign languages, English in particular. This is partly true. However, due to the development of economic globalization in the last decade, English has become increasingly important. It is the global language of the twenty-first century. Arguably, using English as a means of communication, we can learn modern science and technology from the advanced Western countries, such as America and Britain. Thus, it is essential to combine language study with major subjects' programs in order to produce speedily the modern universalistic and future-oriented talents.

English is not just language itself. It reflects to some extent the Western cultures. Therefore, proficiency in English can help promote cultural exchanges between nations. Making our own culture better understood while trying to understand others is the first step for peaceful co-existence of the world. Sport, as a cultural product, can transcend the racial and geological boundaries between nations.

Given English is used as an official language in most international sports organizations, ignorance in English can cause confusion and misunderstandings. Therefore, to get acquaintance with the international norms and practices needs English; to keep up with the economic progress and the globalization of sport needs English; to face the challenge arising from hosting the 2008 Olympic Games also needs English. For the above reasons, Beijing Sport University has made tremendous effort to provide students with bilingual courses for some curriculum subjects.

With the advancement of science and technology, and the evolution of sport, sports science has gradually systemized in the country. It has acquired such a status as math, physics and many others of first-level academic discipline, with the right to award doctorate. Sport comprises many sub-disciplines such as physical education, sports coaching, society-oriented sport, sports science and traditional Chinese sport. It is clear without saying that it is extremely difficult to identify the courses suitable for bilingual teaching from the vast modules. Such courses require the right textbooks. After time-consuming preparation, including constructing the framework of the series and its contents, and choosing the right and capable writers, the University finally presents the series of English-Chinese textbooks, including Sports Medicine, Sports Injury, Sports Management, Sports Psychology and others to sports students.

This series explores from different perspectives the issues facing the 21<sup>st</sup> century sport. The authors involved are specialists of their own academic fields. Of course, due to limited abilities and inexperience, some errors and unsatisfactory places could be found in the textbooks. Criticism and corrections are welcome from our readers and academic friends.

Finally, we own a great deal to the officials and the editor of Beijing Sport University Press. Their hard work makes the publication of the series a reality.

Prof. & Dr. Bingshu Zhong  
Chairman, Teaching Instruction and Textbook Commission  
Beijing Sport University  
26 April, 2003

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## 编辑的话

本书为国际田联地区发展中心·北京资助项目。

国际田联地区发展中心·北京自1994年成立以来,始终重视田径文化的推广工作,已经正式或非正式资助出版了《田径教练员理论入门》、《国际田联运动医学手册》、《高水平田径运动员技术挂图》、《世界田径技术大全》等一批田径专业资料,为田径运动的发展作出了应有的贡献。

为配合实施双语教学,满足师生了解国际田径技术最新发展动态的要求,扩大田径界尤其是国内体育院校间学术交流,特此组织有关单位,在国际田联原版教材的基础上,共同编写完成了这本《田径运动技术——英汉双语教程》。根据教学的实际需要,对原有内容作了部分调整,增加了田径常用词汇表。

本书分为起跑、短跑、接力跑、跨栏跑、中长跑、障碍跑、竞走、推铅球、掷标枪、掷链球、跳远、跳高、三级跳远、撑竿跳高和英汉田径常用词汇表共十五个板块。

本书是我国第一本体育运动技术专项双语教材,它的出版的意义可能已超出了它的本身。国家体育总局田径运动管理中心、国际田联地区发展中心·北京、北京体育大学、首都体育学院、沈阳体育学院、武汉体育学院、上海体育学院、西安体育学院、成都体育学院、天津体育学院、广州体育学院、解放军体育学院、山东体育学院、河南师范大学体育学院、山西大学体育学院、淮北煤炭师范学院、广东湛江师范学院等参加了编委会的组织工作。

本书不但可以作为体育院系普修课《田径》双语教材,同时也可作为体育各专业公共英语阅读辅助教材。

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# START

## 1. General Characteristics

The primary goal of the start in sprint, short relay and hurdle races is to optimise the pattern of acceleration. The athlete must overcome inertia by applying maximum force against the blocks as soon as possible after the gun and move into an optimum position for the acceleration phase of the race. The quality of a sprinter's start cannot be fully judged until the result of the acceleration phase of the race is taken into account. This inexorable link between the starting action and the acceleration phase means that the technique training for the two is always coupled.

The most obvious keys to a good start are quick reaction to the gun and rapid, effective application of the athlete's muscular strength. This calls for aspects of speed, co-ordination and strength as outlined below.

Speed	Co-ordination	Strength/Power
Reaction Speed	+ Sense of Balance	+ Maximum Strength
Contraction Speed	Concentration	Explosive Strength
Action Speed	Vestibular Sense	Leg Extension Strength
Acyclic Movement Speed	Relaxation	Arm Support Strength
		Trunk Extension Strength

Though sometimes overlooked, the ability to co-ordinate the nervous system and the mechanical action of the muscles, turning the muscles on and off to obtain the proper contraction-relaxation sequence, is also of great importance to starting well.

The use of starting blocks and a crouch start greatly increase the speed of a sprinter's start. On the one hand, the blocks enable the application of greater force than is possible against the flat ground. Indeed, prior to the introduction of blocks, sprinters would dig small holes in the cinders of the track so that they could push against the back of the holes. The crouch start, on the other hand, allows an appropriate placement of the centre of gravity in the "Set" position, thereby increasing the effectiveness of the force the sprinter is able to apply.

## 2. Technique

### 2.1 Overview

A good start features the following characteristics:

- Complete concentration and elimination of all external distractions in the “On Your Marks” position.

- Adoption of an appropriate posture in the “Set” position.

- An explosive drive by both legs from the blocks, at an optimal starting angle.

The technique used for starting must ensure that the greatest possible power can be generated by the athlete as close as possible to the optimum starting angle of  $45^\circ$ . After the fastest possible reaction, there should be a rapid acceleration of the centre of gravity and the first strides must lead to the maximum possible increase in running velocity.

### 2.2 Block Placement

Three variations of the crouch start are determined by the location of the blocks relative to the starting line:

- The bunch start.
- The medium start.
- The elongated start.

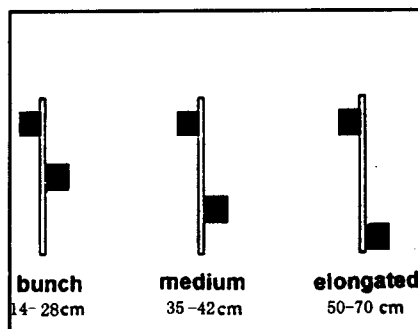


Fig.1: Location of the blocks

The medium start is generally recommended as it allows the athlete to apply force for a longer period than the elongated start (resulting in higher velocity) but does not demand as much strength as the bunch start. An examination of the crouch start technique can therefore begin with the medium start.

## 2.3 The Start Commands

### “On Your Marks”

As the sprinter assumes the initial or “On Your Marks” position, the strongest, and often the most agile leg is placed against the sloping support surface of the front block. The hands are placed behind the starting line and support the body. The rear foot is placed on the upright surface of the back block. The eyes should look forward along the ground. The neck is relaxed, the head in line with the trunk (Fig.2).

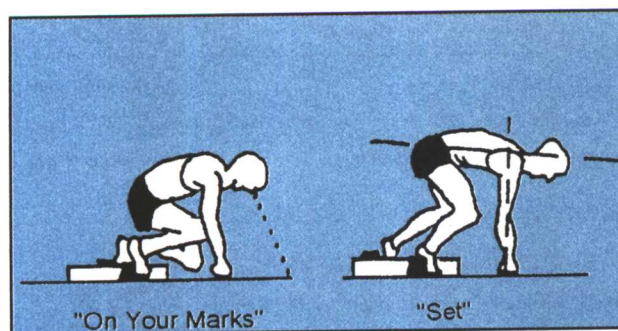


Fig.2: Head and trunk position

### “Set”

At the command, the body weight is moved forwards and upwards as the result of an active movement of the legs to the blocks until it is supported by the hands and legs. The feet have full contact with the block surfaces. The hips are somewhat higher than the shoulders. The front leg forms a suitable working angle of about  $90^\circ$ , the rear leg an angle of about  $110-130^\circ$ . The extension of the legs held by the contact of the feet with the blocks enables the pre-tensing of the leg muscles necessary for an explosive start.

### “Go”

Once the starting gun is fired the starting action is initiated by an explosive and almost simultaneous push by both the legs and the arms. It is important that the extension force of the front leg works optimally on the centre of gravity driving the body from the blocks. The back leg and upper body should form a straight line, which in turn forms an angle of about  $42-45^\circ$  with the track surface. A vigorous, active rear swing of the elbows supports the starting action and an active forward swing of the rear leg lead by the knee facilitates a quick first step.

In the first two strides, the feet contact the ground behind the vertical projection of the centre of gravity and there is a pronounced forward lean of the body. In the subsequent strides the feet are placed below the vertical projection of the centre of gravity, allowing quick/short ground contacts, and the body gradually straightens to reach “tall posture” at about 20–35 m.

Table 1: Comparison of Crouch Start Variations

Start Position	Starting blocks /Legs	Angle of Block (°)	Angle of leg in "Set" Position	Distance from start line in foot-lengths
Bunch	front	45 - 55	60 - 70	2.5 - 2.75
	rear	75 - 80	100 - 120	3 - 3.25
Medium	front	45 - 55	80 - 90	1.75 - 2
	rear	75 - 80	120 - 130	3 - 3.35
Elongated	front	45 - 55	90 - 100	2 - 2.5
	rear	75 - 80	140 - 150	4 - 4.5
Start Position	Posture in "Set" Position		Posture Running out of Blocks	
Bunch	Bodyweight rests too much on arms and hands; hips not raised sufficiently.		Extension line very low at start, pronounced forward body lean, short, almost stumbling strides which cover little ground. Low initial acceleration.	
Medium	Bodyweight well-distributed over feet and hands; adequate "working angle" of the front leg; hips well raised.		Extension line of about 45° at start, optimal body lean; strides cover more ground due to appropriate position of centre of gravity. Good initial acceleration.	
Elongated	Bodyweight rest too much on legs; both legs too straight.		Extension line at start too steep; body becomes upright too soon after start. Low initial acceleration.	