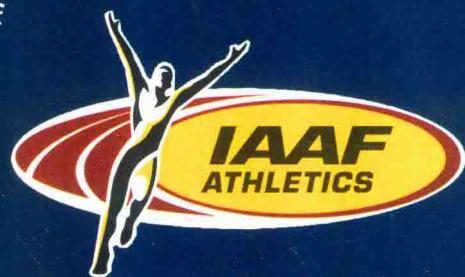


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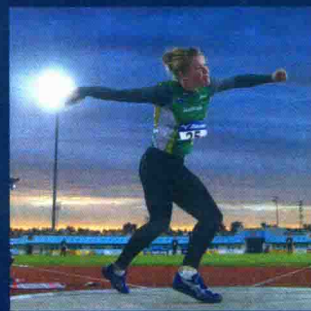
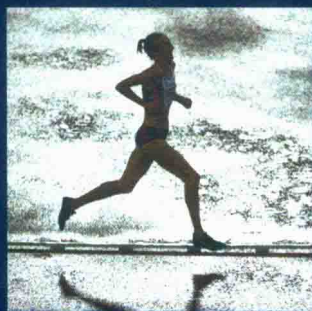
中 - 英文版

Chinese-English Edition

# 跑 RUN! 跳 JUMP! 投 THROW!

张英波 孙 南 译

Translated by: Yingbo ZHANG & Nan SUN



国际田联田径运动教学  
官方正式指导书

*The Official IAAF Guide  
to Teaching Athletics*

国际田联教练员培训和认证系统

IAAF Coaches Education and Certification System

国际田联地区发展中心 · 北京

北京体育大学出版社

IAAF RDC · Beijing

Beijing Sport University Press

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## 主席致辞

我非常高兴地迎接最新版《跑！跳！投！》- 国际田联田径运动教学官方正式指导书的出版。我相信这本已经对田径运动提供了良好服务的书,将以更加新颖、现代、简洁和实用的方式,产生非常积极的影响。

显然,在所有国家合格教练员们的工作,对于田径运动的发展极其重要。在学校、俱乐部和其它当地组织中的教练员们,在运动员选材、激发动机和培养过程中的工作,对于那些将要成为冠军的运动员发挥着关键作用。出于这个原因,自从 1980 年以来,对于教练员的培训一直是国际田联发展计划中一个重要和不间断的目标。

我要感谢主要作者们所奉献的经验、投入和辛勤工作,我还要感谢全世界的专家和顾问们对于这个重要出版物,以及我们的总体计划所作出的贡献。

最后,我要向会员协会服务部,以及为国际田联教练员培训和认证系统的成功作出贡献的所有讲师和教练员们,表达我的感激之情。



拉明·迪亚克,国际田联主席

## 前言

撰写本书的最初原因是满足教练员培训活动中讲师们的需要,在一次又一次地培训新教练员时都需要这本书,但当他们要寻找这本书时却常常空手而归。

另外,许多体育运动专业的学生也迫切希望得到一个简洁、可以随身携带,并可在学校和运动场地使用的田径运动技术指导书。随着教练员们不断获得经验,他们也认识到一本便于使用的参考书是无价之宝,在教授一个运动项目之前,能够针对他们也许以往不太了解的一些基本知识和方法进行快速阅读。

国际田联发展计划和教练员培训和认证系统(CECS)为满足这个需求,在 1991 年出版了《田径运动技术和教学步骤》。教练员们感到这本书的问世,标志着在正确方向上向前迈出了一大步,并且它被国际田联所有一级讲师们使用。本书的作者们,得到了全世界许多专家的支持,将最初的出版内容进行了更新,制作出现在您手中的这本《跑！跳！投！》。

在这本最新版书中,查尔斯·高佐利(Charles Gozzoli)通过在正文中加入连续技术图片,结合传统的线条插图,使本书“活灵活现”;彼得·汤普森(Peter Thompson)编辑和更新了材料,加入了文本框“教练员应该…”、“帮助运动员做到…”,以及“教学步骤”和“提示”。

国际田联的目的是为教练员们提供他们所需要的,以及作者们所认为新颖的、全世界有经验的教练员们希望得到的足够指导,使他们能够在工作中得以采用,并且可以边做边学。《跑！跳！投！》恰恰以清晰和对读者友善的方式满足了这种需要。现在当你要寻找这样一本书时,它就能够迎候你了。

编写《跑！跳！投！》的工作,起始于正确教授和完善田径运动技术的前提需要,教练员需要以下四个方面的内容:

- 理解专项教学的要点
- 为运动员们提供他们希望获得的技术模式
- 提高自我分析运动技术的能力
- 通过活动计划培养运动员学习和掌握理想技术

《跑！跳！投！》分为三个主要部分,每个部分包含一个项类,并构成其标题。各个主要部分以该项类基础知识的简介开始,它们包括了基本理论、共同目标、关键生物力学原理、阶段结构概述、基本练习、教学提示,以及帮助开始学习该项类中项目所要求技能的游戏示例等方面最为重要的观点。跑的项目部分也特别说明了中长跑训练的简要概述。

每个部分的内容还包含该项类项目的视觉描述。它们以完整技术动作序列的概观开始,然后技术模式被分解成各个组成部分或阶段,它们在同一页中以阶段目的和关键技术特征的形式被呈现出来,以利于教练员观察和控制。此外,文本框还提供了教练员应该做到的一些主要要点,以及他们应该怎样帮助运动员达到这些要求。我们相信这种形式在教练文献中是独特的,具有任何经验水平的教练员们都会发现,他们能够将这些信息方便地运用于实践。

紧接每个技术模式的就是教学步骤,帮助初学者在教练员指导下学习运动项目。另外,除了视觉信息,与帮助练习的“提示”一起,还提供了每个步骤的目的和其它要点。

作者们意识到一些项目的动作阶段划分和教学步骤可能会引起争议,国际田联并不想暗示所提供的某些

内容都是唯一正确的选择。然而,被选择出来的那些合理和规范的模式,为教练员们提供了有价值 and 能够立即安全有效采用的工具。我们认为,这比在没有指导的情况下,让他们再进行费时和无计划地作出他们自己的技术模式要好得多。如果当有经验的教练员发现,需要对于一个项目发展出一个新的分析方法或教学步骤时,我们希望我们在这里提供的内容将被视为一个起始点。

最后,国际田联感激地欢迎任何有助于提高这本书将来出版水平的建议。这些建议应该直接提供给位于摩纳哥国际田联总部的会员协会服务部:17 rue Princesse Florestine, BP 359, MC98007 Monaco。

## 致 谢

在全世界许多专家和同事的工作和协助下,使本书的完成过程更加容易了。国际田联特别要感谢下列专家宝贵的领导和编写工作:

哈罗德·穆勒(Harald Müller,德国)、沃尔夫冈·瑞兹道夫(Wolfgang Ritzdorf,德国)、彼得·汤普森(Peter Thompson,英国)、查尔斯·高佐利(Charles Gozzoli,法国)。

另外,按照字母顺序,而不是按贡献,向以下人员表示感谢:

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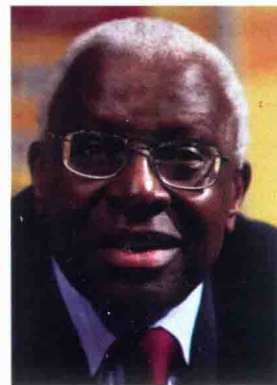
## PRESIDENT'S MESSAGE

I am very pleased to welcome the publication of the latest edition of 'Run! Jump! Throw!' – the official IAAF guide to teaching athletics. I am convinced that this book, which has already served the sport well, will have a very positive impact in this new, updated and simplified practical format.

It is evident that the work of qualified coaches is vital for the development of athletics in all countries. It is also clear that the coach working in schools, clubs and other local organisations plays a key role in the identification, motivation and development of those athletes who go on to become champions. For this reason, the education of coaches has been an important and ongoing goal of the Development Programme of the IAAF since 1980.

I would like to thank the main authors for their experienced input and conscientious work. I also would like to thank the specialists and consultants from all over the world for their contribution to this important publication and to the whole programme in general.

Finally, I would like to express my gratitude to the Member Services Department as well as the lecturers and the coaches for their contribution to the success of the IAAF Coaches Education and Certification System.



Lamine Diack, IAAF President

## FOREWORD

This book was originally written because time and time again the coach-lecturers who were educating new coaches needed it. But, when they searched for such a book they came up empty-handed.

In addition, many sports students desperately want a simple guide to the techniques of athletics that they can take out and use in schools and on the training track. As coaches gain experience they know that an easy-to-use reference would be invaluable as a quick review of the basics before coaching an event which they had perhaps been away from for a while.

The IAAF Development Programme and the Coaches Education and Certification System (CECS) in 1991 produced the publication entitled *Techniques of Athletics and Teaching Progressions* to fill this need. Coaches felt that this book was a big step in the right direction and it was used by all IAAF Level I Lecturers. The authors of this text, with the support of many experts from around the world, have updated the original publications to produce *Run! Jump! Throw!*, the book you are now holding.

In this most recent version, Charles Gozzoli has 'brought the book to life' by adding photograph sequences to accompany the old line drawings and for the text, Peter Thompson has edited and updated the material, adding the text boxes for 'Coaches should...', 'Help athletes to...' and the teaching progressions' 'Tips'.

The IAAF's aim is to provide what coaches need and what the contributors believe new and experienced coaches around the world want – enough guidance to allow them to get on with their work and learn by doing. *Run! Jump! Throw!* does just that in a clear, user-friendly format. Now, when you search for such a book, it will be there.

Work on the contents of *Run! Jump! Throw!* started from the premise that to teach and refine athletic technique properly coaches need the following four things:

- An understanding of the key points for teaching and learning the event
- A technical model for their athletes to emulate
- The ability to analyse technique themselves
- A programme of activities through which their athletes can learn and develop the desired technique.

*Run! Jump! Throw!* is divided into three main sections, each covering one of the event groups which make up the title. The main sections start with a very brief review of the fundamentals of the event group. These include the most important points of basic theory – the common aims, the key biomechanical principles and an overview of the phase structures – the basic exercises, teaching tips and examples of games which help to introduce the skills demanded by the events in the group. The running events section also features a brief overview of training for middle and long distance running.

The bulk of each section is taken up by visual descriptions of the techniques of the events in the group. These start with an overview of the whole sequence. Then the models are broken down into constituent parts or phases, each of which is presented on the same page as the objectives of the phase and key technical characteristics for the coach to observe and control. Additionally, text boxes provide some of the principal points the coaches should act on, and what they should be helping athletes to achieve. We believe that this format is unique in coaching literature and that coaches of all experience levels will find it easy to apply the information in practice.

Each technical model is followed immediately by a teaching progression of steps by which a beginner, guided by the coach, can learn the event. Again, in addition to visual information, the objective of each step and other key points are given, along with 'Tips' to assist practice.

The authors are aware that the phase breakdown and the teaching progressions of some events might be contentious and the IAAF does not mean to imply that those that are presented are the only ones that are correct. However, the reasonable and orthodox models that have been selected give coaches valuable tools that they can work with immediately, effectively and safely. This, in our opinion, is far better than leaving them to the time consuming and haphazard task of creating their own models, unguided. If and when an experienced coach finds the need to develop a new analysis or teaching steps for an event, we hope that what we have presented here will be seen as a starting point.

Finally, the IAAF gratefully welcome any comments which might help to improve future editions of this book. These should be directed to the Member Services Department at the IAAF Headquarters, 17 rue Princesse Florestine, BP 359, MC98007 Monaco.

## ACKNOWLEDGEMENTS

The completion of this book was made easier by the work and assistance of a great many expert colleagues around the world. In particular, the IAAF would like to acknowledge the valuable leadership and authorship of: Harald Müller (GER), Wolfgang Ritzdorf (GER), Peter Thompson (GBR), Charles Gozzoli (FRA).

Additionally, acknowledgement is made, in alphabetical order and not in order of contribution, of the following individuals:

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# 跑！ 跳！ 投！

国际田联田径运动教学官方正式指导书



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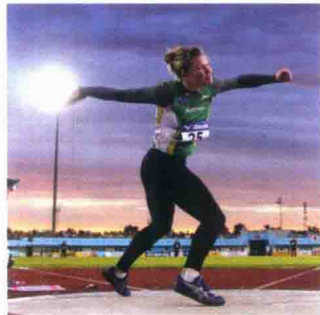
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# RUN! JUMP! THROW!

*The Official IAAF Guide to Teaching Athletics*



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## 主席致辞

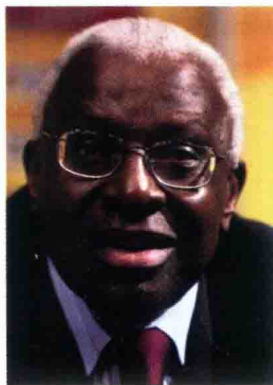
我非常高兴地迎接最新版《跑!跳!投!》-国际田联田径运动教学官方正式指导书的出版。我相信这本已经对田径运动提供了良好服务的书,将以更加新颖、现代、简洁和实用的方式,产生非常积极的影响。

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拉明·迪亚克,国际田联主席



## 前言

撰写本书的最初原因是满足教练员培训活动中讲师们的需要,在一次又一次地培训新教练员时都需要这本书,但当他们要寻找这本书时却常常空手而归。

另外,许多体育运动专业的学生也迫切希望得到一个简洁、可以随身携带,并可在学校和运动场地使用的田径运动技术指导书。随着教练员们不断获得经验,他们也认识到一本便于使用的参考书是无价之宝,在教授一个运动项目之前,能够针对他们也许以往不太了解的一些基本知识和方法进行快速阅读。

国际田联发展计划和教练员培训和认证系统(CECS)为满足这个需求,在1991年出版了《田径运动技术和教学步骤》。教练员们感到这本书的问世,标志着在正确方向上向前迈出了一大步,并且它被国际田联所有一级讲师们使用。本书的作者们,得到了全世界许多专家的支持,将最初的出版内容进行了更新,制作出现在您手中的这本《跑!跳!投!》。

在这本最新版书中,查尔斯·高佐利(Charles Gozzoli)通过在正文中加入连续技术图片,结合传统的线条插图,使本书“活灵活现”;彼得·汤普森(Peter Thompson)编辑和更新了材料,加入了文本框“教练员应该…”、“帮助运动员做到…”,以及“教学步骤”和“提示”。

国际田联的目的是为教练员们提供他们所需要的,以及作者们所认为新颖的、全世界有经验的教练员们希望得到的足够指导,使他们能够在工作中得以采用,并且可以边做边学。《跑!跳!投!》恰恰以清晰和对读者友善的方式满足了这种需要。现在当你要寻找这样一本书时,它就能够迎候你了。

编写《跑!跳!投!》的工作,起始于正确教授和完善田径运动技术的前提需要,教练员需要以下四个方面的内容:

- 理解专项教学的要点
- 为运动员们提供他们希望获得的技术模式
- 提高自我分析运动技术的能力
- 通过活动计划培养运动员学习和掌握理想技术

《跑!跳!投!》分为三个主要部分,每个部分包含一个项类,并构成其标题。各个主要部分以该项类基础知识的简介开始,它们包括了基本理论、共同目标、关键生物力学原理、阶段结构概述、基本练习、教学提示,以及帮助开始学习该项类中项目所要求技能的游戏示例等方面最为重要的观点。跑的项目部分也特别说明了中长跑训练的简要概述。

每个部分的内容还包含该项类项目的视觉描述。它们以完整技术动作序列的概观开始,然后技术模式被分解成各个组成部分或阶段,它们在同一页中以阶段目的和关键技术特征的形式被呈现出来,以利于教练员观察和控制。此外,文本框还提供了教练员应该做到的一些主要要点,以及他们应该怎样帮助运动员达到这些要求。我们相信这种形式在教练文献中是独特的,具有任何经验水平的教练员们都会发现,他们能够将这些信息方便地运用于实践。

紧接每个技术模式的就是教学步骤,帮助初学者在教练员指导下学习运动项目。另外,除了视觉信息,与帮助练习的“提示”一起,还提供了每个步骤的目的和其它要点。

作者们意识到一些项目的动作阶段划分和教学步骤可能会引起争议,国际田联并不想暗示所提供的那些



内容都是唯一正确的选择。然而,被选择出来的那些合理和规范的模式,为教练员们提供了有价值 and 能够立即安全有效采用的工具。我们认为,这比在没有指导的情况下,让他们再进行费时和无计划地作出他们自己的技术模式要好得多。如果当有经验的教练员发现,需要对于一个项目发展出一个新的分析方法或教学步骤时,我们希望我们在这里提供的内容将被视为一个起始点。

最后,国际田联感激地欢迎任何有助于提高这本书将来出版水平的建议。这些建议应该直接提供给位于摩纳哥国际田联总部的会员协会服务部:17 rue Princesse Florestine, BP 359, MC98007 Monaco。

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## PRESIDENT'S MESSAGE

I am very pleased to welcome the publication of the latest edition of 'Run! Jump! Throw!' – the official IAAF guide to teaching athletics. I am convinced that this book, which has already served the sport well, will have a very positive impact in this new, updated and simplified practical format.

It is evident that the work of qualified coaches is vital for the development of athletics in all countries. It is also clear that the coach working in schools, clubs and other local organisations plays a key role in the identification, motivation and development of those athletes who go on to become champions. For this reason, the education of coaches has been an important and ongoing goal of the Development Programme of the IAAF since 1980.

I would like to thank the main authors for their experienced input and conscientious work. I also would like to thank the specialists and consultants from all over the world for their contribution to this important publication and to the whole programme in general.

Finally, I would like to express my gratitude to the Member Services Department as well as the lecturers and the coaches for their contribution to the success of the IAAF Coaches Education and Certification System.

Lamine Diack, IAAF President



## FOREWORD

This book was originally written because time and time again the coach-lecturers who were educating new coaches needed it. But, when they searched for such a book they came up empty-handed.

In addition, many sports students desperately want a simple guide to the techniques of athletics that they can take out and use in schools and on the training track. As coaches gain experience they know that an easy-to-use reference would be invaluable as a quick review of the basics before coaching an event which they had perhaps been away from for a while.

The IAAF Development Programme and the Coaches Education and Certification System (CECS) in 1991 produced the publication entitled Techniques of Athletics and Teaching Progressions to fill this need. Coaches felt that this book was a big step in the right direction and it was used by all IAAF Level I Lecturers. The authors of this text, with the support of many experts from around the world, have updated the original publications to produce Run! Jump! Throw! , the book you are now holding.

In this most recent version, Charles Gozzoli has 'brought the book to life' by adding photograph sequences to accompany the old line drawings and for the text, Peter Thompson has edited and updated the material, adding the text boxes for 'Coaches should...', 'Help athletes to...' and the teaching progressions' 'Tips'.

The IAAF's aim is to provide what coaches need and what the contributors believe new and experienced coaches around the world want – enough guidance to allow them to get on with their work and learn by doing. Run! Jump! Throw! does just that in a clear, user-friendly format. Now, when you search for such a book, it will be there.

Work on the contents of Run! Jump! Throw! started from the premise that to teach and refine athletic technique properly coaches need the following four things:

- An understanding of the key points for teaching and learning the event
- A technical model for their athletes to emulate
- The ability to analyse technique themselves
- A programme of activities through which their athletes can learn and develop the desired technique.



*Run! Jump! Throw!* is divided into three main sections, each covering one of the event groups which make up the title. The main sections start with a very brief review of the fundamentals of the event group. These include the most important points of basic theory – the common aims, the key biomechanical principles and an overview of the phase structures – the basic exercises, teaching tips and examples of games which help to introduce the skills demanded by the events in the group. The running events section also features a brief overview of training for middle and long distance running.

The bulk of each section is taken up by visual descriptions of the techniques of the events in the group. These start with an overview of the whole sequence. Then the models are broken down into constituent parts or phases, each of which is presented on the same page as the objectives of the phase and key technical characteristics for the coach to observe and control. Additionally, text boxes provide some of the principal points the coaches should act on, and what they should be helping athletes to achieve. We believe that this format is unique in coaching literature and that coaches of all experience levels will find it easy to apply the information in practice.

Each technical model is followed immediately by a teaching progression of steps by which a beginner, guided by the coach, can learn the event. Again, in addition to visual information, the objective of each step and other key points are given, along with 'Tips' to assist practice.

The authors are aware that the phase breakdown and the teaching progressions of some events might be contentious and the IAAF does not mean to imply that those that are presented are the only ones that are correct. However, the reasonable and orthodox models that have been selected give coaches valuable tools that they can work with immediately, effectively and safely. This, in our opinion, is far better than leaving them to the time consuming and haphazard task of creating their own models, unguided. If and when an experienced coach finds the need to develop a new analysis or teaching steps for an event, we hope that what we have presented here will be seen as a starting point.

Finally, the IAAF gratefully welcome any comments which might help to improve future editions of this book. These should be directed to the Member Services Department at the IAAF Headquarters, 17 rue Princesse Florestine, BP 359, MC98007 Monaco.

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跑！  
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国际田联教练员培训和认证系统  
IAAF Coaches Education and Certification System





# 跑的基础

## FUNDAMENTALS OF RUNNING

### 1、介绍

#### 1. INTRODUCTION

跑的项目有时被描述成非技术性的,主要是因为把跑与撑竿跳高或掷链球相比较时,跑是显得相对简单的自然活动。然而,任何跑的项目都并不简单。跑的比赛距离决定了速度和耐力的相对重要性,短跑中的蹲踞式起跑、接力跑中的交接棒、跨栏跑和障碍跑中栏架的存在,都使运动员必须做好准备来达到这些技术要求。

The running events are sometimes described as non-technical, mainly because running is a natural activity which appears relatively simple when compared to the Pole Vault or the Hammer Throw. However, there is nothing simple about any of the running events. The relative emphasis of speed and endurance dictated by the distance of the race, the crouch start in the sprints, the exchanges in the relays and the presence of barriers in the hurdling and steeplechase races all make technical demands for which athletes must be prepared.

注:出于本书的目的,把竞走与跑的项目内容编辑在一起。当然,竞走的规则和技术有很大不同,对于这些差异的详细说明请见竞走部分。

**Note:** For the purpose of this book, Race Walking has been grouped together with the running events. The rules and technique of Race Walking are, of course, very different and a detailed explanation of these differences is given in the Race Walking section.

#### 目的

所有跑的项目的基本目的,是在比赛过程中达到最大的平均跑速。为了在短跑项目中达到这个目的,运动员必须集中注意力于达到和保持最大速度。在跨栏跑项目中,中心任务是相同的,还加上了跨越栏架的要求。在更长距离的项目中,其要点是需要做到最佳的体力分配。

#### Aims

The fundamental goal in all running events is to maximise average running speed over the course of the race. To achieve this aim in the sprint events the athlete must focus on reaching and maintaining maximum velocity. In the hurdle events the focus is the same with the added requirement of clearing the hurdles. In the longer events optimising the distribution of effort is of primary importance.

#### 生物力学因素

运动员跑进速度取决于步长和步频。适宜的步长在很大程度上取决于运动员的体能特征,以及他或她在每一步所产生的力。这个力受到运动员力量、力量功率和灵活性的影响。适宜的步长取决于运动员跑的力学结构、技术和协调性。

专项耐力和战术对于比赛的全程速度也是重要的,当然,从短跑到超长距离跑,它们的重要程度有所不同。

#### Biomechanical Aspects

An athlete's running velocity is determined by stride length and stride frequency. Optimal stride length is largely determined by the physical characteristics of the athlete and by the force he or she exerts on each stride. This force is influenced by the athlete's strength, power and mobility. Optimal stride frequency is dependent on the athlete's running mechanics, technique and coordination.

Specific endurance and tactics are, of course, important to the overall speed of a race, though from the sprints to the ultra-distances the degree of importance varies.

#### 动作结构

跑的每一步由一个支撑阶段和一个腾空阶段组成。支撑腿又可以分为前支撑阶段和后蹬阶段,摆动腿又可以分为前摆阶段和折叠阶段。

支撑阶段的两个部分极其重要。在前支撑阶段,实际上运动员身体向前的运动出现了减速。必须通过(a)脚掌积极落地和(b)脚的“扒地”动作,把它降低到最小程度,特别是在短跑中。在这个阶段中,屈腿吸收脚落地时产生的冲击即人们认为的缓冲过程。

后蹬阶段是一步中唯一为身体加速的部分。运动员的目的是在最短的时间内向地面发挥出最大的力量。这个力量通过腿部肌肉的收缩,以及在蹬伸过程中释放肌肉和肌腱中储存的能量而产生。为了达到每一步获得最大加速度的目的,踝、膝和髋关节必须充分伸展,并结合摆动腿和双臂的积极摆动。

#### Movement Structure

Each running stride comprises a **support phase** and a **flight phase**. These can be broken down into **front support** and **drive** phases for the support leg and **front swinging** and **recovery** phases for the free leg.

The two parts of the support phase are of critical importance. In the front support phase there is actually a deceleration of the forward motion of the athlete's body. This must be minimised by (a) an active landing on the ball of the foot and (b) a 'pawing' action of the foot, particularly in sprinting. During this phase energy is stored in the muscles as the leg bends to absorb the shock of landing – a process known as **amortisation**.

The drive phase is the only part of the stride that accelerates the body. The athlete's aim is to direct the greatest amount of force into the ground in the shortest possible time. This force is created by contractions of the leg muscles and the release of the stored energy in the muscles and tendons as the leg extends. To achieve maximum acceleration from each stride it is essential that there is full extension of the ankle, knee and hip joints in combination with an active swing of the free leg and the powerful drive of the arms.