



Chapter 7. Controlling the technical and tactical adaptability of athletes

第7章控制运动员的技术和战术适应性



目录 | Contents

01

7.1 Control technology preparation 控制技术准备

02

7.2 Basic concepts of tactics 战术基本概念

03

7.3 Quantitative index of tactical skills 战术技能的量化指标

04

7.4 Looking for rational strategy 寻找理性策略

05

7.5 Tools and methods of controlling tactical skills 控制战术技能的工具方法

7.1 Control technology preparation 控制技术准备



● Motion control is defined as the necessary mechanism to regulate or manage actions. 运动控制定义为调节或者管理动作所必需机制的能力。

● The field of motion control is the direct study of the nature of the action, and how the action is controlled. 运动控制的领域是直接研究动作的性质,以及动作是怎样被控制的。

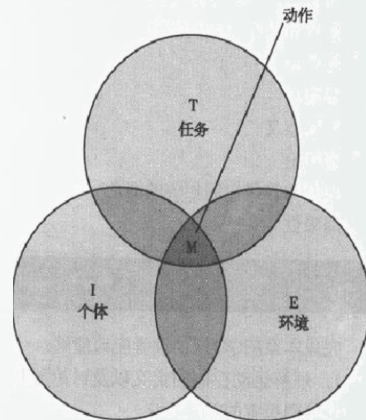


图 1.1 动作由个体、任务、环境相互作用而产生

Action is produced by the interaction of individual, task and environment

•7.2 Basic concepts of tactics 战术基本概念

Tactics refers to the principles and methods of fighting, and it is flexible to use the specific conditions of both sides and the terrain, climate and hydrology. 战术，指战斗的原则和方法，根据敌我双方具体情况和地形、气候、水文等条件灵活运用。

Tactical classification 战术分类

<p>According to the performance characteristics of tactics 按战术的表现特点</p> <ol style="list-style-type: none">1、Formation tactics 阵型战术2、Physical distribution tactics 体力分配战术3、Tactics for the purpose of competition 参赛目的战术4、Psychological tactics 心理战术	<p>According to the number of people participating in tactics 按参加战术的人数</p> <ol style="list-style-type: none">1、Personal tactics 个人战术2、Team tactics 小组战术3、Collective tactics 集体战术	<p>According to the offensive and defensive nature of tactics 按战术的攻防性质</p> <ol style="list-style-type: none">1、Offensive tactics 进攻战术2、Defensive tactics 防守战术3、Stalemate tactics 相持战术	<p>Universality by war 按战的普遍性</p> <ol style="list-style-type: none">1、Common tactics 常用战术2、Special tactics 特殊战术
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7.3. Quantitative indicators of tactical skills 战术技能的量化指标

- The tactical total is a list of tactical moves and choices owned by the athlete or team. 战术总量是运动员或团队所拥有的战术动作和选择的清单。
- The amount of competition for tactics is less than the total amount of competition, The less competition, the more responsible the competition. 战术的竞争量小于总竞争量，竞争越少，竞争就越负责。
- The versatility of tactics illustrates the diversity of the player's or team's tactical library. 战术的多功能性说明了运动员或团队的战术库的多样性。
- Tactics One of the many classifications of movements divides them into monotonous, sharp, misleading, and fixed. 战术动作的许多分类之一将它们分为单调，尖锐，误导和固定
- Monotonous tactics in football include most dribbles, short passes and passes. 足球中的单调战术动作包括大多数运球，短传和传球。

- ◆Distinguish the versatility and competitiveness of tactics.
区分战术的通用性和竞争性。
- ◆Athletes often show all kinds of tactics in training class,
运动员经常在训练课中展示各种战术，
- ◆The competitive arsenal of tactical action and choice is very poor, which is composed of monotonous action.
战术动作和选择的竞争性武器库非常差，由单调动作组成。
- ◆The characteristic of the efficiency and rationality of the tactical choice (movement) is that as long as this choice is used, the established goal can be achieved.战术选择（移动）的效率和合理性的特征在于，只要使用此选择，就可以实现既定目标。
- ◆Reason is the characteristic of tactical action (choice), and has nothing to do with a particular athlete.
理性是战术动作（选择）的特征，而与特定运动员无关。

- There is rational strategy for all situations.
适合所有情况的理性策略。
- It all depends on the personal characteristics of the athlete and his opponent.
这完全取决于运动员及其对手的个人特征
- Reasonable options are available, which are most likely to show the best results. It is crucial to determine these reasonable tactical options.可使用合理的选项，其中最有可能显示最佳结果。
确定这些合理的战术选择至关重要



- The various options for the distribution of forces in cyclical movements are often referred to as "layouts." 周期性运动中力量分配的各种选择通常称为“布局”
- uniform speed, reduced speed, increased speed, and accelerated start and end points.
速度均匀，速度降低，速度增加，起点和终点均加速

7.4. Find a rational strategy 寻找理性策略



The evaluated tactical options are usually compared with the best tactical options. 通常将评估后的战术选项与最佳战术选项进行比较。




Individually the best strategy, discovering "trial and error" through experimental methods; 个别地最佳的策略，通过实验方法发现“试错”；

Higher-level athletes or team tactics, such as championship tactics

更高水平的运动员或团体的战术，例如冠军的战术；




Find the best strategy through modeling
通过建模找到最佳策略



There are two characteristics of the simulation model 仿真模型的特征有两个

1) Have the ability to replicate the simulation process on the computer (for example, find the most reasonable tactical choice for a given distance distribution and sliding conditions); 具有在计算机上重复复制模拟过程（例如，找到对于给定的距离分布和滑动条件最合理的战术选择）；

2) The ability to use mathematical equations and inequalities as well as qualitative and logical relationships. 使用数学方程式和不等式以及定性，逻辑关系的能力



7.5 Tools and methods to control tactical skills

控制战术技能的工具方法

- In martial arts, they are designed to be used for shorthand writing and testing athletes' tactical thinking. 在武术中，它们旨在用于比赛速记的速写和测试运动员的战术思维。
- For example, the average time used to calculate the success index (percentage) of Volleyball Attack is: 例如，用于计算排球进攻动作成功的指标（百分比）的平均时间为：

416 s for pencil and paper only;


Using a logarithmic scale

Sum adder - 167 s;

In the use of mechanical fixture belt

In the use of perforator I electronic digital computer - 4 pages

Counter - 72 s;

An abstract graphic at the top of the page consists of various colored splatters and brushstrokes in shades of red, orange, yellow, and teal, set against a white background.

■In periodic exercise, automatic equipment is used to simulate competition conditions (bicycle dynamometer, rowing pool, treadmill, hydraulic pool)在周期性运动中，自动设备用于模拟比赛条件的模拟器（自行车测功机，划船水池，跑步机，水力水池）

■The use of instrument methods greatly improves the reliability of tactical preparation index registration, and in addition, greatly reduces the complexity of control.仪器方法的使用大大提高了战术准备指标注册的可靠性，此外，还大大降低了控制的复杂性。



Thank you

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