英语体育文选

人民体育出版社

COMPREHENSION
PIECES ON
SPORTS TOPICS

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罗晓中　张俊福等　编

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前　言

本书是为具有一定英语基础的体育院系学生和有同等英语水平的体育工作者编写的。学习本书的目的是扩大词汇量，进一步巩固所学的语言基础，熟悉英语体育专业文章的特点，培养阅读和翻译体育专业文章的能力。

本书材料主要选自近几年出版的英语体育书刊。为使读者多了解不同性质的文章的特点，个别文章选自书里的序言和词典里的名词解释。选文以词汇和语法现象较典型、较常见者为主。文字属于中上等难度。为照顾多数学生与读者的需要，文章内容侧重运动素质、训练方法和运动生理等共同性问题，而不涉及各专项运动技术。

为便于学习，每篇文章除附有参考译文外，还附以生词与短语的英汉对照表以及简明注释。本书可供体育院系英语课教学、函授和体育工作者自学之用。

参加本书编译的有罗晓中、张俊福、刘治贤、赵玉章、裘守诚、关英凝、管昭融等。

我们在编译过程中，得到李鹤鼎、王义润、缪进昌、高强、张向礼等老师很多帮助，表示衷心感谢。

在选材、译文、注释等方面，本书一定还有不少欠妥和错误之处，欢迎读者批评指正。

编者

一九八三年十二月

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1. STRENGTH[1]

A high level of strength is essential to good performance[2] in all athletic events, and in some events strength is of utmost importance.[3] Its relative significance varies depending on the nature of the particular activity.

Strength is the ability of the body or its segments to apply force. People often have the impression that strength is only the contractile force of muscles. But strength involves a combination of three factors: (a) the combined contractile forces of the muscles causing the movement (agonists); (b) the ability to coordinate the agonist muscles with the antagonist, neutralizer, and stabilizer muscles; and (c) the mechanical ratios of the lever (bone) arrangements involved. The first factor depends on the maximum contractile force of each muscle agonistic to the movement. This force can be increased significantly through progressive resistance training. The second factor depends on the ability to coordinate the contractions of the individual muscles. This can be improved by practising the particular movements (developing skill). The third factor depends on the angle of pull of the muscles and the relative length of the resistance arm and effort arm of each lever. Sometimes this ratio can be altered advantageously by changing positions of certain body parts.

There are two types of strength static (isometric) and dynamic (isotonic). Static strength is the ability to apply force at a particular position[4] without moving through the range of motion. It involves isometric muscle contractions, such as pulling

against a fixed object, a cable tensiometer, or a back and leg lift dynamometer. Dynamic strength is the amount of force that can be applied through a specified range of motion. This type of strength is used more in athletics.[5] The two types of strength are somewhat correlated, but they are not synonymous, and it is possible to develop either type of strength without developing the other type in the same proportion. Static strength can be measured more accurately than dynamic strength.

The definition of strength—"to apply force"—implies its importance in performance. Even though nearly all movements are performed against some resistance, athletes perform movements against much greater resistance than usual. For example, in the shot put, discus throw, pole vault, various gymnastic movements, jumping, running, swimming, and leaping, the body segments must exert maximum force. If all else remains equal, greater strength often results in better performance. In some athletic events, strength is the primary contributor and is therefore fundamental to excellence in those events.

In addition to being an important trait by itself, strength is an element in several other performance traits. It is a contributor to power, because power = force × velocity. Increased strength results in the ability to apply more force, and thereby it contributes to power.

Strength is also a factor in muscular endurance, which is the ability of the muscles to resist fatigue while doing work. Suppose a man moves a given resistance through a range of motion 100 times. If his strength were increased 50%, he would then be able to move the same resistance with greater ease; hence, he could repeat the movement considerably more

than 100 times. This illustrates how strength contributes to muscular endurance.

Strength contributes to agility because adequate strength is required to control the weight of the body against the force of inertia and to maneuver the body and its parts rapidly. Also, strength is a factor in running speed because great force is required to accelerate the body and to keep it in motion at top speed. There is no doubt that lack of sufficient strength is a serious handicap to many would-be good athletes.

参 考 译 文

力　量

力量强大是所有运动项目取得良好成绩的必要条件。在某些项目中，力量是极其重要的。其相对重要性根据特定项目的性质而不同。

力量是身体或身体各部运用力的能力。人们常有这种印象：力量只是肌肉的收缩力。而实际上，力量是由以下三种因素结合形成的：1．产生动作的肌肉群(主动肌)收缩的合力；2．主动肌同对抗肌、中立肌、支持肌的协调能力；3．有关杠杆(骨骼)组合的机械比率。第一个因素取决于参加动作的每一块主动肌的最大收缩力。这种力量可以通过逐步增加阻力的训练而使之大大增加。第二个因素取决于各个肌肉收缩的协调能力。这可通过特定动作的练习（发展技巧）加以改进。第三个因素取决于肌肉群牵引的角度和每一骨杠杆的阻力臂和力臂的相对长度。有时杠杆的比率可由身体某部分姿势的变化而引起有利的改变。

力量有两种类型：静力性（等长）和动力性（等张）。静力性力量是指不移动位置，固定在某一种姿势时用力的能力。这种力量涉及到等长性肌肉收缩，例如拉一个固定的物体，拉绳索张力计或背力、腿力测力计。动力性力量是指运用于某一特定的动作幅度的力的总

和。这种类型的力量多用于体育运动中。这两种力量多少是有联系的，但两者不是同义的，我们可以做到只发展其中某一种力量而不必以同样的比例发展另一种力量。静力性力量可以比动力性力量更精确地测量出来。

力量的定义(即：力的运用)本身就说明了力量在竞赛中的重要性。虽说人们的一切动作几乎都是克服某种阻力完成的，但是运动员做动作比平时所克服的阻力要大得多。例如，推铅球、掷铁饼、撑竿跳、做各种体操动作、跳、跃、跑和游泳时，身体的各部分必须发挥出最大的力量。如果其他一切条件相等，较大的力量常可创造较好的成绩。在某些运动项目中，力量起主要作用，因此也是这些项目获得优胜的基础。

力量除它本身是一个重要素质外，它还是其他几种运动素质中所包含的因素。它有助于爆发力，因为爆发力＝力×速度。增强了力量就能发挥更大的力，因此说力量有助于爆发力。

力量还是肌肉耐力的一个因素，肌肉耐力即肌肉工作时抗疲劳的能力。假定一个人按一定的动作幅度移动某重物一百次。如果他的力量增加 50%，他就有可能更轻松地移动同样重物，也就有可能重复这个动作大大超过一百次。这说明力量对肌肉耐力能起什么样的作用。

力量有助于灵活性，因为克服惯性力以控制身体重量，以及迅速支配躯体和四肢都需要足够的力量。还有，力量也是跑速的一个因素，因为要使身体加速和保持最高速度运动，需要很大的力。毫无疑问，缺乏足够的力量是许多想当优秀运动员的人的一个严重障碍。

生词与短语

1. level [levl] n. 水平，标准
2. utmost ['ʌtməust] adj. 极度的；最大的
3. relative ['relətiv] adj. 相对的；有关系的
4. significance [sig'nifikəns] n. 重要性；意义
5. segment ['segmənt] n. 部分；环节

6. apply [ə'plai] v. 运用；把……应用于 (to)
7. contractile [kən'træktail] adj. 可收缩的，有收缩性的
contractile force 收缩力
8. involve [in'vɔlv] v. 包含；使卷入
9. combination [ˌkɔmbi'neiʃən] n. 结合；成套动作
10. combine [kəm'bain] v. 结合，联合
11. agonist ['ægənist] n. 主动肌
12. coordinate [kəu'ɔ:dineit] v. (使) 协调；(使) 配合
13. antagonist [æn'tægənist] n. 对抗肌；对手
14. neutralizer ['nju:trəlaizə] n. 中立肌
15. stabilizer ['steibilaizə] n. 支持肌，稳定肌
16. mechanical [mi'kænikl] adj. 机械的；力学的
17. ratio ['reiʃiəu] n. 比率；比例
18. lever ['li:və; 美 'levə] n. 杆，杠杆
19. bone [bəun] n. 骨，(复) 骨骼
20. agonistic [ˌægə'nistik] adj. 用力的；竞赛的
21. significantly [sig'nifikəntli] adv. 大大地；有意义地
22. progressive [prə'gresiv] adj. 逐渐的；进步的
23. resistance [ri'zistəns] n. 阻力；反抗
resistance arm 阻力臂
24. individual [ˌindi'vidjuəl] adj. 个别的；个人的 n. 个人，个体
25. length [leŋθ] n. 长度，长；(时间) 长短
26. effort arm 力臂
27. alter ['ɔ:ltə] v. 改变，改动
28. advantageously [ˌædvən'teidʒəsli] adv. 有利地
29. type [taip] n. 类型；典型
30. static ['stætik] adj. 静力 (性) 的；静止的
31. isometric [ˌaisəu'metrik] adj. 等长的
32. dynamic [dai'næmik] adj. 动力 (性) 的；动态的

33. isotonic [ˌaisəu'tɔnik] adj. 等张的
34. range ['reindʒ] n. 范围，区域
35. contraction [kən'trækʃən] n. 收缩
36. fix [fiks] v. 使固定；装置
    a fixed object 固定的物体
37. object ['ɔbdʒikt] n. 物体；物
38. cable ['keibl] n. 绳索，钢丝绳
39. tensiometer [ˌtensi'ɔmitə] n. 张力计
    cable tensiometer 绳索张力计
40. lift [lift] n. 提；举 v. 提起；举起
41. dynamometer [ˌdainə'mɔmitə] n. 测力计
    back and leg lift dynamometer 背、腿测力计
42. specify ['spesifai] 规定；详细说明
43. correlate ['kɔrileit] v. 有相互关系，关联 (with, to)
44. proportion [prə'pɔ:ʃən] n. 比例；比率
45. accurately ['ækjuritli] adv. 精确地，准确地
46. definition [ˌdefi'niʃən] n. 定义；解说
47. imply [im'plai] v. 含有……的意思；意指
48. even though (或 even if) 即使，纵然
49. shot [ʃɔt] n. 铅球；子弹；射击
    shot put (putting) 推铅球， shot putter 铅球运动员
50. discus ['diskəs] n. 铁饼
    discus throw 掷铁饼
51. pole [pəul] n. 竿，杆，v. 用杆支撑，用竿跳
    pole vault 撑竿跳
52. various ['vɛəriəs] adj. 各种各样的；许多的
53. gymnastic [dʒim'næstik] adj. 体操的
54. leap [li:p] v. n. 跳跃
55. contributor [kən'tribjutə] n. 贡献者；捐助者
56. primary ['praiməri] adj. 主要的，首要的

57. fundamental [ˌfʌndə'mentl] adj. 基础的；根本的 n. （常用复数）基本原则（或原理）
58. excellence ['eksələns] n. 优秀，卓越
59. trait [trei, treit] n. 品质；特点
60. element ['elimənt] n. 成分；要素
61. velocity [vi'lɔsiti] n. 速度；速率
62. contribute [kən'tribju(:)t] v. (to 或 towards) 出一份力；起一份作用；贡献出
63. resist [ri'zist] v. 抵抗，对抗
64. ease [i:z] n. 不费力；容易 v. 放松
65. hence [hens] adv. 因此；今后
66. considerably [kən'sidərəbli] adv. 大大地，相当大地
67. illustrate ['iləstreit] v. 说明；举例
68. agility [ə'dʒiliti] n. 灵活（性）；敏捷
69. adequate ['ædikwit] adj. 足够的；适当的
70. weight [weit] n. 重量；体重
71. inertia [i'nə:ʃjə] n. 惯性；惯量
72. maneuver [mə'nu:və] v. 操纵，调动；n. 操纵；调动
73. rapidly ['ræpidli] adv. 迅速地，快速地
74. accelerate [æk'seləreit] v. 加速；促进
75. doubt [daut] n. 疑问，怀疑 v. 怀疑
76. lack [læk] n. (of) 缺乏，不足 v. 缺乏；没有
77. handicap ['hændikæp] n. 障碍；不利条件
78. would-be adj. 想要成为的，将要成为的

注 释

1. 请注意本课中下列各词意义上的区别：
strength 力量——指身体运用力的能力，即体力。
force 力——指力量的运用，或体力的运用。
power 即 explosive power 爆发力——是力与速度的结合（参

见第 2 课原文及译文)。

2. performance. 根据上下文，词意可以是“成绩”，也可以是“竞赛”、“运动”等等。

3. be＋of＋名词的结构，意义大致相当于 be＋形容词。此句中 is of …importance 大致上等于 is…important。

4. position. 根据上下文，词意可以是“姿势”，也可以是“位置”。

5. athletics 是“田径运动”，还是泛指各项“体育运动”、“竞技活动”，须根据上下文判断确定。在此处应是“体育运动”。

2. POWER

Power (often called "explosive power") is a combination of strength and speed. As stated by DeVries (1966), if two individuals can each lift 100 pounds a distance of three feet, but one can do it with twice as much speed as the other,[1] then he is twice as powerful. Likewise, if the two individuals move at the same speed, but one works against twice as much resistance as the other, then he has demonstrated twice as much power. When expressed in a formula:

$$\text{Power} = \text{Force (strength)} \times \text{Velocity (speed)}$$

It may also be written:

$$\text{Power} = \frac{\text{Force} \times \text{Distance}^2}{\text{Time}}$$

These formulae imply that when power is demonstrated, force is applied over a given distance in the shortest time possible.

Power is demonstrated in athletic performance by the ability to project an object or the body through space. In projecting an object, the object might be thrown, kicked, or struck, and the power is determined by the combination of force and speed. For example, if a baseball batter applies more force to the bat at a faster rate, the bat will develop speed faster and will have greater velocity when it meets the ball. In turn, the ball will be struck harder and will go farther. Thus, a powerful hitter is one who applies great force at a fast rate. A similar analysis could be made of the football punt.[3] The football moves at a given speed at the moment

foot contact is broken (this is final velocity), and that velocity is determined by the amount and rate of the force applied to the ball.

Shot putting depends more on pure power than nearly any other activity. If the angle of projection is constant, then the distance the shot will travel is related directly to its final velocity (velocity at the moment of release). Thus, the prime objective of the shot putter is to have the shot moving[4] as fast as possible. To achieve this he must apply maximum force at maximum speed over as much distance as possible. (The longer the distance of force application, the longer the shot can be accelerated and the greater will be the final velocity.) Similar examples of power could be given in the case of any throwing, kicking, or striking activity where maximum distance or maximum striking force is the objective.

In demonstrating power by projecting the body, the key to success is still the correct combination of force and speed. In jumping, the performer attempts to move the body as rapidly as possible in the correct direction at the moment contact with the surface is broken (final velocity). The final velocity is directly dependent upon the performer's ability to apply great force rapidly.

Sprint running is greatly dependent upon power because it is essentially a series of body projections. When one considers the prevalence of running, jumping, throwing, kicking, and striking in athletics, the significance of power performance becomes apparent.

Even though power always involves the components of strength (force) and speed, it is interesting to note that dif-

ferent kinds of events require different combinations of the two components. Power events involving light resistance place emphasis upon speed, while performances against heavy resistance depend more upon strength. For example, consider the throwing events in track and field. The power needed in the 35-pound weight throw mostly is dependent upon strength. Speed is not a great limitation because even a very strong person will be unable to contract the muscles rapidly against 35 pounds of resistance. However, speed is still a contributing factor. In putting the 16-pound shot, speed is of greater relative importance, but strength is still the predominant component of power, because the resistance (16 pounds) is still relatively heavy. In throwing the college discus, speed contributes more and strength contributes less than in putting the shot. The javelin throw is the throwing event that depends more on speed and less on strength than any of the other events, because the javelin is the lightest of the implements. In summary, it can be said that power performances involving heavy resistance depend greatly upon strength, while performances against lighter resistance depend more upon speed. In performances against very light resistance, speed is by far the more important of the two components of power.

It is possible for a person to be extremely strong and still not be extremely powerful; conversely, he may be able to move rapidly against very light resistance and still not be able to overcome heavy resistance rapidly. Thus, he may be strong but not very powerful, or he may have great speed and not be very powerful. If, however, he possesses great strength combined with great speed of movement, then he is powerful. Examples are seen of some persons who are very strong, but