

TRAINING SCOPE OF PRACTICE FOR ATHLETES

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Abstract:

As foundation depends on strong pillars, In the same way sports depends on strength, power & Endurance of Muscle speed exercise increase quickness, Long Distance, long duration & many repetition in Exercise will increases endurance. As all the fine digits of hands are not equal and same, All the athletes to vary in their energy level and talent to perform certain Exercise.

KEY WORDS:

Training Scope , Practice For Athletes , Biomotor abilities ,high Intensity raining (HIT).

INTRODUCTION

Talent is a lovely legacy, means is a Genetic factor. When such legacy is inherited then the high levels of performance are reached and are known as dominant motor or Biomotor abilities.

AIMS & OBJECTIVES :

The present paper is focused on two concepts of sports: One is the Theories influence strength training for sports: Body building, high Intensity raining (HIT), Olympic weight lifting, power training throughout the year & periodization of strength.

Another concept is sports specific dominant Biomotor abilities.

Ex. Long Jump, Running, Weight Lifting.



MATERIALS REQUIRED:

- Keywords like Adaptation, Eccentric contraction
- Isokinetic contraction, Periodization of strength.
- Various athletes (Bodybuilders data with differential contraction, Movements)
- Olympic lifting techniques.
- Athletes with various ratio of power & endurance.
- Mobility ratio in terms of Gymnastic, wrestling, football, soccer, Volleyball, baseball, diving, figure skating etc.
- Comparative study of various athletes with various range of power, strength & endurance in concept of various sports, including, Biomotor abilities.

METHODOLOGY

In the first concept, Body Builders are mainly concerned with increased muscle size. They performs as many repetitions to exhaustion. These will be increase in muscular size due to constant movement of throw ball, Volleyball, football & some throwing events, Athletic skills, at 100 to 180 milli seconds are performed quickly, but leg extension are three time slower at 600 milli seconds.

(Table 1.1) & Fig. Bodybuilder with leg extension)



High intensity training (HIT): Here strength can be achieved in 20 to 30 minutes and stand against high-volume strength training, events of long, continuous duration such as long-distance, swimming, canoeing, cross country, skiing)

(Fig. Of swimming & skeing)



Table 1.1 Duration of Contact Phase (in Milliseconds) of Some Sporting Events and Contraction Time of Leg Extension

Event	Duration in milliseconds
100-meter dash (contact phase)	100-200
Long jump (takeoff)	150-180
High jump (takeoff)	150-180
Vaulting in gymnastics (takeoff)	100-120
Leg extension (bodybuilding)	600

With additional clarifications from Schmidtbleicher, 1984.

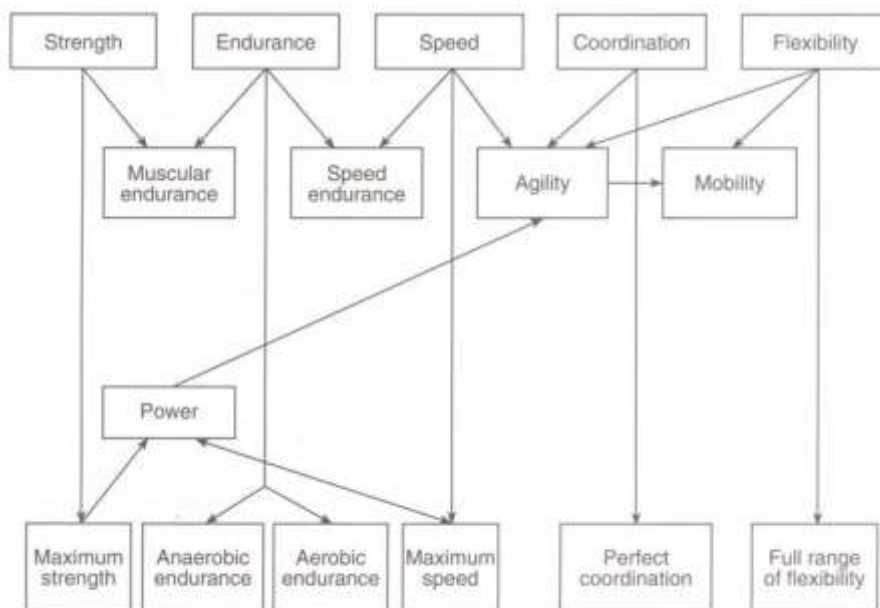


Figure 1.1 Interdependence among the biomotor abilities.

Olympic weight lifting: Traditional Olympic weight-lifting moves are yet in practice as it is safe & mild on body carefully assessing the needs of Olympic weight lifting techniques is essential to avoid injuries. This is more common were exaggerated use of Olympic weight-lifting skills are used.

(Fig. Of Weight lifting safely V/s Injured during hurry)



Power training throughout the year : If power is the dominant ability, it has to be trained throughout the year except during the training phase (off-season) They use exercise such as bounding & implements such as medicine balls & the shot. To improve power. One must improve maximum strength. Peroidozation of Strength: Strength training for sports must be based in the specific physiological requirements of the sport and must result in the development of either power or muscle endurance.

STRENGTH, SPEED & ENDURANCE.

Strength, Speed & Endurance are the important abilities for successful performance the relationships among strength, speed & endurance create crucial physical athletic qualities.

A relationship of high methodical importance exists among strength, speed and endurance. For elite athletes, the relationship among strength, speed and endurance is dependent on the sport and the athletes needs.

Figure 1.2 Illustrates three examples where strength or force (s) or endurance or dominant. In each case. When one biomotor ability dominates, the other two do not participate to a similar extent. Fig. 1.3 shows the dominant composition of (Fig. 1.2 & (1.3)

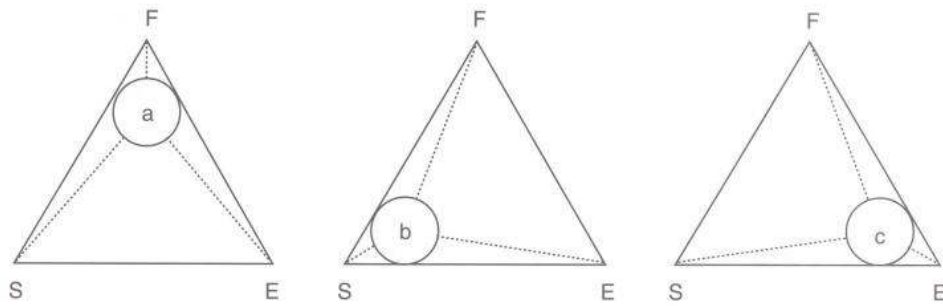


Figure 1.2 Relationships among the main biomotor abilities, where strength (*a*), speed (*b*), and endurance (*c*) are dominant.

Table 1.2 Sport-Specific Strength Development Required for Sports/Events			
Sport/event	Types of strength required	Sport/event	Types of strength required
Athletics		Gymnastics	Reactive power, takeoff power, landing power
Sprinting	Reactive power, starting power, acceleration power, power-endurance	Handball (European)	Throwing power, acceleration power, deceleration power
Middle-distance running	Acceleration power, M-E medium	Ice hockey	Acceleration power, deceleration power, power-endurance
Distance running	M-E long	Martial arts	Starting power, reactive power, power-endurance
Long jump	Acceleration power, takeoff power, reactive power	Rhythmic sportive gymnastics	Reactive power, takeoff power, M-E short
Triple jump	Acceleration power, reactive power, takeoff power	Rowing	M-E medium/long, starting power
High jump	Takeoff power, reactive power	Rugby	Acceleration power, starting power, M-E medium
Throws	Throwing power, reactive power	Sailing	M-E long, power-endurance
Baseball	Throwing power, acceleration power	Shooting	M-E long, power-endurance
Basketball	Takeoff power, power-endurance, acceleration power, deceleration power	Skating	
Biathlon	M-E long	Alpine	Reactive power, M-E short
Boxing	Power-endurance, reactive power, M-E medium/long	Nordic	M-E long, power-endurance
Canoeing/kayaking		Soccer	
500 meters	M-E short, acceleration power, starting power	Sweepers, fullbacks	Reactive power, acceleration power, deceleration power
1,000 meters	M-E medium, acceleration power, starting power	Midfielders	Acceleration power, deceleration power, M-E medium
10,000 meters	M-E long	Forwards	Acceleration power, deceleration power, reactive power
Cricket	Throwing power, acceleration power	Speed skating	
Cycling		Sprinting	Starting power, acceleration power, M-E short
Track, 200 meters	Acceleration power, reactive power	Mid distance	M-E medium, power-endurance
4,000-meter pursuit	M-E medium, acceleration power	Long distance	M-E long
Road racing	M-E long	Squash/handball	Reactive power, power-endurance
Diving	Takeoff power, reactive power	Swimming	
Equestrian	M-E medium	Sprinting	Starting power, acceleration power, M-E short
Fencing	Reactive power, power-endurance	Mid distance	M-E medium, power-endurance
Figure skating	Takeoff power, landing power, power-endurance	Long distance	M-E long
Field hockey	Acceleration power, deceleration power, M-E medium	Synchronized swimming	M-E medium, power-endurance
Football (American)		Tennis	Power-endurance, reactive power, acceleration power, deceleration power
Linemen	Starting power, reactive power	Volleyball	Reactive power, power-endurance, throwing power
Linebackers, quarterbacks, running backs, inside receivers	Starting power, acceleration power, reactive power	Water polo	M-E medium, acceleration power, throwing power
Wide receivers, defensive backs, tailbacks	Acceleration power, reactive power, starting power	Wrestling	Power-endurance, reactive power, M-E medium
Football (Australian)	Acceleration power, takeoff power, landing power, M-E short/medium		

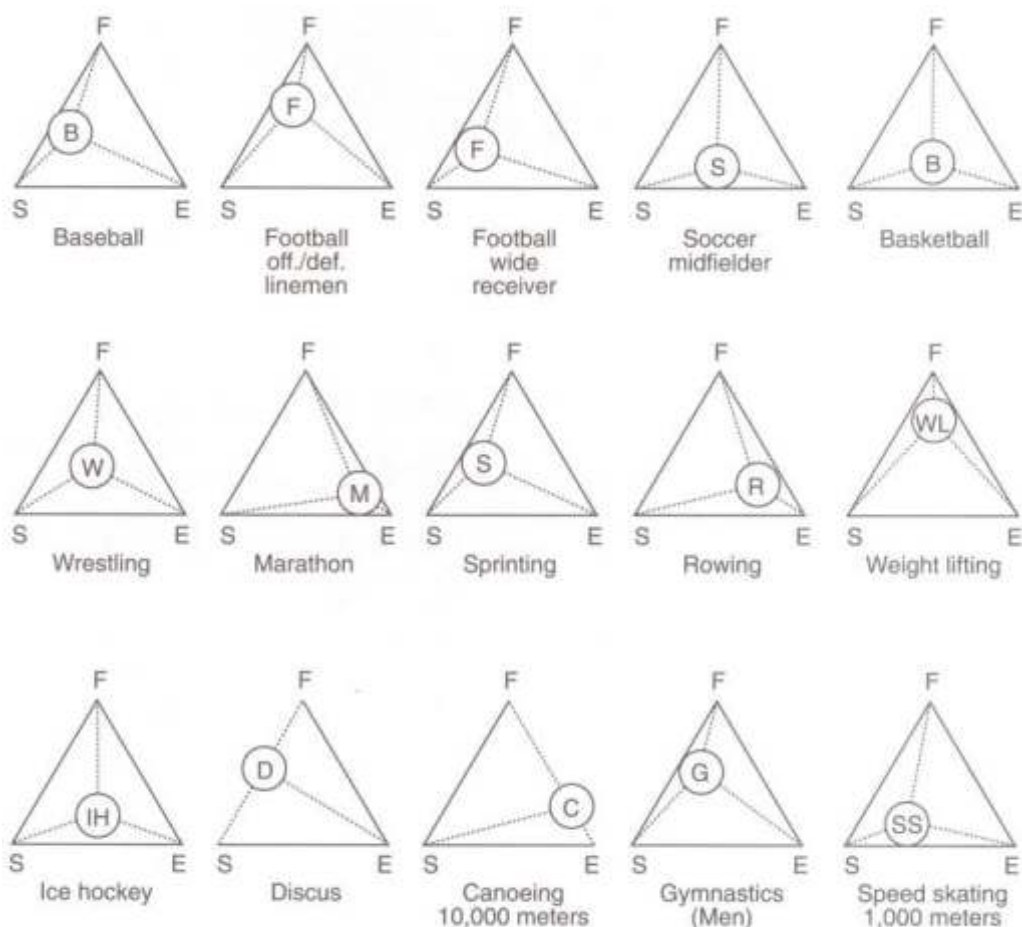


Figure 1.3 Dominant composition among the biomotor abilities for various sports.

By observing figure 1.3 one can compare their abilities with that of dominant biomotor abilities of athletes.

As moving to the second concept of paper, effect of strength training on other Biomotor abilities, A developed dominant ability directly or indirectly affects the other abilities. To what extent depends strictly on the resemblance between the methods employed and the specifics of the sport. So development of a dominant biomotor ability may have a positive or rarely, a negative transfer when an athlete develops strength. he may experience a positive transfer to speed and endurance on the other hand, a strength training programme designed only to develop maximum strength may negatively affect the development of aerobic endurance. Similarly, a training programme aimed exclusively at developing aerobic endurance may have a negative transfer to strength and speed. Since strength is a crucial athletic ability, it always has to be trained with other abilities

Sports – Specific combinations of strengths speed and endurance

Strength in sports should be viewed as the Mechanism required to perform skills and athletic actions. The reason for developing strength is not just for the sake of being strong. The goal of strength development is to meet the specific needs given sport, to develop specific strength or combinations of strength to increase athletic performance to the highest possible level.

Here, the term cyclic and acyclic is necessary. Cyclic movements are repeated continuously, such as running, walking, swimming, rowing, skating, cross country skiing, cycling & canoeing. As soon as one cycle of same succession. A cyclic movements. On other hand, constantly change and are dissimilar to most other, such as in throwing events, gymnastics, wrestling, fencing etc. Fig : 1.4

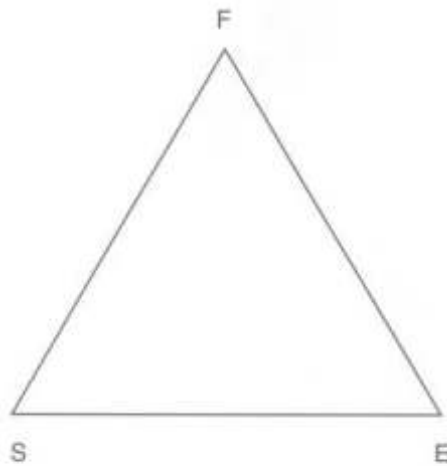










Figure 1.4 Use this triangle for the suggested exercise.

Cyclic

Running (Fig)	Cycling (Fig)	Swimming (Fig)	Skating (Fig)
			

Acyclic

Javelin Throw	Gymnastic	Wrestling	Basket Ball
			

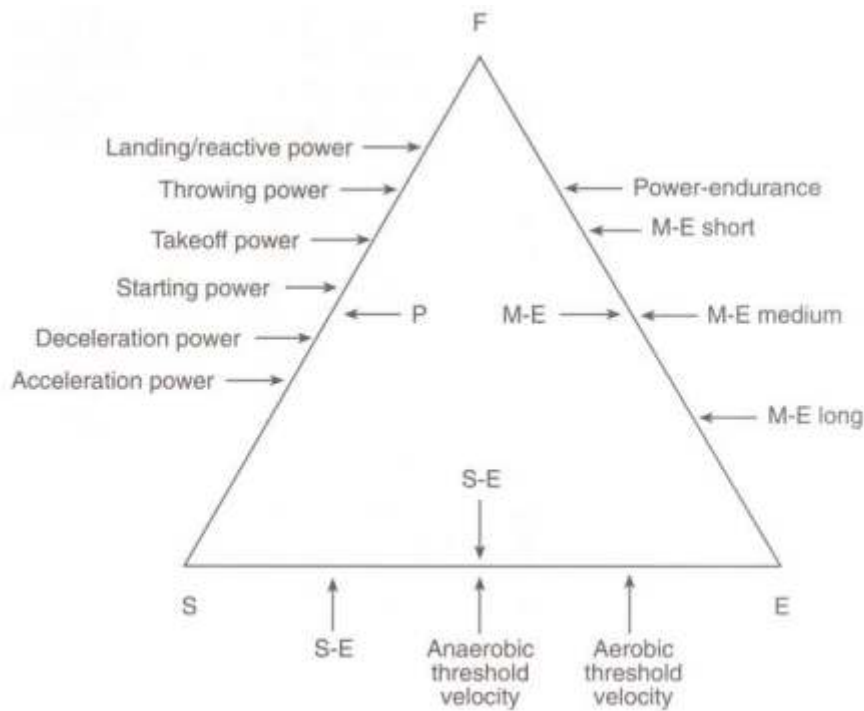


Figure 1.5 Sport-specific combinations among the dominant biomotor abilities.

Analysis various combinations of strength. Elements will be discussed in clockwise direction starting with F-E (Strength-Endurance) axis.

An arrow placed closer to F indicates that strength plays a dominant role in the Sports or skills. An arrow placed closer to the midpoint of the axis indicates an equal or almost equal contribution of both biomotor abilities. Not all sport require equal parts strength and endurance for ex. Swimming events range from 50 to 1,500 meters. The 50 meter event is speed power dominant. M.E (Muscular Endurance) becomes more important as the distance increases.

Power endurance is on top of the F-E axis because of the importance of strength for activities such as rebounding in basket ball, spiking in volleyball, Jumping to catch the ball. Landing and reactive power is a major component of several sports, like figures skating, gymnastics etc. Athletes may train eccentrically to be able to “stick” a landing, absorb the shock, and maintain good balance to continues the routine or perform another move immediately.

(Landing Fig.)





Reactive power is the ability to generate the force of jumping immediately reactive. This kind of power is necessary in the martial arts, wrestling and boxing, quick change in direction football, soccer, basketball and tennis.

Throwing power refers to force applied against an implement such as pitching a baseball. Javalin throw. Etc.

Take off power is crucial in events in which athletes attempt to project the body to the highest point, either to jump over a bar as in high jump or to reach the best height to catch a ball or spike it. Starting power is necessary for sports that require high speed to cover a given distance in the shortest time possible.

Accelerating power refers to the capacity to achieve high acceleration, decelerating power is important in sport such as soccer, basketball, Football. Hockey etc.

Acceleration and deceleration both requires a great deal of leg and shoulder power. They contract eccentrically to enhance the ability to declare fast and quick move in other direction.





CONCLUSION

1. Almost all physical activities in corporate element of force, quickness, range of motion, exercise to overcome resistance of strength exercise.
2. Speed, flexibility, endurance exercise with complex movements are known as co-ordination exercise.
3. To perform certain exercise talent is most genetic, inherited, strength, speed and endurance play an important role in reaching high level of performance and are called dominant motor and bi-motor abilities.

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