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Original Research Article

Skill Classification and Skill Development in Fitness Training

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Abstract

One of the misconceptions in the sports world is that a sports person gets in shape by just playing or taking part in his/her chosen sport. If a stationary level of performance, consistent ability in executing a few limited skills is your goal, then engaging only in your sport will keep you there. However, if you want the utmost efficiency, consistent improvement, and balanced abilities sportsmen and women must participate in fitness training programs. The bottom line in sports conditioning and fitness training is stress, not mental stress, but adaptive body stress. Sportsmen and women must put their bodies under a certain amount of stress (overload) to increase physical capabilities so skill classification and development is important in fitness training.

Skill Classification

There is a large range of sporting activities each requiring a set of skills. Skills have many characteristics that can change in different situations, which makes classifying them difficult. Accepting that skills cannot be neatly labeled; we place them on a continuum.

Skill classification systems are based on the view that motor skills are affected by three factors:

- how precise a movement is
- whether the movement has a definite beginning and end
- whether the environment affects the performance of the skill

The Gross and Fine Continuum

This continuum is concerned with the precision of movement - gross and fine skills.

Gross skills: involve large muscle movements which are not very precise and include many fundamental movement patterns such as walking, running and jumping. The shot putt is an example of a primarily gross skill.

Fine skills: involve intricate precise movements using small muscle groups and generally involve high levels of hand-eye coordination. A snooker shot or playing the piano are examples of fine skills.

- **The Open and Closed Continuum**

This continuum is concerned with the effects of the environment on skills.

Open skills: sports such as Netball, Football, and Hockey involve open skills. The environment is constantly changing and so movements have to be continually adapted. Skills are predominantly perceptual and externally paced, for example a pass in football.

Closed skills. These skills take place in a stable, predictable environment and the performer knows exactly what to do and when. Skills are not affected by the environment and movements follow set patterns and have a clear beginning and end. The skills tend to be self-paced, for example a free throw in Basketball, and serving in Squash or Tennis.

skills can fit on a continuum between open and closed.

- **The External and Internal Paced Continuum**

This continuum is concerned with the timing of movements (often used with the open-closed continuum) - internal and external paced skills.

Internally paced or self-paced skills: the performer controls the rate at which the skill is executed. These skills are usually closed skills. i.e. javelin throw, discus.

Externally paced skills: the environment, which may include opponents, controls the rate of performing the skill. The performer must pay attention to external events in order to control his/her rate of movement. These skills involve reaction, and are usually open skills. i.e. in ball games the performer must time his actions with the actions of other players and the ball.

- **Individual, Coactive and Interactive skills**

Individual skills are those performed in isolation. e.g. high jump.
Coactive skills are those performed at the same time as others but without direct confrontation. e.g. swimming.
Interactive skills are those performed where other performers are directly involved. e.g. rugby, netball.

- **Simple and Complex skills**

A **simple skill** is one that is straight forward, requires little concentration and cognitive ability.

A **complex skill** involves a large attention span because they are complicated and are practiced in training repeatedly to make it easier to perform in competition that are initiated by the performer and **externally paced skills** are those where the timing of the performance of the skill is not controlled by the performer, but by an outside influence.

Skill Development

When we choose to move, the action is controlled by the conscious brain using a collection of learned movements. For the movement to progress successfully, the athlete requires information feedback.

How do we teach a new skill?

The teaching of a new skill can be achieved by various methods:

1. Verbal instructions
2. Demonstration
3. Video
4. Diagrams
5. Photo sequences

The Learning Phases

The learning process is sequential and that we move through specific phases as we learn. There are three stages to learning a new skill:

- ***Cognitive phase*** - Identification and development of the component parts of the skill - involves formation of a mental picture of the skill
- ***Associative phase*** - Linking the component parts into a smooth action - involves practicing the skill and using feedback to perfect the skill
- ***Autonomous phase*** - Developing the learned skill so that it becomes automatic - involves little or no conscious thought or attention whilst performing the skill - not all performers reach this stage

The leaning of physical skills requires the relevant movements to be assembled, component by component, using feedback to shape and polish them into a smooth action. Rehearsal of the skill must be done regularly and correctly.

The view that actions are not stored rather we refer to abstract relationships or rules about movement. Schmidt's schema is based on the theory that that every time a movement is conducted four pieces of information are gathered:

- the initial conditions - starting point
- certain aspects of the motor action - how fast, how high
- the results of the action - success or failure
- the sensory consequences of the action - how it felt

Relationships between these items of information are used to construct a recall schema and a recognition schema. The Recall schema is based on initial conditions and the results and is used to generate a motor program to address a new goal. The recognition schema is based on sensory actions and the outcome.

- Perceptual trace - a reference model acquired through practice
- Memory trace - responsible for initiating the movement

The key feature of this theory is the role of feedback.

- Analyze the reference model actions, the result of those actions and the desired goals
- Refine the reference model to produce the required actions to achieve the desired goals

Three core concepts of social learning theory

1. people can learn through observation
2. mental states are an essential part of this process
3. it will not necessarily result in a change of behavior

In studies children observed an adult acting aggressively toward a doll. When the children were later allowed to play with the doll, they began to imitate the aggressive actions they had previously observed.

Our learning cycle generally takes us through four stages:

1. Unconscious incompetence - no understanding
2. Conscious incompetence - low performance, recognition of flaws and weak areas
3. Conscious competence - improved performance, conscious effort
4. Unconscious competence - higher performance, natural automatic effort

Conclusion

Skill classification and development is important in fitness training. Having assessed the performance and identified that there is a fault then you need to determine why it is happening. Faults can be caused by Incorrect understanding of the movement by the athlete, Poor physical abilities, Poor co-ordination of movement, Incorrect application of power, Lack of concentration, Inappropriate clothing or footwear, External factors e.g. weather conditions, Strategies are the plans we prepare in advance of a competition, which we hope will place an individual or team in a winning position. Tactics are how we put these strategies into action.

Athletes in the associative phase of learning will not be able to cope with strategies, but the athlete in the autonomous phase should be able to apply strategies and tactics. To develop strategies and tactics we need to know the strengths and weaknesses of the opposition Our own strengths and weaknesses Environmental factors so different types of classification and skill development is important.

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