

# CONDITIONING YOUTH FOOTBALLERS

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9

CHAPTER



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### PRINCIPLES OF FITNESS TRAINING

Sports scientists and coach educators continuously stress the importance of using scientific training principles in training programs for players.

#### The training principles being referred to are:

1. Progressive overload.
2. Specificity.
3. Individual differences.
4. Variation.
5. Reversibility.

These principles form the backbone of any physical training program to achieve success. Too often, however, the training principles are not actually applied to training programs. Alternatively coaches focus on only one of the principles without considering how the principles are related and affect the player's performance. A good example of this is the way some coaches use the term specificity to justify the type of training they are using with their team. Variety is a key to maintaining enthusiasm, yet many coaches continue to work on the same fitness qualities throughout the year because they believe that all training must be specific to sport.

### ESTABLISHING NEEDS

To determine how best to use training principles to improve the fitness of the team, the coach needs to identify exactly what it is that the players are doing during the game and to understand the requirements of Australian Football.

Long-term performance improvement is best achieved through planned year-round training programs. With correct planning, the players are able to improve all physical attributes and skill performance while following the principles of progressive overload, specificity, regularity, variation and individual difference.

### FITNESS FOR PLAYERS

The fitness demands of Australian Football have changed dramatically over the past 10 to 15 years as the nature of the game has changed. The intensity of the game, with its emphasis on running and play on at all costs, has necessitated that greater consideration be given to the physical conditioning of the players. Footballers today may cover over 15 kilometres per game, performing many short high-intensity sprint efforts over distances of between five to 30 metres and must also perform various physical activities such as kicking, marking, handballing, tackling, bumping, jumping and landing. The specific demands of the various playing positions require that one or more of the fitness components described below need to be developed for successful performance.

There are five guiding principles that a coach should follow in developing a fitness program. These training principles are:

#### 1. Progressive overload

For gains to occur in any component of fitness, the player must be subjected to gradually increasing training loads. As the player's body adapts, progressive overload can be applied by monitoring the following variables:

- a) Frequency of training – number of training sessions per week.
- b) Duration of a training session – the length of time given to each session (volume).
- c) Intensity of training – the effort put into the session.



Whatever the details of the method used, the rate of work should be progressively increased. Weights are increased in weight training, new targets set in circuit training, harder demands are made on the respiratory cardiovascular system in endurance training etc. It is now understood that the greatest gains in physical conditioning occur during periods of recovery and rest between hard training sessions. It is the body's response to the stress of the training that leads to increased strength and endurance.

## **2. Specificity**

All fitness training must be specific to the demands of the game. With running training, the intensity, the distance covered and the number of repetitions must be specific to the playing requirements. The demands of the various playing positions should also be considered.

To maintain the player's interest, it's important to vary the fitness program by using a variety of specific activities. Some of these can be adapted from other sports. For example, the running and jumping components of many team sports are similar, therefore a worthwhile addition to the footballer's fitness training program may be an occasional game of another team sport.

## **3. Individual differences**

Individual differences exist between the levels of fitness and the response to training for players in all sports. A training program must cater for individual needs and preferences. In team sports such as Australian Football, a coach should have an overall plan and modify it for each player/group of players, as players will not respond identically to a method of exercise – e.g. some players respond to hard training better than others and some may require longer periods to recover from a heavy training session or game. Coaches should recognise these differences and adjust the program accordingly by either reducing the training load or lengthening the recovery periods. Do not individualise to the detriment of the overall team.

## **4. Variation**

Variety can help maintain a player's interest in training. By varying the training venue or by applying different training methods, a coach can ensure his/her players are enthusiastic and willing to improve.

You may like to use the following ideas to add variety to conditioning programs:

- Change the practice venue.
- Change the mode of activity. Endurance can be improved using fartlek, continuous or interval training.
- If the sport requires several different physical capacities, change the emphasis from one to another when possible.
- Alternate between competitive and non-competitive practice regimes.
- Change the number of repetitions or sets, or the tempo or recovery between sets, or change the speed of repetitions and exercises.
- Include an occasional game of another team sport. The more closely related an alternative activity is to Australian Football, the more beneficial it will be.


## **5. Reversibility**

Development of fitness is reversible. If a player stops training, either by ceasing the activity altogether or by reducing the training load, acquired fitness levels will diminish accordingly. Players who have been forced to become inactive due to an injury, will usually adapt quickly to a practice program when they restart activity. The longer the time a player has trained, the slower the loss of physical conditioning will be if training is halted.

## COMPONENTS OF FITNESS FOR AUSTRALIAN FOOTBALL

The following section will assist the coach in planning and implementing a complete fitness program for his/her team. The running nature of the game and the various activities of kicking, marking, tackling, handballing, bumping and jumping demand players develop a number of important fitness components.

Success in physical conditioning will largely depend on how the basic components of fitness can be fitted into the training program and finding the most effective way of improving each component. To participate in football, a player should reach an adequate level in each of the following components of fitness:

|   |  |
|---|--|
| <p><b>SPEED</b></p> <p>Speed has long been identified as a major fitness requirement in football. This characteristic is important for gaining and retaining possession, through leading, running at a loose ball and breaking clear of an opponent.</p>  | <p>The development of speed is best achieved by the following activities:</p> <ol style="list-style-type: none"> <li><b>1. Technical training – the principles of basic sprinting technique include:</b> <ul style="list-style-type: none"> <li>* Run on toes</li> <li>* High knee lift</li> <li>* Slight lean forward</li> <li>* Use arms to drive forward</li> <li>* Run in a straight line</li> </ul> </li> <li><b>2. Acceleration sprints</b> <p>A 150m run-through may be split into three sections:</p> <ul style="list-style-type: none"> <li>* The first 50m to gradually build up speed</li> <li>* The middle 50m to maximum speed and</li> <li>* The final 50m to gradual deceleration</li> </ul> </li> <li><b>3. Reaction drills</b> <p>This type of speed training involves the player reacting as quickly as possible to a call from the coach and to accelerate from a standing position, running on the spot or while striding out in a run through.</p> </li> </ol> <p><b>Testing for speed</b></p> <ul style="list-style-type: none"> <li>* 10/20/40m sprint</li> </ul> |
| <p><b>AGILITY</b></p> <p>Agility is closely related to speed and refers to the ability to change direction quickly. Players need to be able to twist and turn, get up from the ground and accelerate away from an opponent.</p>   | <p>A coach can develop a simple agility run involving short sprints and sharp turns around a set of markers. The degree of difficulty can be varied according to the age and ability level of the team.</p>  |

### ENDURANCE

The basic fitness requirement is an ability to run and keep on the move for the duration of the game. Endurance is a pre-requisite for all playing conditions and should, therefore, during early pre-season preparation, constitute a major element of the fitness program.



The development of endurance is best achieved by the following activities:

#### 1. Continuous running

Running over relatively long distances up to about 8km at a steady pace.

#### 2. Fartlek running

Varied bursts of faster running throughout a session of continuous running – e.g. a series of varied bursts of speed from 10 to 200m, interspersed with periods of jogging.

#### 3. Longer, slower interval running

A series of repeated running efforts at a specific speed and over a specified distance is alternated with periods of recovery (usually worked on a work to rest ratio of 1:1 or 1:2. A work to rest ratio of 1:2 indicates the recovery period is twice the work period).

#### 4. Shorter, faster interval running

As the season approaches and the players' endurance levels improve, the workload needs to become more specific. A shorter and faster running schedule should be introduced. The intensity of effort can be increased while the distance is reduced.

#### Testing for endurance:

- 20m shuttle run
- 15-min run for distance
- 1600m time trial

### FLEXIBILITY

Flexibility refers to the range of movement possible in various joints. The more supple or flexible the joint, the greater the range over which the muscles surrounding that joint can operate and work more efficiently.



#### Flexibility exercises will:

- Maximise the muscle range of motion
- Prevent injuries to muscles, tendons and ligaments
- Improve speed and agility

Flexibility is best developed through static stretching.

Other sport specific methods include:

- P.N.F stretching
- Ballistic – moving or dynamic stretching. Stretching must be strictly supervised and should be preceded by large muscle group warm-up activities such as jogging and easy striding.

#### Testing for flexibility

- Sit and reach

### STRENGTH

In football, strength is important to the player, particularly in the muscles of his legs, shoulders, hands and abdomen. Strength is the ability to exert maximum muscle tension (force) for a short period of time. Strength is important in football but power, of which strength is an ingredient, is even more essential. Power is best witnessed in a game when a player leaps for a mark, crashes through a pack, breaks a tackle or takes off quickly from different starting positions. Power is simply a combination of speed and strength.

#### Strength building

Basic strength-building methods include:

- Body weight exercises – players use own body weight for resistance.
- Partner exercises – players use partner for resistance by either adopting wrestling holds and working in opposition to a partner or by having the partner as a dead weight.
- Free weights – dumb-bells/barbells are used to perform a variety of resistance exercises.
- Fixed apparatus – e.g. specific exercise stations.
- Circuit training - a series of exercises performed in quick succession.

#### Testing for power

- Vertical jump
- Standing long jump

## LONG-TERM PLAYER DEVELOPMENT

Balyi and Hamilton identified four important stages that outline long-term athletic development, and this model is outlined below. During the fundamental and training to train stage of the model, young players learn the basics of athleticism and how to train and compete. During the training to compete stage, players learn how to taper and compete under all kinds of conditions. During the training to win stage, when players are fully trained, they will peak and perform well consistently.

### Characteristics of the Training to Compete Stage

The Training to Compete Stage is the third stage of long-term player development processes as outlined by Balyi and Hamilton, for those who are aspiring to participate in the talented player pathway. The stage relates specifically to adolescents aged 13 to 18.

The training to compete stage of a player's development can be described as the phase of preparation which aims to:

- Provide high intensity and specificity of training all year round.
- Optimise technical, tactical, mental and fitness preparation, taking into consideration maturation levels (physical, cognitive/mental and emotional).
- Teach players to perform under a variety of competitive conditions by exposing them to all competitive conditions during training and selected competitions.
- Maximise players' preparation by modelling competition activities, including taper.
- Ensure that the players' training and competition programs and sport-specific technical-tactical activities are fully integrated with sport science and sport medicine programs.

The following table provides an overview of long-term player development, with special reference to the Training to Compete Stage.

| FUNDamental   | Training to Train   | Training to Compete   | Training to Win  |
|---|---|---|--|
| <p><b>Chronological/ biological age</b><br/>Male &amp; female: 6-10</p>   | <p><b>Biological age</b><br/>Male: 10-14<br/>Female: 10-13</p>  | <p><b>Chronological/ biological age</b><br/>Male: 14-18. Female: 13-17</p>  | <p><b>Biological age</b><br/>Male: 18+<br/>Female: 17+</p>   |
| <p>Fun and participation.<br/>General overall development.<br/>Athleticism: ABC's of running, jumping and throwing.<br/>ABC's of movement agility, balance, co-ordination and speed.<br/>Speed, power and endurance through FUN and games.<br/>Proper running, jumping, and throwing technique.<br/>Medicine ball, swiss ball and own body exercises for strength.<br/>Introduce to simple rules and ethics of sport.</p> | <p>Emphasis on general physical conditioning.<br/>Shoulder, elbow, core, spine and ankle stability.<br/>FUNDamental technical skills, progressively more specific skills towards the end of the stage.<br/>FUNDamentals of tactical preparation.<br/>Participation in complementary sports (similar energy systems and movement pattern requirements).<br/>Individualisation of fitness and technical training.<br/>Introduction to mental preparation.<br/>FUNDamentals of ancillary capacities.</p> | <p>Sport and individual specific physical conditioning.<br/>Shoulder, elbow, core, spine and ankle stability.<br/>Sport-specific technical and playing skills under competitive conditions.<br/>Advanced tactical preparation.<br/>Individualisation of technical/tactical skills.<br/>Advanced mental preparation.<br/>Sport and individual specific 'ancillary capacities'.</p> | <p>Maintenance (or possible improvement) of physical capacities.<br/>Shoulder, elbow, core, spine and ankle stability.<br/>Further development of technical, tactical and playing skills.<br/>Modelling all possible aspects of training and performance.<br/>Frequent prophylactic breaks.<br/>All aspects of training. Individualised.<br/>Develop further ancillary capacities (there is no ceiling limit).</p> |
| <p><b>Talent identification</b><br/>General sport participation 5-6 times per week.</p>   | <p><b>Recruitment</b><br/>Sport-specific training two times per week, with participation in other sports.</p>   | <p><b>Specialisation</b><br/>Sport-specific technical, tactical and fitness training up to six times per week.</p>  | <p><b>High performance</b><br/>Sport-specific technical, tactical and fitness training 9-12 times per week.</p>  |

