



# AFL teacher edition

## Training principles

### Key terms & definitions:

**VO<sub>2max</sub>:** The maximal amount of oxygen an individual can use per minute during exercise.

**RPE:** Rating of perceived exertion (RPE) is how hard you feel your body is working, and therefore, is a subjective measurement.

**% RM:** Percentage of the maximum resistance that can be lifted in one repetition when performing a particular exercise.

**Microcycle:** A microcycle is a phase of training, and normally lasts up to 7 days.

**Training principles** are used to help design training programs to ensure that the correct fitness component is being trained, and to allow for improvements in performance.

### 1. Specificity

The principle of **specificity** states that training methods, exercises, intensities and workloads must be specific to the energy systems, fitness components, muscle groups and movement patterns required for optimal performance.

**AFL Application:** During pre-season an AFL team may use small sided games to enhance their fitness specific to the demands of the sport.

#### Class activity:

1. Define the principle of specificity.
2. Explain why specificity is important, use an example specific to AFL to demonstrate your answer.
3. Use the exercises shown in the visual coaching file on the AFL schools website to identify which meet the principle of specificity for AFL. Justify your response.

**VCP File:** AFL Specificity Activity

### 2. Intensity

**Intensity** in physical exercise refers to how hard an athlete is working. It is usually measured during aerobic work as a percentage of their maximum heart rate (% HR<sub>max</sub>) or as a percentage of their maximum oxygen uptake (% VO<sub>2max</sub>) whereas, anaerobic work relies on ratings of perceived exertion (RPE), time, distance covered and load lifted (% RM).



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Below is an example of the Borg scale, commonly used to assess and quantify an individual's perceived intensity level or Rating of Perceived Exertion (RPE).

## Rating of Perceived Exertion (RPE)

- 1/10 Very Very Easy
- 2/10 Easy
- 3/10 Moderate
- 4/10 Somewhat Hard
- 5/10 Hard
- 6/10
- 7/10 Very Hard
- 8/10
- 9/10
- 10/10 Maximal

To see a program demonstrating this training principle, refer to the visual coaching (VCP) file located on the AFL schools website.

**VCP file:** AFL 4 week Resistance Program

## 3. Duration

**Duration** has two meanings in relation to training programs. It can mean the length of the training program (phases) or the total duration of each training session. It can also be exercise and drill specific.

To see a program demonstrating this training principle, refer to the visual coaching (VCP) file located on the AFL schools website.

**AFL Application:** To replicate sprinting efforts produced in a match, in training AFL players will perform multiple sprint bouts with minimal rest before having a longer rest period simulating the end of that passage of play.

**VCP file:** AFL 4 week Resistance Program

## 4. Progressive overload

**Progressive overload** is considered to be the most important principle of training. It refers to the



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gradual increase of stress placed on the body during an exercise program to bring about adaptations and improved performance.

For resistance training, there are numerous ways that the training principle of progressive overload can be applied to either a single exercise or to an overall training program.

**These include;**

- Increasing the weight lifted e.g. 10 kg to 12 kg
- Increasing the number of repetitions or sets e.g. 3x12 to 3x14
- Increasing the time (duration) of exercise.
- Increasing the speed of movement during the execution of the exercise e.g. moderate to fast
- Manipulation of multiple variables identified above to bring about an increased training load and adaptation.

**The following graphs show the principle of progressive overload applied to;**

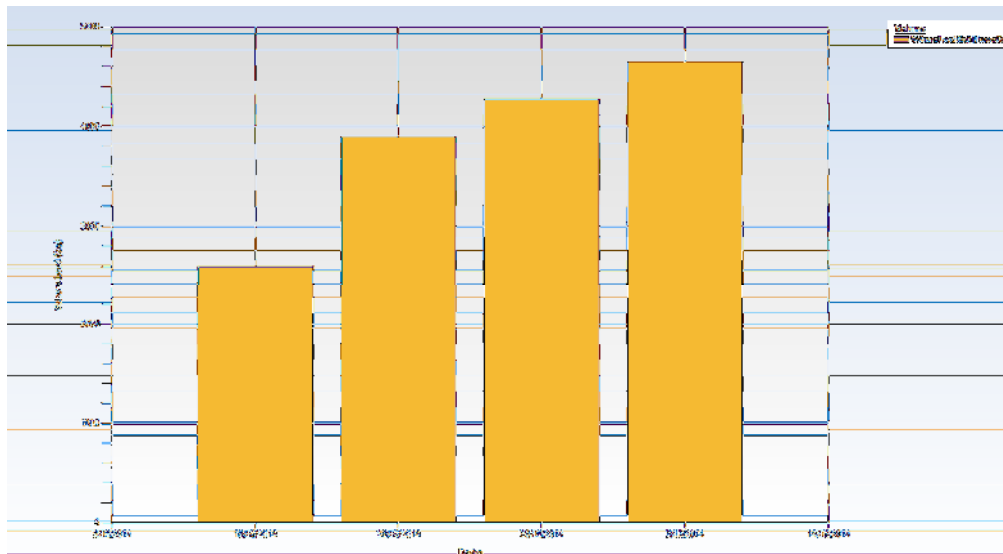
A) A single exercise

4. [Clean 00109](#)



3min	Fast	Tempo		3min	Fast	Tempo		
3 x	4	Reps		3 x	4	Reps		
kg	75			kg	80			
Wed	Wgt			Wed	Wgt			Unit
02/07	Reps			09/07	Reps			

B) A mesocycle i.e. 4 weeks of training





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## Class activity:

1. Define the principle of progressive overload.
2. Describe how this principle could be applied to a circuit session?
3. Use the exercises shown in the visual coaching file on the AFL schools website to describe how progressive overload has been applied.

**VCP file:** AFL 4 week Resistance Program

4. Refer to the exercises shown in the visual coaching file on the AFL schools website to demonstrate your understanding of progressive overload by completing the related activity.

**VCP file:** AFL Progressive Overload Activity

## 5. Frequency

**Frequency** refers to the number of training sessions undertaken in a specific time frame i.e. one week.

The minimum training frequency needed for improvements in **aerobic fitness** is two to three times per week. It is not uncommon for athletes to train their cardiovascular system every day or twice per day depending on the sport.

In general, a minimum training frequency for improvements in **anaerobic fitness** is two times a week. Due to the stress put on the body from these types of sessions a particular area of the body would usually not be trained this way for two consecutive days.

It is important to note that training frequency will depend on an individual's training age, fitness level and current fitness goals.

## Class activity:

1. Define the principle of frequency.
2. Identify the minimum number of training sessions an AFL player would be expected to complete each week in order to improve their aerobic fitness.
3. Design a microcycle (weekly outline) for an AFL player looking to improve their aerobic fitness.
4. Discuss how this would change across a pre-season if applying the principle of progressive overload.



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## 6. Reversibility (detraining)

**Reversibility, or detraining**, refers to the loss of fitness that results once an athlete reduces or ceases training completely. Luckily, the principle of detraining does not apply to skills. In fact, coordination can remain nearly perfect for decades, with coordination appearing to be stored in long term motor memory. Although adequate recovery time is necessary, extended breaks can result in significant detraining effects.

Below is an example of how a player with a lower body injury is still able to train at intensity to maintain their aerobic fitness by combining skills (at intensity) with boxing.

### **Example of a rehab program to reduce the effects of detraining for an injured player**

Note: to view an interactive version of each program open the respective visual coaching (vcp) file located on the AFL schools website

**VCP file:** AFL Rehabilitation Program

### **Class activity:**

1. Define the principle of reversibility (detraining)
2. An AFL player has had an 8 week break over the 'off season' and return to pre-season training, what reductions in fitness are they likely to experience?
3. Will their ability to perform AFL specific skills such as kicking and handballing be influenced?
4. An AFL player becomes injured with a hamstring strain and isn't able to undertake the main training session. Provide an example of what you would prescribe to this player and justify why.

## 7. Individuality

**Individuality** suggests that fitness training programs should be modified to suit personal differences, such as abilities, skills, gender, experience, motivation, past injuries and physical condition. Especially when coaching or training a team sport such as AFL, the unique qualities and needs of an individual must be considered.

**AFL Application:** Although the team is working towards a common goal, each player has different abilities and areas that need improving. Over pre-season a younger less experienced player may have a vastly different training program to that of an older player who has undergone many preseason training phases in their career.



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*Images: AFL players training alone to individual needs, whether it is for recovery or skill development.*

## Class activity:

1. Define the principle of individuality.
2. Why is it important to apply this training principle when working with an AFL team?
3. Provide an outline as to the key differences between managing an older player versus a younger player within a team.
4. What are the key factors you need to consider? Justify your response.

## 8. Diminishing returns

The law of **diminishing returns** suggests that gains in fitness are most rapid at the start of training and are more difficult to achieve later in training. It also suggests that gains are most rapid for people who begin a program with a lower level of fitness, while those who are already fit, improve slower. The fitter you become, the harder further gains are to achieve.

**AFL Application:** After an AFL player undergoes knee surgery, his initial return to training would have seen rapid improvements in fitness. As time progressed and his fitness levels increased further improvements would have been at a much slower rate than at the start of his training.

## Class activity:

1. Define the principle of diminishing returns
2. Explain the principle of diminishing returns in the context of a rookie first year player, versus the team's captain who has played at elite level for 6 years.
3. Discuss how you could identify if a player within your program has plateaued?



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## 9. Variety

**Variety** implies that an athlete should consistently change aspects of their training; however, specificity should be considered when applying variation. Providing variation to a program helps prevent boredom and may reduce the incidence of overtraining. Training can be varied by altering; the training environment, training modality, volume/intensity and even performing something completely different such as yoga or Pilates.



**Image:** AFL players partaking in a variety of different training scenarios including sand dune sprints and boxing.

**AFL Application:** Throughout the year, AFL players will undergo many different forms of training aside from the usual running and weights. For example; boxing or spin classes may be used to incorporate variety for aerobic conditioning and yoga or Pilates may be used to increase flexibility and core strength.

### Class activity:

1. Define the principle of variety.
2. Explain why it is important to apply this principle to an AFL player's training program?
3. Identify how a fitness advisor could implement this principle within an AFL season.
4. Discuss how a player's training age would affect implementation of this principle.