



F.I.T.T. FORMULA :

In order to improve your fitness levels, you must work the particular component against a load greater than normal. The overload principle is achieved through the use of F.I.T.T.

FREQUENCY : How often an individual trains.

INTENSITY : How hard?

TIME : For how long?

TYPE : Type of training (e.g. aerobics, circuits, resistance etc.)

Reference: NCEF Student Manual (2004)

AN EXAMPLE USING THE F.I.T.T. FORMULA (CARDIOVASCULAR ENDURANCE) :

FREQUENCY :

Need to participate in regular exercise. Beginners can start at 1 to 2 days a week aiming for at least 4 days a week.

INTENSITY :

To attain benefits of activity students need to work to a rate that is 'Moderate' or above on the Gears' Scale or where they can just still talk to their friends while exercising.

TIME :

The recommended time for optimum cardiovascular benefits is at least 20 minutes per session.

TYPE :

To train for cardiovascular endurance students should participate in pulse raising activities such as: swimming, jogging, cycling, aerobic classes, aqua fit.

MONITORING INTENSITY :

LOW OR EASY EFFORT :

Breathing is normal and you are able to hold a conversation while doing the activity. Activity can be sustained for over 60 minutes.

MEDIUM OR MODERATE EFFORT :

Slightly out of breath and maybe sweating a little. Feel comfortable doing the activity, not too tired and able to hold a conversation. The activity can be sustained for 30 to 60 minutes.

HIGH OR HARD EFFORT :

Out of breath and sweating. Pushing very hard, difficult to hold a conversation. Activity sustained for short time.

LOW	MEDIUM	HIGH
WALKING	FAST WALKING	FOOTBALL
GARDENING	LIGHT JOGGING	RUNNING
HOUSEWORK	DANCING	SWIMMING HARD
BOWLING	GOLF	CYCLING HARD



PRINCIPLES OF TRAINING
Reversibility • Specificity • Progressive Overload

TEACHER REFERENCE



REVERSIBILITY ("USE AND DISUSE") : LEARNING OUTCOMES

STUDENTS SHOULD BE ABLE TO :

LEVEL 1

- Demonstrate an understanding of the role of activity in improving and maintaining fitness.

LEVEL 2

- Explain the principle of reversibility as applied to the heart and other muscles.
- Examine how to apply the principle of reversibility.

REVERSIBILITY ("USE AND DISUSE") : LEARNING EXPERIENCES

STUDENTS NEED EXPERIENCES WHERE THEY CAN :

LEVEL 1

- Appreciate the positive effect of an active lifestyle on the body.
- Analyse what happens to the body when you stop being active.
- Plan and engage in regular physical activity.

LEVEL 2

- Analyse the impact of reversibility on health and performance domains of fitness.

REVERSIBILITY ("USE AND DISUSE") : SAMPLE QUESTIONS

- Q :** What happens to your health and fitness when you begin to be active?
Q : What happens to your health and fitness levels when you stop being active?

SPECIFICITY : LEARNING OUTCOMES

STUDENTS SHOULD BE ABLE TO :

LEVEL 1

- Explain what is meant by the principle of specificity.

LEVEL 2

- Apply the principle of specificity to training for various physical activities and sports.

SPECIFICITY : LEARNING EXPERIENCES

STUDENTS NEED EXPERIENCES WHERE THEY CAN :

LEVEL 1

- Identify the relationship between the nature and demands of a physical activity, and training for that activity.
- Link specific training activities to training and preparation for an activity.

LEVEL 2

- Analyse an activity/sport and apply the principle of specificity in identifying a training activity for it.

SPECIFICITY : ACTIVITIES

CLASS ACTIVITY 17 : SPECIFICITY
STUDENT TASK 14 : ACTIVITY DIARY

SPECIFICITY : SAMPLE QUESTIONS

- Q :** Would a marathon runner and a discus thrower train differently? Why?
Q : How are sports activities different? What are the implications for the way you would train?



PROGRESSIVE OVERLOAD : LEARNING OUTCOMES

STUDENTS SHOULD BE ABLE TO :

LEVEL 1

- Understand the principle of progressive overload.
- Understand the implications of the F.I.T.T. formula for training and general well being.

LEVEL 2

- Consider how progressive overload enhances training outcomes.
- Understand the application of the F.I.T.T. formula when planning a fitness training programme.

PROGRESSIVE OVERLOAD : LEARNING EXPERIENCES

STUDENTS NEED EXPERIENCES WHERE THEY CAN :

LEVEL 1

- Apply the progressive overload principle to different health and performance related components of fitness.
- Experience different activities where progressive overload is applied.

LEVEL 2

- Plan an eight week training programme for a chosen component of fitness.

PROGRESSIVE OVERLOAD : ACTIVITIES

CLASS ACTIVITY 15 : OVERLOAD, CLASS ACTIVITY 16 : VARYING INTENSITIES
STUDENT TASK 6 : CHANGES IN THE BODY, STUDENT TASK 14 : ACTIVITY DIARY

PROGRESSIVE OVERLOAD : SAMPLE QUESTIONS

- Q :** What does progressive overload mean?
- Q :** If you want to improve your (name particular component) what changes do you have to make to the way you exercise or undertake an activity?
- Q :** What does F.I.T.T. stand for?



VARYING INTENSITIES

ADDITIONAL INFORMATION

The recommendation for health of young people is 60 minutes of moderate intensity activity every day (ACSM, 2005). These 60 minutes can be accumulated throughout the day combining activities such as walking to school, PE, sport and leisure activities such as swimming or dancing.

However to get fit for a specific sport or activity or to increase the benefits for cardiovascular health, the principles of training must be applied.

PRINCIPLES OF TRAINING :

REVERSIBILITY :

If you are fit but stop being regularly active, the level of fitness will decline ("use it or lose it"). The body loses muscle much more quickly than it is gained .

PROGRESSIVE OVERLOAD :

In order to increase fitness, demands on the body must be increased progressively.

SPECIFICITY :

In order to achieve specific fitness outcomes you must exercise the specific muscles/muscle groups involved. The effects of training are limited to the systems trained, e.g. running does little to improve muscular strength.

SMARTER PRINCIPLE : GOAL SETTING AND PLANNING FOR PHYSICAL ACTIVITY

SPECIFIC GOAL :

Need to clarify exactly what you want to achieve.

MEASURABLE :

Can you see if you achieved it? What is the target time, distance, performance?

AGREED :

With coach, PE teacher or other.

REALISTIC :

Given your current position is it likely to happen and do you think you can achieve it?

TIME :

How long will it take? Put a target date on it (days/weeks/months/school year).

EXCITING :

Does the goal motivate you?

RECORDED :

Write it down and record your progress.

(CONTINUED OVERLEAF)



PRINCIPLES OF TRAINING
AREA OF STUDY : ALL AREAS

OVERLOAD CLASS ACTIVITY 15

Action
Health Related Activity **FOR LIFE**



OBJECTIVE :

Apply the progressive overload principle.

1. A running circuit (50 to 80 meters) is set out around the perimeter of the hall or outdoors with cones placed at various intervals around the circuit to indicate the starting point for each team.
2. Students are placed into teams of 4 or 5 members.
3. Each team is given a relay baton and stands at a cone on the perimeter of the running area. The first runner of each team takes his/her place on the running circuit.
4. Teams are required to run for a continuous period of 5 minutes in a relay format with a baton change on each circuit.
5. Repeat the activity reducing the number of runners on some teams by 1, 2 or 3 members and increasing the numbers on remaining teams. Students should have the opportunity to work on larger and smaller teams to experience overload and reduced load.
6. Discuss the progressive overload principle and effect of the activity on the body.

NOTE: Using different size teams emphasises the progressive overload principle.

Q1 What changes occurred in your heart rate, breathing, temperature?

Q2 Does the activity make the same demands of every team?

BATON CHANGE RELAY

Q3 How is overload applied here?





PRINCIPLES OF TRAINING
AREA OF STUDY : ALL AREAS

OVERLOAD CLASS ACTIVITY 15

LEARNING EXPERIENCE :

- ♥ Monitor student's level of exertion through applying the progressive overload principle.

TEACHING TIPS :

- 1) Ask students to comment on their heart rate, and rate of exertion during the activity by raising their hand, indicating with the appropriate number of fingers their position on the Gears' scale.
- 2) A ball may be added and students asked to dribble, solo etc around the circuit.
- 3) Be aware of the fitness levels of individual students – do not overextend students.
- 4) Overload can be introduced by altering the Frequency, Intensity, Time and Type in teams.
- 5) Introduce the basic function of the muscles and identify main muscle groups.

EQUIPMENT :

- Stop watch.
- Relay batons - one per team.
- Cones.
- STUDENT TASK 6 : CHANGES IN THE BODY

BACKGROUND INFORMATION FOR THIS ACTIVITY :

- Progressive overload definition
- F.I.T.T. Formula.

SAFETY POINTS :

- Students run in the same direction.
- When passing another runner, pass on the outside and do not push.
- Runners must not obstruct each other.
- Waiting runners must stay clear of the running circuit.
- Batons must be handed on and may not be thrown.
- Students should change direction in their second attempt.
- Do not overextend students.



PRINCIPLES OF TRAINING
AREA OF STUDY : GAMES

VARYING INTENSITIES CLASS ACTIVITY 16

OBJECTIVE :

Experience and appreciate the principle of **progressive overload**.

1. During a small-sided game the regular ball is replaced with a 1kg ball.
Game continues.

Small-sided game example :

- a) Students play 'Ball Tag' in two teams of four in a 10m x 10m grid.
 - b) Team in possession catches the opposing team members by touching a player with the ball.
 - c) No running with the ball.
 - d) Ball may not be thrown at an opposing player.
 - e) When caught students must stand legs astride. A player can be released when a teammate goes under their legs.
2. Original ball returned. Repeat the game

Action
Health Related Activity **FOR LIFE**



Q Why might the teacher introduce a heavier ball?

VARYING INTENSITIES



PRINCIPLES OF TRAINING
AREA OF STUDY : ALL AREAS

VARYING INTENSITIES

CLASS ACTIVITY 16

LEARNING EXPERIENCE :

- ♥ Consider how progressive overload improves activity or exercise levels.

TEACHING TIPS :

- 1) Alternative to going under legs :
 - a) run around players outstretched arms.
 - b) run once around player.
2. A weighted ball may be counterproductive in fine skills development.

EQUIPMENT :

In addition to equipment needed for original activity :

- Weighted ball or Pass Developer Rugby ball.
- STUDENT TASK 14 : ACTIVITY DIARY.

BACKGROUND INFORMATION FOR THIS ACTIVITY :

- **Progressive** overload and specificity definitions.
- F.I.T.T. Formula.

SAFETY POINTS :

- The weighted ball needs to be of a weight appropriate to the age and development of the students.
- The ball must be thrown in a way that it is possible to safely receive it.
- Students must not kick the weighted ball.



PRINCIPLES OF TRAINING
AREA OF STUDY : GAMES

SPECIFICITY CLASS ACTIVITY 17

OBJECTIVE :

Identify the relationship between the nature and demands of an invasion game e.g. basketball, and specific training for that activity.

Perform a circuit of activities that specifically relate to basketball.

1. Chest passing : Partners stand 5 metres apart and chest pass as quickly as possible.
2. Running the square : Partners run around a 6 metre square grid in opposite directions. Stress body position and defensive stance when travelling.
3. Box rebound : Partner A stands on a 5 section box holding a ball about half a metre from partner's reach. Partner jumps to take ball and jumps again to return ball.
4. Wall-tipping : Both partners stand facing a wall and throw a ball against a wall with arms held high up, keeping the ball above a line at a height of 3 metres.
5. Agility dribble : Partners dribble ball through an agility circuit.
6. Rebounding : Partner A throws ball at backboard. B jumps high to take rebound, arms fully extended. B repeats for A and so on.
7. A rope is set at 3 metres, both partners working. Pass the ball over the rope from a range of 2 metres, then run to a similar point on the other side to catch the ball after the first bounce. Do the same on return.
8. Lay-up : Stand 5 metres away from the basket, dribble the ball and execute a lay-up shot, first from the right and then from the left; keep alternating with one partner following the other.

Students work 30 seconds on and 30 seconds off. 3 minutes rest between circuits.

Action
Health Related Activity **FOR LIFE**



DRIBBLE A BASKETBALL

Q.1 How can each activity improve your basketball performance?

Q.2 What are the main fitness demands in a game of basketball?



PRINCIPLES OF TRAINING
AREA OF STUDY : ALL AREAS

SPECIFICITY CLASS ACTIVITY 17

LEARNING EXPERIENCE :

- ♥ Students participate in a sport specific circuit designed to improve performance within that sport.

TEACHING TIPS :

- 1) Identify the specific demands of basketball and emphasise specificity as a principle of training.
- 2) Develop circuits to suit other activities as appropriate.

EQUIPMENT :

- Basketballs.
- 5-section box.
- Rope/net.
- Cones.
- Gym mats.

BACKGROUND INFORMATION FOR THIS ACTIVITY :

- Specificity definition.

SAFETY POINTS :

- Safe distance between stations in the circuit.
- Basketballs returned to a safe zone on completion of each station activity.
- Head up on all movement activities.



PRINCIPLES OF TRAINING

ACTIVITY DIARY STUDENT TASK 14

Action
Health Related Activity **FOR LIFE**



Keep a record of your activity levels for one week. Intensity can be measured as – easy, moderate or hard. At the end of the week, identify one activity you would like to change, and decide how you would improve on that aspect using the F.I.T.T. Formula :

FREQUENCY : How often?

INTENSITY : How hard?

TIME : How long?

TYPE : What type of activity?

DATE	ACTIVITY	TIME	INTENSITY	HOW I FELT



