

LESSON NO: 6

~~ENDURANCE~~

ENDURANCE TRAINING : The objective of ~~the~~ endurance training is to develop the energy production system(s) to meet the demands of the event.

TYPES OF ENDURANCE

1. Anaerobic Endurance
2. Aerobic Endurance
3. Speed Endurance
4. Strength Endurance.

TRAINING METHODS FOR IMPROVING ENDURANCE

1. CONTINUOUS TRAINING METHODS -
2. INTERVAL TRAINING METHOD
3. REPETITION METHOD
4. COMPETITIVE AND TRIAL METHODS
5. CIRCUIT TRAINING METHOD

1. Continuous Training Method:

Dr. Ernest Van Aaken, a German physician and coach is inventor and popularizing this system of training. Continuous training, as the name implies, involves continuous activity, without rest intervals. This has varied from high intensity, continuous activity of moderate duration to low-intensity activity of an extended duration, i.e. long, slow distance or "LSD" (Long-Slow Distance) training. The long distance runner maintains a pace that is just below his racing pace. This has been a very effective way of training endurance athletes without requiring high levels of work that are stressful and uncomfortable for the athlete.

LSD training is probably the most widely used method of endurance conditioning for maintaining health-related fitness purpose, for development of general endurance through general conditioning and to maintain endurance ability during off-season.

2. Interval Training Method:

Woldemar Gerschler, Professor, University of Freiburg, Germany and Dr. Hans Reindell, Physiologist developed Interval Training Method. This training method helps to improve the efficiency of Cardiovascular fitness through Cardiovascular Conditioning. They believe that this system of training helps to increase the heart's stroke volume, hence its ability to deliver more volume of oxyhemoglobin blood to the working muscles.

The name of the system comes from the "interval" or rest period, between the fast runs which is the important aspect of workout need to be controlled carefully. It is believed that the heart adapted and become stronger during the interval and by considering this next repetition for the runner should not be allowed until pulse rate had returned to 120 beats per minute. Violating this overload symptoms may occur like fatigue, exhaustion, negative attitude towards training etc.

Benefits of Interval Training:

- Improve anaerobic endurance performance
- Adapt the body to racing condition including race pace and high levels of lactate in the working muscles.
- Ability to ~~do~~ work more with less physiological strain in comparison to continuous running training method.

Shyamal Mazumder

W.B.E.S. (Asstt. Prof.), M.P.E.; M.Phil.;
Ph.D.; Dip. in Coaching (F.B.)

3. Repetition training Method:

This may be regarded as exercises which correspond in part to the requirements of competition being repeatedly performed during a training session. The intensity characteristic (movement parameters, frequency, velocity) depends on the actual level of performance (performance capacity) or aim and objective of the training. Break must be provided between two repetition following complete recovery principles.

4. Competitive and Trial Method:

Endurance capacity of an athlete for a particular event should be developed entirely by means of competitions and trials. This method helps the athlete to concentrate on their competition distance. The factors have to be adjusted in a way that the physiological and psychological effects as well as frequency and technique correspond ideally with the competitive conditions.

5. Circuit Training Method:

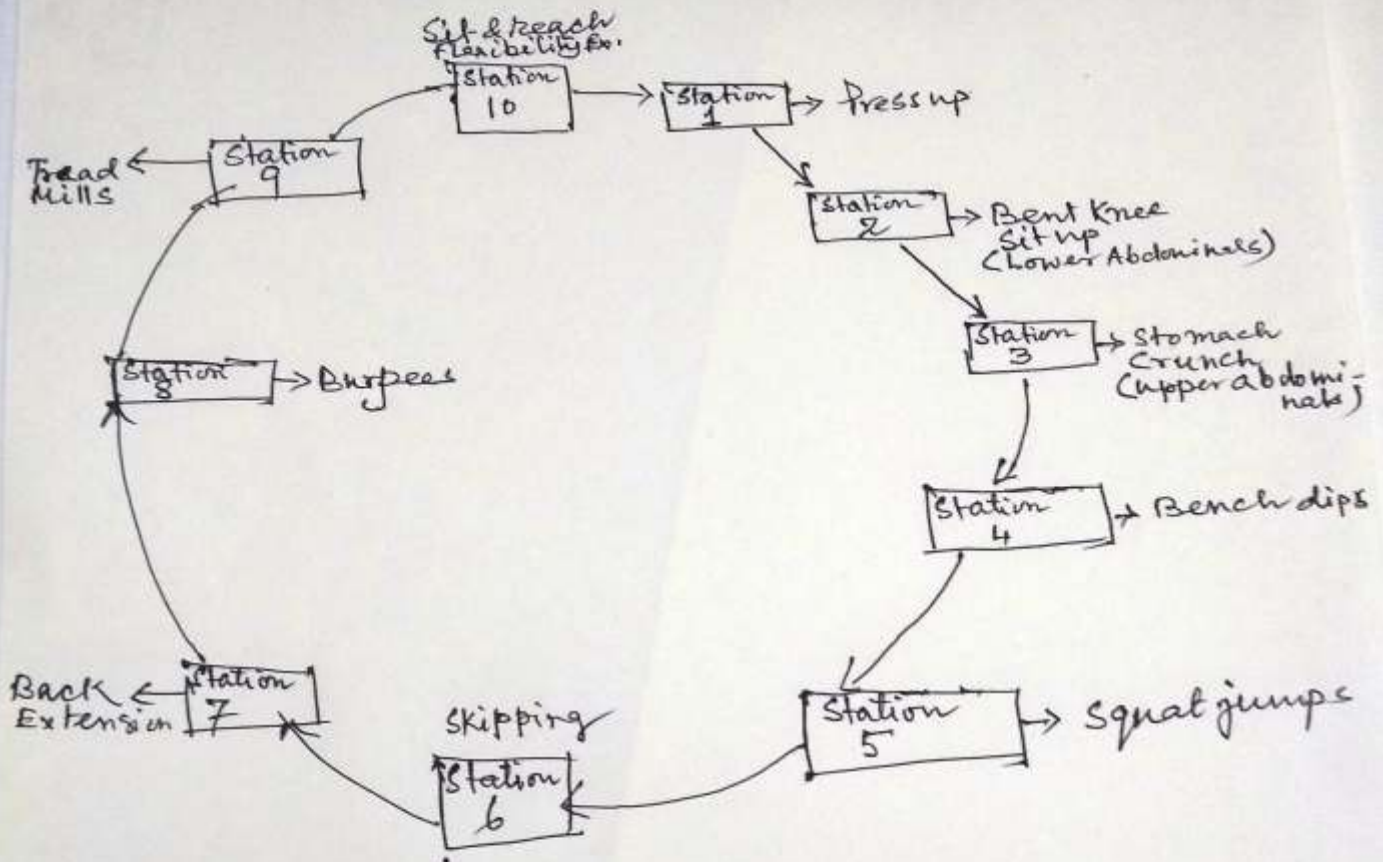
Circuit Training Method was introduced by R.E. Morgan and G. T. Adamson in 1953 at the University of Leeds, England. Circuit training can help to improve endurance, strength, power, speed, agility and neuromuscular coordination, flexibility and cardio-respiratory endurance.

It's a formal type of training in which trainees go through a series of selected exercises based on nature of activity that are performed in sequential manner or in a circuit. Circuit can be setup inside Gymnasium, fitness room, or outside on courts and field. This can be organised in a small area. Normally a circuit consist of 6-10 stations. The athlete performs a specific exercise at each station and then goes to the next station. The idea is to progress through the circuit as rapidly as possible by following against the time allotted for the exercise to be executed in specific station or against repetition of each exercise. For greater effect of the cardiovascular system, the arrangement of the stations may be done/distributed covering a wider space, so that the athlete has to cover more distance for better cardiovascular conditioning.

Advantages of Circuit Training

1. Through this training a number of fitness components may be improved (cardiovascular and muscular endurance, speed, strength, power, flexibility, co-ordinative ability)
2. It provides an interesting environment for development of positive attitude towards the training of the concerned athlete and there are established times and levels to motivate the athlete to continue improving.
3. Circuit stations numbers can be selected on the basis of age, sex and level of performance capacity of the athlete and can be modified as and when required.
4. Circuit training programme can be organised with a small area and within specified time by considering time constraints of the individual.
5. It can accommodate large numbers of individuals at a relatively low expense.
6. In circuit training proper progress of the athlete can be assured through compact setups and monitoring by the organiser/coach.

MODEL OF CIRCUIT TRAINING



Exercise Dose

1. 30 Seconds work on each exercise with a 30 Seconds recovery (rest) between each exercise.
2. 3 Sets with 3 minutes recovery between each set.