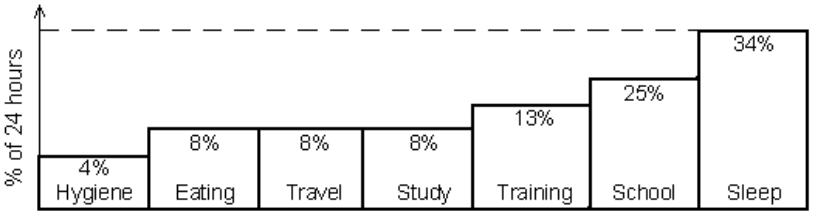
ATHLETICS OMNIBUS – FUNDAMENTALS OF COACHING

From the Athletics Omnibus of Richard Stander, South Africa

1. INTRODUCTION

The physiological aspect of training is very important in coaching. However, physiological conditioning can not be dealt with in isolation. Many factors will have a direct impact on the effectiveness of the physiological preparation of the athlete. The diagram shows proportionally the amount of time spent on physical training on an average day.

The diagram shows proportionally the amount of time spent on physical training per day. All athletes have only 24 hours available each day of which ± 13% are spend on physical training.

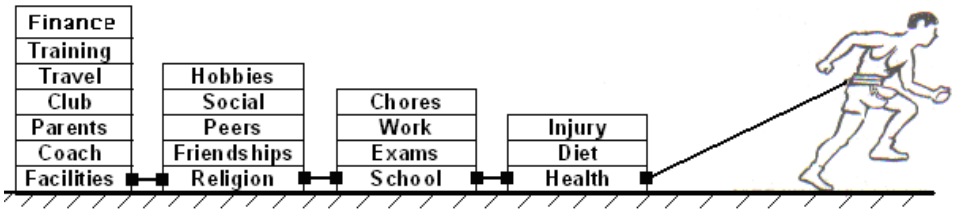


Activities of the averaged athlete during a 24 hour day

During the remaining "non athletics" part of the day, the athlete will sleep, go to school or work, study, travel, eat and taking care of personal hygiene. Each of the "non athletics" activities will also require a certain amount of energy.

The coach should give guidance to the athlete on how to prioritize his or her athletics activities and "non athletics" activities.

If the athlete's "non athletics" activities are not prioritized, the physiological training of the athlete will become just another burden for the athlete to carry.



Factors to consider when conditioning the athlete

The greatest single "non athletics" factor that will influence the athlete is the athlete's personal financial situation.

Expenses for food, supplements, accommodation, attire, equipment, entry fees and travel expenses may force the athlete to retire or scale down the level of involvement in athletics.

The greatest single factor that will influence the athlete's physiological and psychological growth is the athlete's geographic location. If the athlete stays far away form the training venue, the club or the coach, the athlete may have to stand up very early in the morning and return very late at night.

Too little sleep will diminish the capacity of the athlete to develop both physiologically as well as psychologically. The coach will have to assist the athlete in making alternative accommodation arrangements closer to the training venue, the club and coach.

2. CONDITIONING OF CHILDREN

Coaches working with children must keep in mind that both the body and the mind of the child are not fully developed and are continuously changing.

Any form of physiological and psychological conditioning should be avoided during infancy, childhood and puberty phases. Physiological and psychological conditioning should at the earliest be introduced at the adolescence phase of growth development.

Puberty is regarded as the golden age of skill learning and mental capacity growth. During this period the child wants to learn skills and the word "why" will appear in almost every sentence. The child is now more capable of learning then any other development phase in the live of the child.

Because of the child in the puberty phase's natural willingness to learn new skills, it is tempting to subject the child too physiological and psychological conditioning in preparation for highly competitive competitions.

Specialization, both physically and psychologically must be avoided during puberty to avoid the suppression of the development of basic athletics skills of a wide variety. There is sufficient scientific evidence that athletes specializing too young, are injury pruned and suffer regularly from staleness during the adolescence period.

Athletes that developed a wide variety of skills, and are allowed to play with little external physiological and psychological pressures during puberty have 500% better chance to achieve success in later developmental phases than athletes specializing during puberty.

3. PRINCIPLES OF TRAINING

The general reason why people train is to raise the level of fitness. The reasons for becoming fit may not include excellence objectives and will not require intensive training. It is therefore important that the coach establish why the athlete wants to get fit because the answer will influence the way the athlete will approach any form of physical or psychological activity.

If the reason for training is excellence driven, the coach must establish if it is:

3.1. Intrinsic e.g. to master new skills, to compete and win, to make friends, to become fit, etc.
3.2. Extrinsic e.g. to win medals, trophies, money, etc.

If the novice athlete provides reasons of an extrinsic nature, the coach should encourage the athlete to become involved in athletics for intrinsic reasons first e.g. in the initial stages of training, the athlete should try to improve on his or her personal best performance, rather than try to win the gold medal at the IAAF World Championships or Olympic Games.

4. THE 7 SPECIFIC PRINCIPLES OF TRAINING

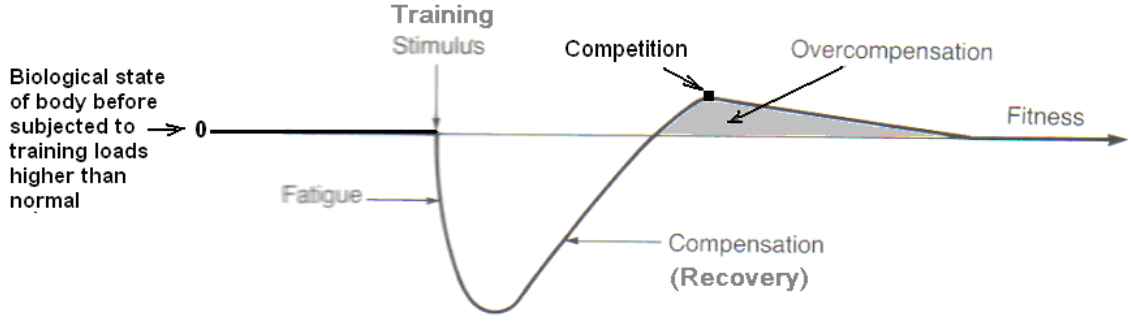
For the athlete to excel in athletics with measurable and predictable results, it is important to subject the athlete to a systematic training process which will prepare the athlete for the chosen event in athletics.

The duration of systematic conditioning may take years and this must be pointed out to the athlete on a regular basis. The process of conditioning should consist of training programmes which specific objectives to achieve. A successful training programme should be based on the following specific principals:

4.1. THE PRINCIPLE OF OVERLOAD

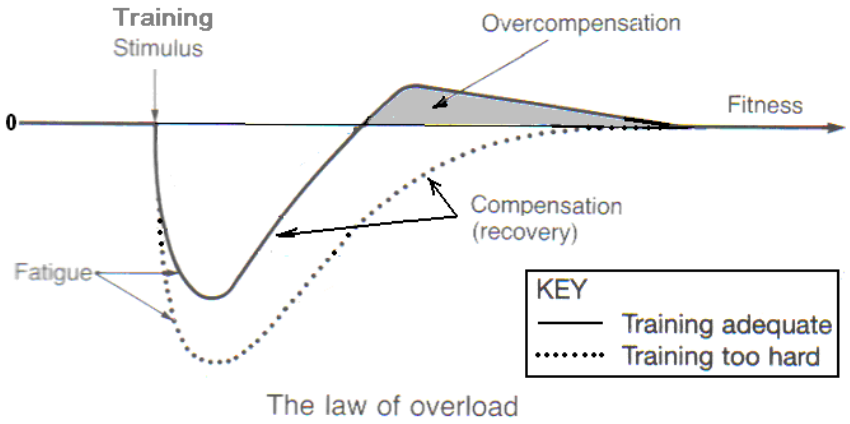
To improve the fitness level of the athlete, the athlete will require a specialised training intensity higher than the current fitness level of the athlete. The increased training loads will cause the body to fatigue to a level lower than the normal level of fitness. Due to the level of fatigue in the body, a period of sufficient rest must follow the specialised training.

During the rest period, the body will recover and the fitness level will rise higher than the original level, provided that the training load was neither too great nor too little. This biological reaction of the body to training is called overcompensation. For an athlete to peak at the right time, the tendency of the body to overcompensate must be well planned.



The law of overload

If the training load is not intensive enough little overcompensation will take place. If the training load is too intensive, the body will recover to slow and will merely return to normal. This condition is called overtraining.



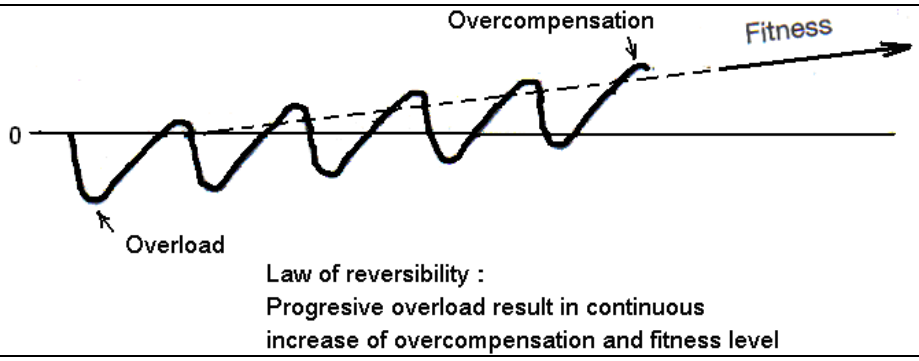
The law of overload

4.1.1. WHAT FACTORS WILL INFLUENCE THE OVERCOMPENSATION CURVE?

- The more balanced the training program in the early part of development, the more effective the compensation curve will be when needed.
- The athlete's fitness level, e.g. training load capacity and rate of recovery will determine the performance level and duration of the peak.
- The more advanced the skills, the better the performance will tend to be.
- The athlete's physical maturity, e.g. age, experience in the sport, capacity for effort and performance. A higher maturity level will lead to a more effective control of the performance.
- The athlete's health status.
- Personality type. A too high level of tension can reduce the effect of overcompensation.
- Body build. Stronger muscles will cope better with the increased energy level.
- Sexual differences, especially during puberty. Males and females react differently to training.
- If the athlete do not clearly understand the goal and reason for each training session. The goal to achieve must be as vivid as possible. Use audio- visual aids, such as videotapes of the athlete's performances. The feedback is required in setting the goals.

4.2. THE PRINCIPLE OF REVERSIBILITY

The training ratio (training with a higher load followed by a recovery phase) has a direct influence on the increase or decrease of the performance level of the athlete.

	As the level of training intensifies, the overcompensation of the body progressively increases and the fitness level will improve as demonstrated in the diagram.	

Once the body has adapted to a particular training load, adaptation ceases. The level of loading can be increased by means of:

4.2.1. Number of repetitions

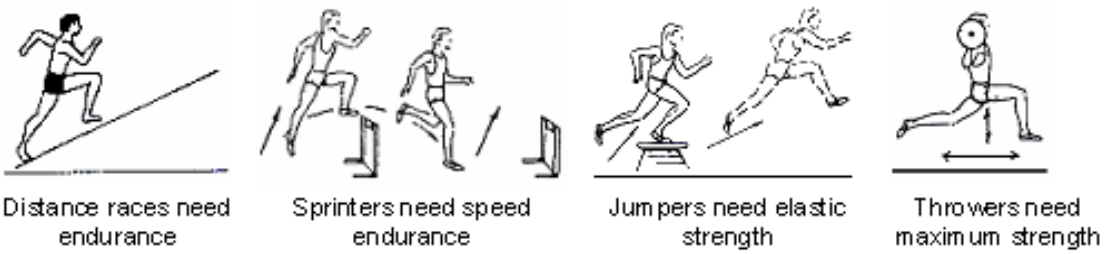
4.2.2. Faster repetitions
4.2.3. Heavier weights
4.2.4. Shorter recovery

If the rest periods are too long between repetitions, the athlete's fitness level will increase very slowly or might even drop.

However if the training load is repeatedly too much or rest periods continuously to short, the athlete will not recover sufficiently to cope with the next training load, causing overtraining and a subsequent decrease in performance. When this happens, the training load must be reduced and an active rest phase is suggested.

4.3. THE PRINCIPLE OF SPECIFICITY

The training loads must be specific to the event the athlete is preparing for, to ensure an increase in the performance level. The marathon athlete must do predominantly endurance training to increase the performance level, while the Shot Putter must do predominantly strength training to increase the performance level.



However, specific training will be of very little value, without a proper general training preparation period. The greater the volume of general training, the greater the capacity of the athlete to cope with specific training will be and the risk of overtraining are significantly smaller.

4.4. THE PRINCIPLE OF INDIVIDUALISM

Each individual will respond differently to training. Factors that cause athletes to respond differently to training are:

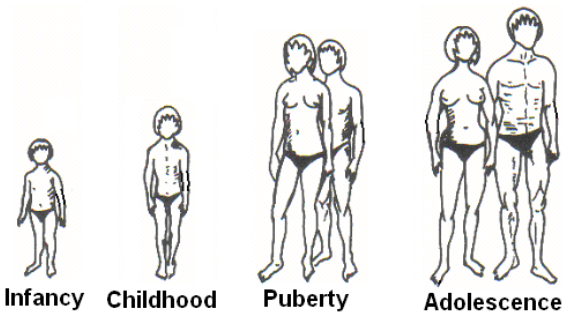
4.4.1. Gender

The gender of the athlete will determine the physiological and psychological capacity of the athlete.

Generally, men have a larger physiological capacity then women, and women have a larger psychological capacity the men.

4.4.2. Age

The chronological age of the athlete will determine the level of physiological and psychological development of the athlete.



The physiological and psychological capacity of the athlete will determine the level and intensity of the conditioning.

4.4.3. Developmental age

All athletes do not develop according to their chronological age. Some athlete develop the physiologically and psychologically faster than other athletes. The physiological and psychological age differences can be as much as 4 years.

4.4.4. Training age

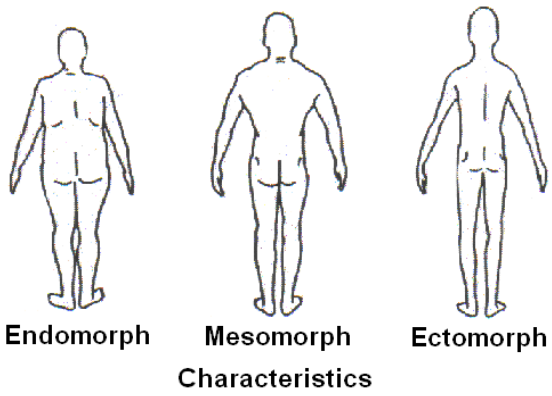
The fitness level of athletes will vary according to the length of time that the athlete was training in the past. The number of years that an athlete has been training will determine the level of fitness.

4.4.5. Heredity

Athletes inherit physical, mental and emotional characteristics from their parents.

The characteristics can be changed but with limited success.

The body will always have a tendency to favour the inherited physical, mental and emotional characteristics from their parents.

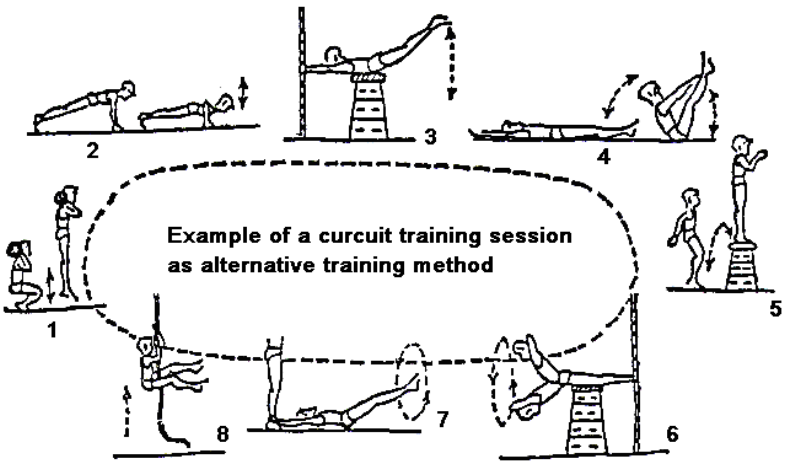


4.5. THE PRINCIPLE OF VARIETY

Due to the intensity of, and need to recover from training, variety must be build into the training program. The intensity of the training will cause mental rather than physical strain. A change of environment or an entirely different type of physical activity for a period of time might be needed for recovery.

Achieving success in athletics can be a long term process. For the athlete to remain interested, motivated, and to enjoy athletics, the coach must change the training environment regularly. This can be done by:

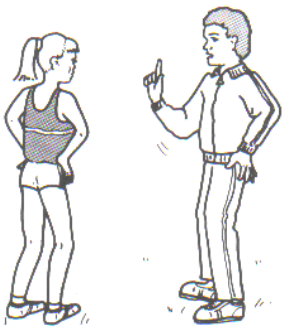
- Varying the training methods
- Change the surroundings
- Change the training intensity
- Change the time of day
- Change the training group



4.6. THE PRINCIPLE OF ACTIVE INVOLVEMENT

For the relationship between the coach and the athlete to work, the relationship should be based on a combination between the athlete's effort and coach's skill. A skilful coach will convince the athlete to:

- Remain active in the sport
- Willingly participate in the sport
- Become educated in the sport
- Make the skills of the sport his or her own
- Take responsibility for his or her own actions



4.7. THE PRINCIPLE OF REST

Athletes needs more rest than non-athletes. The body repairs its own tissues, but it requires it's "off' time every day. The average athlete requires 8 - 10 hours of sleep each day to recuperate sufficiently for the next training session.

Rest plays a very important role in the training program. For an athlete to improve on his previous best performances, or to peak at the right time, the athlete will have to plan the rest periods constructively. The duration and frequency of rest periods will depend on how the principles of training were applied.

The following 3 points should be considered when a rest period is planned:

4.7.1. To avoid serious injuries, moderation must always be kept in mind during training. The human body can take far more stress than it is generally given credit for.

However, it needs to adapt to heavier stresses gradually, by making use of sufficient rest periods.

4.7.2. Consistent training on a reasonable level should be done every day. If a few days of training are missed, the body loses its form.

A day or two of extra-hard training does not make up for the loss, and will lead to injury and illness due to a lack of rest.

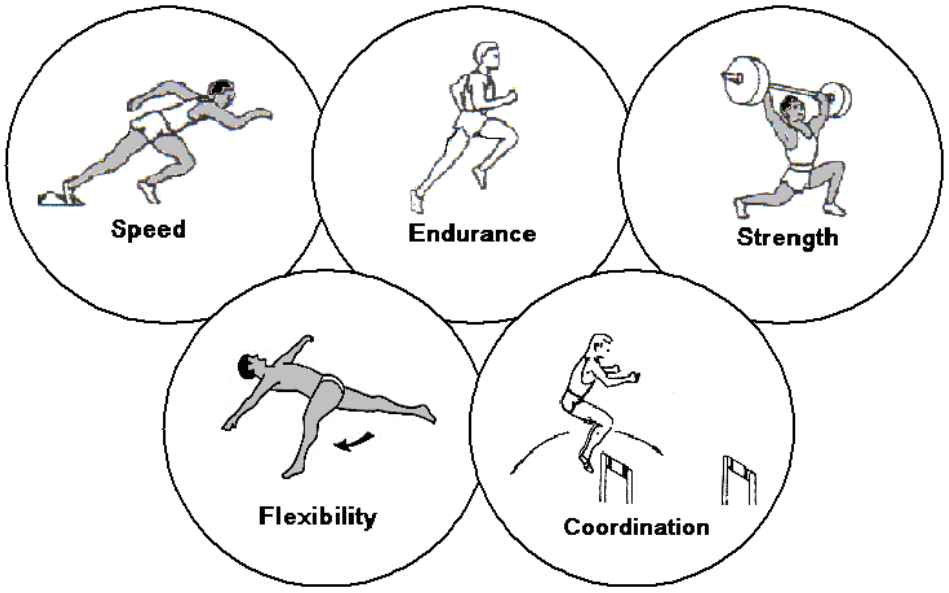
4.7.3. More training loads create extra physical stress, which calls for more recovery time. The body makes its adaptation to stress when the body is at rest, rather than during stress.

This is a part of the principle of overloading. Peak performance can only be achieved after a moderate, constant increase in training load, followed by sufficient rest.

5. MOTOR ABILITIES

A balanced training programme of an athlete will consist of 5 types of exercises. Each of these exercises will develop specific biomotor abilities and which are called speed, endurance, strength, flexibility and co-ordination.

None of the 5 biomotor abilities can be developed in isolation. When one of the biomotor abilities is developed, the other biomotor abilities will also develop in proportion with the intensity and duration of the exercise.

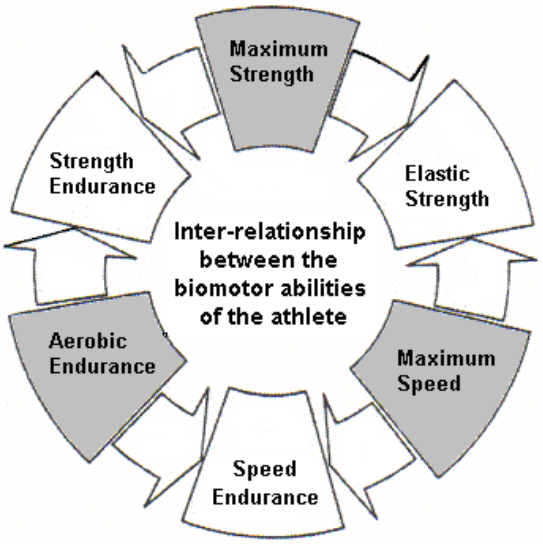


The 5 basic biomotor abilities required in a fitness programme of an athlete

When an athlete does training that require running at maximum speed regularly, the maximum speed of the athlete will increase. If the maximum speed exercises consist of several repetitions, speed endurance will also be developed. Because of the frequent accelerations required during the repetitions, elastic strength will also be developed.

If the athlete runs long distances frequently, the aerobic endurance of the athlete will increase. Because of the many times that the knees must be lifted during long distance running, the athlete also develops strength endurance. Because long distance running requires maintaining speed over long distances, speed endurance will also develop.

If the athlete picks up weights at maximum capacity regularly, the athlete's maximum strength will increase. If the athlete picks up weight at maximum weight several times, strength endurance will develop. Because of the jerking actions required to do weight training, elastic strength will also develop.



5.1. SPEED

Speed in athletics means the rate of change of the athlete's position. The capacity to move fast is not a natural motor ability and needs to be developed on a regular basis. The various athletics events require different types of speed.

There are generally 4 different types of speed that are used in the different events:

5.1.1. MAXIMUM SPEED

For an athlete e.g. a sprinter, maximum speed refers to fastest time the body move from start to finish e.g. in the 100m.

5.1.2. MAXIMUM CONTROLLABLE SPEED

For an athlete e.g. a jumper, it will mean the maximum speed during take-off without losing control of the limbs. For a thrower it will mean the speed of a limb during the delivery of an implement.

5.1.3. SPEED ENDURANCE

For the athlete e.g. the distance athlete, it will mean the longest period of time the athlete can maintain a specific speed during a race e.g. 1500m.

5.1.4. REACTION TIME

The reaction time in an event can be the deciding factor between winning and losing. The sprinter is very dependent on the reaction time between a stimulus and the first movement of the body e.g. the firing of the starter's gun and the athlete's movement out of the starting blocks.

The reaction time of the athlete when dipping over the finish line can also be the deciding factor between winning and losing. The timing of releasing the implement in the throws e.g. the javelin, will determine the delivery angle of the implement and the distance the implement will travel between delivery and landing.

5.2. ENDURANCE

Endurance, also referred to as stamina, is defined as the athlete's ability to sustain a work tempo at a given intensity over a period of time.

Endurance forms the basis for the development of all motor abilities. Without endurance it will be difficult to do many repetitions of exercises required to master a specific motor ability, technique or skill.

There are 2 basic types of endurance:

5.2.1. AEROBIC ENDURANCE

Aerobic endurance is a muscular work tempo at a pace that requires predominantly oxygen as "fuel" for muscle contractions. This oxygen based "fuel" manufacturing process is generally needed in slower muscle contractions over longer periods such as the Marathon.

5.2.2. ANAEROBIC ENDURANCE

Anaerobic endurance is a muscular work tempo at a pace that requires "fuel" that is not oxygen based. Anaerobic endurance is an oxygen free "fuel' manufacturing process generally needed during quick, explosive contractions e.g. in sprints.

Anaerobic endurance allows the athlete to tolerate the lactic acid build up in the body during high intensity training such as weight lifting and sprints.

The main differences between aerobic and anaerobic endurance are:

	ANAEROBIC	**AEROBIC**
Intensity	90% - 100%	50%-75%
Duration	10 secs – 1 min	1 min and longer
Distance	80m-400m	300m and longer
Repetitions	1-5	3-20
Recovery between reps	2-10 mins	1-3 mins

5.3. STRENGTH

Muscular strength is defined as the ability of the body to exert force. All events in athletics rely on the muscular strength of the body. The body require muscular strength to execute the technique of the event effectively and economically.

Muscular strength also enables the muscles to respond more effectively to impulses from the central nervous system.

There are generally 3 types of muscular strength training:

5.3.1. MAXIMUM STRENGTH

For an athlete e.g. the throwing events the development of the maximum weight an athlete can lift is important.

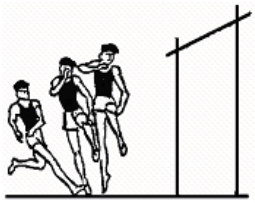
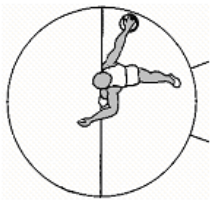
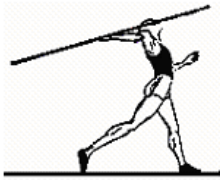
Maximum strength enables the athlete to exert enough force in a contracting muscle to throw heavy weights e.g. a 7.27km shot over large distances.

In the development of maximum strength the speed the weight is lifted and the time it takes to lift the weight is not as important as the weight lifted.

5.3.2. ELASTIC STRENGTH

For the athlete e.g. the jumper the development of elastic strength is important. The development of elastic strength requires the muscle to operate quickly against heavy but not maximum force.

Elastic strength enables the athlete to execute explosive movements at critical phases of the movement e.g. the take-off in the jumps, the delivery in the throws, driving out of the starting blocks, etc.

5.3.3. STRENGTH ENDURANCE

Strength endurance is the combination of strength and the duration of the movement. For the endurance athlete e.g. the 5000m athlete, strength is required when the body is exhausted.

Due to the nature of distance races the muscle requires muscle strength that can remain functional over long periods of time rather than executing large force.

5.4. FLEXIBILITY

Flexibility is sometimes also called suppleness or mobility. The range of movement that a joint in the body can do is referred to as the flexibility, mobility or suppleness of the joint or limb. The greater the flexibility of the joint or limb, the more effective the muscles will be able to apply force on the joints and bones. Poor joint or limb flexibility are the most common cause of poor technique and performance.

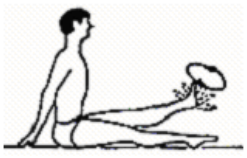
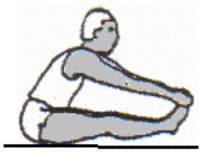
Flexibility of the joins or the limbs will significantly reduce the injury risk during training or competition. Flexibility can be improved with regular flexibility exercises and can slow down the loss of flexibility as a result of aging.

There are 3 recommended ways to develop the flexibility of the joints:

5.4.1. ACTIVE FLEXIBILITY

Active flexibility of the joints is done when the muscles are not assisted in any way. During active flexibility exercises the joint limb is stretched slowly until maximum resistance is experienced in the joint muscles and ligaments.

Active flexibility exercises are recommended during the beginning stages of a warm-up and stretching session.

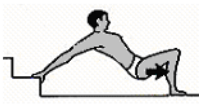



5.4.2. KINETIC FLEXIBILITY

Kinetic flexibility takes place during the fast movements of body limbs. The weight of the limb will apply the momentum of the limp under stress until maximum resistance is experienced in the joint muscles and ligaments.

Active flexibility exercises are recommended during the final stages of a warm-up and stretching session when the muscles are warm and the blood circulation in the body is faster.



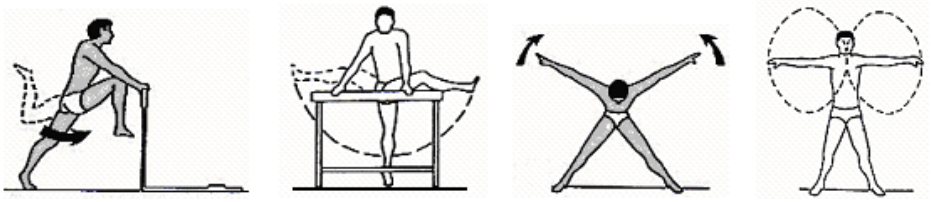
5.4.3. PASSIVE FLEXIBILITY

Passive flexibility exercises are applied with the assistance of external force. A partner, equipment, etc. are used as external force on the joints until maximum resistance is experienced in the joint muscles and ligaments.

Active flexibility exercises are recommended during the final stages of a warm-up and stretching session when the muscles are warm and the blood circulation in the body is faster.

Passive flexibility exercises are done after training sessions or after recovery of injuries or long periods of inactivity. Passive flexibility exercises are applied in an attempt to regain the mobility of the joint, or to try and push the joint beyond its normal range of movement.

Passive flexibility exercises are never applied prior to competition. The muscle takes to long to recover from passive flexibility exercises and will not be fully recovered by the time the competition starts.



5.5. COORDINATION

Coordination must not be confused with flexibility. Coordination can be defined as the capacity of an athlete to execute technically advanced movements fairly easily. Flexibility refers to the range of movement of the joint or limb.

Athletes with good coordination will master new skills much faster and with less time delay, less effort and lower injury risk.

The best time to develop coordination is during puberty (between the ages of 8 to 13). Puberty is regarded as the golden age of skill learning and the development of coordination. During this period the child wants to learn skills. The child is now more capable of learning then any other time in the career of the athlete.

Specialization must be avoided during puberty to avoid the suppression of the development of coordination associated with basic athletics skills of a wide variety. There is sufficient scientific evidence that athletes specializing too young, are injury pruned during the adolescence period.

Athletes that developed a wide variety of skills during puberty have 500% better chance to achieve success in later development phases than athletes specializing during puberty.

6. PERIODIZATION

To ensure that the athlete is systematically prepared, it is important to periodize the conditioning of the athlete. Periodization will help the athlete to:

- Optimize the improvement of a performance
- Utilize competitions in preparation for peak performance
- Peak at the right time

Periodization may consist of various phases or cycles of training leading up to either one or two peaks in one calendar year.

Generally it is better to have only one peak per year. It is however from time to time necessary to peak twice in on season. The reason maybe because of the athlete is:

- Returning from an injury and need to test if he is capable of optimal performance
- If the technical soundness of the technique needs to be tested
- Preparing for other competitions linked to event where peak performance is required, e.g. to qualify for the Olympic Games.

Double periodization is very taxiing on the resources of the body. The body will be subjected to high intensity training for a large part of one year which increase the injury risk and overuse symptoms.

Double peak should be used sparingly and should to be repeated for more than 2 years in a row.

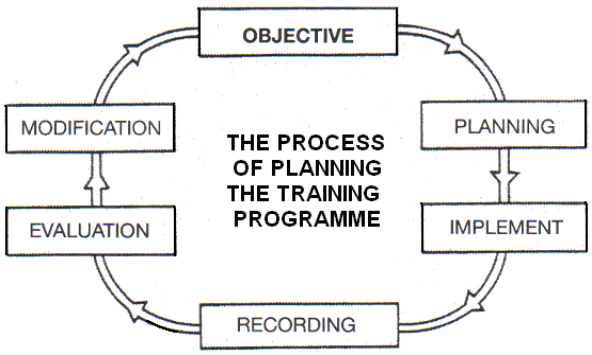
The following athletes should not attempt double peaking:

- The novice athlete
- Athletes that is not well conditioned
- Athletes that recently changed events

6.1. THE PROCESS OF PERIODIZATION

The process of periodization will go through the following phases of preparation:

6.1.1. OBJECTIVE



An objective is a statement, in writing, with a firm date fixed to it, describing some change, gain or achievement.

The athlete must discuss with the coach what he or she wants to achieve and when they would to achieve the objective.

With the help of the coach, the athlete's objective must be formalized and written down. The coach must remind the athlete on a regular basis of the objective to be achieved.

6.1.2. PLANNING

Nobody hands you excellence on a silver platter. You earn it through planning, preparation and persisting in the face of all obstacles. The most accurate way to predict when and how the objective must be met is to plan it.

Between the start of the first training session and date the objective is achieved, the coach and the athlete must plan together the conditioning of the athlete up to the point the objective is met.

The planning should specify the type of training, the intensity of the training, intermediate objectives that lead up to the ultimate achievement, etc.

6.1.3. IMPLEMENT

Nothing great was ever achieved without enthusiasm. It is important that the athlete execute training programme with enthusiasm.

The challenge however is not only to pursue excellence but to do so without destroying the rest of your life.

6.1.4. RECORDING

You can not manage what you can not measure. It important for the athlete to record the quantity and quality of each training session as well as the time date and performance of each objective met.

The recorded information will be needed when the athlete's progress is evaluated.

6.1.5. EVALUATION

The ingredients of success consist of a healthy balance between productivity, good management and good leadership.

During the evaluation process the productivity of the athlete must be evaluated, e.g. where the set objectives met. Reasons must be identified why the objective were not met, e.g. where the volume of the repetitions or the intensity of training correct; was the training sessions regular, was the athlete injured, etc.

6.1.6. MODIFICATION

It is only through making mistakes one can learn and grow. If objectives were not met, and there is a clear understanding why the objectives were not met, be prepared to change the objectives or the training programme.

Good leadership on the part of the coach will guide the athlete in resetting objectives if necessary.

6.2. THE CYCLES OF PERIODIZATION

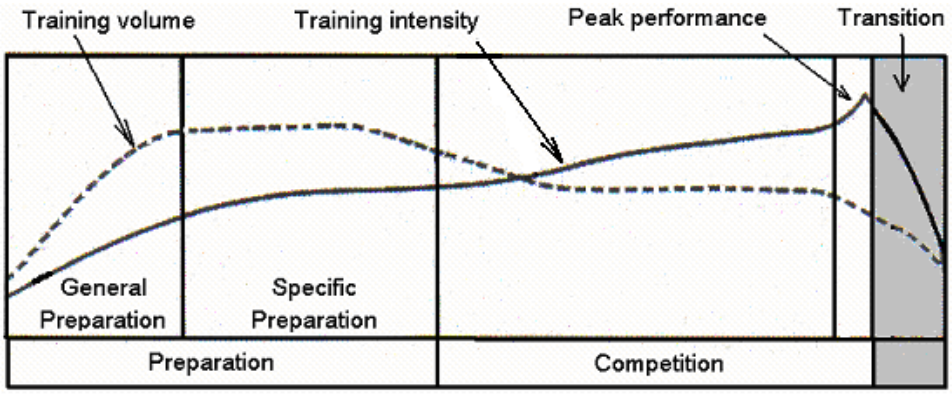
The training programme of the athlete will be compiled in cycles of varying duration. The macro cycle will be the longest and the micro cycle the shortest. The cycles relate to each other like a gig-saw puzzle. They can be dealt with independently but will only form a complete picture once all cycles are completed.

6.2.1. THE MACRO CYCLE

The macro cycle will have objectives measured over one year, one Olympic Cycle (4 years), the adolescence phase 14 – 19 years, etc. A macro cycle will consist of a series of meco cycles.

6.2.2. THE MECO CYCLE

The meco cycles will be 4 – 6 weeks but can be as long as a few months depending on the length of the macro cycle. The meco cycles are identified as:



MECO CYCLES IN THE MACRO CYCLE

6.2.2.1. A PREPARATION CYCLE

The preparation cycle consist of 2 sections:

- **GENERAL PREPARATION ALSO CALLED THE CONDITIONING PHASE**

  During the preparation cycle the conditioning of the athlete is gradually phased in. Initially, the training intensity will be low and will gradually be increased until the athlete is ready to cope with the high volume and intensity of the training in the Specific Preparation phase.

  To avoid injury or overtraining, the intensity of training during the conditioning phase is very seldom higher than 80% of the maximum capacity of the athlete.

  It is also during the conditioning phase while the training volume and intensity is low, that lots of time is spend on the development of motor abilities such as co-ordination and the technique of the event.

- **SPECIFIC PREPARATION**

  During the Specific preparation phase the focus of the training gradually changes from quantity to quality. The intensity of training during specific preparation will be more frequently more than 80% of the maximum capacity of the athlete.

  The intensity of the training increases to prepare the athlete for high intensity training during the competition cycle.

6.2.2.2. **A COMPETITION CYCLE**

During the competition cycle the intensity of the training will be significantly higher and more frequent. Due to the frequent high intensity training during the competition cycle, the rest phases will also be much more frequent to allow for recovery.

Because of the high intensity of the training during the competition cycle, it will be shorter than the preparation cycle.

6.2.2.3. **THE PEAK CYCLE**

The intension of the peak cycle is to get the body to overcompensate to ensure peak performance during the targeted event e.g. the Olympic Games.

The peak cycle will consist of 3 main ingredients: Event specific training of high intensity, lots of rest at strategic times, and a well balanced diet.

The duration of the peak cycle will not be longer than 4 – 6 weeks to avoid injuries and overuse symptoms.

6.2.2.4. **TRANSITION CYCLE**

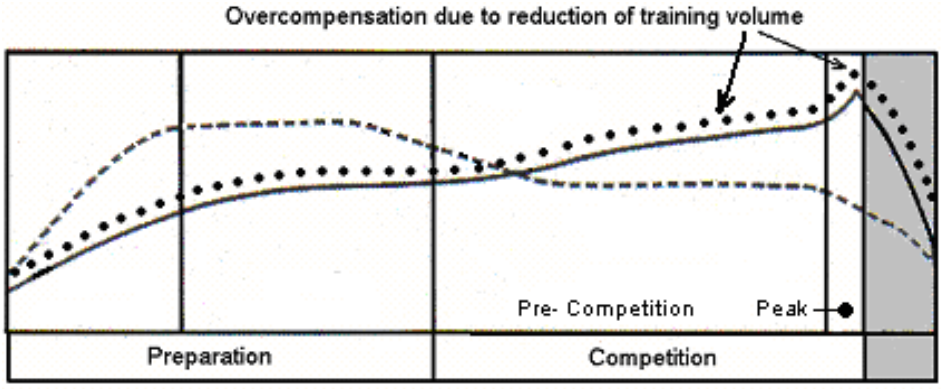
The transition cycle serves as a well deserved rest after an intensive competition season. The length of the transition cycle will depend on the length and intensity of the competition season, but should not be shorter than 2 weeks but can be as long as 3 months.

During the transition cycle, the athlete should avoid any form of physiological and psychological activities that will challenge the biomotor skills of the athlete. The transition cycle is generally an active rest period where the athlete trains without testing his or her physical abilities.

In the beginning of the transition cycle the athlete are most likely to be emotionally unstable as a result of the physiological and psychological strains of the competition season.

The coach and athlete should delay the planning of the new season towards the end of the transition cycle when the athlete has sufficiently recovered and are more objective.

Each of the abovementioned meco cycles will have specific objectives to achieve as reflected in the graph. How the body overcompensates as a result of the increase in the quality and the reduction of the quantity of the training is illustrated in the graph below:



6.2.3. THE MICRO CYCLE

The micro cycle will have objectives measured over one week and can be as short as one training session.

The training volume of each micro cycle on average must be more than the previous micro cycle to ensure a continuous increase of the fitness level.

3 week training cycle

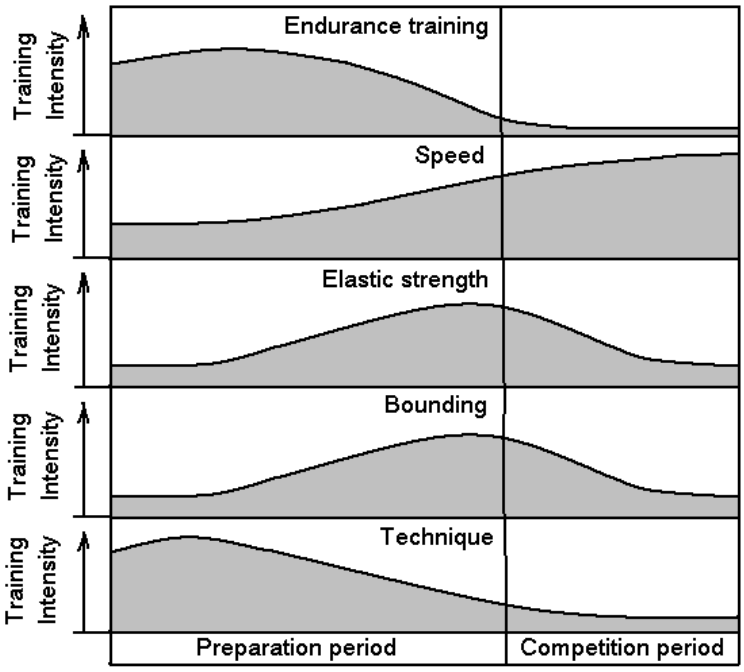
Of all the cycles, the micro cycles must be the most detailed and the most time should be spent in preparing it.

The motor abilities should be developed in accordance to the athlete's individual talents.

Each event will have its own needs for endurance, speed, strength, speed, co-ordination and flexibility.

The diagram demonstrates how the motor abilities for jumpers are developed.

It illustrates that all motor abilities are not all developed at the same time.



A general training programme for the jumps

While the intensity and volume of endurance training is high, the intensity and volume of speed training is low.

Likewise, the volume and intensity of elastic strength and bounding is low, the focus is on technique training.

6.3. THE PLANNING OF EACH TRAINING SESSION IN A MICRO CYCLE

The training session is the most basic form of conditioning in the training programme. How many training sessions per week the athlete will do, will depend on the training age of the athlete.

The novice athlete will train only 3 - 4 days per week with one training session per day in the initial stages. The more advanced athlete may train 5 – 7 days per week with one training session per day.

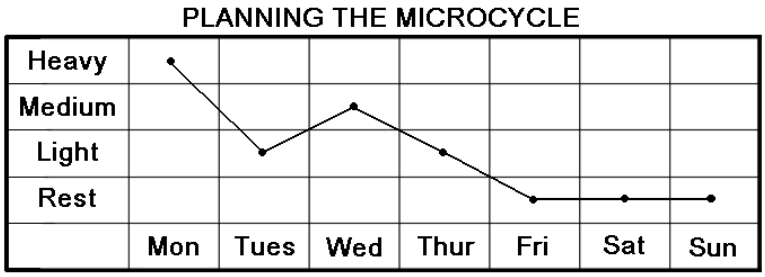
The elite athlete may train up to 12 times per week, which means on some days 2 training sessions per day will be done.

Each training session, irrespective the volume or intensity will consist of a:

6.3.1. Warm up session
6.3.2. Stretching session
6.3.3. Skills session
6.3.4. Fitness session
6.3.5. Warm down session

The diagram shows the training programme of a novice athlete in the preparation period. The line graph reflects a heavy training session on Monday, a light training session Tuesday, a medium training session on Wednesday and finally a light training session on Thursday.

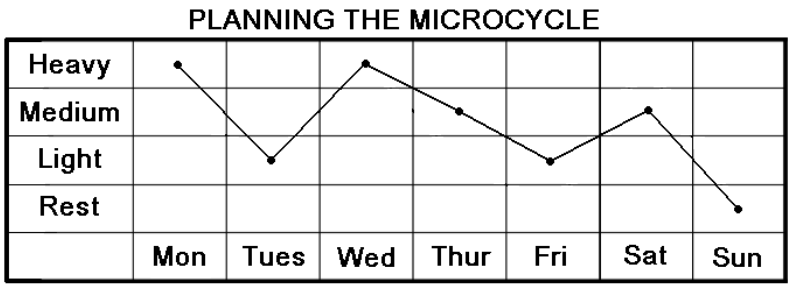
Finally the graph reflects 3 days rest to allow for the novice athlete's muscles to recover from muscle pains as a result of the training.



Microcycle of a novice athlete - Preparation Period

The diagram shows the training programme of an advanced athlete in the preparation period.

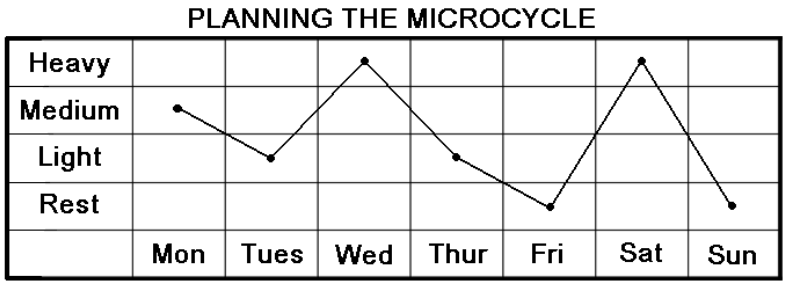
The line graph reflects a heavy training session on Monday, a light training session Tuesday, a high training session on Wednesday, a medium training session on Thursday, and a light training session on Friday. On Saturday, a medium training session will take place and the training week will be rounded of with a rest day.



Microcycle of an advanced athlete - Preparation Period

The diagram shows the training programme of a novice athlete in the competition period.

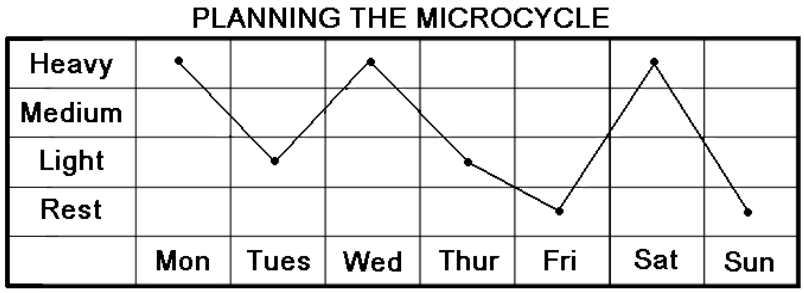
The line graph reflects a medium training session on Monday, a light training session Tuesday, a heavy training session on Wednesday and finally a light training session on Thursday. Friday the athlete will rest and on Saturday the athlete will compete. Finally, Sunday is a rest day to allow for recovery.



Microcycle of a novice athlete - Competition Period

The diagram shows the training programme of the advanced athlete in the competition period.

The line graph reflects a high training session on Monday, a light training session Tuesday, a heavy training session on Wednesday, a light training session on Thursday. Friday the athlete will rest and on Saturday the athlete will compete. Finally, Sunday is a rest day to allow for recovery.



Microcycle of an advanced athlete - Competition Period

6.4. INFORMATION NEEDED FOR ACCURATE PERIODIZATION

6.4.1. A record of previous performances
6.4.2. The training history (commitment) of the athlete
6.4.3. The biological age of the athlete
6.4.4. The training age of the athlete
6.4.5. Day to day record of athlete's previous training
6.4.6. The competition programme for the next year
6.4.7. Injury record
6.4.8. Illnesses record
6.4.9. Growth record
6.4.10. Weight record
6.4.11. Menstruation record

6.4.12. RECORDING TRAINING

An example of a training diary is shown below. The following information must be completed on a weekly basis:

- Name and Surname of athlete
- Name of the coach of the athlete
- Name of the manager that take care of the athlete's competitions
- Macro cycle e.g. 2nd year
- Meco cycle e.g. preparation
- Micro cycle number e.g. week 3 of 6
- Next objective e.g. 10.55 in 100m

- Macro Cycle objective: 10.40 in 100m at National Championships
- Comments – Warm up and Stretching e.g. hamstring is saw
- Comments – Skill session e.g. 5 x 5m “wind sprints”
- Comments – Fitness: 5 x 150m “hollow sprints” x 3 sets, rest 5 min between sets
- Comments – Warm down: Nagging pain in ham spring
- Comments – Health e.g. menstruation started today
- Comments – Weather e.g. very hot

TRAINING RECORD

Name of athlete:	Week starting: dd: mm: yy:	
Name of coach:	Name of Manager:	
Macro cycle no:	Meco cycle:	Micro cycle no.
Next objective to achieve:	Macro cycle objective:	

DAY	Comments warm up/stretch	Comments skills session	Comments fitness session	Comments warm down	Health	Weather
Mon						
Tues						
Wed						
Thur						
Fri						
Sat						
Sun						

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