BTEC SPORT




Knowledge and Assessment Organiser

Unit 1 Fitness for Sport and Exercise

Learning Aim B

Student name: ……

Contents

What's the Story?

My name is Morgan Lake and I am the current British high jump champion, I dream of being an Olympic champion and always want to be the best I can be. I am aware to reach optimal levels of performance requires years of dedication to training. I work closely with my coach to gain an appreciation and understanding of the different fitness components, training principles, training methods and fitness tests which can be incorporated into my training regime to further enhance and improve my sports performance. As a sports performer I train regularly to improve and maintain my fitness levels and performance. With my training programme tailored to my specific training need. As a performer my training cycle incorporates lots of different fitness training methods, incorporating different fitness training methods keeps training interesting, which helps to keep motivation levels high.

Why does this matter?

- To improve your performance in a specific sport it is important to identify the components of fitness that are most important, so you know how to plan effective training.
- You need to understand how to structure your training programme, through understanding the principles of training for the training to be effective and lead to improvements in performance.
- You need to be able to identify how hard you are working to know if training is having an effect.

Sounds familiar?

In KS3 you will have participated in fitness lessons, where you will have identified different components of fitness and also tested your own fitness levels.

Big Question

To understand different fitness training methods

Small Question

1. What are the requirements when carrying out fitness training?

Small Question

2. Explain the three types of flexibility training?

Small Question

3. Explain the training methods can be used to improve strength, muscular endurance, and power?

Small Question

4. Explain the four training methods that can be used to improve aerobic endurance?

Small Question

5. Explain the three training methods that can be used to improve speed?

Small Question

6. Apply the principles of training to the training methods that we have covered?

Curricular Concepts

Have you ever noticed how some of the things you study in one subject appear in another subject too?

(All of the essential knowledge is healthy living in TASK A)

Students are able to understand their work more and remember more if there are clear links between subjects. Throughout your learning at Colton Hills, we will be asking you to think about some of the most important ideas in the world to enable you learning to be deeper than ever before. Look for these 'curricular concepts' in your learning.

SOCIAL JUSTICE

CULTURAL DIVERSITY

CIVIC RESPONSIBILITY

TECHNOLOGICAL PROGRESS

PRECIOUS PLANET

HEALTHY LIVING

ETHICAL ENTERPRISE

CREATIVE ARTISTRY

Training Methods

- **Circuit training**
- **Continuous training**
- **Fartlek training**
- **Interval training**
- **Plyometric training**
- **Hollow sprints**
- **Acceleration sprints**
- **Static stretching**
- **Ballistic stretching**
- **Proprioceptive neuromuscular facilitation**
- **Free weights**

Exploring different training methods

The safety aspects to consider when completing any training:

- Safe and correct use of equipment.
- Safe and correct application of training techniques.
- Complete a warm up and cool down.
- Apply the basic principles of training.
- Ensure the method of training is right for the component of fitness you are trying to develop.

What to consider when looking at each training method

- The advantages and disadvantages for each training method in relation to a specific sport and athletes experience.
- The intensity of the training method.

- To ensure the principles of training have been applied correctly.

Flexibility Training

Static

Active stretching

The performer applies an internal force to stretch and lengthen the muscle.

Passive stretching

Requires the help of another person or object. The other person/object applies external force causing the muscle to stretch.

Often used as parts of a warm up

Ballistic stretching

- Fast jerky movements through a complete range of motion. Usually bobbing or bouncing.
- Specific to the movement pattern of the sport.
- Can cause muscle soreness and strains.
- **Should only be used by people with high levels of flexibility, greater risk of injury through this method.**

Proprioceptive Neuromuscular facilitation (PNF)

- Used to develop mobility, strength, flexibility or in rehabilitation programmes
- Can use a partner or an immovable object.

PNF technique with a partner

1. Performer stretches a muscle to the limit.
2. Partner holds the performer in this position (isometric contraction no shortening or lengthening of the muscle) for 6-10 seconds.
3. Relax the muscle
4. With the help of a partner a static passive stretch is performed to enable the muscle to stretch further.

This technique stops the stretch reflex, so a greater range of movement can occur.

PNF-can help people recover from injuries, it is the quickest way to increase flexibility. It is used in rehabilitation when athletics have been injured. It is a controlled passive stretch.

Strength, Muscular Endurance and Power Training Methods

1. Free weights
2. Circuit training
3. Plyometrics

1. Free weights

- Performers can make there mucsules stronger by usig weights.
- Free weights are weights that aren't attached to machines.

- You can use free weights to improve strength or muscular endurance.
- You can target the particular muscles you want to improve.

- You must have good technique or you can injure your muscles.

Types of free weight exercises

Core exercises-these work muscles that make the spine and pelvis stable.

Assistance exercises-these work muscles that are specific to a sport.

How to exercise with free weights

- Always do core exercise before assistance exercises
- You should change between pull and push exercises

- Change between exercises for the upper and lower body.
- Good technique is vital as if its done wrong can lead to injury.
- Use a spotter to prevent harm to the performer.
- Two days rest between sessions in order for muscles to fully recover.
- Make sure that the correct body position and movement is carried out to ensure the activity trains the correct muscles in the correct way.
- Use a suitable weight that won't lead to injury.

Key terms of free weights

- Rep (repetition) is one specific movement, for example one squat.
- Set is the number of reps you do without a rest, for example 15 squats and then rest.
- Rest for 1-2 minutes between each set
- 1RM (one repetition maximum) the heaviest amount you can lift in one rep.
- You describe the intensity of training with free weights as a percentage of the 1RM.

Training for strength

- This helps muscles lift a large amount in one movement
- High loads and low reps, for example 90% 1RM and 6 reps.
- Longer rest period 3-5 minutes

Training for muscular endurance

- This helps muscles to keep repeating the same movement.
- Low loads and high reps, for example 50-60% 1RM and 20 reps.

Training for Elastic Strength

- This trains muscles to do lots of movement straight after each other, for example in gymnastics
- Medium loads and medium reps, for example 75% 1RM and 12 reps.

2. Circuit Training

- Circuit training develops strength, muscular endurance and power.
- In circuit training you do different exercises one after another.
- Each exercise is called a station.
- The exercises are put in an order where the same muscles are not worked straight after each other. This stops the muscles getting tired.

3. Plyometrics

- Plyometrics develops explosive power and muscular strength
- Plyometric exercises include bounding, hurdling, jumping and clap press ups.
- Force is needed to lengthen and then quickly shorten the muscle.

The working muscle lengthens when the sports performer lands. This is called an eccentric contraction.

The working muscle has to shorten quickly as the performer jumps. This is called a concentric contraction.

- Plyometrics is used to develop sports specific skills and can be adapted to suit the sport.
- Plyometrics is used by sprinters, hurdlers, netball, volleyball and basketball players.
- It's important to be careful with this type of training and to use the correct technique as it can make muscles sore.
- Not suitable for young athletes.

Aerobic endurance training methods

1. Continuous training
2. Fartlek training
3. Interval training
4. Circuit training

Continuous training

- Keep doing the same type of activity without having a rest
- The activity lasts for at least 30 minutes
- You keep going at the same pace at a medium intensity.
- No rest periods
- At 60-85% of your maximum heart rate

- You should complete 3/4 sessions a week to improve your aerobic endurance.

Fartlek Training

- Training involves changing intensity by:
    1. Changing speed
    2. Changing the steepness of the ground
    3. Running on different surfaces/terrains
    4. Using equipment

- No rest periods
- You can carry out farlek training in lots of different activties for example running, swimming or rowing.

Interval Training

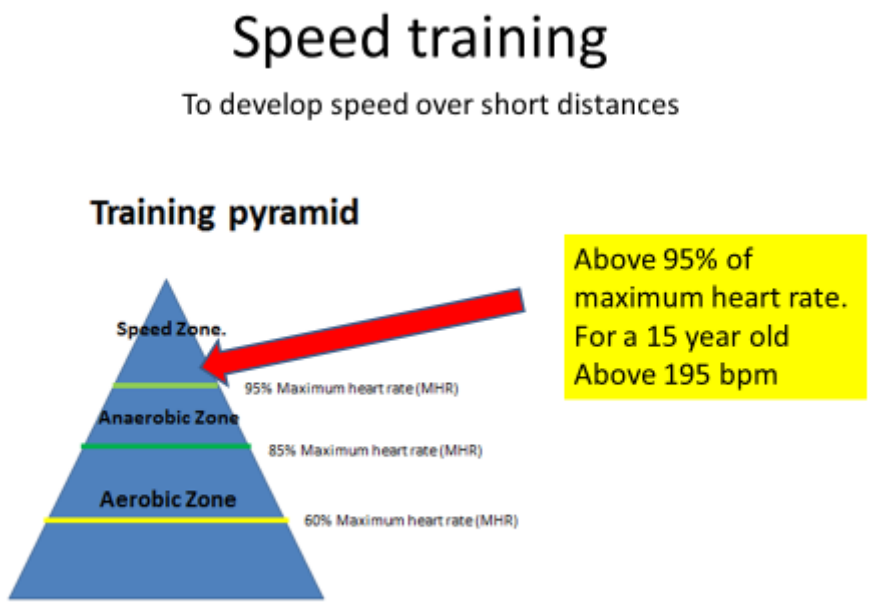
- You have a work period followed by a rest period
- To improve aerobic endurance you will have longer work periods and shorter rests.
- To imporve aerobic endurance you will train at a medium intensity
- Work between 60-85% MHR

Circuit Training

- Involves a series of different activties called stations which can be taliored towards the individuals needs.
- Stations should be varied and should never work on the same body part consecutively to reduce the risk of injury.
- You can change the intensity of the circuit by:
    - Time you spend at each station
    - Length of the rest between staions
    - Number of times you go round the circuit
    - The number of sessions you do a week

<u>Speed Training Methods:</u> involves going as fast as you can and then having lots of rest.

1. Acceleration Sprints
2. Interval Training
3. Hollow Sprints



Acceleration Sprints

- Improves acceleration
- You increase pace over a short distance
- You start standing still or rolling (easy jogging) and slowly get faster until you are running as fast as you can.
- In between each sprint you rest by jogging or walking.
- Used to improve acceleration from a static, moving or sport-specific position.
- You can make acceleration sprints harder by:
    - Doing hill sprints
    - Using a resistance (held back by a resistance band/parachute).

Interval training

- You have a work period followed by a rest or recovery period. This is then repeated. For example 30m high intensity followed by 1 minute rest, this is repeated 10 times.
- Rest can be sit, stand, walk or jog.
- To develop speed you work for short periods of time at high intensity. With longer recovery periods.
- The work period is close to maximum, so going almost as fast as you can.

Hollow sprints

- A sprint followed by a hollow period (jog/walk), this is then repeated a number of times.
- This is useful for a game player who has constant changes of speed during the game.
- Example:

50m Sprint (6-7 seconds)
50m Jog (25 seconds)
50m Sprint (6-7 seconds)
50m Walk (30 seconds)
50m Sprint (6-7 seconds)
150m Walk (90 seconds)

Repeated 5 times

Model Answer for the TASK B

Anna is 58 years old and has just started to take part in regular exercise at her local gym.
She took part in a sit and reach test and scored a below average result.

(a) Explain why Proprioceptive Neuromuscular Facilitation (PNF) training would be appropriate for Anna. (2)

Type your answer in the box.

(b) Explain why ballistic training would **not** be an appropriate training method for Anna. (2)

Type your answer in the box.

a) PNF stretching is a method of improving flexibility which Anna would need due to scoring a low level on the sit and reach test. PNF is a controlled passive stretch and is therefore lesson likely to cause injury. Due to Anna's age and that she is just starting to take up regular exercise it would be a good method to use as it is suitable for beginners or those with a low level of flexibility.

b) Ballistic stretching involves bouncing/jerky movements which can cause muscle injury. It should only be used by those people with high levels of flexibility and should not be used by those who are new to spirt or have a low level of flexibility as they are at a greater risk of injury.

Padraic is a cross-country runner. His training sessions include interval and fartlek training.

Explain why Padraic would use interval and fartlek training sessions to improve his performance. (4)

Padraic would use interval training to improve his aerobic endurance to enable him to run at higher intensities for longer periods of time and so that he can change his pace during the race and have a better sprint finish or can break away from other athletes during the race.

Padraic will use fartlek training to increase his ability to run at different speeds so that he can apply speed and pace appropriately throughout an entire cross-country race. Padraic will also use fartlek training to increase his ability to run over different terrains so that he is prepared for changes in terrain throughout an entire cross-country race.

Kelly is a 1500m runner who would like to improve her running performance.

(a) Explain how undertaking continuous training would improve Kelly's 1500m running performance. (2)

Continuous training will improve Kelly's performance by increasing her aerobic endurance which will increase efficiency of oxygen uptake and use so she can exercise for longer periods of time which would improve her running at 1500m

Jose has reviewed his training programme and decided to introduce free weights.

Explain **two** requirements for training with free weights. (4)

You must ensure you lift weights safely, using the correct technique and body position to avoid injury. This will ensure the activity trains the correct muscles in the correct way. You must use the correct weight to avoid injury.

Athletes must warm up and cool down to prepare mentally and physically for free weight training to prevent injury and gain maximum benefit from the exercise and minimise muscle soreness the day after.

FITT principles should be applied to ensure that the exercises are effective in achieving their goal.

To perform well hurdlers have to work on their flexibility.

Explain why hurdlers would use ballistic and proprioceptive neuromuscular facilitation (PNF) stretching to improve their performance. (4)

Hurdlers would use ballistic stretching to replicate the range of movement in several joints at the appropriate speed for the race so the during a race their muscles are used to performing those specific movements, having their muscles ready will prevent them to not become strained or injured during the high intensity demands of the race.

Hurdlers would use PNF stretching to improve their flexibility more quickly and efficiently than using any other type of stretching. Their increased flexibility will help them to stretch into correct hurdling positions and help prevent injuries.

Retrieval Quiz

When you can answer all the questions on this page without looking at any notes, you are ready for your exam.

Training Methods

1. Name the three methods for improving flexibility?
2. Name the four methods for improving aerobic endurance?
3. Name the 3 methods for improving speed.
4. Name the three methods for improving strength, muscular endurance, and power?
5. Which training method is being shown in the picture below?

6. Which training method is being shown in the picture below?

7. Which training method is being shown in the picture below?

Flexibility Training Methods

1. Name the three types of flexibility training?
2. Which type of flexibility training is used in rehabilitation?
3. Which type of flexibility training can lead to injury?
4. The two types of static stretches are?
5. What stretching involves fast and jerky movements?
6. What stretching will use sport specific movements?
7. Which stretching will involve the use of an external force to cause the muscle to stretch.
8. Which stretching uses an internal force to stretch the muscle?
9. What type of flexibility training method is shown below?

10. What type of flexibility training method is shown below?

Speed Training Methods

1. Pace gradually increasing from a rolling start to jogging, striding and then to a maximum speed, describes which type of speed training method?
2. A work period followed by a rest period describes which type of speed training method?
3. Sprints separated by a hollow period (walking/Jogging) describes which speed training method?

Strength, Muscular Endurance and Power training Methods

1. What is a REP?
2. What is 1RM?
3. What component of fitness would you be improving with high REPs and low loads?
4. What components of fitness would you be improving with low REPs and high loads?
5. What happens to the muscles plyometric training?

Aerobic Endurance Training Methods

1. Describe two ways how exercise intensity could be increased during a circuit training session?
2. Sofia has designed a circuit she has press-ups station 3 and bicep curls station 4, what is a problem with this circuit?
3. Explain one way a long-distance cyclist would adapt Fartlek training to suit the needs of their sport?
4. Name a key feature of interval training?
5. How would interval training differ between someone trying to improve their speed and someone trying to improve their aerobic endurance?
6. What is the minimum time you must train for in a continuous training session?

Retrieval Quiz – Answers

Training Methods

1. Name the three methods for improving flexibility? **Static stretching, Ballistic stretching and proprioceptive, neuromuscular facilitation (PNF)**
2. Name the four methods for improving aerobic endurance? **Circuit training, Interval training, Fartlek training, Continuous training**
3. Name the 3 methods for improving speed? **Hollow sprints, Interval training, Acceleration sprints**
4. Name the three methods for improving strength, muscular endurance, and power? **Plyomterics, Circuit training, Free weights**

5. Which training method is being shown in the picture below? **Circuit training**

6. Which training method is being shown in the picture below? **Free weights**

7. Which training method is being shown in the picture below? **Plyometrics**

Flexibility Training Methods

1. Name the three types of flexibility training? **Static stretching, Ballistic stretching, Proprioceptive neuromuscular facilitation (PNF).**
2. Which type of flexibility training is used in rehabilitation? **Proprioceptive neuromuscular facilitation (PNF).**
3. Which type of flexibility training can lead to injury? **Ballistic stretching**
4. The two types of static stretches are? **Active and Passive**
5. What stretching involves fast and jerky movements? **Ballistic stretching**
6. What stretching will use sport specific movements? **Ballistic stretching**
7. Which stretching will involve the use of an external force to cause the muscle to stretch. **Passive stretching**
8. Which stretching uses an internal force to stretch the muscle? **Active stretching**
9. What type of flexibility training method is shown below? **Active stretching**

10. What type of flexibility training method is shown below? **Passive stretching**

Speed Training Methods

1. Pace gradually increasing from a rolling start to jogging, striding and then to a maximum speed, describes which type of speed training method? **Acceleration sprints**
2. A work period followed by a rest period, describes which type of speed training method? **Interval training**
3. Sprints separated by a hollow period (walking/Jogging) describes which speed training method? **Hollow sprints**

Strength, Muscular Endurance and Power training Methods

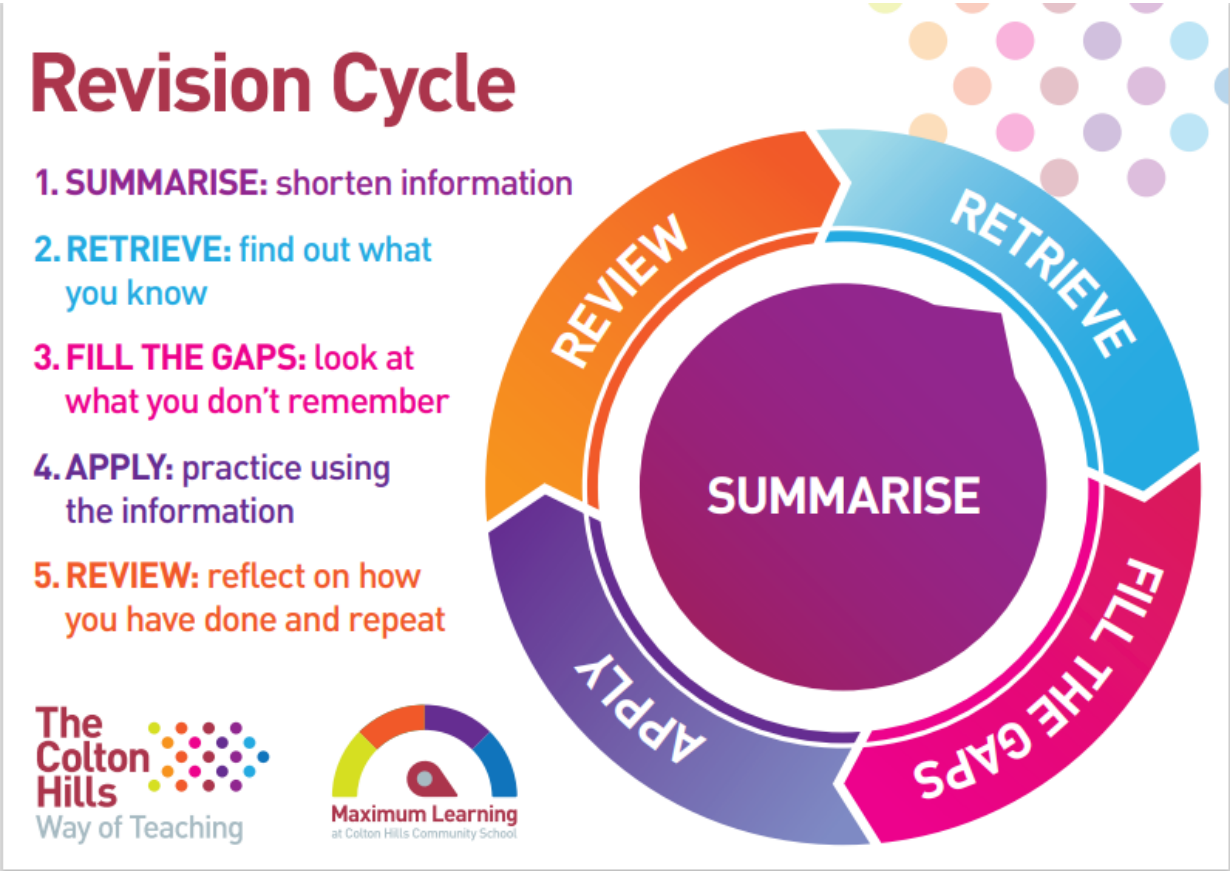
1. What is a REP? **A repetition, each lift is called a repetition.**
2. What is 1RM? **The maximum amount of weight a person can lift.**
3. What component of fitness would you be improving with high REPs and low loads? **Muscular endurance**
4. What components of fitness would you be improving with low REPs and high loads? **Muscular strength**
5. What happens to muscules during plometric training? **The muscles are forced to maximally eccentrically (lengthen) contact and then maximally concentrically (shorten) contact.**

Aerobic Endurance Training Methods

1. Describe two ways how exercise intensity could be increased during a circuit training session? **Increasing the work time at each station, shortening the rest between each station, repeating the circuit multiple times.**
2. Sofia has designed a circuit she has press-ups station 3 and bicep curls station 4, what is a problem with this circuit? **Both activities are using the muscles in her arms, this could lead to overuse of this body part.**
3. Explain one way a long-distance cyclist would adapt Fartlek training to suit the needs of their sport? **They would complete the training on their bike, use similar surfaces that they would be cycling over during a race.**
4. Name a key feature of interval training? **Period of rest followed by a period of work.**
5. How would interval training differ between someone trying to improve their speed and someone trying to improve their aerobic endurance? **For speed training you would have higher intensity work compared to aerobic**

endurance training. For aerobic endurance you would have shorter rest periods compared to speed training.

6. What is the minimum time you must train for in a continuous training session? **The session must be a minimum of 30 minutes.**



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Articles for Wider Reading and Flipped Learning

Train Like an Olympian: The Best Workouts for Sprinters

If you've ever wondered what it's like to train for superhero strength and ability, take a look at the life of an Olympic sprinter. These athletes are the total package: strength, power, speed, and explosiveness, all wrapped up into a lean, mean, running machine.

What does it really take to compete on the national stage when all you see on TV are sub-10-second races? Honestly: It's not fun. Most elite-level sprinters train about 20 hours a week for races that are just seconds long, with just slivers of seconds separating Olympic gold medalists from also-rans.

But even if you're not ready to race 2016 Olympic gold medalist Wayde van Niekerk—the first man to break 10 in the 100, 20 in the 200, *and* get anywhere close to 43.0 in the 400—you can still utilize sprinter-style training to shred fat, build muscle, and become the leanest you've ever been.

Part I: Training in the weight room

Start building some sprinting strength by incorporating these much-needed movements.

1. Power Cleans – *5 sets of 5 reps*

2. Barbell Squats – *3 sets of 6 reps*

3. Bench Press – *3 sets of 6 reps*

4. Plate and Bodyweight Complex Finisher – *3 supersets of the following:*
Chinups – *10* reps
Jump Squats w/plate – *12 reps*
Hanging Knee raises – *20* reps
Reverse Lunge w/knee drive – *8 reps on each leg*
Dips – *10 reps*
Sled Drag (40 ft.)

Part II: Training on the track

Always start with a dynamic warmup to prime the nervous system for fast movements.

<u>Dynamic warmup</u>

1. Skips – *50m*

2. Backward Skips – *50m*

3. High Knees – *50m*

4. Butt Kicks – *50m*

5. Backward runs – *50m*

6. Leg swings (front and back) – *10 reps*

Now you should be nice and fired up, ready to turn it loose on the track. The two track sessions below are devised to target different aspects in a sprinters' training—both vital to their competition prep.

Track training session I

Conditioning Run
8 x 200m. After each sprint, walk back to the start. Rest 2 minutes. Target time for each 200: 30 seconds or under.

Track training session II

Race Modelling Run
250m
150m x 2

Rest 90 seconds in-between reps and 8 minutes between sets.

Flexibility for Soccer

Soccer players will benefit tremendously from having a high level of flexibility and on this page we're going to understand

"flexibility", then dive into some detailed programs, offering increasing levels of flexibility.

a. Maintenance of range of motion prevents or relieves joint pain which accompany aging.

b. A greater range of motion prevents injury and saves energy.

c. Flexibility permits ease and grace in movement.

So what is flexibility?

Quite simply it is the range of motion about a joint. There are 3 categories of flexibility:

1. Dynamic flexibility -- this is your ability to perform dynamic movements within the full range of motion in the joint. An example is twisting side to side.

2. Static Active flexibility -- this refers to your ability to stretch an antagonist muscle using only the tension in the agonist muscle. An example is holding one leg out in front of you as high as possible. The hamstring (antagonist) is being stretched while the quadriceps and hip flexors (agonists) are holding your leg up.

3. Static Passive flexibility -- this is your ability to hold a stretch using your body weight or some other external force. Using the example above imagine holding your leg out in font of you and resting it on a chair. Your quadriceps is not required to hold the extended position.

A flexibility-training program can be made up of different types:

Sport specific strength training programs can have a dramatic effect on your athletic performance.

In fact good sports strength is a precursor to...

- Improved speed around the field, court or in a race
- A higher vertical jump to win more aerial challenges, score more baskets
- Increased distance in your golf game, taking the pressure off the shots that matter
- Being able to throw further and with greater accuracy
- The ability to kick with more power, distance and precision
- Being able to hit the ball or shuttle harder, putting your opponent under pressure with every shot
- The ability to hold off opponents and win challenges.

Training for your sport needs to be sports specific, but supported with a fitness program that will increase the areas where you need the most help. A program designed to mirror the moves made in soccer, but put more emphasis on strengthening those areas are the best.

These programs could include the following:

- Functional weight training programs prepare muscles, ligaments and tendons for more intense, specific strength training later on.
- They help seasoned athletes to regain balance, strengthening under-developed muscles and reducing the risk of both short and long term injury.
- These programs provide an important form of respite to strength training athletes, giving the body rest whilst counteracting losses in fitness.

The duration of these weight-training programs varies between individuals. If you're a beginner follow a functional strength program for about 8-10 weeks before moving onto more strenuous types of weight training programs. If you're a strength training veteran... 3-5 weeks should be enough.

Each of these functional weight-training programs works all the major muscle groups each session. Try to perform 2-4 sessions per week depending on your fitness level and experience.

One more important point to remember...

Gradually build up the load or resistance as you progress. This will give your body the best preparation for crossover to the more intense types of weight training programs.

Factors affecting flexibility

Age -- decrease in the extensibility of soft tissue with aging is related to d diminished range of movement as we grow older, independent of gender (decrease in flexibility can be significantly slowed down if we keep active).

Gender -- females exhibit a greater range of movement, independent of age.

Activity -- active individuals exhibit a greater range of movement than sedentary individuals (so keep active!). Also, inactivity is strongly associated with increased adipose tissue which decreases flexibility.

Internal Tissue Temperature -- changes in internal muscular temperature may increase or decrease the range of motion by as much as 20 percent (so always "warm-up" first!).

Heredity -- appears to be joint specific (this notion needs more scientific proof, however).

Injury -- scar tissue resulting from injury hinders the range of motion in a joint.

Pain -- as pain increases, muscle spasm results and, therefore, flexibility is decreased.
Strength training does not decrease flexibility unless you do the exercise improperly and not in the full range of motion.

Specificity of flexibility

Flexibility varies considerably between the different joints of the body.
Also, flexibility varies considerably between articulations within the same joint (articulations are the different movements of the joint: flexion, extension, adduction, abduction, rotation).

Continuous participation in a particular activity will result in a unique pattern of flexibility, due to the mechanics of joint and tissue stress inherent in the activity. In other words, most goalies or most defenders (etc.) will tend to be flexible in the same ways.

Dangers of Excessive Flexibility

Hyper mobility has been shown to predispose an individual to
a number of musculoskeletal injuries.
Therefore, it is imperative that adequate muscular strength
be developed in conjunction with flexibility.

Methods and Guidelines for Soccer Flexibility

Types of Stretching Exercises

a. **Static** or slow-sustained stretching -- a steady position which elongates, muscles, tendons, ligaments, and fascia.
b. **Dynamic or ballistic** stretching -- a bobbing, bouncing movement, involving muscular contraction, which moves into and out of an elongated position.

Proprioceptive neuromuscular facilitation **(P.N.F.)** a maximal contraction of the muscles to be stretched followed by relaxation of that same muscle and progressive stretching of it. The maximal isometric contraction helps in the relaxation of the muscle to be stretched which allows for more lengthening of the muscle.
While the P.N.F. is believed to be the most effective flexibility development method, its drawbacks are a need of a helper, a longer period of time, and a higher degree of pain for success.

Implementation of Flexibility Training for Soccer

Static stretching is preferable to ballistic (dynamic) stretching because:

- In ballistic movement, there is a danger of exceeding the extensibility limits of involved tissue, thereby causing injury.
- Static stretching promotes muscle relaxation by reducing sensory activity and muscle spindle tension.
- Ballistic stretching tends to elicit pain and soreness both during and after exercise.
- Static stretching is just as effective as ballistic stretching in producing gains in range of motion.
- Ballistic stretching elicits the stretch reflex, which contracts the muscle.

SO DON'T BOUNCE--JUST "HANG" AND
RELAX IN A STRETCHED POSITION.

It is generally recommended that each flexibility exercise be repeated four to six times and that the stretched position be held at least 10 seconds and no longer than 60 seconds.

For maximum results flexibility exercises should be held daily, over a period of six to eight weeks at the initial stage of a flexibility program.
A certain level of achieved flexibility may be maintained with as little as two or three weekly sessions using three to four repetitions of 10-30 seconds each.

Stretching regimes designed to enhance specific movement patterns should be comprised of similar movement patterns.
In order words, stretch the muscles in the position you will
be performing and stressing them.

Flexibility with stretching

How do we define dynamic stretching?
Have you ever swung your arms round in circles just before you start a weights session?
This is dynamic stretching. It gradually increases reach and
range of motion while limbs are moving.

Kicking an imaginary soccer ball is a dynamic stretch for the hamstrings and groins.

Twisting side to side is dynamic stretching for the trunk.

Don't confuse dynamic stretching with ballistic stretching. Ballistic stretching consists of bouncing, jerky movements
and can be quite dangerous because it forces a limb beyond
its normal range of movement.

Dynamic stretching is useful before starting an aerobic
workout and particularly for martial artists. Dynamic stretching
is a great way to loosen up first thing in the morning to prepare you for the day.

Perform dynamic stretches in sets of 8-12 repetitions.
Perform as many sets as is required to gain your full range
of motion. Stop stretching when you are tired.
Fatigued muscles produce diminished returns during dynamic stretching exercises.

Flexibility training is by far the most undervalued component
of fitness. That's a shame because with something so simple
and painless comes so many benefits.

Flexibility training improves your posture and helps to prevent
low back pain.
Stretching your hamstrings, quadriceps, hip flexors and low
back muscles regularly, promotes relaxation in the tissues reducing the strain on your back.

Many experts now believe flexibility conditioning has an
important role in maintaining healthy joints.
Stretching increases tissue temperature, blood supply,
nutrient transport to tissue and synovial fluid within the
joint capsule.

Every professional athlete will start and complete a training session with stretching exercises. And while there's ongoing debate as to its effectiveness for preventing injury, stretching after exercise when muscle tissue is warm is a great way to increase flexibility.

A muscle can only contract as forcefully as its antagonist can relax (the quadriceps muscle for example will contract more quickly if the hamstring muscle group relaxes easily). Flexibility training has been shown to reduce tension and resistance in muscle tissue.

The same leg is used to strike thousands of shots over and over again. One side of the body becomes more developed and is placed under more stress than the other. Even soccer, rugby and football players will have a predominate kicking foot.

Stretching regularly is essential for maintaining balance and reducing the risk of long term, chronic injury.

Mo Farah – Base Training (Typical Week)

Below is the typical weekly training schedule for Mo Farah (2011-2014 while training for the 5000m/10,000m). It was this training program that Farah used to win double Olympic Gold in the 5000m and 10000m at both the London 2012 Olympic Games and the Rio 2016 Olympic Games The program involves running up to a maximum of 135 miles (217km) per week with no rest days and two sessions every day but Sunday, when he typically does 22-25 miles (35-40km) at around 5:40 min/mile (around 3:30/km).

Monday

AM: 10-mile recovery run (6:00min/mile pace)

PM: 6-mile recovery run

Tuesday

AM: 4-mile warm-up run; 8-12mile tempo run anywhere from 4:40 to 5:00min/mile pace (depending on altitude and terrain); 3-mile cool-down run

NOON: Strength and conditioning session (1 hour)

PM: 6-mile recovery run

Wednesday

AM: 12-mile recovery run, followed by a massage.

PM: 5-mile recovery run

Thursday

AM: 11-mile recovery run

PM: 5-mile recovery run

Friday

AM: 4-mile warm-up jog; 10x200m intervals (with 200m recovery jogs) on grass in 29 seconds each rep; 10x200m hill sprints at equal effort, walk back down to recover; 4- mile cool-down run.

NOON: Strength and conditioning session (1 hour)

PM: 4-miles easy

Saturday

AM: 11-mile recovery run, massage

PM: 6-mile recovery run

Sunday

AM: 22-25 miles, no slower than marathon race pace + 1 minute (for Mo, this means 5:40min/mile)

Total Stats:

- 126-135 miles per week
- 15 training sessions in total
- 2 gym
- 2 massage

Useful websites

https://www.breakthroughbasketball.com/fitness/plyo-exercises.html

Books

Pearson REVISE BTEC First in Sport Revision Guide: for home learning, 2021

New BTEC First in Sport: Study & Exam Practice - for the exams in 2020 and beyond (CGP BTEC First) Paperback – 29 July 2019 by CGP books