

Introduction

Activity: Tennis player

3 Attributes a tennis player needs are Speed, Endurance and Flexibility

How will I test my Speed, Flexibility and Endurance?

Flexibility – I will do the touch box test to measure my flexibility

Speed – I will place 2 cones 20 metres apart and do shuttle runs for 30 seconds. I will also do a 100m sprint and record the time.

Endurance – I will do a bleep test and record the level I get.

How am I going to carry out my experiment?

First I am going to try and take a measure of my speed, endurance and flexibility. Once I have taken the results from the tests above. I will set up a training programme designed to make these 3 attributes better, this training programme is to last 6 weeks, At the end of the 6 weeks I will re-take the tests and hopefully each attribute will have improved.

Why will a Tennis player need “Speed”?

A tennis player need speed so he can be from one side of the court to the other very fast in order to return shots more

easily. A tennis player needs fast twitch fibres in the muscle these fibres twitch fast and give sudden bursts of power/speed.

Why will a tennis player need “Endurance”?
A tennis player will need endurance because a tennis match can last up to 4 hours if it is played over 5 sets. And if you can play as sharp in the 5th set as you can in the first you will be at a great advantage.

Why will a Tennis player need “Flexibility”?
Flexibility in a tennis player is also a massive advantage because a lot of the time you have to change direction quickly and stretch for shots this means you will find it much easier to cover the whole court. Also if you are flexible you will be less likely to pick up injury.

6 WEEK PLAN

SPEED – Week 1: I will perform shuttle 20 metres apart for 30secs and see how many I get? I will also do a 100 metre sprint.

Week 2-5: I will perform shuttle runs for 45 seconds over cones 25 metres apart. I will do this 4 times with a minute rest between each 1.

Week 6: I will repeat week 1’s test and hopefully have improvement.

ENDURANCE – Week 1: I will perform the bleep test and record my level.

Week 2–5: I will place 2 cones 20 seconds apart I will sprint to 1 cone and back then perform 15 press ups, I will sprint there and back again and do 14 press ups I will repeat this till I get to 0 press ups then have a 2 minute break and repeat this again twice.

Wee 6: I will perform the bleep test again and hopefully have improvement

FLEXIBILITY – Week 1: I will do the touch box test and record my results.

Week 2-5: I will perform a variety of different stretches to improve my flexibility, when I stretch the stretches will be held for 15secs per stretch. (calf ,deltoid ,hamstring ,quadriceps ,triceps etc...will be stretched)

Week 6: I will repeat the touch box test and hope to find improvement.

In sport training is need to enhance an athletes performance training can improve the following:

- Co-ordination
- Flexibility
- Speed
- Stamina
- Endurance
- Strength
- Agility
- Cardiac System (venus returns and stroke volume)
- The respiratory system(Increase in alveoli, respiratory muscles strengthen, tidal volume and vital capacity of lungs increase*)
- The vascular system (strengthens arteries)
- Gaseous exchange becomes more efficient
- Skill based movements

*Tidal volume = amount of air we exchange per breath at rest.

*Vital Capacity = Maximum amount of air we can breathe out after we have breathed in the maximum amount of air.

*Stroke volume = amount of blood pumped per beat of the heart.

*Venus returns = amount of blood returning to the heart.
The rate.

Training is normally based working at about 80% of your hearts full capacity. Improvements in training can be done in the following ways:

Weight Training – This can be done in a number of ways. If you use Frequency, Intensity and Time. Each of these aspects is relating to overload (muscle does more work than it is used to) by doing this aspects of your strength can be boosted.

Static strength (isometric) – The greatest amount of force that can be applied to an unmovable object for example a rugby scrum.

Continuous Training – Long periods of low intensity activities.

Fartlek Training –Alternative period of fast and slow activities over measured distances.

Interval Training – Periods of training over measured distances followed by rests. This allows the production of lactic acid in the muscles to be removed.

Circuit Training – Carrying out certain activities at different station this allows the different parts of the body to be improved and also the cardiovascular and respiratory system can be improved. It is an extremely flexible training technique as many people can do the circuit at the same time and also the repetitions, sets and weights can be adjusted easily.

Dynamic Strength (isotonic) – The muscular strength a person needs to support there own body weight over a prolonged period of time or to be able to apply a force against an object.

Explosive Strength (isokinetic) – Muscular strength used in one short sharp burst (sprinter)

If you train hard you can increase the tidal volume this allows more oxygen to be taken to your muscles therefore

increasing the performance. Benefits of performance can be shown in 3 different areas:

Respiratory: More alveoli become utilized

- Lung capacity increases

- Inspiration and expiration increases

- Intercostal muscles strengthen (respiratory muscles)

Vascular: Venous returns will get better

- Gaseous exchange becomes more effective

- Strengthens arteries so they can withstand greater pressures of blood

Cardiac: Higher work rate of heart

- Resting rate of heart will decrease

- Strengthens muscle surrounding the heart

- Stroke volume will increase so more blood can be pumped per beat

Warm Up and Down

Warm Up

Warming up is a key factor in the performance of sport. Whilst warming up your muscles will gradually heat up STEADILY if your muscles are warmed steadily it will allow them to be more responsive and will contract and relax more easily and efficiently. Having the ability to contract easily your range of muscle movements will become more extensive. The increase in movement can

decrease the chance of picking up an injury immensely because if you warm up properly the fibres in your muscles and joints will be already properly stretched and ready for action. Whilst warming up a good thing to do is use key skills for the sport you are playing e.g. Football – pass the ball around. If you do this your muscle will remember this movement and you will find it much easier to perform next time you do it. All increases of heart beat should be followed by stretches to loosen your muscles making them more supple i.e less prone to injury it is much more important to stretch the muscles you will be using in your sport. Also when you stretch you should hold your stretch for at least 15 seconds per stretch to gain anything from them.

Warm Down

Warming down is just as important as warming up it gives your body to return to its normal working rate slowly. Decreasing your blood pressure slowly allows lactic acid to be removed more effectively preventing cramp. It also prevents damage to the muscle if you cool them steadily.

Results – Endurance

These are the tests I performed

ENDURANCE – Week 1: I will perform the bleep test and record my level.

Week 2–5: Endurance shuttle run test - I will place 2 cones 20 seconds apart I will sprint to 1 cone and back then perform 15 press ups, I will sprint there and back again and do 14 press ups I will repeat this till I get to 0 press ups then have a 2 minute break and repeat this again twice.

Week 6: I will perform the bleep test again and hopefully have improvement

These are the results/times I obtained

Week 1 – I reached level 13 in the bleep test
Time

Week 2 – Endurance shuttle run test 1
Endurance shuttle run test 2

Week 3 – Endurance shuttle run test 1
Endurance shuttle run test 2

Week 4 – Endurance shuttle run test 1
Endurance shuttle run test 2

Week 5 – Endurance shuttle run test 1
Endurance shuttle run test 2

Week 6 – I reached level 14.5 in the bleep test.

Results – Speed

These are the tests I performed

SPEED – Week 1: I will perform shuttle 20 metres apart for 30secs and see how many I get! I will also perform a 100m sprint.

Week 2-5: Shuttle run speed test - I will perform shuttle runs for 45 seconds over cones 25 metres apart. I will do this 5 times with a minute rest between each attempt.

Week 6: I will repeat week 1's test and hopefully have improvement.

These are the results/times I obtained

Week 1 –

Time taken

Week 2 - Shuttle run speed test 1
Shuttle run speed test 2
Shuttle run speed test 3
Shuttle run speed test 4
Shuttle run speed test 5

Week 3 - Shuttle run speed test 1
Shuttle run speed test 2
Shuttle run speed test 3
Shuttle run speed test 4
Shuttle run speed test 5

Time Taken

Week 4 - Shuttle run speed test 1
Shuttle run speed test 2
Shuttle run speed test 3
Shuttle run speed test 4
Shuttle run speed test 5

Week 5 - Shuttle run speed test 1
Shuttle run speed test 2
Shuttle run speed test 3
Shuttle run speed test 4
Shuttle run speed test 5

Week 6 –

Results – Flexibility

These are the tests I performed

FLEXIBILITY – Week 1: I will do the touch box test and record my results.

Week 2-5: I will perform a variety of different stretches to improve my flexibility, when I stretch the stretches will be held for 15secs per stretch. (calf, deltoid ,hamstring ,quadriceps ,triceps etc...will be stretched)

Week 6: I will repeat the touch box test and hope to find improvement.

Week 1 –

Distance

Week 2 – Perform all different stretches and then test how far past your feet you can get

Distance

Week 3 – Perform all different stretches
and then test how far past your feet you can get

Week 4 – Perform all different stretches
and then test how far past your feet you can get

Week 5 – Perform all different stretches
and then test how far past your feet you can get

Week 6 -