Netball Needs Analysis

A look at the physical determinants of successful netball players and a sample S&C programme to elicit such qualities

Basic Physical Demands

Game consists of many rapid accelerations and decelerations with many changes of direction.

High number of jumps, leaps and landings. Due to the footwork rule landings are very hard and put a lot of stress through the lower body.

Small court and restrictions on where players can be means the movements are very explosive and repetitive.

There is a large difference in difference covered between positions: GK/GS in elite netball average around 4km per game as opposed to a centre who reaches up to 8km. Centres are active for 83% of the time, other midcourt positions for around 75% and GK/GS for 54%.

Injury Prevalence

Non-contact landing mechanisms are a significant cause of injury (especially ACL). Landings are very frequent and in multiple planes, can also lead to patella tendinopathy.

Athletes need to be able to dissipate energy safely on landing. Decreased hip and knee flexion during landing increases ACL loading. Hamstrings also play a key role as ACL agonist – resist sheer forces.

84% of injuries are ankle injured with 67% being landing sprains. Almost ¾ of injuries occur during matches.

Important to have bilateral symmetry to cope with GRF (3.5-5.5 BW VGRF) which are often during single leg landings.

Females tend to be more quad dominant and often players are predisposed to valgus knee position, which increases likelihood of knee issues.

Physical contests occur regularly despite the rules, meaning there are lots of landings when off balance.

Energy Systems Contributions

01

ATP-PCR System: This provides an immediate source of energy for high intensity activities. Work durations often fall between 1 and 2 seconds, with average sprint time of centres being 1.4 seconds, showing the importance of this energy system.

02

Glycolysis: For sustained high intensity efforts where ATP-PCR systems cannot meet energy demands. These can often occur late in games when there is little time remaining and matches become more frantic.

03

Oxidative System: Important during moments of lower intensity and during recovery either between quarters or during moments where players are not actively involved due to court movement restrictions.

Physical Components of High Quality On-Court Performance

Characterised by efficient movement patterns and ability to repeat high intensity movements – underpinned by C.O.D & jumping ability and a good M.A.S. This aerobic capacity can be developed through on court drills and small sided games.

Key game deciding moments depend on anaerobic activities – necessitates good max strength, power and speed. Fast accels and decels are more important than max straight-line speed.

Intensity changes every 6 or so seconds – ability of lower limb to absorb, reapply and produce force extremely important

Programming Implications

- Importance of Max Strength Training – improves ability to perform the key movements.
- Variety of loading schemes should be used. Due to this block taking place during a time when matches will be played reps will stay relatively low to reduce fatigue
- Strength and Power developed in a mixed manor to allow for adaptation along whole FVC.
- Important to include hip flexion due to high demands placed on it during matches. Adductor strength and capacity also important.
- Develop high force, capacity and stiffness quality in hip and core. Develop ankle stiffness to cope with repeated landings.
- Develop good eccentric control.
- Ensure aerobic training is done on court, through drills or SSG.

Session A - Monday

- A - Pin Back Squat 3 × 4
- B - Hip Thrust 3 × 5
- B - Vertical Jump to Broad Jump 3 × 3
- C - Chins 3 × 5
- C - Calf Raise Iso Push 3 × 3 secs e/s
- D - Copenhagen Hold 3 × 20 secs e/s
- D - Side Plank Dips 3 × 8 e/s

- Jumping and Landing Circuit

- Standing Triple Jump - 3 times
- Lateral bound with rotation - 3 × 3
- Skater Jumps - 3 × 16

Session B - Friday

- A - Hang Power Cleans 3 × 3
- B - Deadlift/Squat Variation 3 × 5
- B - Lateral SL Box Jumps 3 × 4 e/s
- C - Barbell Forward Lunges 3 × 4 e/s
- C - Overhead Press 3 × 5
- D - Barbell RDL 3 × 6
- D - Press Up (start as eccentric) 3 × 6

- Hip and Ankle Circuit

- Partner Push Lunge – 3 × 6 e/s
- High Lateral Step Up – 3 × 4 e/s
- Side Plank Partner Knee drives 3 × 6 e/s