



Netball New Zealand Fitness Testing Guidelines for Players and Umpires

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NETBALL NEW ZEALAND
Poitarawhiti Aotearoa

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Introduction

These guidelines are for netball athletes of all ages and abilities and have been grouped into categories depending upon age and playing level. While not everyone has access to electronic timing equipment and vertical jump equipment there are alternatives that can be used to ensure coaches, trainers and players can gauge the progress of players through the course of a season or career.

Use the appropriate tests for the age and level that your athletes are playing at as described in the following sections of these guidelines.

Standards for umpires are also included; however, as there is limited information regarding the appropriate levels required of umpires for the recommended tests, these are guidelines only. Currently, NNZ requires only the Beep test for umpires involved in the ANZ Championships and the Yo Yo test for all umpires involved in other NNZ national events. NNZ hopes to continue to obtain more accurate information for these tests for umpires and will update regions and centers when these have been confirmed.

Fitness Testing Schedule

The purpose of fitness testing is:

- To assess the physical strengths and weaknesses of your athletes at various stages throughout the season so that appropriate training can be implemented,
- To assess the athletes following a period of training to measure whether they have improved to the required standards,
- To determine whether an athlete is ready for the physical demands at a representative level, especially in tournament situations where there are games on consecutive days,
- To assess whether an athlete has returned to previous fitness levels following an injury or a period away from training or games.

When to Test

Therefore the timing of fitness testing needs to be determined based on the areas stated above. The following is a guideline as to when fitness testing could be conducted.

Secondary School/U17/U19/U21 Player

- Early February once school gets back and preseason training has commenced to get initial assessment of players.
- Immediately before the competition starts to review the training and assess whether players have improved and are ready for the competitive season.
- Prior to age group teams being selected or once age group teams have been selected.

Senior Club Player

- Early February at the start of preseason training.
- Immediately before the season commences.

Senior Representative Player

- When representative squad has been selected and training for National Champs has begun.
- Immediately before first competition game or tournament.

NZ Talent Development and NZ Secondary School Player

- 6 weeks prior
- During NZTD days
- NZSS trialists at the NZSS camp

National Under 21 Representative Player

- When in squad camps.
- Prior to trials.
- During regional visits.

Silver Ferns

- When in squad camps.
- During regional visits.
- As scheduled in annual plan.

Umpires

- At the commencement of preseason training
- Immediately before competition starts
- If umpiring representative games then could test again immediately prior to representative season commencing.

What to Test

The performance tests chosen depend on the access to equipment and suitably qualified personnel to conduct the tests. A school can conduct some of the tests and/or club coach while others may need to have certified personnel to administer them.

If you have access to electronic timing lights within your region i.e. netball region owns them or you can borrow them from other local sports organizations such as the rugby union, university, or Sport Canterbury etc then it is recommended that you assess the athletes speed and acceleration as part of your testing battery. If you do not have access to timing lights then do not include speed testing in your testing battery.

Secondary school/U17/U19/U21 Player

- Aerobic Test: Yo-Yo (Page 9)
- Strength endurance tests (Page 14): Press-ups, Prone Bridge, and Wall Pass test. If there is access to weight training room add Horizontal pull up test.
- Lower body power tests (Page 11)

Senior Club Player

- Repeated speed test: Octorepeater test (Page 7)
- Aerobic Test: Yo-Yo (Page 9)
- Strength endurance tests (Page 14): Press-ups, Prone Bridge, and Wall Pass test. If there is access to weight training room add Horizontal pull up test.
- Lower body power tests

Senior Representative Player

- All tests

National U21 Player

- All tests

Silver Ferns

- All tests

Umpires

- Speed and acceleration test: 5m, 10m & 20m Straight Line Sprint Test (Page 6)
- Repeated speed test: Octorepeater test (Page 7)
- Aerobic Test: Yo-Yo (Page 9)
- Note: no requirement to assess strength endurance or leg power.

Order of Testing

To ensure the testing results are not negatively affected by fatigue. Do the performance tests stipulated above in the following order:

1. Lower body power tests (Rest 10 mins before attempting speed tests)
2. Speed tests (Perform upper body strength / endurance test first then lower body strength / endurance tests to allow for greater lower body rest after the speed testing)
3. Upper and lower body strength tests (Rest 10 mins before attempting the Octorepeater)
4. Octorepeater (Rest 10 mins before attempting the Yo-Yo)
5. Yo Yo

If the athlete is required to perform all the tests on the same day then follow the order detailed above and allow for the stipulated rest periods. However, if you are able to break up the tests into two testing days then perform tests 1-4 on Day 1 and test 5 on Day 2.

Fitness Testing Preparation

Where possible adhere to the following guidelines around fitness testing to ensure a valid result is achieved:

- Give the athletes at least 48 hours notice prior to testing so that the athletes are reasonably fresh and are not fatigued from training hard the day before testing.
- Conduct all testing (except the 1500m run) in an indoor netball court or gymnasium so that the weather conditions are eliminated.
- Where possible avoid conducting testing early in the morning. Allow at least two-three hours after the athlete has gotten up from sleeping so that the body has had time to wake up.
- Conduct a thorough warm up prior to conducting speed and acceleration testing to ensure that there are minimal chances of injury and to physically and mentally prepare the body for optimal performance.
- Make sure that the athlete has had something substantial to eat at least 90 minutes before beginning the warm up to ensure that their energy levels are high especially if conducting a series of tests in one day.
- Conduct all subsequent testing at the same venue with the same equipment so that there is good consistency with results from test to test.

Information to include when conducting fitness tests

The following Information should be included when conducting fitness testing:

Information	Examples
• Who ran the test	Andrew Keene
• Time of day	12.00pm
• Venue	Edgar Centre
• Facilities	Sprung Floor
• Equipment	SmartSpeed, Single Beam Lights @ all gates at 60cm height
• Temperature	9 Deg
• If outdoors – Wind & track conditions	NA
• Any Notes:	Laura was feeling sick. Slippery Floor.

Speed, Acceleration and Quickness Tests

SPECIAL NOTE: Speed testing should not be conducted the day after strength testing as the results will be negatively affected.

5m, 10m & 20m Straight Line Sprint Test

Purpose: To assess the athlete's straight-line quickness, speed and acceleration.

Protocol:

- Where possible use dual beam timing lights. Single beam lights will suffice if no others are available but they are not as accurate over short distances.
- Place the lights at the start line, 5m, 10m, and 20m lines ensuring that there is at least 15-20m run out past the lights at both ends.
- Place a piece of tape on the floor 50cm from the start light. The athlete must start with their toe immediately behind this line (Figure 1).
- The athlete must start the test from a stationary position with no rocking or swaying (Figure 2).
- The athlete begins their sprint once the tester indicates that the timing equipment has been zeroed and ready to record their score.
- The athlete then sprints thru all three lights and slowly walks back to the start during their recovery.
- Each athlete gets three attempts with approximately three minutes rest in between sprints.
- The best time recorded is the time taken.
- Use the recording sheets attached at the end of these guidelines to record all your results.

Equipment: Electronic timing lights, tape measure, tape, recording sheet, flat, non-slip indoor surface.



Figure 1 – the athlete starts the sprint with their toe on tape 50cm from start line.

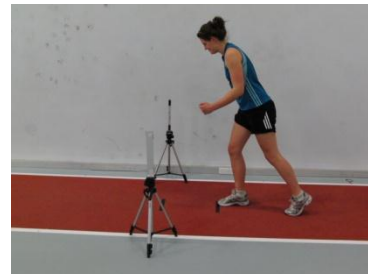


Figure 2 - the athlete must start from a stationary position with no rocking or swaying.

Note it is a waste of time attempting these tests without electronic timing equipment as using a hand held stopwatch is too inaccurate for such short distance tests.

Repeated Speed or Anaerobic Tests

Octorepeater Test

Purpose: To assess the athlete's ability to perform repeated maximal sprints that incorporate a change of direction.

Protocols:

The Octorepeater test consists of eight sprints starting at 25 second intervals. The athletes complete 4 x (2 x 20) sprints and 4 x (4 x 10) sprints alternating between the 2 x 20m and 4 x 10m sprints.

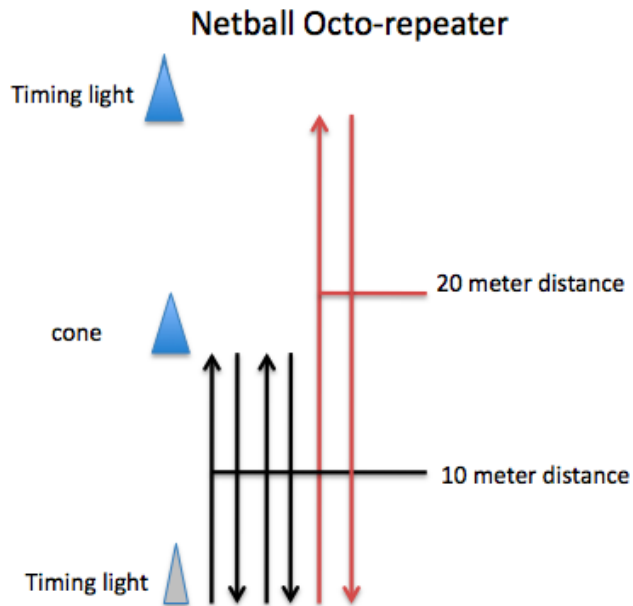
The athlete must first complete the 2 x 20m sprint and 4 x 10m sprint described above before completing the Octorepeater test. This is important in determining their fatigue rating over the test.

Option A – With electronic timing lights (recommended)

- Where possible use dual beam timing lights. Single beam lights will suffice if no others are available but they are not as accurate over short distances.
- Set up one set of lights on the start finish line only (as for the 2 x 20m and 4 x 10m sprints above).
- Place a piece of tape on the floor 50cm from the start light. The athlete must start with their toe immediately behind this line.
- Place another piece of tape on the floor 10m and 20m from the start line that is easily seen by the athlete.
- The athlete must start the test from a stationary position with no rocking or swaying.
- The first sprint starts when the tester tells the player to go. The tester then starts their stopwatch so that they know when to tell the player to do their subsequent sprints every 25 seconds. The recording sheet has the start times for each sprint to assist the tester.
- They then sprint out to the 20m line and back through the lights.
- They then have the remainder of the 25 second period as recovery before the tester tells them to go for the next sprint.
- They then sprint out and back to the 10m line twice thus completing a total of 4 x 10m sprints in succession.
- They then have the remainder of the 25 second period as recovery before the tester tells them to go for the next sprint.
- They continue to alternate between the 2 x 20m sprint and the 4 x 10m sprint until they have completed four of each sprint or eight sprints in total.
- Record all sprint times in the recording sheet attached to these guidelines.

Option B – Without electronic timing lights

- The test can be performed with a hand held stopwatch if no timing lights are accessible. The tester starts the watch when the player is told to "go" for each sprint and stops it when they cross the finish line.
- The tester will need to have two stopwatches. One to record each individual sprint and one to use as the overall timer for the 25 second interval periods.



Calculating the Results

Follow these steps to calculate the athlete's results:

Total Time

- Add up the time for all eight sprints to get the player's total time. This total time can be used as a guide for further improvement i.e. if their total time decreases on subsequent tests then their repeated sprint ability has improved.

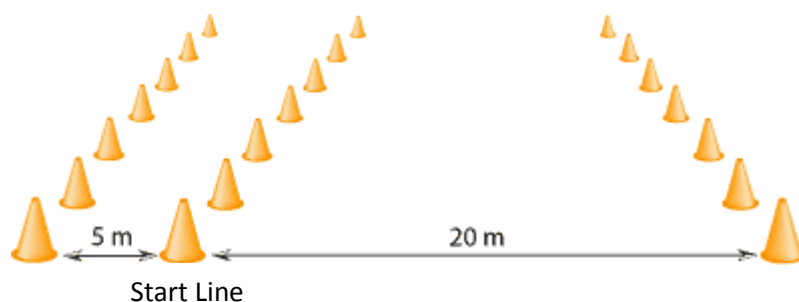
Equipment: Electronic timing lights, tape, tape measure, recording sheets, stopwatch(s), and flat non-slip surface.

Note that it takes two people to conduct the Octorepeater test – one to record results onto recording sheet and one to conduct test and time 25 second intervals between sprints.

Aerobic Testing Protocols (The Yo Yo)

Yo-Yo Intermittent Recovery Test Level One

Purpose: To assess the athlete's aerobic fitness and ability to sustain continuous efforts over an extended period of time.



Protocols:

- Perform an adequate dynamic warm-up that prepares the athlete for accelerating, decelerating, changing direction and sprinting. Should last about 15 mins.
- Use cones to mark out three lines as per the diagram above; 20 meters and 5 meters apart.
- Subject/s start on or toes behind the start line, and begin running the first 20m when instructed by the audio cue. The subject turns on the marked line and returns to the starting point, using the recorded beep as an indicator to assist with pace/speed.
- There is a active recovery period of 10 seconds interjected between every 40m (out and back) shuttle, during which the subject must walk or jog around the recovery cone and return to the starting line, completely stopped waiting for the beep for the next shuttle to begin.
- The athlete is not allowed to break the line (False start) before the level start sound is given.
- There should be no count down indicators given (e.g. 3, 2, 1..beep) to the athlete to help them not false start.
- The athlete is given two false start warnings. The third false start results in a COMPLETED test.
- If the Yo Yo is used in a group testing situation then a group false start rule applies.
 - This rule states that if a third of the group false starts (e.g. 3 out of 10 athletes being tested) then the entire group are assigned a false start. **NOTE:** a group false start cannot be used to fail an athlete. **For example:** If an athlete has two personal false starts and a group false start is assigned to the group, that group false start does not count as the athlete's third false start. Only the athlete can knock themselves out of the test. However, an athlete can have two false starts from group false starts and then individually false start for their third false start and their test is complete.
- An athlete may not skip or sit out a shuttle level then join back into the test. Every shuttle must be attempted until the athlete is physically unable to run the shuttle levels within the time dictated by the beeps. If the athlete skips or sits out a level to rest, their test is completed.
- An athlete is allowed one warning for a missed shuttle. A missed shuttle constitutes not passing the finish line as the finish beep is sounding. The next shuttle that is missed their test is complete.
- The last shuttle attempted even if the athlete fails to cross the line during the beep is counted as a final score and is given to the athlete. For example, the athlete has successfully completed 20.2, just misses 20.3 so receives a warning. However, if the

Netball New Zealand Fitness Testing Protocols

athlete misses 20.2 convincingly (i.e. 3 meters or more) then no warning is given their test is complete and they are awarded a YO YO score of 20.3. but if the athlete just misses the 20.3 finish beep (i.e. within 2 meters) they receive their first warning. The athlete then attempts to run level 20.4. If they fail to cross the line during level 20.4 then their test is complete. The athlete's score in this example would be a 20.4.

- Use the recording sheet attached to these guidelines to record the player's result.

Equipment: Yo-Yo test CD, CD player/stereo, tape measure, tape or cones, recording sheets, flat non-slip surface.

Lower Body Power Tests

Vertical Jump Test

Purpose: to assess the athlete's lower body power and their maximum vertical jump ability using both legs and each leg individually.

Protocols:

Option A – Using a Vertec Jump Tester (recommended)

Option B – Using Chalk or a Pen against the wall

Double leg jump using Vertec

- The athlete stands underneath the Vertec with both feet flat on the floor. They then reach up, with their inside hand, as high as possible and move the furthestmost finger of the Vertec away (Figure 3). Note the shoulders do not have to remain square i.e. get them to reach as high as possible lifting the shoulder of the reaching arm. The number on the next finger i.e. the one directly above the last one moved, is recorded as the standing reach height (Figure 4).
- The athlete then performs a countermovement jump by bending the ankles, knees and hips and then immediately jumps as high as possible attempting to move as many fingers of the Vertec as possible i.e. reach for the highest finger possible (Figure 5).
- The number on the next finger above the last one moved is recorded as the maximum jump height (Figure 6).
- Subtract the standing reach height from the maximum jump height to get the actual height jumped.
- Perform three repetitions with around 30 seconds between each one using the best result.

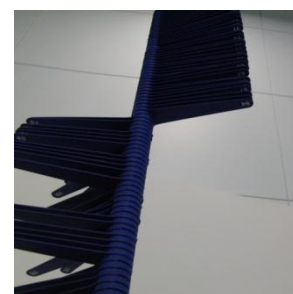


Figure 3 – the athlete reaches as high as possible using the inside hand.

Figure 4 – the number on the vertec finger at the top of the athlete's reach is the standing reach height.

Figure 5 – the player jumps as high as possible attempting to move as many fingers away as possible.

Figure 6 – the number on the finger above the last one moved by the athlete is the jump height.

Double leg jump using Chalk or a Pen against the wall

- The athlete stands side on to a wall with their feet flat on the ground and reaches up as high as possible, with the hand closest to the wall, while holding a piece of chalk. They make a mark on the wall with the chalk. This is called the standing reach height.
- The athlete then stands away from the wall and leaps vertically using a countermovement jump as high as possible using both arms and legs to assist in projecting the body upwards. The player marks the wall with the chalk at the highest point of the jump.
- Measure the difference in distance between the standing reach height and the height marked. This distance is the height jumped. The best of three attempts is recorded.

Single leg jump using Vertec

- Using the same standing reach height as above the athlete stands on one leg (the leg nearest to the vertec) and performs a countermovement jump landing on both legs.
- Subtract the standing reach height (as used in the double leg jump) from the height jumped to get your single leg jump height for that leg.
- Perform the same process for the other leg.
- You can compare the heights jumped for each leg to identify whether there is any discrepancy between individual leg power.

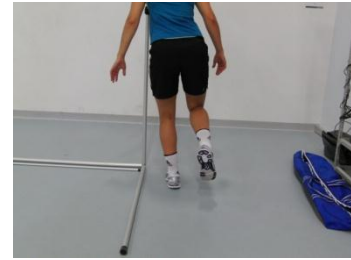


Figure 7 – the athlete stands on the leg nearest the vertec for the single leg jump. They then face the other way and stand on the other leg to test both legs.

Single leg jump using Chalk or a Pen against the wall

- Using the same standing reach height as above the athlete stands on one leg and performs a countermovement jump landing on the same leg.
- Subtract the standing reach height from the height jumped to get your single leg jump height for that leg.
- Perform the same process for the other leg.
- You can compare the heights jumped for each leg to identify whether there is any discrepancy between individual leg power.

Equipment: Vertec, recording sheets, chalk, tape measure.

Horizontal Jump Tests

Purpose: To assess the athletes lower body power and their ability to jump horizontally for maximum distance. There is a strong relationship between an athlete's horizontal power capability and their ability to run fast and change direction well.

Broad Jump Protocols:

- The athlete stands with their toes on a line marked on the court (Figure 8). They then swing their arms back while bending their hips (photo 1) and jump as far as possible forward landing on both feet (Figure 9).
- The athlete stays in the finish position until the measurement has been taken.
- For all horizontal jump tests measure the distance from the start line to the athlete's heels where they landed. This is the distance jumped. Simply place a tape measure on the ground in front of the athlete.
- Perform three attempts recording the best distance jumped.

Equipment – tape measure, recording sheet

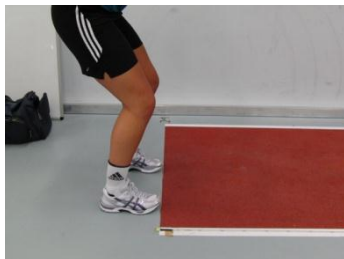


Figure 8 – the athlete starts with their toes behind the line.

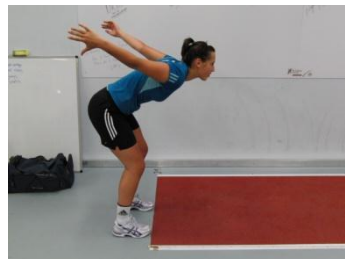


Figure 9 – the athlete swings the arms and bends the knees and hips to jump.



Figure 10 – the athlete lands on both feet in a controlled manner.

Single Leg Broad Jump Protocols:

- The athlete stands on one leg with their toes on a line marked on the court. They then swing their arms back while bending their hips and jump as far as possible forward landing on both feet (Figure 10). **They take off on ONE foot and land on TWO feet.**
- The athlete stays in the finish position until the measurement has been taken.
- Measure the distance from the start line to the athlete's heels where they landed. This is the distance jumped.
- Perform three attempts on each leg recording the best distance jumped.

Lateral Broad Jump Protocols:

- The athlete stands on one leg with their toes on a line marked on the court, by a cone or by tap (Photo K). They initiate the jump by bending their hips and pushing laterally reaching with the right leg if they are jumping off the left foot (Figure 11). Jump as far as possible to the side ensuring the hips face straight ahead and do not turn toward the direction of the jump. The athlete should land on both feet (Figure 12). **They take off on ONE foot and land on TWO feet.**
- The athlete stays in the finish position until the measurement has been taken.
- Measure the distance from the start line to the athlete's heel of the right leg if they jumped off the left foot or the left leg if they jumped off the right foot.
- Perform three attempts on each leg recording the best distance jumped.

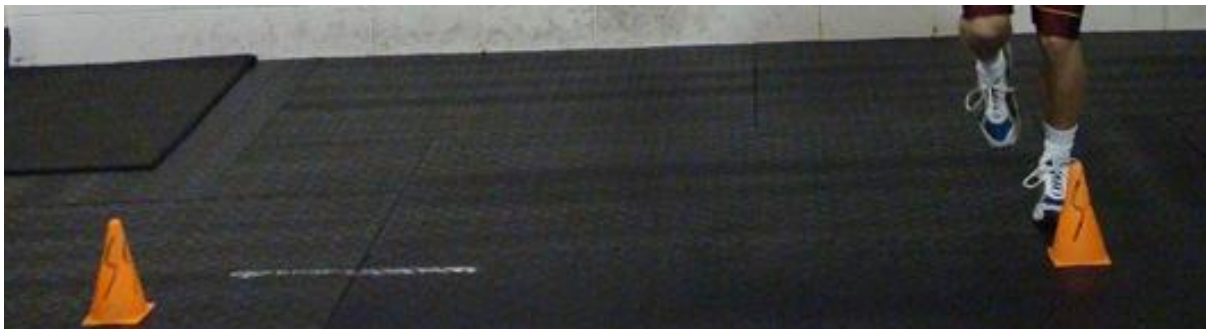


Figure 11 – Start position for lateral broad jump test.

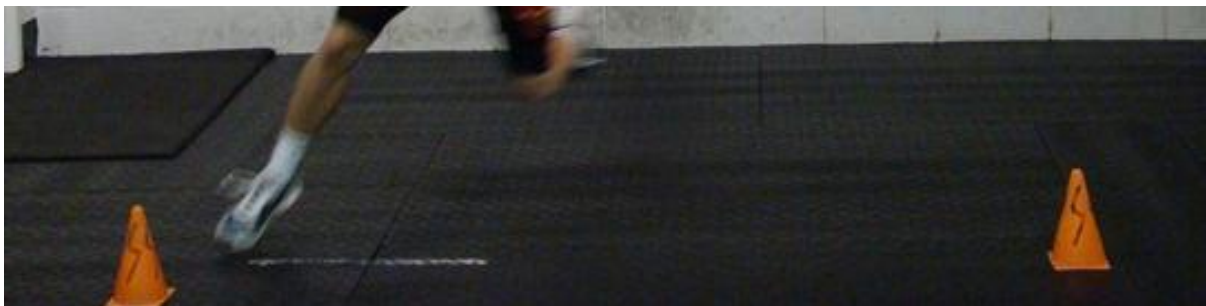


Figure 12 – Mid air position for lateral broad jump. Although it looks like this athlete will land on one leg they quickly get their left leg down in time to land on both feet. Distance is measured from the right heel to the start in this photo.

Strength Testing: Secondary School, Senior Club and Rep Athletes

Press Up Test

Purpose: To assess the athlete's upper body pushing strength and endurance.

Protocols:

- The athlete assumes the press up start position with their hands slightly wider than shoulder width and directly under the shoulders i.e. not in front or behind the shoulders, with palms flat on the ground. Their feet are slight spread about hip width apart. The body is held straight with no bowing or arching of the core area (Figure 13).
- A partner, or the tester, places a closed fist on the ground, with the thumb side up, under the athlete's chest (Figure 14).
- The athlete lowers their body by bending at the elbows, keeping their body straight, until their rib area touches their partner's hand and then fully extends the elbows until the arms are straight again (Figure 15).
- The athlete continues doing as many press-ups in succession ensuring that they touch their partner's fist.
- Once the athletes hips drop below shoulder level in an attempt to complete more reps the test should be concluded. THE ATHLETES HIPS SHOULD REMAIN LEVEL WITH THE SHOULDERS THROUGHOUT THE TEST.
- Record the number of repetitions completed.

Equipment: Recording sheet



Figure 13 – the athlete in the start position



Figure 14 – the partner places a closed fist under the ribs which the athlete must touch.



Figure 15 – the athlete in the finish position.

Horizontal Pull up Test

Purpose: To assess the athlete's upper body pulling strength and endurance.

Protocols:

- Place a weight lifting bar in a squat or power rack or use a Smiths Machine. Ensure that the bar is high enough so that when the athlete's arms are fully extended their body is just off the ground.
- The athlete grips the bar slightly wider than shoulder width using an overhand grasp. Their feet are flat on the floor and their knees are bent at approximately right angles. The athlete then lifts their hips so that their body is straight and their arms are fully extended so they are hanging from the bar (Figure 16).
- They then pull their body toward the bar until their shoulders are above their elbows and then lower themselves back down until their arms are fully extended (Figure 17).
- They keep doing as many repetitions as possible until they can no longer pull themselves above the height of their elbows.
- Record the number of repetitions completed.

Equipment: bar in a squat rack or Smiths machine, recording sheet.



Figure 16– the athlete in the start position.

Figure 17 – the athlete in the finish position.

Prone Bridge Test

Purpose: To assess the athlete's core strength and endurance.

Protocols:

- The athlete assumes the start position with their elbows on the ground, feet approximately hip width apart and body straight with no arching or bowing. The hands can be grasped or placed flat on the ground. The head should be facing toward the ground and not looking forward (Figure 18).
- The athlete maintains a straight body for as long as possible ensuring that normal breathing is maintained. Once the athlete can no longer keep their body straight i.e. they excessively arch or bow then they are to stop the test.
- Record the time that the athlete maintains a good position.

Equipment: stopwatch, recording sheet.



Figure 18 – the athlete holds a position with body straight.

Wall Pass Test

Purpose: to assess the athlete's ability to perform proficient passes under fatigue with good technique.

Protocols:

- The athlete stands 3 meters from a wall and performs continuous chest passes for 1 minute.
- The number of passes completed in the minute is the athlete score.
- In addition to the number of passes the quality of the passes is equally important. Along with the pass count each player receives a quality score based on the scoring criteria below.

10 = maintains perfect form throughout the entire minute

8 = started perfect and slightly faded toward the end

6 = started with poor technique and maintained that technique throughout the entire minute

4 = started with poor technique and got worse

2 = technique is very bad

Please note

No standards are included for this test in the booklet. It is recommended that both the number of passes and the quality of the passing should be recorded for each player. Improvement in both of these scores would be what you are looking for in subsequent testing.

Strength Testing: U21, ANZC and Silver Fern Athletes

Wide Stance Box Squat

Background:

- The wide stance box squat provides an effective solution for those individuals with lower back, hip and ankle contraindications to perform the fundamental squat pattern with high loads. In addition, if performed correctly this technique requires a greater contribution from the posterior chain when compared to the traditional back squat.
- This link will provide a detailed video demonstration of the exercise <http://www.youtube.com/watch?v=e9HloHClt2Q>.

Set-up:

- The minimum wide stance squat foot position is to position the inside of each foot outside each shoulder (Figure 19). (Note: Taller individuals may need to use a wider stance)
- The feet and the knees should be aligned and track at a 45° angle to the body during the squat (Figure 20).
- The head and gaze should be held in a neutral position (Figure 20).
- The thoracic spine should be extended. This can be achieved by lifting the chest (Figure 21)
- Start the movement by taking a deep breath and pushing the hips back as the body is lowered to the box.
- Allow the trunk to move forward as the hips move back and down (Figure 22).
- Pause on the box maintaining the held breath, forward trunk position, lifted chest and neutral head position. The end of the bar should be positioned over the forefoot (Figure 22).
- Initiate the ascent by forcing the knees out, lifting the chest and pulling the hips forward.
- Keep the chest lifted as you pull the hips forward to an extended position.



Figure 19 & 20



Figure 21 & 22

Selecting the appropriate box height: The box should be set at a height that enables the athlete to achieve a customized deep squat position. Athletes should be able to lower themselves to the box while maintaining an extended lumbar spine position. The extended lumbar spine should be maintained as they pause on the box before returning to the start position. If the box is too low the individual will be forced to flex (i.e. round) their lumbar spine in order to make contact with the box.

1. Have the athlete perform body weight squats with the aforementioned wide stance box squat technique.
2. An observer can help to identify the maximum depth the athlete can achieve while maintaining an extended lumbar spine position.
3. Risers can ensure a customized box squat depth with small height increments. (Figure 23)
4. The box should be positioned at an angle so that a corner of the box is sticking out between the athlete's legs (Figure 23).



Figure 23

Coaching Cues: Below is a list of verbal cues you can use to ensure the aforementioned exercise technique is achieved in a safe and successful manner on every repetition.

1. Deep breathe before the bar is unracked
2. Sit back and down.
3. Force the knees out on the way up and down.
4. Lift the chest and keep it lifted throughout the repetition.

Test cessation criteria:

1. Testing ceases if athlete pauses too long, misses box depth 2 times, or technique becomes unsafe or does not conform to criteria above. Use your best/conservative judgement here.

Record:

1. Athlete's bodyweight.
2. Box height in cm.
3. Weight & reps completed.

Bench Press

Background:

Upper body strength is critical for netball performance and injury resiliency. It is important that high performance athletes strive to be relatively strong, in other words they are as strong as they are big. Therefore the goal for the bench press is to lift your bodyweight on the bar 10 times.

Set-up:

1. 5-point contact on bench/ground (i.e. Head, Shoulders, Glutes on bench with both feet on the ground).
2. Overhand grip slightly wider than shoulder width
3. Warm – Up as prescribed by your strength and conditioning coach
4. Place weight on the bar so that it is as much as the athlete weighs.

Technique:

1. Bar must touch the chest, with no bouncing.
2. Bar must be lifted so that the elbows are fully extended
3. During lift the 5-point contact on bench/ground, with no arching, must be maintained.
4. Bar must remain level, with no lateral tilting.
5. No pausing between lifts.

Test cessation criteria:

1. Testing ceases if athlete pauses too long, misses chest contact 2 times, or technique becomes unsafe or does not confirm to criteria above. Use your best/conservative judgement here.
2. 5 point contact on bench/ground, with no arching.

Record:

1. Bodyweight
2. Number of reps completed
3. If no reps are completed at the bodyweight load then record the weight the athlete was able to lift.

Vertical Pull up

Set-up:

1. Overhand slightly wider than shoulder width grip
2. Hand with the arms extended but the shoulders in a packed set position (Refer to strength and conditioning coach or physio for proper technique description)

Technique:

1. Chin must rise above the bar and body lowered to full arm extension (Elbow lock) for rep to count.

Test cessation criteria:

1. Testing ceases if athlete pauses too long, misses chest contact 2 times, or technique becomes unsafe or does not conform to criteria above. Use your best/conservative judgement here.
2. 5 point contact on bench/ground, with no arching.

Record:

1. Athlete's bodyweight.
2. Record reps completed

Split Jerk

Background:

Upper body strength is critical for netball performance and injury resiliency. It is important that netball athletes are strong in an overhead-extended arm position as this is a common position observed in the game when receiving passes, intercepts or rebounds.

Set-up:

1. Grip is overhand and slightly wider than shoulder width (Figure 24).
2. Bar placed held on front of shoulders (Figure 24).
3. Safety: Use Olympic style bar, with good revolving sleeves, and lift on a platform with plenty of space so that the bar can be dropped if the lift is missed.



Technique:

1. Athlete performs initial downward movement by flexing the hips, followed by extending the hips and pushing the bar up overhead. As bar is moved upward, athlete drops under bar into a split squat position to lock out the arms, then stands up into upright position with bar above the head (Finish position).
2. Athlete can press weight out to finish, they do not have to achieve lock out in one movement.
3. Posture must be maintained during lifts:
 - a. No arching or twisting.

Test cessation criteria:

1. If the athlete can not complete the test safely as detailed above.

Record:

1. Athlete's bodyweight.
2. Weight & reps completed.

Seated Box Jump

Background:

The box jump is a common assessment of lower body power, coordination and body control. Like the vertical and jump assessments the box jump provides information regarding the rate at which an athlete can apply force into the ground. This assessment also provides a visual challenge for the athletes to overcome.

Set-up:

1. Use a stable box placed on a non-slip surface.
2. Make sure the top of the box is also not slippery.
3. The box should be positioned arms distance from the athlete.
4. Additional padding can be placed on the edges of the box if necessary for protection.

Technique:

1. The athlete is to assume the seated position as they would during wide stance box squatting. However, the feet do not need to be as wide as when they are wide stance box squatting. The athlete can position their feet at their desired width (Figure 25)
2. When the athlete is ready they are to push hard into the ground and elevate to the top of the box positioned in front of them.
3. They should land on the box in an athletic position with the hips, knees and ankles flexed and the feet shoulder width (Figure 26).

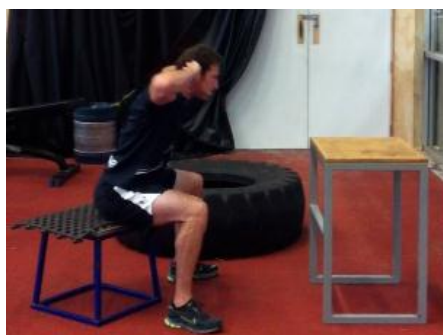


Figure 25 – Box jump starting position



Figure 26 – Box jump landing position

Test cessation criteria:

- If the athlete is unable to jump to the top of the box safely maintaining the correct body position.

Record:

- Record the height of the box the athlete was seated on and the height of the box the athlete jump to.

Note:

Padding may be added to the edge of a box to ensure the athlete does not scrap or cut their shins if they miss the box.

Fitness Testing Standards

The following standards should be used as a guide only. These standards have been set based on the professional experience of the authors and data reported from national and international sources.

Speed, Acceleration & Quickness Minimum Standards

	5m All positions	10m All Positions	20m All Positions
Secondary School/U17/U19	< 1.15	< 2.00	< 4.0
Senior Club/U21 Rep	< 1.10	< 1.95	< 3.90
Senior Rep	< 1.10	< 1.90	< 3.90
NZ U21/ANZC franchise	< 1.05	< 1.85	< 3.75
Silver Ferns	< 1.05	< 1.85	< 3.20
Umpires (Male & Female)	< 1.10	< 1.90	< 3.75

Repeated Speed / Anaerobic Minimum Standards

	Octorepeater Total		
	GK/GS	GA/GD	WA/WD/C
Secondary School/U17/U19	<85	<85	<80
Senior Club/U21 Rep	<80	<80	<75
Senior Rep	< 75	< 75	70-75
NZ U21/ANZC franchise	< 75	< 72	< 70
Silver Ferns	< 75	< 70	< 69
Umpires (Male)	< 70		
Umpires (Female)	< 75		

Aerobic Fitness Minimum Standards

	Yo-yo Test		
	GK/GS	GA/GD	WA/WD/C
Secondary School/U17/U19	15.1	16.1	17.1
Senior Club/U21 Rep	15.3	16.3	17.3
Senior Rep	15.5	16.5	17.5
NZ U21/ANZC franchise	17	18	19
Silver Ferns	17	18	19
Umpires:			
National A Squad & National Development Squad	17.5	NOTE: These levels are a guideline only, to the level required by an umpire.	
Applying for NNZ Events (U17, U19, U21, NZSS & NZ Champs)	14.5		
NZ C & NZ B (prior to screening)	13.4		
NZ, Regional and Centre Umpires not applying for events	13		

Lower Body Power Minimum Standards

	Double Leg Vertical Jump			Single Leg Vertical Jump			All Horizontal Jumps		
	GK/GS	GA/GD	WA/WD/C	GK/GS	GA/GD	WA/WD/C	GK/GS	GA/GD	WA/WD/C
Secondary School/U17/U19	40	40	40	30	30	30	150	150	150
Senior Club/U21 Rep	45	45	40	35	35	35	175	175	175
Senior Rep	50	50	45	40	40	35	200	200	200
NZ U21/ANZC franchise	50	50	50	40	40	35	250	250	250
Silver Ferns	55	55	50	45	45	40	275	275	275

Netball New Zealand Fitness Testing Protocols

Strength and Endurance Minimum Standards

	Press Ups			Horizontal Pull Ups			Prone Bridge		
	GK/GS	GA/GD	WA/WD/C	GK/GS	GA/GD	WA/WD/C	GK/GS	GA/GD	WA/WD/C
Secondary School/U17/U19	15	15	15	5-8	8-10	10	1:00	1:00	1:30
Senior Club/U21 Rep	15	20	20	10	10	15	1:30	1:45	2:00
Senior Rep	20	25	25	15	15	15	1:30	1:45	2:00
NZ U21/ANZC franchise	20	25	30	15	15	20	2:00	2:15	2:30
Silver Ferns	25	25	30	15	15	20	2:30	2:30	2:45

