



Functional Testing Manual

July 2021

**Special
Olympics**
British Columbia





Table of Contents

Page 3.....	Introduction to Functional Testing
Page 4.....	Structure of Functional Testing
Page 5.....	Functional Testing Recording Sheet
Page 6.....	Planning a Functional Testing
Page 7.....	Functional Testing Exercises
Page 8.....	Height, Weight, and Posture
Page 9-10.....	Sit and Reach Test
Page 11.....	Four Point Test
Page 12-13.....	Push Up Test
Page 14.....	Wall Sit Test
Page 15.....	Squat Test
Page 16.....	Sprint Test
Page 17-18.....	Agility Test
Page 19.....	Conclusion
Page 20.....	Contact

Introduction to Functional Testing

Functional Testing involves exercises that measure fitness and foundational movements. These sessions are used to test an athlete's fitness level, and to motivate and guide his or her training. Functional Testing is an important aspect of Special Olympics BC programs because it provides a standard measure to track athlete's short and long-term fitness progress and provide measures on physical health status. These measures provide important health data that may be useful for stakeholders, funding, and further program development.

Furthermore, Functional Testing is a useful means of gaining information on specific areas for fitness improvement individual to each athlete. This allows a target approach to health improvement and athletic skill development. Each test has several corresponding Corrective Exercises that are targeted to improve the athlete's health in the specific areas of focus. Following the Functional Testing, SOBC Health staff will review the test scores and follow up with each athlete and coach to provide the specific Corrective Exercises.

The updated (July 2021) tests will allow for a more efficient testing process. As such, Functional Testing has been developed to be a versatile fitness testing process, that can be utilized in Club Fit, sport programs, Inclusive Schools, alongside Healthy Athlete Screenings, and more. The new Functional Testing program should not take longer than 1 hour to complete (depended on number of volunteers and athletes present).

Each Functional Test has a standard approach for measurement to ensure consistency in recording the results. As well, different modifications are provided to ensure all athletes of different ability levels can partake are able to properly complete the exercise.



Structure of Functional Testing

Functional Testing should run a minimum of two times per program, once at the start, and the end of the program. This will allow for the best results in long-term improvement in health, health research and athlete evaluation. If possible, a third Functional Testing should take place at the program mid-point.

Functional Testing consists of 1 basic measurement test, followed by 7 exercise tests.

Begin: Measurements of height, weight and posture

1. Sit and Reach Test
2. Four Point Test
3. Push Up Test
4. Wall Sit Test
5. Squat Test
6. Sprint Test
7. Agility Test

Prior to starting the testing, the athletes should run through a basic warm-up. The athletes should be broken down into groups and go through the tests in a circuit like system, with volunteers at each testing station. If you are short on volunteers, and would like more support for your testing day, please [contact](#) SOBC Sport Coordinator of Health.



Functional Testing Recording Sheet

Functional Testing recording will take place through a Google Form, which can be submitted off-line if needed. The Google Form can be utilized on a laptop, or cell phone. SOBC also has tablets that can be borrowed to run Functional Testing depending on availability and prior notice. It is recommended that each athlete has a device set up with the Google Form, that is given to the volunteers/coaches at each station to note down the scores.

When organizing a Functional Testing, please get in touch with SOBC Sport Coordinator Health, health@specialolympics.bc.ca // 604-737-3081, to gain access to the virtual Functional Testing Recording Sheet.

The virtual Recording Sheets will allow for greater access and tracking of the athlete's health progress and changes. It will also increase the ability to provide athletes with their individual Corrective Exercise program following the testing.



Planning a Functional Testing

When planning Functional Testing, aim to schedule one within the first two weeks of the program, a second at the mid-point, and the final one within the last the two weeks of the program. If running 3 Functional Testing sessions is not do-able, please aim for 2: one at the start and one at the end of the program.

The updated testing program has been designed to be incorporated into sport programs. If one-off Functional Testing events are more suitable for your Local please contact the Health Coordinator (health@specialolympics.bc.ca // 604-737-3081). Please take into consideration whether there are means of hosting mid-point and end of program Functional Testing events to ensure there is long term tracking.

Ensure a suitable venue is arranged for Functional Testing. Functional Testing can operate in any gym, fitness centre, classroom, or community centre facility. If the venue is not suitable for Functional Testing, please arrange a separate space. It is recommended that Functional Testing is hosted inside as a wall is needed to perform the Wall Sit Test.

The equipment needed for Functional Testing is:

- A mat
- Weight scale
- Measuring tape
- Yard stick
- Cones (7-10)
- Tape (masking tape, Duct Tape, etc.)
- A stopwatch (this could be a stopwatch on a smart phone)

Ensure that the athletes bring a mobile device (iPad, iPod, smart phone), or that devices have been arranged with SOBC if needed.

Lastly, inform SOBC Sport Coordinator Health, health@specialolympics.bc.ca // 604-737-3081, for access to the virtual Functional Testing Recording Sheet.



Functional Testing Exercises



Height, Weight, and Posture

Record the height, weight and posture of the athlete.

[Click here for step-by-step YouTube video](#)

Equipment: weight scale, measuring tape

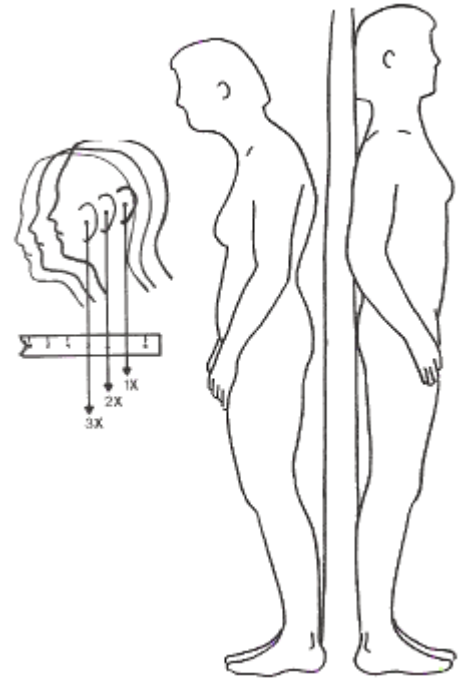
- Record height and weight of each athlete
- Ensure athletes are standing tall during height measurement- **measure height in centimetres**
- Ensure athletes shoes are off and **measure weight in kilograms**

Posture test

- Get athlete to sit straight against wall
- Record athletes head position (is it neutral or forward)
- Record athletes shoulder position (is it forward or neutral)
- Record athletes low back position (is it neutral, forward or flattened)

Note:

- Ensure “extra” clothes (ie. jackets and shoes) are off when weighing
- Ensure hats and shoes are off when measuring height





Sit and Reach Test

To test hamstring and trunk flexibility.

[Click here for step-by-step YouTube video](#)

Equipment: Yard stick (or measuring tape) and tape



Preparation:

- Place the yardstick on the floor with the zero mark closest to you. Tape the yardstick in place at the 38cm mark.
- Warm up properly. Warm-up activities include fast walking, jogging in place, or cycling on a stationary bicycle. Adding extra arm movements to these activities, like pumping your arms, will warm up your upper body.
- Sit on the floor with the yardstick between your legs, your feet slightly apart, and your heels even with the tape at the 38cm mark
- Place one hand over the other. The tips of your two middle fingers should be on top of one another.
- Slowly stretch forward without bouncing or jerking and slide your fingertips along the yardstick as far as possible. The greater your reach, the higher your score will be.
- Do the test three times and record the highest number in centimetres
- If the athlete is unable to reach the yardstick, write an X for the measurement



Normative Data: Male Sit and Reach Test (centimeters)

Age	18-25	26-35	36-45	46-55	56-65	65+
Excellent	> 51	> 51	> 48	> 48	> 43	> 43
Good	47-51	47-51	43-48	40-48	36-43	33-43
Above average	43-47	40-47	38-43	36-40	30-36	28-33
Average	38-43	36-40	33-38	30-36	25-30	23-28
Below average	33-38	30-36	28-33	25-30	20-25	20-23
Poor	25-33	25-30	23-28	18-25	13-20	13-20
Very Poor	< 25	< 25	< 23	< 18	< 13	< 13

Data from YMCA of the USA

Normative Data: Female Sit and Reach Test (centimeters)

Age	18-25	26-35	36-45	46-55	56-65	65+
Excellent	> 61	> 64	> 56	> 53	> 51	> 51
Good	53-61	51-64	48-56	46-53	46-51	46-51
Above Average	51-53	48-51	43-48	43-46	41-46	41-46
Average	46-51	46-48	41-43	38-43	38-41	36-41
Below average	43-46	41-46	36-41	36-38	33-38	30-36
Poor	36-43	36-41	28-36	28-36	25-33	23-30
Very Poor	< 36	< 36	< 28	< 28	< 25	< 23

Data from YMCA of the USA

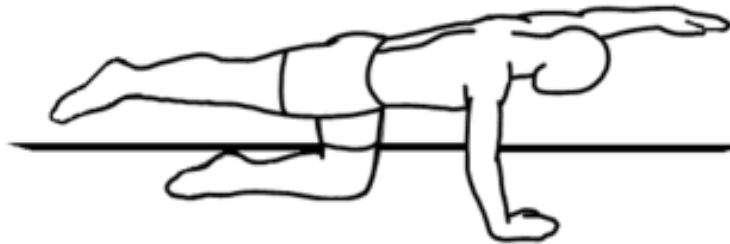


Four Point Test

To practice and test back and core strength.

[Click here for step-by-step YouTube video](#)

Equipment needed: mat or soft floor surface



Proper Form

- Athlete should assume a hands and knees 4 point position
- Athlete should align shoulders directly over hands and hips over knees
- Instruct athlete to lift the one hand and the opposing knee up off the ground until parallel
- The torso should shift somewhat but should not rotate- the elbow and knee should remain close to the side of the body and should not be pulled outwards

Tips for Coaches and Volunteers

- Tell the athletes they have a plate of spaghetti on their back.
- If you have their papers, put it on their back and tell them to not let it fall off

Form Rating Scale

1. Torso is kept parallel to the ground- does not rotate or wobble
2. Elbows and knees are maintained beside the body

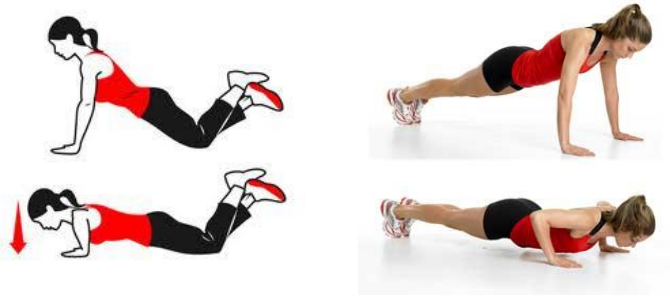


Push Up Test

To test the forward and back stability of the trunk and scapular.

[Click here for step-by-step YouTube video](#)

Equipment needed: mat



Proper Form of a Push-Up

- Athlete should start lying flat on the ground-or on knees if modified
- He/she should place hands palm down on the ground slightly wider than shoulder width apart and thumbs at approximately shoulder height
- Athlete curls toes upward (towards head) so the balls of the feet touch the ground
- He/she pushes down into the ground and slowly straightens elbows until they are only slightly bent (not locked)
- Straight line should fall along the ankle, knees, spine, shoulders and head

Form Rating Scale

1. Ankles, knees, hips, spine, shoulders and head remain aligned
2. No spinal movement is observed (i.e. sagging)
3. Shoulder blades remain flush against the rib cage throughout the execution of one rep

Push- up Test

- Record the number of push ups completed without a large pause- must be proper form
- Stop the test when athletes are unable to maintain appropriate technique for 2 consecutive push ups. **Please note if modification is used.**



Normative Data: Male Pushup Test (reps)

Age	17-19	20-29	30-39	40-49	50-59	60-65
Excellent	> 56	> 47	> 41	> 34	> 31	> 30
Good	47-56	39-47	34-41	28-34	25-31	24-30
Above average	35-46	30-39	25-33	21-28	18-24	17-23
Average	19-34	17-29	13-24	11-20	9-17	6-16
Below average	11-18	10-16	8-12	6-10	5-8	3-5
Poor	4-10	4-9	2-7	1-5	1-4	1-2
Very Poor	< 4	< 4	< 2	0	0	0

Table from Top End Sports

Normative Data: Female Pushup Test (reps)

Age	17-19	20-29	30-39	40-49	50-59	60-65
Excellent	> 35	> 36	> 37	> 31	> 25	> 23
Good	27-35	30-36	30-37	25-31	21-25	19-23
Above Average	21-27	23-29	22-30	18-24	15-20	13-18
Average	11-20	12-22	10-21	8-17	7-14	5-12
Below average	6-10	7-11	5-9	4-7	3-6	2-4
Poor	2-5	2-6	1-4	1-3	1-2	1
Very Poor	0-1	0-1	0	0	0	0

Data from Top End Sports

Wall Sit Test

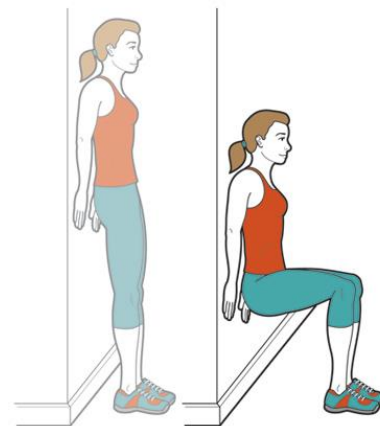
To test leg endurance.

Figure 1

[Click here for step-by-step YouTube video](#)

Equipment: stop watch, flat wall, tape

- Athlete stands approximately 25cm from wall, feet shoulder width apart-this will vary depending on height of athlete
- Athlete leans back against the wall and slides down until knees are **90 degrees**- ensure that athletes are not standing too high or sliding lower than 90 degrees
- You can mark 90 degrees for the athlete with tape on the ground
- Hands should be folded across chest or resting on thigh
- When athlete is in position, start timing
- Stop timing when athlete changes position significantly-knees must remain in 90 degrees



Tips for Volunteers and Coaches:

- Stand beside the athlete to make sure that they are at 90 degrees
- Correct the athlete as soon as their form changes

Normative Data- Wall Sit Test (seconds)

Rating	Males	Females
Excellent	> 100	> 60
Good	75 - 100	45 - 60
Average	50 - 75	35 - 45
Below Average	25 - 50	20 - 35
Poor	< 25	< 20

Data from Top End Sports



Squat Test

To test for functional movement ability.

[Click here for step-by-step YouTube video](#)

Proper form of Squat

- Athlete should stand with shoulder width apart and raise straight arms in front of body to shoulder level
- Feet may slightly point out with knees aligned over feet
- Athlete should descend into a squatting position by bending the hips and knees and lowering the trunk (sitting back into a chair)
- Knees stay behind toes and are aligned over the second toe of each foot
- Body weight is shifted back on heels



Tips:

- Tell the athletes to imagine sitting in a chair
- If an athlete fails, try to coach them and allow them to try again

Form Rating Scale

1. Thighs are parallel to ground when athlete is in a fully descended position (i.e. at the bottom of the squat)
2. Angle of torso is parallel with lower leg
3. Heels remain on the ground
4. Knees are aligned over feet and behind toes



Sprint Test

To test acceleration.

[Click here for step-by-step YouTube video](#)

Equipment needed: Pylons or cones, stop watch, measuring tape



Sprint Test

- Measure out 30 metres, making sure there is room for athlete to run out
- Mark start and finish line with cones
- Make sure athletes are warm or run athletes through a warm-up
- Explain test to athletes
- Ensure his/her foot is behind the line and give him/her a countdown
- Allow athlete two try's (if time)- take the best score and record
- Use two volunteers-one at start one at finish to increase accuracy

Tips:

- Use creative ways to get athletes to run their hardest
 - i.e. get coach to run alongside to encourage athlete
- i.e. get everyone to cheer each other on

Normative Data for 30m Sprint Test (seconds)

Rating	Males	Females
Excellent	< 4.0	< 4.5
Above Average	4.0 - 4.2	4.5 - 4.6
Average	4.3 - 4.4	4.7 - 4.8
Below Average	4.5 - 4.6	4.9 - 5.0
Poor	> 4.6	> 5.0

Data from Physical Education and the Study of Sport

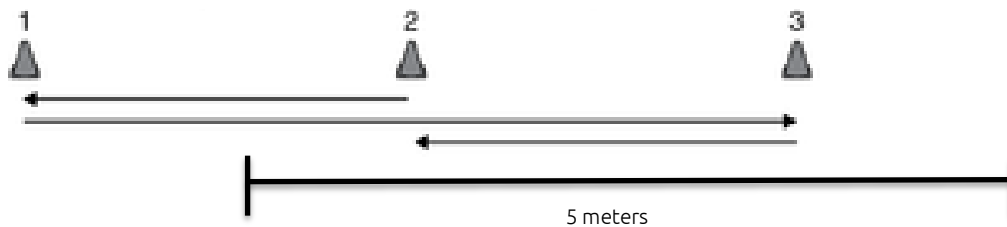


Agility Test

To test the ability to move quickly and change directions with balance and control.

[Click here for step-by-step YouTube video](#)

Equipment: A flat, non-slip floor, tape measurer, stop watch, 3 cones



Test

- The 2 end cones are set 5 meters apart on a straight line. The third cone is placed in the middle (2.5 meters from either end).
- The athlete starts at the middle cone.
- The tester demonstrates the test for the athlete and picks a direction for all athletes to start.
- The tester gives the signal to start and points in a specific direction, right or left (make sure the direction is consistent for all athletes)
- The athlete runs and touches the first cone (either right or left), returns past the middle cone (start) to the far cone and touches that one and then returns to the middle (start) cone, touching that one- this is done as fast as possible as a sprint.
- The tester starts the stop watch on giving the 'Go' command and stops the watch when the athlete touches the middle cone at the end.
- The point of the test is to see how fast the athlete can react to the directional instruction and to see how agile they are while moving pylon to pylon.
- The better of two tries are recorded for scoring.

NOTE:

- Make sure to encourage the athlete to move as fast as possible.
- If necessary, run with them for encouragement.
- Ensure that they are touching each time they are at a pylon
- Make sure to physically show them the direction they will be doing the test before starting



Normative Data: 5-10-5 Agility Test (seconds)

Rating	Males	Females
Excellent	> 4.5	> 4.7
Good	4.8	5.0
Average	5.2	5.4
Below Average	< 5.5	< 5.9

*Data from 440 Performance
Data from 440 Performance*



Conclusion

There are additional resources (Corrective Exercises, Club Fit Manual) that may be useful for programs which incorporate Functional Testing. If you are looking for more information on those programs, please head to our website or contact the Sport and Health Coordinator.

Thank you so much for taking the time to improve the health and lives of our athletes. SOBC appreciates the dedication and support from all our amazing coaches and volunteers.

For any questions or concerns please contact:



***Special
Olympics***
British Columbia

#210 – 3701 HASTINGS STREET, BURNABY, BC
V5C 2H6

Tel: 604-737-3078 // Toll Free: 888-854-276 // Fax: 604-737-3080

info@specialolympics.bc.ca

www.specialolympics.bc.ca

Sport Coordinator Health

Tel: 604-737-3081

health@specialolympics.bc.ca