

FUNCTIONAL TESTING GRID

An Instructional Guide



Introduction

The Functional Testing Grid® may be used in both functional testing and training. Designed as an easily usable and quantifiable tool, the grid design allows for quick, reproducible, valid and accurate assessments of movement patterns and mobility in the upper and lower extremities during functional activities such as stepping, hopping, jumping, lunging, reaching and throwing.

The Functional Testing Grid provide consistent, measured distances for use in movement patterns, making it unnecessary to place tape all over the floor to mark movement direction and assessment of your clients' abilities.

The colorful 'combo grid' design will assist in different aspects of internal directional motor planning, diagonal motor planning and control, as well as providing ease in instruction for clients of all ages and diagnoses.

The grid markings provide easy directional and spot locations for movements by clients and for the recording of those movements by clinicians. Movement patterns can be performed in all directions, in any plane of movement, and both client and clinician can assess functional abilities without expensive or sophisticated equipment.

The Functional Testing Grid can be used in motor control exercises, progression of movement and activities requiring

proprioception, as well as for visual training exercises. The grids are made of durable materials and can easily become part of the standard walk space on the floor. Additionally, the grid can be used with any other functional testing or training apparatus, such as boxes, balance boards, steps, balls, plum line, etc. to further enhance the clinician's ability to test and train a client functionally.

You can mount the Functional Testing Grid on the wall for use with upper extremity testing of movement patterns, mobility and other functional activities.

The Functional Testing Grid provides the clinician with objective data that can be used in documentation and determination of the client's functional abilities. It is easy to use, for both clinician and client. As you begin to explore its possibilities you will find many more uses for the Functional Testing Grids than those outlined in this booklet.



MEASURABLE ACTIVITIES USING THE FUNCTIONAL TESTING GRID

The grid is bisected into eight "directions" on a compass with a 45° angled line separating each direction (N, NE, E, SE, S, SW, W, NW). These directional 45° angle lines are used for monitoring movement in these planes of direction and provide visual feedback for both the clinician and client about the plane of movement. Each 10cm section is numbered along the N, E, S and W lines, again for easily identifying where the client's foot or hand lands during a

movement pattern, test or exercise. During functional testing, a number of variables can be manipulated.

Distance: Most movements will start at the center of the grid. Both the clinician and client can record the foot or hand placement, giving the client special cognitive association to the movement being performed.

If the client is able to move more than 90cm, the client can simply move either right, left, up or down on the grid to another "starting" point and can continue

the exercise or test and the new distance can be recorded.

Time: The number of repetitions completed in a timed period can be assessed on the grid; or the number of repetitions to failure of a movement can be assessed during a testing or training protocol. Some possible “points of failure” could be failure to keep proper form during the exercise or activity, failure to reach a particular spot or point on the Grid or fatigue failure.

Movement to a Point on Command:

These types of activities require control of the movement, rapid integration of direction and distance, speed and coordination and proprioceptive abilities. The clinician can call out, for example, “North East 30” and the client would be required to touch the third line along the NE directional line to be successful. The accuracy and time it takes to reach the point of command can be recorded and compared to future tests.

Alternate “Distractions”: Clients can move in selected patterns or planes while utilizing other forms of motor control. For example, performing the same movements to the same point with eyes open and eyes closed, performing the movements while holding free weights or dumbbells or performing a particular movement pattern while throwing and catching medicine balls, bean bags, etc. An accurate assessment of stepping length from a

box or step can easily be assessed and reproduced in a testing setting. Hopping over a cone of varying heights, lunging forward with particular resistance etc., can all be recorded and reproduced with the Functional Testing Grid.

The next section will outline a variety of functional tests and activities that can be assessed with the Functional Testing Grid. This is not intended to be “all inclusive” and the nature of functional testing should be designed to meet the functional needs of each client. The Functional Testing Grid is a valuable measurement tool designed to help you reach this goal.

FUNCTIONAL TESTS

One Leg Stepping

Place one foot on the center or some other marked line. The test/exercise will then involve stepping either laterally, forward, backward, or along a diagonal line as far as possible with one foot and then returning to the starting point. Another variation of the one leg stepping would be to step as far forward and then as far backward as possible with one leg before returning to the starting point. This can be done along a diagonal as well. Or a combination of movements: i.e. forward and then diagonally backward.

Record the distance of the step in whichever direction and then either repeat with the same foot or test the same movement with the opposite leg.

One or Two Leg Hopping

Place both feet on the center or some other marked line. The test/exercise will then involve either hopping laterally, forward, backward or diagonally with either one or both feet at the same time. Record the distance of each hop and return to the starting point. The two leg hopping test/exercise can also be done with consecutive hops. For example, hop back and forth as far as possible, or back and forth to a certain point. Combination or multi-directional hops also can be tested. The distance of each hop or the number of hops in a given time can be recorded. Hopping on command to a given location is another fun and challenging test and exercise.

One-to-One Leg Stepping

Start with one foot on a given line and step or hop laterally, forward, backward or diagonally to the other foot. Record the starting and finishing distance. This test/exercise can be done for distance or for the number of repetitions in a certain time.

Quadrant Box Stepping/Hopping

This test/exercise can be done with either one leg or two, in either a stepping or hopping motion. Determine the four quadrants or whatever number of quadrants to be used in the test (i.e. N to E = one, E-S = two, S-W = three, W- N = four) and have the client step or hop in each quadrant with either one leg or two legs. A modification would be to step or hop into each quadrant within the

same distance, square from the center point. Another test/exercise would involve stepping or hopping to a different line in a particular quadrant on command or changing directions on command.

Step-up Box Tests

A step-up box can be placed anywhere on the Grid. The height of the box can vary based on the client’s ability. The distance of forward, lateral, backward, diagonal or alternate leg stepping-up or down can then be assessed using the marked lines on the grid.

Resistance Cord Tests

Attach a resistance cord to a fixed point and to the client. The client will then perform resisted walking, running, hopping, lunging, jumping etc. on the grid to a particular distance. This will allow reproduction of a stimulus, or progression of resistance by having the client moving farther away or closer to the fixed point of the resistance cord. Quadrant box hopping or stepping can be another functional test using the grid with resistance cords.

Isolated Exercise Tests

The grid can be used for reproducing a stimulus while completing isolated exercises such as lunges. The location of the standing foot can be recorded and the location of the lunging foot can also be recorded and reproduced during training. Progression can be accomplished by simply moving either foot to another point and recording the new distance traveled.

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Lunges can be done forward, diagonally or onto or off varying heights of boxes (with the standing leg or the lunging leg using the box). These tests/exercises can also be modified by: multi-directional lunging, use of various resistances (dumbbells, Bodyblades, etc.), timed repetitions and so on.

VISUAL STIMULATION

The Functional Testing Grid is also separated into 12 sections, each section being 30° and each 30° section is colored. The colored sections serve several purposes:

- Instruction for neurologically impaired, elderly and pediatric clients—the colored areas are more easily identified and can be verbally cued.
- Provides easily observable results for recording. Clinicians can easily observe where the client is stepping or moving from or to.
- Assists client in more internal directional motor patterning.
- Assists in diagonal motor planning and control. Each color is repeated in the section that is 180°, with 360° being the top of the grid. Each consecutive circle is also numbered along the 90°, 180°, 270° and 360° lines for the ease of identifying where the client's foot or hand lands during a movement pattern, test or exercise.
- There are grommets along the top side

so that the Functional Testing Grid can be wall-mounted for use with upper extremity functional testing and training. The wall mounted grid can inspire a variety of movements of the shoulder and can assist in developing eye-hand and motor coordination type of activities.

- The variables that can be manipulated for testing are similar to those described earlier, in regards to distance, time of movement, movement to a point on command, changing directions of movements and alternate distractions. In addition, the consecutive circles can be used in movement patterns and testing, either through all 12 sections or within a given colored sector.

FUNCTIONAL TESTS USING COLORED SECTORS

Toe Touching

Place one foot on the center. The test/exercise involves touching the toes of one foot along the consecutive circle lines in each of the 12 sectors. The toe touch can either be to the line or within the colored area. Start with the 10cm circle and progress out to the 90cm circle. The circles can be done either forward, backward or both. The measured parameters can be a number of touches in a given time or distance achieved without failure, (i.e., losing balance or inability to touch one sector), or whatever the criteria the clinician has for using the toe touch functional test on the grid.



Toe Touching on Command

This is a modification of the toe touch test, where the clinician calls out a line within one of the sectors and the client must touch that line with a particular foot that is selected by the clinician. This test/exercise can also be done with eyes open and then eyes closed to further increase the proprioception, visualization and coordination involved in the test/exercise. The test/exercise can be performed with either one leg, both legs or alternate legs (i.e. right to green 30, left to red 10).

Ball Rolling

This test/exercise requires the use of some type of ball (small medicine ball, soccer ball, volleyball, basketball, softball, baseball, etc). The client stands on one leg in the center and then rolls the ball along one of the concentric circles through all 12 sectors. They progress the test/exercise by performing the ball rolling in consecutively larger circles, then by rolling the ball forwards, backwards or by changing direction on command. Another command test would be to have the patient rolling the ball in different circles in different

directions (i.e. clockwise in 10, counter clockwise in 40, clockwise in 60, counter clockwise in 20). The client could roll the ball in just one or two colored sectors, but move out from the center or move from as far out as possible back towards the center. This test/exercise can be modified or progressed as above by moving on command to various locations and in different directions. A more simple series of ball rolling tests would be to have the client roll the ball as far forward, backward and/or diagonally as possible along the lines dividing the sectors. Again, you can modify the test by starting as far out as possible and rolling towards the center, timing the number of complete trips out and back from the center and comparing the control and accuracy between each leg.

Toe Tapping Over Ball

This test/exercise can be done in several ways, but two possible methods:

1. Place the ball in the center, keeping one foot on the ball and then hop around the ball into each of the 12 sectors, progressively moving out farther from the center.
2. Alternate the foot that taps the ball while the other foot lands out either as far away as possible, or to a specific spot or sector on command.

TESTS USING THE COLORED SECTORS ON THE WALL

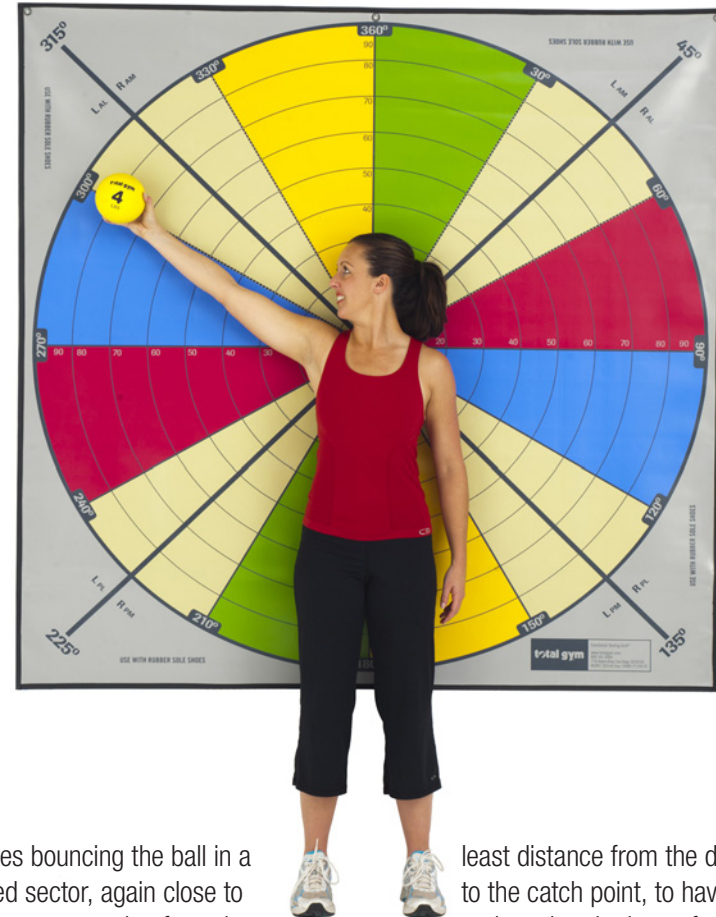
Wall Climbing

Have the client “walk” their fingers along each 30° sector line as far out as possible or have them “walk” their fingers around a given concentric circle through all sectors. This can be done facing the wall, facing away from the wall or with either side toward the wall. This test will provide objective quantification of the range of motion with combination movements at the shoulder. A modification of the Wall Climbing test is the “Quick Touch” to a specific sector or a specific line in a given sector. This activity enhances speed of movement and proprioception. Once the client is comfortable with this test, it can be done with eyes open and then with eyes closed. The accuracy and time for a given number of touches can be assessed and compared with the uninvolved arm or over time with the involved arm.

Ball Tests

Balls of any size can be used (i.e. small medicine balls, large gymnastic balls etc) for these tests/exercises.

1. The ball can be rolled in a given sector, moving father away from the center or from far away towards the center. This can be done facing the wall, facing away from the wall or with either side to the wall. This test/exercise can be progressed to rolling the ball around the grid along a given concentric circle.



2. Involves bouncing the ball in a colored sector, again close to the center or moving from the center or towards the center. The ball can then be bounced along a given circle through all 12 sectors, moving clockwise, counter clockwise or changing direction on command.
3. In the “Drop and Catch” test the client places the ball on a specific line in a given sector and then drops the ball and catches it. The test can be to drop and catch as fast a possible so there is least distance from the drop point to the catch point, to have the drop and catch point be as far apart as possible or to drop from a given point and catch at a given point.

The use of the Circle Grid on the wall allows for quick, accurate and reproducible assessment of even these rapid movements because the concentric circles provide feedback to both the client and the clinician on the distances obtained during the tests and exercises.

CLIENT RECORD CHART

Client Name

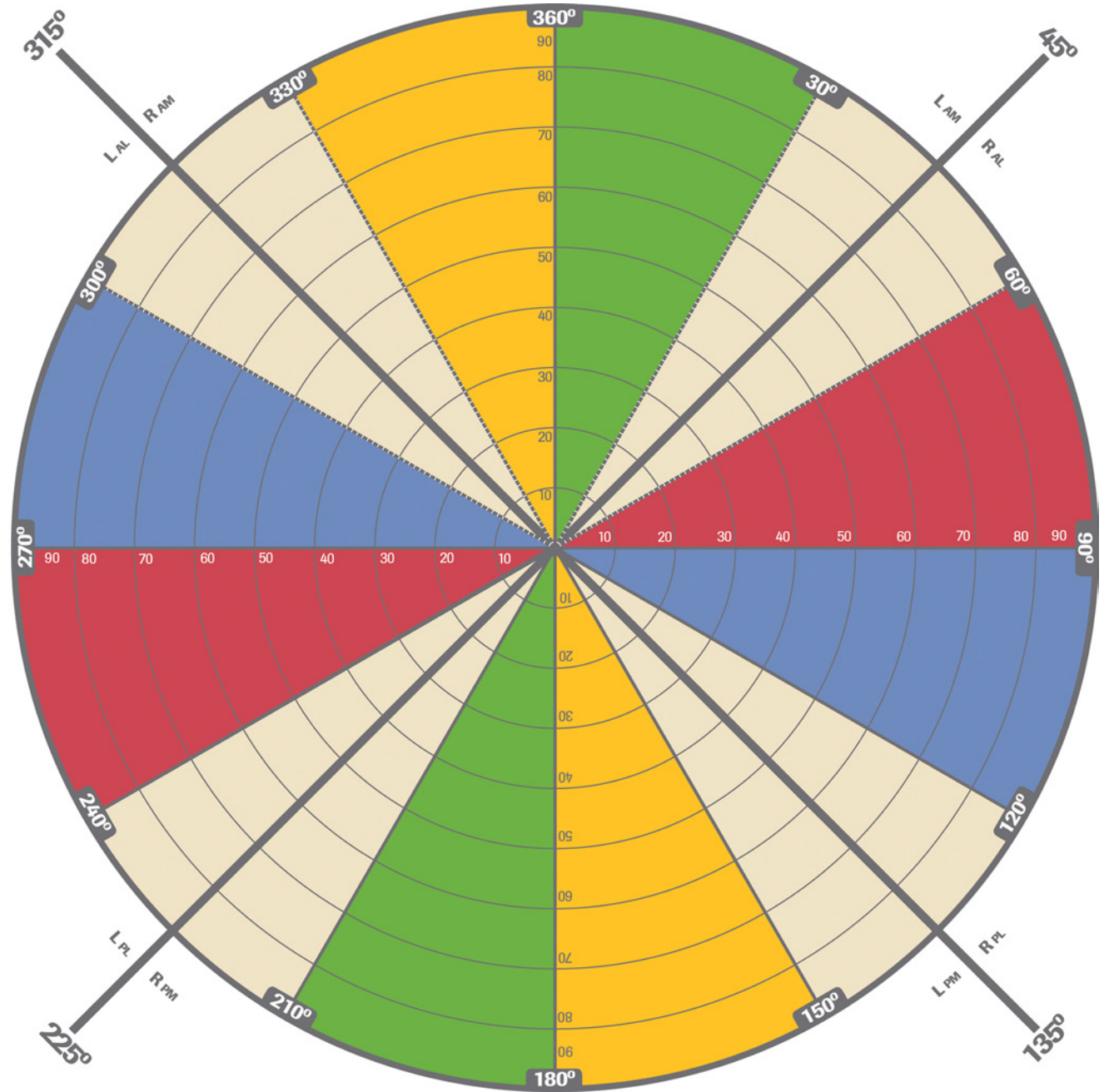
Date

Client Information

Functional Test #1

Functional Test #2

Functional Test #3



CLIENT RECORD CHART

Client Name

Date

Client Information

Functional Test #1

Functional Test #2

Functional Test #3

