



## ACTION RESEARCH ARM TEST

### INSTRUCTIONS TO SUBJECTS & ASSISTANCE DURING THE TEST

Experienced ARAT 'testers' will no doubt have developed their own style and method of explaining to their subjects what is required of them in the performance of each individual test and possibly their own 'rules' about how much assistance (if any) they will give the subject. That is their prerogative and not ours to prescribe.

Neuroquip's standard training resource document supplied with each new ARAT Kit '**Guidelines for a Standardised Approach to Performing the Action Research ArmTest**' therefore gives only basic information and guidelines in these areas.

However, for those new to ARAT testing the following additional guidelines and suggestions might be useful as a basis upon which to work initially:

#### **Instructions To Subjects**

As recommended with most verbally given instructions to subjects / patients, reproducibility and reliability of results is better served by adopting a gentle, clear and neutral tone. Encouragement to the subject ('come on – you can do it!) whilst performing each individual test is discouraged for similar reasons.

**NB:** There is nothing wrong at all with the **tester demonstrating** what is required after having given their instructions. Indeed this might prove extremely useful to a subject who generally exhibits a limited degree of comprehension when processing instructions.

One of the benefits of the least-affected arm always being tested first in each subscale is that comprehension of what is required when performing with a healthier limb is likely to be achieved more readily, possibly therefore positively assisting with affected-side compliance.

Suggested specific instructions to subjects relative to each test subscale could be as follows:

#### **Grasp Subscale (Tests 1 – 6)**

The subject is requested to grasp, lift vertically, place and then release each object (block, ball or stone) onto the top of the shelf.

You could use a phrase such as:

*“Grasp this ....., lift it up, place it on the shelf and let go”*

Follow this immediately with a demonstration if you think necessary or so wish.

### **Grip Subscale (Tests 7 – 10)**

The subject is requested to pour the water from one tumbler to the other; to displace a wide metal tube from a tall wooden dowel to a smaller dowel; displace a thin metal tube from a short 'pink' to a tall 'green' bolt - and finally displace a washer from a tin lid to the tall green bolt.

You could use phrases such as:

*“Pour the water from this glass to that one”*

Demonstrate if required.

*“Lift up this tube off its peg and place it on that peg”*

Demonstrate if required.

*“Lift up this narrow tube and place it on that green bolt”*

Demonstrate if required.

*“Pick up this washer and place it on the green bolt”*

Demonstrate if required.

### **Pinch Subscale (Tests 11 – 16)**

The subject is requested to grasp a ball-bearing or marble from a tin lid, lift it vertically then place and release it into a target tin lid placed on the shelf.

You could use a phrase such as:

*“Pick up the ..... using these two fingers and place it in the tin on the shelf”*

Demonstrate if required.

### **Gross Movement Subscale (Tests 17 – 19)**

Starting with both pronated hands on their lap and their head and trunk in a stable, neutral, upright position, the subject is requested to touch the back of their head, top of their head and mouth with the palmer side of the hand being tested.

You could use a phrase such as:

*“Touch the back of your head / top of your head / mouth with the palm of your hand”*

## **Assisting The Subject During The Test**

In addition to demonstrating each individual test in each subscale as may be necessary, there are also circumstances where it is reasonable to assist a subject during the performance of the test.

This does **not** extend to any assistance whatsoever with the movements required to perform each task (eg. assisted lifting of the subject's arm to facilitate elevation or extension during the test) but is reasonable when a piece of equipment is dropped or knocked out of position. It is however, a matter for your discretion.

Some examples of permitted and non-permitted subject and / or tester interventions in each subscale are suggested below.

However, it is very important to remember that the maximum time permitted to perform each task is 60 seconds. Any assistance given must be included within that timescale and the timer should not be stopped and restarted as a consequence of tester intervention.

### **Grasp Subscale (Tests 1 – 6)**

For the block tests (1 – 4) the tester must not stabilise a block, nor permit the subject to stabilise it with their non-tested hand.

However, if a block is dropped and rolls an unreasonable distance away from the tested hand (or onto the floor) it is permitted for the tester to reposition the block to its correct starting point.

The same rule applies to the cricket ball test (5) and in addition, the tester is permitted to stabilise the starting-point tin lid on behalf of the subject if required.

During the sharpening stone test (6) the stone has to be placed on its long, narrow side in a slightly diagonal position aligned parallel to the axis of the palmar creases.

Should the stone fall or be dropped onto its flat side during grasping attempts, the tester may reposition it to its correct starting position during the 60 second timed test period.

### **Grip Subscale (Tests 7 – 10)**

The water test (7) is a finite test (ie. either the subject is able to record a positive score of 1 – 3 or is completely unable to perform any of the hand or arm movements required. As such, there is no point in the tester repositioning and / or refilling the tumbler if the tumbler is knocked-over or water spilled during the 60 seconds. The test will effectively end as soon as either occurs (even if within 60 seconds) and the subjects 'final score' recorded accordingly.

Some subjects will instinctively stabilise the target tumbler with their non-tested hand and this is often permitted as it is a practice closely linked with normal function. But it is not recommended that the tester should instigate this practice on the subject's behalf.

Debate often surrounds the tumbler test (7) as some testers choose not to conduct it at all if the subject's results on Grasp Subscale (tests 1 – 6) suggest that there is no possibility of any score other than '0' being achieved. This is entirely a matter of discretion and any decisions taken in this respect will usually be influenced by whether the test is being performed for academic medical research, a clinical trial or as an outcome measure for a personalised rehabilitation programme.

The practical issues of dealing with an 'inevitable water spillage' and the negative psychological effects for the subject of a demoralising performance usually form part of the consideration.

### **Pinch Subscale (Tests 11 – 16)**

If a ball or marble is dropped and rolls out of the tin or onto the floor, it is permitted for the tester to reposition it in the tin lid at its correct starting point as many times as necessary during the 60 second test timeframe.

The tester is also permitted to stabilise the starting-point tin lid on behalf of the subject if required.

### **Gross Movement Subscale (Tests 17 – 19)**

The subject starts with both pronated hands on their lap.

However, the subject's hand throughout the test can be in flexed posture if full digital extension / abduction cannot be maintained.

*This document is for guidance only and is neither intended to be nor should be read as a definitive prescription for an ARAT Test protocol. It has, however, been formulated with due reference to both academic resource\*\* and feedback received from experienced ARAT assessors in academic and clinical practice.*

*\*\* A 'Standardised Approach to Performing the Action Research Arm Test' was introduced by Nuray Yozbatiran et al (Neuro Rehab & Neural Repair 2008) with the aim to reduce the variations that are inevitable with multisite testing requiring subjective evaluation of performance. The online version of the article can be found at:*

***<http://nnr.sagepub.com/content/22/1/78>***

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