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## RECOMMENDED PROCEDURE FOR HALLPIKE MANOEUVRE

### 1. Introduction

The Hallpike test (also known as the DixHallpike test or manoeuvre) was developed and introduced into clinical practice in 1952 (Dix and Hallpike, 1952). It is now used extensively in the differential diagnosis of positional vertigo.

The aim of this BSA recommended procedure is to achieve standardisation of test procedure throughout the UK and to provide a more detailed description than that given in Dix and Hallpike's original paper (1952).

### 2. Preparation

2.1 The Hallpike test should be performed in all patients with any history of vertigo, unsteadiness, light-headedness, disequilibrium or imbalance. It should be performed routinely using direct observation of eye movements and with optic fixation. However, Frenzel glasses or Videonystagmography (VNG) can be used during the course of the test to aid in the characterisation of unusual nystagmus. It is incorrect to record the response using only Electronystagmography (ENG); visualisation of the eyes is needed for correct interpretation as to the type of and direction of any eye movements.

This test should be performed after tests of stance and gait, but before static positional and caloric testing.

### 2.2 Absolute contra-indications

- Fractured odontoid peg
- Recent cervical spine fracture
- Atlanto-axial subluxation
- Cervical disc prolapse
- Vertebro-basilar insufficiency that is known and verified
- Recent neck trauma that restricts torsional movement

### 2.3 Cautions

(may lead to a request for a neck X-ray)

- Carotid sinus syncope (considered if history of drop attacks or blackouts)
- Severe back pain
- Recent stroke
- Cardiac bypass within the last 3 months
- Severe neck pain
- Rheumatoid Arthritis affecting the neck
- Recent neck surgery
- Cervical myelopathy
- Severe back pain
- Severe orthopnea may restrict duration of test

Staff performing the test should be aware of these contra-indications. It is the responsibility of the referring clinician to ensure that the patient is fit to undergo the test.

Many patients will report some stiffness or discomfort in the neck. For these patients (in whom none of the above absolute contra-indications apply) if s/he is able to

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move his/her neck into the Hallpike position (i.e. rotation with extension), whilst sitting, without pain or restriction of movement, then the test may be performed. If movement is restricted then a limited test should still be performed. If necessary, the correct head position can be achieved by tilting the couch.

### 3. Performing the Maneuvre

3.1 This technique should only be performed by testers who have had training in moving and handling. Testers with known back problems should not perform this procedure or should exercise appropriate care, using a technique designed to minimise the risk of further back injury.

3.2 Begin by explaining the procedure to the patient, demonstrating if necessary. Take care to explain to the patient that he/she may experience some dizziness but that this is likely to be short-lived. Ensure that patient consent is obtained.

3.3 Sit patient on an examination couch in a position such that when lying down, his/her shoulders will be level with the end of the couch.

3.4 If the history is suggestive of BPPV, then always start with the ear that is least suspected. If there is no evidence of laterality, then it does not matter which ear is tested first.

3.5 Turn the patient's head 45° towards the test ear, by holding both sides of the patient's head with your hands.

*Fig. 1. (a) Patient's head is turned 45° towards the test ear.*



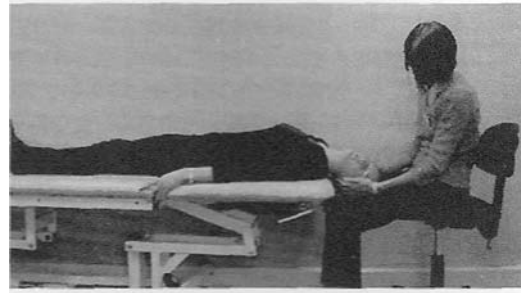
3.6 The patient should be instructed to fix his/her eyes on a point directly in front of him/her throughout the test (or on the fixation light if wearing VNG glasses). Observe the patient's eyes, noting the presence of any nystagmus, or any other eye movements.

3.7 Instruct the patient that on the count of 3, you will bring his/her torso and head back quite quickly so that his/her head will be over the end of the couch. Emphasise that you will be supporting his/her head all the time. The patient is to keep his/her eyes open all the time, staring straight ahead, and endeavouring to suppress blinks. Emphasise to the patient that he/she must keep his/her eyes open, even if he/she feels dizzy, since observation of eye movements is essential.

3.8 On the count of 3, take the patient's head between both hands, and maintaining neck torsion, bring it rapidly backwards so that it is hanging approximately 15 - 20° below horizontal, beyond the end of the couch (Dix and Hallpike, 1952). Support the weight of the patient's head and observe the patient's eyes at all times. The optimum duration of the movement from sitting to head-hanging should be about 2 seconds (Baloh et al, 1987), although it is acceptable to do this more slowly if the patient has back problems.

3.9 For safety and comfort, it is suggested that the tester sits down on a stool or chair whilst the patient is in the head-hanging position (Raynor, 1998).

3.10 Maintain the head-hanging position for 30 - 60 secs<sup>1</sup> (Fig. 1(b)). If nystagmus is present, the position should be maintained for at least a minute after the onset of nystagmus to determine whether the nystagmus is going to fatigue, change direction or alter in any way. In the case of persistent nystagmus lasting longer than 2 minutes, Frenzel glasses or VNG can be used to abolish optic fixation and hence aid in deciding whether the nystagmus is peripheral or central in origin. Duration and severity of vertigo should be noted, as well as the presence, direction, magnitude, latency and duration of any nystagmus. In addition, note the presence of any pallor, sweating, nausea or vomiting.



3.11 After instructing the patient of your intention, sit him/her up on the count of 3. Sitting up should be a slow process, to avoid the patient fainting secondary to orthostatic hypotension. After rising to the sitting position, maintain his/her head position at 45 degree rotation and observe patient's eye movements. Again note the presence, direction, magnitude, latency and duration of any nystagmus.

3.12 If no nystagmus was observed in either sitting, or lying with head hanging, then the test is complete for that side, and after a short break should be repeated on the other side.

3.13 If nystagmus was observed, then the manoeuvre should be repeated as soon as any nystagmus observed with the patient sitting has ceased. Again the presence, direction, magnitude, latency and duration of any nystagmus should be noted in order to assess fatiguability.

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<sup>1</sup> Central Pathology may only become apparent after 30 secs.

3.14 Repeat steps 3.5 - 3.13 for the other ear. In cases where vertigo was induced in first-side tests, the patient may feel unsteady for a few minutes. When moving round to the other side of the couch, it is important to maintain physical contact with the patient. A reassuring hand on his/her shoulder is usually appropriate. Similarly, on completing the manoeuvre, instruct the patient to be cautious when standing up.

**This procedure has been written for the use of the Hallpike manoeuvre as a diagnostic test. Variations in procedure may exist if it is to be used in conjunction with treatment, e.g. particle repositioning manoeuvre. It is not the purpose of this document to standardise such manoeuvres.**

#### **4. References**

Baloh RW, Honrubia V, Jacobson K. Benign positional vertigo: clinical and oculographic features in 240 cases. *Neurology* 1987; 37: 371-378.

Dix MR, Hallpike CS. The pathology, symptomatology and diagnosis of certain common disorders of the vestibular system. *Proc Royal Soc Med* 1952; 45: 341-354.

Raynor A. Backcare. *BSA News* 1998; 25:10-11.

#### **5. Appendix**

Membership of the Balance Interest Group Committee and list of other professionals who provided advice.

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