

One of the tasks for the deafblind Usher-group was to present some guidelines concerning early visual balance and hearing testing.

## European Workgroup on Genetics of Hearing Impairment

### VESTIBULAR TEST PROTOCOL

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**IDENTIFICATION:** Patient ID \_\_\_\_\_ Examination Centre \_\_\_\_\_

#### ANAMNESIS

Date of test	_____	d/mos/yr
Date of Birth	_____	d/mos/yr
Sex		m/f
When was the child able to <b>walk</b> without help	_____	months
Problems with		
Walking in darkness		yes/ no/ unknown
Walking on uneven surface or in sand		yes/ no/ unknown
Gymnastics and sport activities		yes/ no/ unknown
Motion sickness		yes/ no/ unknown
Reading (visual fixation) during walking		yes/ no/ unknown
Age of onset of vestibular problems	_____	yr

#### Vestibular symptoms

Acute attacks of vertigo  
**Character** : rotational , linear , other \_\_\_\_\_  
**Duration** of symptoms (1: < 1 months, 2: < 6 months, 3: < 1 year, 4: > 1 year) \_\_\_\_\_  
**Length** of an attack (1: < 5 min, 2: < 20 min, 3: < 2 hrs, 4: < 12 hrs; 5: < 24 hrs; 6: > 24 Hrs) \_\_\_\_\_  
**Frequency** of attack (1: once a year; 2 : twice a year; 3: once a month; 4 : once a week; 5 : more freq) \_\_\_\_\_  
Associated **symptoms** : tinnitus , fluctuating hearing loss , nausea , other \_\_\_\_\_  
Prolonged imbalance  
**Lateropulsion** (tendency to fall sideways) yes/ no/ unknown  
**Lightheadedness** / faintness yes/ no/ unknown  
**Unsteadiness** / drunken feeling yes/ no/ unknown  
Oscillopsia (*unsteady visual image/field*)  
**Unassociated with head movement** yes/ no/ unknown  
**Head movement induced** yes/ no/ unknown

#### History

Trauma including Whiplash	yes/ no/ unknown
Infection (e.g. Meningitis)	yes/ no/ unknown
Ototoxic drugs	yes/ no/ unknown
Perinatal problems (> 48 hrs in SCBU-Incubator)	yes/ no/ unknown

**Family History:** Family members with balance dysfunction

yes/ no/ unknown

Specify who, and what \_\_\_\_\_

### CLINICAL EXAMINATION

**Ear-nose and throat** examination Normal/ Abnormal

Specify if abnormal \_\_\_\_\_

**Cranial nerve** examination Normal/ Abnormal

Specify if abnormal \_\_\_\_\_

**Wide based gait** (*eyes closed*) yes/ no

#### Nystagmus detection

**Spontaneous** nystagmus (on direct observation) yes/ no

*Patient seated looking in primary gaze position*

**Spontaneous** nystagmus (using Frenzel or goggles) yes/ no

**Gaze-evoked** nystagmus (*30 degrees left-right from mid position - naked eye*) yes/ no

**Positional** nystagmus (*lateral horizontal position*) yes/ no

**Head-shaking** nystagmus (using Frenzel or goggles) yes/

no

**Fistula test** (pressure in the ear canal) yes/ no / unknown

### 3. TESTING

**Spontaneous** nystagmus present in darkness : yes/ no

left - right beating ; slow phase velocity \_\_\_\_\_(deg/s)

**Positional** nystagmus (*lateral horizontal position*) in darkness : yes/ no

left - right beating ; slow phase velocity \_\_\_\_\_(deg/s)

**Caloric testing** (Bithermal-Binaural (250cc)) by preference and **for age > 4 years**

In darkness yes/ no

Right 30 °C (Maximal slow phase velocity) \_\_\_\_\_deg/s

Left 30 °C \_\_\_\_\_deg/s

Left 44 °C \_\_\_\_\_deg/s

Right 44 °C

\_\_\_\_\_ deg/s

**Bilateral hyperactivity**

yes/ no

**Bilateral hypoactivity**

yes/ no

(If total sum of 4 irrigations < 40 deg/sec in the dark, or if response is below own normative limits)

**If hypoactive : is the patient bilateral areflexive**

yes/ no

*(choose one of the following)*

Tap water calorics ( \_\_\_\_\_ °C) during 60 seconds irrigation

Nystagmus present ?

yes/ no

Ice water calorics (20 seconds)

Nystagmus present ?

yes/ no

**Labyrinthine asymmetry :**

$[(LW+LC)-(RW+RC)]/[LW+RW+LC+RC]*100=$  \_\_\_\_\_ %

**Nystagmus preponderance:**

$((LW+RC)(LC+RW))/[LW+RW+LC+RC]*100=$  \_\_\_\_\_ %

**Recording mode** of eye movements

Electro-oculography (electro-nystagmography)

yes/ no

Video-oculography

yes/ no

Other \_\_\_\_\_

**For children < 4 yrs** or those not cooperative with the above assessment, the presence or absence of vestibular function should be assessed by a rotational test in the dark, evaluating the nystagmus response.

*[Mark with a vertical line]*

No response |-----!Normal nystagmus

### VESTIBULAR DIAGNOSIS

Vestibular Activity :	<b>Normal</b>
	<b>Unilateral hypoactive Left</b>
	<b>Unilateral hypoactive Right</b>
	<b>Unilateral Absent Left</b>
	<b>Unilateral Absent Right</b>
	<b>Bilateral <u>hyperactive</u></b>
	<b>Bilateral hypoactive</b>
	<b>Bilateral Absent</b>
	<b>Central involvement</b>

If more advanced equipment is available a standard ENG/rotational protocol for the individual unit should be carried out and the results, together with normative data,

valid for the laboratory should be faxed with the basic vestibular assessment to Claes Moller: fax 46.31.82.9811 Claes.moller@orlss.gu.se or Linda Luxon: fax 44.171.278.8041