

PARAMEDIC TIP SHEET #11:

Introduction to Otoscope & Ophthalmoscope Use

Indications for Otoscope & Ophthalmoscope Use

In the traditional EMS role, the paramedic will rarely if ever use the otoscope or ophthalmoscope in his/her practice. However, knowledge of the diagnostic benefits of their use is valuable to the paramedic including those serving in traditional emergency response roles. In preparation for practice as an entry-level paramedic, elementary knowledge of the use and benefits of the otoscope and ophthalmoscope is fundamental. From this starting point, the paramedic can obtain additional and specific training in preparation for non-traditional paramedic roles. Examples of such roles are:

- ♦ **Assisting in a primary care clinic**
- ♦ **Functioning as a health care provider in remote locations (e.g. off shore drilling rig)**

Cautions

Without additional and specific training, the usefulness of these tools to the paramedic is limited. The paramedic must not equate this introductory training and information to that obtained by health care providers who utilize these tools regularly. In addition, the usefulness of the information obtained by using these tools is also limited by the health care provider's knowledge of the underlying pathologies associated with abnormal findings. In simple terms: Keep in mind that this is simply a cursory introduction to the use of these tools.



The Otoscope

The otoscope is a device used to visualize the interior of the ears (ear canal and tympanic membrane) and nose. The device uses a light source, a speculum (tip inserted into the ear canal), and a magnifying glass. The basic steps involved in simple use of the otoscope are:

1. Attach the speculum to the device using a twisting motion (Use the largest speculum that will fit into the ear canal)
2. Insert the speculum tip into the ear canal
3. Tilt the patient's head slightly away from you. Grasp the auricle of the ear and gently pull the ear up and back (straightens the ear canal)
4. Inspect for cerumen, discharge, redness, lesions (scar), perforations and foreign bodies
5. Note the color of the eardrum. It should be pearly, translucent gray.
6. Visualize the landmarks of the inner ear (bones)

(continued on next page)

PARAMEDIC TIP SHEET #11:

Introduction to Otoscope & Ophthalmoscope Use (cont)

The Ophthalmoscope

The ophthalmoscope is a device used to examine the interior of the eye. The device uses a light source in addition to a series of lenses and mirrors. The examination of the eye's interior with an ophthalmoscope is a detailed process that is very difficult to master and requires skill and practice. The basic steps involved in simple use of the ophthalmoscope are:

1. Visualize the anterior chamber for cells, blood (hyphema), or pus (hypopyon).
2. Visualize the retina, blood vessels, and optic disc. This will require changing the depth of focus by turning the wheel of the ophthalmoscope head.
3. Look for foreign bodies under the eyelid or in the cornea.
4. Check the cornea for lacerations, abrasions, or infection.
5. Look for an open globe, tear-drop shaped pupil (leaking vitreous humor from the back of the eye)
6. Look for papilledema (blurred optic disc margins) caused by increased intracranial pressure (ICP).
7. Look for cataracts, arterial and venous occlusions, and retinal hemorrhages (may be found in diabetics).

Visual Acuity

Basic testing of visual acuity requires the use of a visual acuity wall chart or card. Following are some basic principles when assessing visual acuity.

1. Visual acuity using a wall chart requires the patient to be placed 20 feet away from the chart.
2. Visual acuity using a card requires the card to be held 14 inches away from the patient's eye.
3. Test one eye at a time and record the visual acuity grade as the smallest line in which the patient can read at least one-half of the letters.
4. The result is written as a fraction. The first number is the distance away from the chart. The second number is the distance for which a normal eye could read it. For example, 20/90 means that a normal eye could read the line from 90 feet away but your patient could only read it from 20 feet away.