

Physical Exam #2

Examine the Head
By Mary Vanderkooi M.D.

We move from general examination to examination of the head.

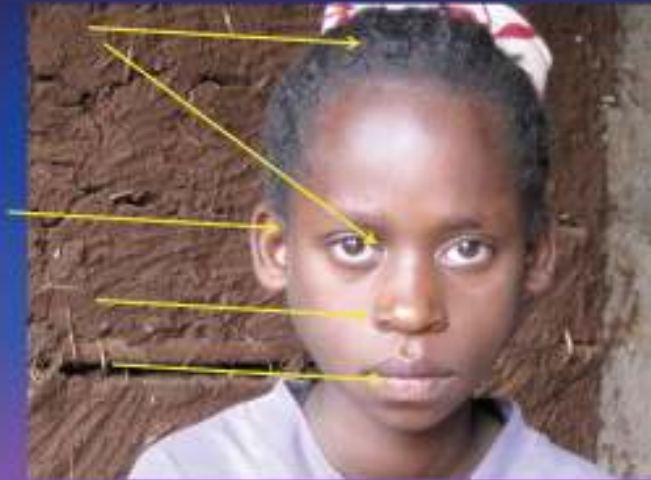


Head in general

- Eyes
- Ears
- Nose, mouth, throat

We start at the top and work our way down. Be sure you are sitting with your group. You should have a non-LED flashlight with you, as well as an otoscope. The physical exam lab is incorporated into the lecture.

THE HEAD IS PRIMARY.



In examining the head and neck, you have to consider its overall appearance as well as the appearance and function of each part. The photograph points out the successive examinations that you undertake. A proper physical examination involves spending at least half the time on the head and neck alone.

Look at the size and shape.



This child has bossing of the head. The forehead is too prominent. The skull also sticks out above the ears. If you look at the head straight-on, it appears to have a clover-leaf shape. There are three diseases that cause bossing in infants.

Consider the general appearance.



The head of the child is far too large, out of proportion with the rest of his body. His face is too wide for its length, the cheeks too fat. If and when you encounter a funny-looking-child like this, a physician may be able to pinpoint the problem from a photograph.

Take note of a swollen face.



Just looking at this woman's face might lead you to believe that she is fat. Note, however, her upper arm. It is thin. Her face is swollen, not fat. The boy on the right also has a swollen face. The examiner just pushed her thumb into the swelling on his forehead; it left the dent that you can see. He had protein in his urine which caused the swelling.

Check an infant's soft spot.

Sunken fontanel



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Bulging fontanel



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The fontanel is the soft spot on the head of a baby. It is hard to see in the photograph, but the soft spot on the left is sunken. The child is dehydrated. His dehydrated state is easier to see with noting his sunken eyes than the fontanel. On the right, another patient, the soft spot is bulging. This is due to an advanced case of meningitis.

Now it's your turn; what is wrong?



This child has a fever and complains of pain in her left face. Can you tell what is wrong? Discuss this with your group and give a suggestion.

This is wrong.



Her left cheek is swollen.

Are there questions?

- Head in general
- **Eyes**
- Ears
- Nose, mouth, throat

Now we turn to the eyes.

The eyes are complex organs.



The pupils should be black rather than gray or white. The iris should be brown, blue or hazel. The whites should be white and they should be smooth. However, brown spots on the whites are normal. The corneas should be clear rather than cloudy or scarred. If you shine a light into either eye, both of the pupils should become smaller. Be sure to use a conventional flashlight, not an LED light which can damage vision. Inside the lower lids should be a normal pink. Stop here and examine one of your classmates. Note the clear corneas, the black pupils, the white whites, and the pink inner lower lids.

Pupils should change with light.

Large in dim light.



Small in bright light.



Approach the eye from the side with your flashlight while you have the patient look straight ahead at your face. You should be able to see the pupil become smaller as the light shines in it. Syphilis causes a small pupil that does not respond to light; the pupils may be unequal. The photographs show the same eye. The first picture was taken in a dark room with a very long exposure. The right picture was taken in a bright environment with a short exposure. Note the difference in the pupil sizes.

Pupils should be black and round.

Gray or white is abnormal.

Keyhole-shape is abnormal.



Normally one cannot see the lens of the eye that lies behind the pupil; it is transparent. With a cataract, the lens becomes cloudy so the pupil appears gray or white, not its normal black color. Notice that the pupil of the eye on the right has a bulge at 9 o'clock. It is not round but keyhole-shape. The white of the eye is also red around the cornea but at this point concentrate on the pupil shape, not the inflammation.

Whites should be white.

White whites are normal.



Little brown spots are o.k.



Usually the whites of children's eyes are pure white. There are some conditions that make them blue; this is usually not a problem. African adults commonly have brown spots on the whites of the eyes. This is of no consequence.

Big brown spots are o.k.



This man has considerable brownish discoloration of the whites of his eyes. It is perfectly normal.



There are few eye emergencies; wrinkled whites is one of them. With vitamin A deficiency the substance of the eye breaks down. Even a few hours' delay in treatment can mean the difference between restored sight and irreversible blindness. The problem starts with little bits of foam, like soapsuds or meringue, on the lids. Then it progresses to the wrinkling that you see, and then, rapidly, to total collapse of the eyeball and blindness.

Yellow whites of the eyes indicate jaundice which comes from either a liver or a blood problem. It is normal to have a little yellowish discoloration on the edges of the whites of the eyes. However a uniform yellowish appearance like this man has indicates an underlying disease. The yellow doesn't damage the eyes; it merely indicates a problem elsewhere.

This jaundice is severe.



The yellowing of the whites of the eyes is called jaundice. This jaundice is severe. You can see it from a distance. It is a slightly greenish yellow.

Whites may become bloody.

Bloodshot means pink lines.



Bloody whites are obvious.

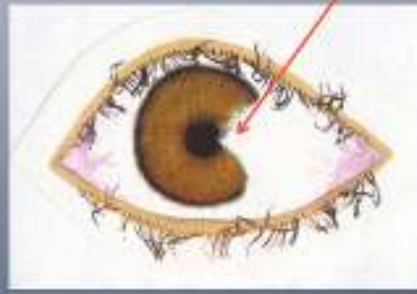
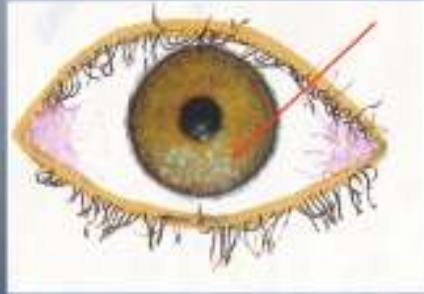


Sometimes eyes are bloodshot which means that the blood vessels on the whites become very prominent. The general impression is a pinkish color but if you look closely, it is really many fine, red lines on a white background. This is different than bleeding into the white of the eye. In this case, the color is bright red, not pink and it is uniform; you cannot see the individual blood vessels.

Corneas should be clear.

Scars may be like snowflakes

The white may grow over.



The cornea is the normally clear covering over the pupil and iris. It should be so clear that it is invisible. Sometimes it becomes scarred. On the left picture there are innumerable tiny white scars, like snowflakes on the lower cornea. On the right picture, there is white tissue that is growing over the cornea, making it opaque. The shape of the tissue is like a wedge of a pie.

This cornea is a little cloudy.



Note the white spot on the otherwise clear cornea. This might be a scar from an old injury. It might also be due to congenital syphilis.

This cornea is very cloudy.



This old lady suffered from trachoma for most of her life. You can see the lashes of the lower lid pointing upward toward the cornea at about 7 o'clock. The upper lashes do the same, but photographing that was a problem. You can see that her cornea is almost entirely opaque. White spots or areas on the cornea are usually scars. Scarred corneas are remarkably resilient when and if the cause is removed.

Look inside the lower eyelids.

A normal color is pink.

White indicates anemia.



If you put a finger on the cheek and pull down, you can see inside the lower lid of the eye. Usually this is a normal pink color, like the tongue and like the inside of the mouth. If the patient is anemic, the inside of the lower lid might be very pale, almost white. The verb is “might” because if an anemic person has an eye infection, inflammation will make this part pink enough so that it looks normal. A white inner lower lid is specific for anemia but not sensitive.

Inflamed eyes become red.



This eye is abnormally red both inside the lower lid and over the whites of the eyes.

Now it's your turn; what is wrong?



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See if you can identify the abnormalities in these two eyes. Discuss these with your group. Is the white on the left cataract or cornea? There are two things wrong with the eye of the man on your right. What are they?

This is wrong.

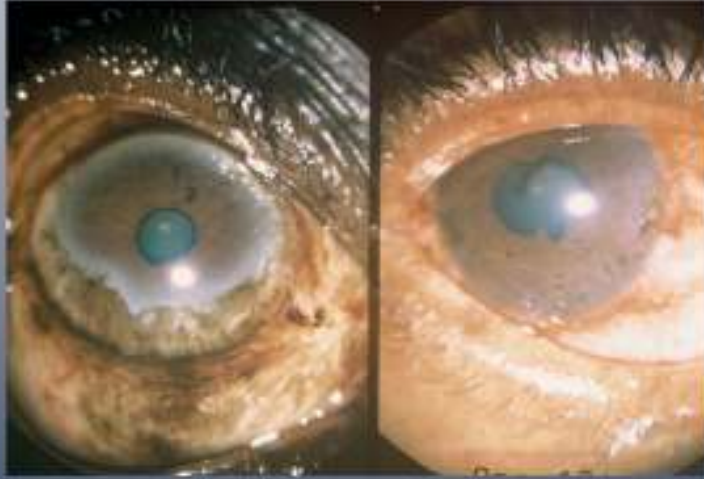


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The patient on the left has an opacity in her central cornea. You know it is in the cornea because the outer border is irregular. The white of a cataract is perfectly smooth.

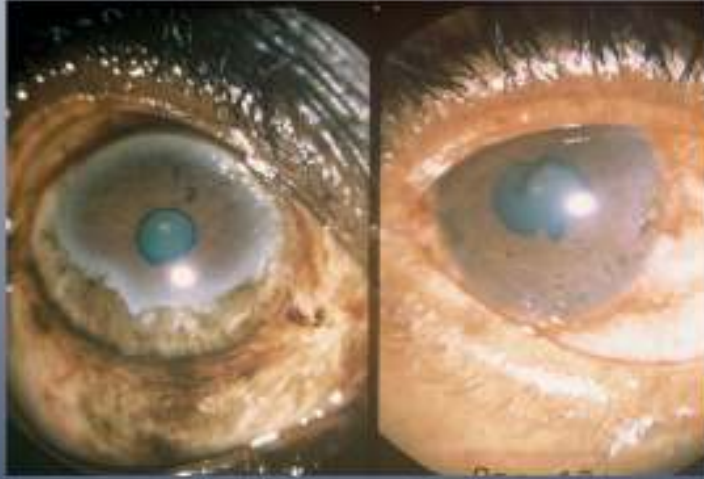
The pupil of the man on the right is light gray rather than black. Also he has white foam on his lower lid on the ear side. The white foam indicates that he has vitamin A deficiency. It is critical to get the vitamin into him as soon as possible.

How about these eyes?



What is wrong with these eyes? The bright white spots are light reflections from the photograph.
Discuss the situation with your group and then give a verdict.

This is wrong.



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The brownish discoloration on the whites of the eyes are normal. In both cases the corneas are cloudy and the pupils are not round. The pupil of the eye on the left is also grayish rather than black. The pupil on the right may be a little grayish.

Are there any questions?

- Head in general
- Eyes
- **Ears**
- Nose, mouth, throat

Once you finish the eyes, move on to examine the ears.

Outer ears should be smooth.

Smooth is normal.



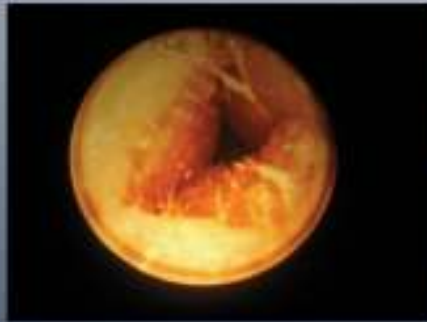
Bumpy is abnormal.



Outer ears may become bumpy because of a prior injury or because of disease. Additionally, many skin conditions can affect the outer ears as well as other parts of the body. When outer ears are bruised or cut, scarring may be considerable.

Canals may be swollen or waxy.

An inflamed ear canal



A waxy ear canal



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Normally the ear canal is round. Note that the ear canal on the left, the black part, is roughly triangular with the sides of the triangle being bulged inward, not absolutely straight. This patient had severe ear pain, causing the walls of his ear canal to swell.

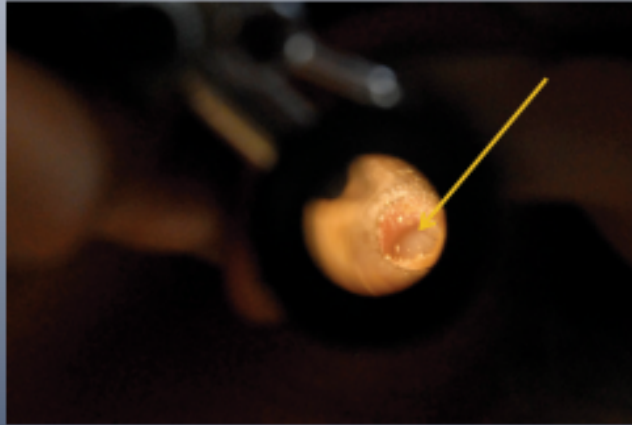
Look at the ear canal on the right. The yellow arrow points to the rim of the round ear canal. You cannot see the ear drum because of the gold-colored ear wax.

There should be no visible pus.



You can see the pus in this child's ear canal. He has an ear infection. There is no need to contaminate your otoscope by trying to see his ear drum. The infection is obvious, so the patient needs antibiotics, regardless of the ear drum's appearance.

Normal drums are pink or pearly.



A normal ear drum has a shiny, pearly appearance. In this photograph, it is pink; a grayish color is also normal. An inflamed ear drum is bright red or, sometimes, opaque white.

A little spot of bright red is abnormal.



It is difficult to take a picture through an otoscope. In this case, you can see a little spot of dark red at the end of the otoscope speculum. In real life, you would move the otoscope around and see that the entire ear drum was bright red and bulging. The patient has an ear infection. .

Infection might spread.



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If ear infections are left untreated, they spread to the surrounding tissues. One place that is prone to infection is the mastoid bone, the bony bump behind the ear. This boy's mastoid became infected. The skin broke open and pus is running out. Mastoid infections, like most bone infections, tend to not heal. They cause chronic ear infections.

Now it's your turn; what is wrong?



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The photograph shows what you see when you look through your otoscope. Discuss the appearance with your group. Can you see anything wrong?

This is wrong.



The ear drum is normal; it is pearly pink. This ear drum is about the best picture you will ever find. The object by the arrow is a piece of dirt that is sitting in the ear canal. The white bulges are normal. They are due to the bones of the middle ear that lie against the ear drum and pick up vibrations. Fix this ear drum appearance in your mind.

Are there any questions?

- Head in general
- Eyes
- Ears

 **Nose, mouth, throat**

Now we turn to the nose, mouth, and throat.

Lower face, the gateway to the trunk.



It is through the lower face, the mouth and the nose, that gases, liquids, and solids enter the body and do their good or their damage.

Check for nose shape and discharge.



A sunken bridge of the nose and holes in the middle nose divider are both significant. They may indicate advanced syphilis. Note a runny nose as is seen on the right photograph. A runny nose is usually due to just pus, but sometimes it indicates a more serious disease, such as diphtheria.

Sometimes lips are cracked and bleeding.



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This young man suffered from cracked and bleeding lips. The problem was unresponsive to various salves. Also note his facial skin color. There are lighter areas right below his eyes and darker skin next to his lower nose. You can also see the cracks by the corners of the mouth of this young girl. These people had serious vitamin deficiencies.

This tongue is normal.



The color of this normal tongue is pink; it is not pale and it is not white. There are no sores on it. There is no yellow or white scum coating the surface. There is a line in the center of the tongue but no other cracks. The mottled appearance of the tongue is normal. It is shiny because it is normally moist. The arrow points to a small, brownish discoloration. It is normal in an African, but it would be abnormal in a European.

Tongues can vary in color.



The man on the left has dark pigmentation on his tongue; it is normal in an African. You can see his uvula in the back of his mouth. His tonsils are not enlarged. The woman on the right has a uniformly grayish tongue. These appearances are common in Africans.

A tongue can reveal a diagnosis.

Cracks are abnormal.



A pale tongue is abnormal.



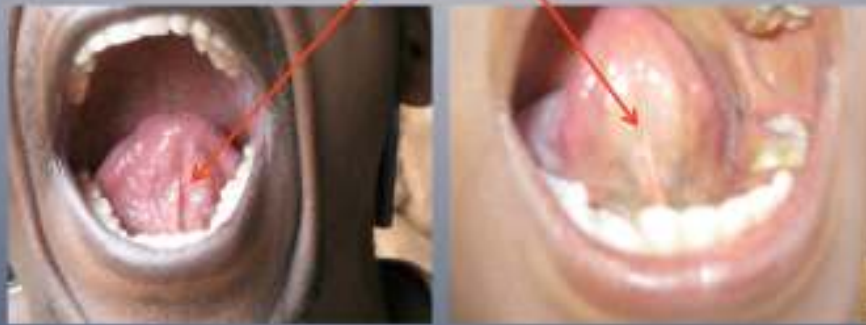
The tongue on the left is a normal color but has longitudinal cracks on it. This indicates that its owner has either cancer or tertiary syphilis. The person on the right complained of fatigue. She had a pale tongue and pale fingernails. However, she has no longitudinal cracks. Her tongue is smooth.

Dehydration causes a dry tongue.



Note the dull color of this tongue; it is dry, a sign of dehydration.

Check under the tongue.



If the patient is extremely dehydrated, it will be dry under the tongue as well as on top. In these photographs, the patients are not dehydrated; both the tops of the tongues and underneath are shiny and moist. In the midline under the tongue, there is a little tab of tissue that keeps the tongue from flopping around. The very front of this tab is normally white in all races. Jaundice is visible here before it is visible in the whites of the eyes. The right photograph shows a yellowish hue under the patient's tongue.

This uvula and tonsil are normal.



The uvula is the little tab of tissue that hangs down from the palette in the midline. The right arrow points to the patient's left tonsil which is barely visible. Stop here and examine the tongue, uvula, and tonsils of your neighbor. If he says "AAHHH", his tongue will move out of the way so you can see better.

There are holes in the roof of this
mouth.



Photograph: Allyson Smith

This woman developed spontaneous holes in the roof of her mouth. When she tries to swallow, some of the food or liquid goes up into her nose.

These throats are abnormally red.



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In both cases the uvula is swollen; it is longer than normal. The tonsils are both very red and very swollen. The tonsils on the right almost touch the uvula on both sides. It is the color rather than the size of the tonsils that is significant. Very large, pink tonsils are normal. This is common in children about 5 years old.

This tonsil has white scum.



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This tonsil is not abnormally red, but there is white, leathery scum on it. Mononucleosis and diphtheria can both cause this appearance. If the white on the tonsils looks more like pus on a swollen and red background, then it can be either mononucleosis or strep infection.

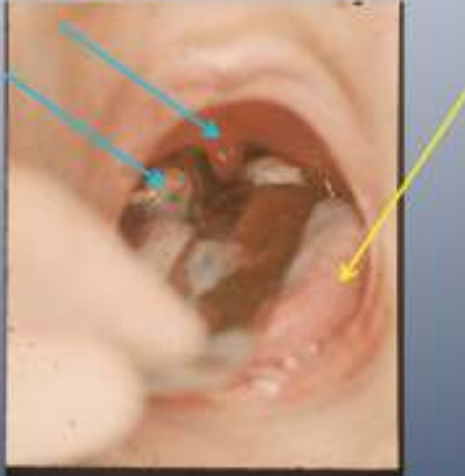
Now it's your turn; what is wrong?



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Can you see anything wrong with this throat? The blurry white object on the left is part of a hand. The hand is holding a metal tongue depressor, pushing the tongue down to reveal the uvula and tonsils. Discuss this with your group, and render a verdict.

This is wrong.



The top arrow points to the uvula which is entirely too red. It should be pink like the yellow arrow, pointing to the patient's tongue. The lower blue arrow points to white scum on the patient's tonsil. You can see that the patient's mouth is moist so he is not dehydrated.

Diagnosis of sore throats.


Condition	Pain	Appearance	Other symptoms
Passion fruit juice	Mild	Normal or slightly red	None
Viral respiratory infection	Mild to moderate	Red, maybe blisters	Cold symptoms, little or no fever
Strep throat	Yes, moderate to severe	Tonsils very red and swollen	Fever; no cold symptoms
Mononucleosis	Minimal to mild	White/gray scum on tonsils	Extreme fatigue, large neck nodes, fever
Diphtheria	Variable	White/gray scum on tonsils	Very ill; weakness, +/- swollen neck
Anthrax (rare)	Minimal	Black or white scab	Massive swelling, very fast onset

If you see a very abnormal-looking throat, these are your main options.

Passion fruit juice can cause a general throat irritation. The pain is never very severe. Many cold viruses cause sore throats also; this is usually from secretions dripping down into the throat from the nose. Colds don't need antibiotics. Strep throat is different. The pain is severe, it has a rapid onset, and there are no cold symptoms along with it. The tonsils are usually just red, but they may have some white spots on them, causing confusion with the next two diseases. Mononucleosis is a disease of teenagers in the West, but it affects mostly children in the developing world. The tonsils look much worse than one would expect; the patient complains of minimal pain, if any. A patient with mono is always tired; he's mildly or moderately ill, never very ill as in diphtheria. With diphtheria the patient is always very ill. He may or may not have a significant fever. After days or weeks, he will have trouble with the muscles of his head and neck, causing double vision, trouble swallowing, or paralysis of his facial muscles. Anthrax, on the other hand, is rare. When it affects the head and neck, the onset is so rapid and the swelling so massive that it is usually fatal. The swelling cuts off his airway.

Are there any questions?

So Much for the Head.

- Physical exam #1
- Physical exam #2
- Physical exam #3 

Feedback, questions, and suggestions are welcomed.
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Now move on to physical exam, part 3, the examination of the head and trunk.