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Chapter 1 : Visual Field Testing: From One Medical Student to Another

A tutorial video describing a method of assessing visual fields to confrontation, which will help identify visual field defects commonly found in ophthalmic patients.

Carroll and Chris A. August 22, Introduction: Components of Vision Vision is a combination of distinct measurable functions: Visual acuity is the ability to determine fine detail and distinguish one object from another. Acuity is tested with vision charts of letters or images. Changes in luminous intensity are perceived as flicker, and the difference in luminous intensity from one object to another is perceived as contrast [1]. The visual field encompasses the entire region of space seen while gaze is directed at any central object. This tutorial explains visual field testing. The Visual Field Under normal daylight photopic conditions, the smallest or least intense visible objects are only seen in the central region of the visual field. In the periphery, objects must be larger or more intense to be identified. Definitive location varies slightly on an individual basis. The average blind spot is 7. For dim night lighting scotopic conditions, the mid periphery is the most sensitive region of the visual field. The scotoma is the area of increased pixilation, indicating decreased visual acuity. When photons of light are absorbed by the photoreceptor cells of the retina, a cis-trans isomerization of cis chromophore begins the phototransduction cascade, resulting in hyperpolarization of bipolar and horizontal cells, and ultimately activation of ganglion cells, which form the nerve fiber layer [4]. The nerve fibers travel to the optic nerve head, where the optic nerve originates. At the optic nerve head also known as the optic disc , there are no photoreceptors, only nerve fibers. This region corresponds to the physiologic scotoma. The highest density of cone photopic photoreceptors is located in the macula. The ganglion cell axons which ultimately join to form the optic nerve travel horizontally as the papillomacular bundle from the macula to the temporal aspect of the optic disc. The nerve fibers respect the median raphe along the horizontal meridian. The ganglion cells originating temporal to the macula must also travel to the optic disc without crossing the median raphe. To do so they must arc around the papillomacular bundle, forming the appropriately named arcuate fibers. Ganglion cells originating in the areas of the retina nasal to the disc do not have to arc around the macula. They are therefore oriented radially, making a fairly straight path to the optic nerve. Visual field defects resulting from ganglion cell loss, such as those from glaucoma, correspond to these anatomical patterns. Ganglion Cell Pathways It is important to note that visual field coordinates are the opposite of retinal coordinates. Light entering the eye from the temporal visual field is detected by photoreceptors on the nasal side of the retina and light entering from the nasal visual field is detected by the temporal photoreceptors. Similarly, light from the superior visual field is absorbed in the inferior retina and vice versa. Therefore, a patient with injury to the ganglion cells in the temporal retina would be predicted to have a nasal visual field defect. Light Paths to the Retina. Light originating superior to the eye is detected by the inferior retina. Light originating temporal to the eye is detected by the nasal aspect of the retina. History Recognition of the visual field extends back more than 2, years to the time of Hippocrates, who recognized a hemianopsia [5]. Visual fields are frequently evaluated by simply covering one eye and asking the patient to look straight ahead while using peripheral vision to identify an object, or the number of fingers shown by the examiner. The field is often tested at only four locations, which is sensitive only for large field defects. This method of testing is referred to as confrontation visual field evaluation. Quantification of visual fields was developed during the nineteenth century. Jannik Bjerrum began mapping visual fields by asking patients to identify whether a white object on the end of a black stick, in front of a black screen, was seen. Several targets of varying sizes on the wand were tested, effectively mapping the variation in size required for vision in different areas of the field. The Amsler grid is another tool for measuring the central visual field occupied by the macula approximately 8 degrees in diameter. The test consists of a card with horizontal and vertical black lines intersecting on a white background, held at a distance of 25 cm or 40 cm. While fixing gaze on a point in the center of the grid, areas that are blurry, absent, or distorted are identified by the patient. Central vision corresponds with the macula, hence the use of Amsler grids to follow macular pathology clinically [5]. Amsler grid Kinetic and Static Perimetry A method of testing the complete visual field was developed by Hans Goldmann. His bowl-shaped

perimeter uses bright light as targets superimposed on a white background. Targets may vary in size, luminance, and color. Goldmann perimetry requires trained perimetrists to measure and draw the visual field. Challenges include cost and inter-perimetrist variability [5]. In practice, Goldmann perimetry is a form of kinetic perimetry: The location at which the stimulus is first seen marks the outer perimeter of the visual field for the size of the stimulus tested. Automated perimetry was developed in the s. As the name suggests, automated perimetry maps a visual field with the aid of a computer. The Octopus perimeter, the Humphrey Field Analyzer, and Humphrey Matrix are a few of the available automated perimeters. Although the Octopus can perform a modified kinetic perimetry, most automated perimetry is static: Humphrey Visual Field Test Several basic conditions must be met for a successful map of the visual field to be produced by any method. The individual must be able to maintain a constant gaze toward a fixed location for several minutes. Each eye is tested separately while the opposite eye is covered with a patch. Refractive correction must be made with a test lens. Spectacles must not be worn because they can cause false defects in the visual field due to their shape [6]. In addition, correction must be made for presbyopia, to reduce accommodative strain. Standard adjustments for presbyopia are available based on age alone. If the eyelid or lashes obstruct the visual axis, the lid may be taped to the forehead to lift it out of the way. During Humphrey Visual Field HVF testing, the patient places his head in the chinrest and fixes his gaze toward a central fixation point in a large, white bowl. As stated above, this test is an example of static perimetry. It assesses the ability to see a non-mobile stimulus which remains for a brief moment ms in the visual field. When the patient sees a presented stimulus, he presses the button on a handheld remote control. Stimuli vary in size and luminous intensity. The luminous intensity of the stimuli can be varied over a range of 0. It is reported in decibels dB of attenuation, or dimming, extending from 0 dB the brightest, unattenuated stimulus to 51 dB the dimmest, maximally attenuated stimulus. SITA is a forecasting procedure that uses Bayesian statistical properties that is similar to the methods used for providing weather information and predictions. SITA allows for more rapid analysis than would be possible without forecasting. Instead the stimuli that are likely near threshold are tested. Patient identity information and the specific test and stimulus size are located near the top of the analysis. The next number indicates how the grid of points is aligned to the visual axis. The number "1" indicates that the middle points are overlying the horizontal and vertical meridians. The number "2" indicates that the grid of points straddles these meridians. This is the setting most commonly used, as it is easier to assess whether visual field defects respect the horizontal or vertical midline. Next on the report are the reliability indices, including fixation losses, false positives, and false negatives. Fixation losses occur when the patient reports seeing a stimulus that is presented in the predicted area of the physiologic blind spot. False positives occur when a patient presses the button when no stimulus is presented. Eager-to-please participants sometimes struggle with high false positive rates i. False positives can often be corrected by providing a simple statement that many stimuli will not be seen even with normal vision. False negatives occur when a patient fails to see a significantly brighter stimulus at a location than was previously seen. False negatives are usually the result of attention lapses or fatigue and are difficult to correct. The threshold values of each tested point are listed in decibels in the sensitivity plot. Higher numbers mean the patient was able to see a more attenuated light, and thus has more sensitive vision at that location. To the right of the numerical sensitivity plot is the grayscale map. The sensitivities are not compared to any normative database. Therefore the map may draw attention to an irregularity within a field, but may minimize field loss if loss is more homogenous across the field. Caution should be used as it can be misleading based on where the machine chooses to make the cutoff between the different shades of gray. The raw threshold data should always be assessed in conjunction with the grayscale representation. It is useful to compare with age-matched normal thresholds as sensitivity normally decreases gradually with age. Positive values represent areas of the field where the patient can see dimmer stimuli than the average individual of that age. Negative values represent decreased sensitivity from normal. It is useful to show localized areas of sensitivity loss hidden within a field that is diffusely depressed. For example, a person with dense cataracts may have decreased threshold across the entire visual field and this may obscure more focal losses due to coexisting disorders like glaucoma. Each other test location is then compared with this value to correct for any generalized depression. It has been demonstrated that this method is the best for

separating widespread or diffuse loss from localized loss.

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Chapter 2 : VFFTC abbreviation stands for visual fields full to confrontation

A confrontation visual field test is a quick and easy way to measure your overall field of vision. A confrontational field test is a preliminary test conducted by your eye doctor or technician as a basic screening tool.

Mon, 01 Oct Ocular Motor Visual field testing in children is limited to detecting altitudi-nal and hemianopic defects [bitemporal, homonymous. In children as young as 6 months of age, visual field testing can be accomplished by observing reflex eye movements to a visual stimulus. If the child makes an eye movement to fixate on the target, this is evi dence that the peripheral field is intact Fig. This technique is quite useful in detecting homonymous and bitemporal hemianopias. It is less useful in altitudinal defects. Testing visual fields in a young child. Then move an object in from the side. A head movement to the side of the target bottom indicates intact peripheral field. Finger mimicking visual fields. The child is asked to show the same number of fingers as the examiner. These should be displayed quickly to avoid fixation artifact. Using this technique the child is asked to copy what the examiner is doing. Having the child display one, five, or no fingers by "mimicking" the examiner is a fairly reliable way to assess visual fields Fig. The numbers two, three, and four should be avoided as they are somewhat confusing at times. The fingers should be flashed quickly to avoid erroneous results obtained by the child fixating on the hand instead of the examiner. Fixation is often difficult to control and is the major problem with this technique. This move cannot be done nasally as the nose blocks visual field assessment. Binocular visual field defects should be assessed first as the child may not cooperate for monocular testing because of the necessary eye occlusion. Finger "counting" visual fields can be performed in children over 3 years of age. The technique is similar to finger mimicking; however, the child "counts" the number of fingers presented. Simultaneous presentation in both hemifields is now possible, and subtler field defects can be detected. As before, the fingers should be flashed quickly and the numbers kept to one, five, or none. Alti- tudinal field defects are easier to test in this age group, and very reliable information can be obtained by this technique. Goldman and automated perimetry can be performed on the child aged 6 to 7. Often children are playing sophisticated video games at home, and the test can be explained using such terms. Testing, however, should be kept simple because patience and fatigue are factors. Fixation is still a problem at this age, and constant surveillance is necessary to obtain a reliable field. When using the Goldman perimeter, two isopters are all that are necessary to detect most neuro-ophthalmic visual defects in children V4e, II4e. Before using more sophisticated tests, the examiner should begin with a simple confrontation technique to assess reliability. Visual field constriction is a common artifact because the child is hesitant to "make a mistake. Seeing friends, playing with the kids

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Chapter 3 : Visual Field Defects. Free Medical Information | Patient

Visual field testing is a crucial component of the neurologic, and more specifically the ophthalmologic, examination. A lesion or disruption may occur anywhere in the pathway from the striate cortex of the occipital lobe to the retina, causing a specific visual field defect.

What Is a Visual Field Test? The visual field is the entire area field of vision that can be seen when the eyes are focused on a single point. In addition to what can be seen straight ahead, the visual field includes what can be seen above, below, and to either side of the point the eyes are focused on. Vision is typically the sharpest in the middle of the visual field. A visual field test is often given as part of an eye exam. Visual field testing helps your doctor to determine where your side vision peripheral vision begins and ends and how well you can see objects in your peripheral vision. The visual field can be tested in a few different ways, including the confrontational visual field exam, tangent screen test, and automated perimetry exam described below. Your doctor may perform one or a combination of these tests to examine your visual field. Using the results of these tests, your doctor will be able to determine if you are having trouble seeing in certain areas of your visual field, as well as possible causes for these difficulties. The confrontational visual field exam is a basic exam performed by your eye doctor. They will sit or stand 3 to 4 feet in front of you. You will be instructed to cover one of your eyes using an occluder, which looks like a large spoon. Your doctor will instruct you to stare straight ahead as they move their hand in and out of your visual field. This test will then be repeated on the other eye. The confrontational visual field exam only tests the outside of the visual field and is not as accurate as some of the other visual field tests. However, this test can help your doctor decide if further visual field testing is needed. You will be seated about 3 feet away from a computer screen. This screen will have a target in the center for you to focus on throughout the test. The computer will generate images on different areas of the screen. Without moving your eyes, you will tell your doctor when you are able to see objects in your side vision. Your doctor will be able to use the information collected to form a map of your visual field. This will help them determine if there are certain areas in your visual field that you are not able to see. The location of these areas can help your doctor diagnose the cause of the visual field problems. You will sit and look into a dome-shaped instrument. Your doctor will instruct you to look at an object in the middle of the dome throughout the test. There will be small flashes of light on the dome. When you see these flashes of light, you will press a button. The computer program will provide your doctor with a map of your visual field. Your doctor can then use this information to help diagnose problems or order more vision tests. Your doctor may use information from the visual field tests to diagnose:

Chapter 4 : Visual Field Testing | Cleveland Clinic

Confrontation visual field testing. Richard C. Allen, MD, PhD, FACS Additional Notes: Length Confrontation visual field testing involves having the patient looking directly at your eye or nose and testing each quadrant in the patient's visual field by having them count the number of fingers that you are showing.

Exam methods[edit] Techniques used to perform this test: The examiner will ask the patient to cover one eye and stare at the examiner. Ideally, when the patient covers their right eye, the examiner covers their left eye, and vice versa. Commonly the examiner will use a slowly wagging finger or a hat pin for this. The patient signals the examiner when his hand comes back into view. This is frequently done by an examiner as a simple and preliminary test. Perimetry[edit] Perimetry or campimetry is one way to systematically test the visual field. Perimetry more carefully maps and quantifies the visual field, especially at the extreme periphery of the visual field. The name comes from the method of testing the perimeter of the visual field. Automated perimeters are used widely, and applications include: The light may move towards the center from the perimeter kinetic perimetry , or it may remain in one location static perimetry. The Goldmann method is able to test the entire range of peripheral vision, and has been used for years to follow vision changes in glaucoma patients. Automated perimetry Automated perimetry uses a mobile stimulus moved by a perimetry machine. The patient indicates whether he sees the light by pushing a button. The use of a white background and lights of incremental brightness is called "white-on-white" perimetry. This type of perimetry is the most commonly used in clinical practice, and in research trials where loss of visual field must be measured. The patient sits in front of an artificial small concave dome in a small machine with a target in the center. The chin rests on the machine and the eye that is not being tested is covered. A button is given to the patient to be used during the exam. The patient is set in front of the dome and asked to focus on the target at the center. A computer then shines lights on the inside dome and the patient clicks the button whenever a light is seen. Methods of stimulus presentation[edit] Static perimetry[edit] Static perimetry tests different locations throughout the field one at a time. If the patient does not see the light, it is made gradually brighter until it is seen. It is used for rapid screening and follow up of diseases involving deficits such as scotomas , loss of peripheral vision and more subtle vision loss. Perimetry testing is important in the screening, diagnosing, and monitoring of various eye , retinal , optic nerve and brain disorders. Kinetic perimetry[edit] Kinetic perimetry uses a mobile stimulus moved by an examiner perimetrist such as in Goldmann kinetic perimetry. The test light is moved towards the center of vision from the periphery until it is first detected by the patient. This repeated by approaching the center of vision from different directions. Repeating this enough will establish a boundary of vision for that target. The procedure is repeated using different test lights that are larger or brighter than the original test light. In this way, kinetic perimetry is useful for mapping visual field sensitivity boundaries. It may be a good alternative for patients that have difficulty with automated perimetry, either due to difficulty maintaining constant gaze, or due to cognitive impairment.

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Chapter 5 : Confrontation Visual Fields

Confrontation visual field exam. This is a quick and basic check of the visual field. The health care provider sits directly in front of you. You will cover one eye, and stare straight ahead with the other. You will be asked to tell when you can see the examiner's hand. Tangent screen or Goldmann.

We normally see a wide area of the space in front of us. Without moving our eyes, we see not only what is straight ahead, but some of what is above, below, and off to either side. Most people are familiar with this as "peripheral vision. Vision is usually best right in the middle of the visual field. That is why we turn our eyes toward objects that we want to see better. The farther away from the center of our vision an object is, the less clearly we can see it. When an object moves far enough to the side, it disappears from our vision completely. A visual field test measures two things: How far up, down, left and right the eye sees without moving. How sensitive the vision is in different parts of the visual field. Why do people need a visual field test? The visual field test can help the doctor find early signs of diseases like glaucoma that damage vision gradually. Some people with glaucoma do not notice any problems with their vision, but the visual field test shows that peripheral vision is being lost. A visual field test can also help the doctor find out more about the part of the nervous system that allows us to see. The visual part of the nervous system includes the retina the "film" in the camera-like eye , the optic nerve the "wire" that carries images from the retina to the brain , and the brain itself. Problems with any part of this system can change the visual field. There are well-known patterns in the test results that help doctors recognize certain types of injury or disease. By repeating more visual field tests at regular intervals, doctors can also tell whether the patient is getting better or worse. Why do some people need to have visual field tests many times? Sometimes the doctor will want to repeat the visual field test right away to make sure the results are accurate. If the patient is tired, for example, the test results can be unreliable. Your doctor might also recommend that a visual field test be taken again in a few weeks, a few months, or a year. This might be necessary to make sure that no new problems are detected. When a condition like glaucoma is found, visual field tests are performed regularly to find out how well the treatment is working. Visual field tests are especially important in the treatment of glaucoma. These tests will tell the doctor if vision is being lost even before the patient notices. That is just one of the reasons why people who have glaucoma need to keep all their appointments with their doctor.

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Chapter 6 : Confrontation Visual Fields - Ocular Motor - GUWS Medical

Visual field testing in children is limited to detecting altitudi-nal and hemianopic defects [bitemporal, homonymous). In children as young as 6 months of age, visual field testing can be accomplished by observing reflex eye movements to a visual stimulus.

URL of this page: This article describes the test that measures your visual field. How the Test is Performed Confrontation visual field exam. This is a quick and basic check of the visual field. The health care provider sits directly in front of you. You will cover one eye, and stare straight ahead with the other. Tangent screen or Goldmann field exam. You will sit about 3 feet 90 centimeters from a screen with a target in the center. You will be asked to stare at the center target and let the examiner know when you can see an object that moves into your side vision. This exam creates a map of your entire peripheral vision. You sit in front of a concave dome and stare at a target in the middle. You press a button when you see small flashes of light in your peripheral vision. Your responses help determine if you have a defect in your visual field. Automated perimetry is often used to track conditions that may worsen over time. Your provider will discuss with you the type of visual field testing to be done. How to Prepare for the Test No special preparation is necessary. How the Test will Feel There is no discomfort with this test. Why the Test is Performed This eye exam will show whether you have a loss of vision anywhere in your visual field. The pattern of vision loss will help your provider diagnose the cause. Normal Results The peripheral vision is normal. What Abnormal Results Mean Abnormal results may be due to diseases or central nervous system CNS disorders, such as tumors that damage or press on compress the parts of the brain that deal with vision. Other diseases that may affect the visual field of the eye include:

Chapter 7 : Confrontation Visual Fields Ends in Triple Homicide | GomerBlog

Confrontation visual field exam (Donders' test): The examiner will ask the patient to cover one eye and stare at the examiner. Ideally, when the patient covers their.

Definition The field of vision is that portion of space in which objects are visible at the same moment during steady fixation of gaze in one direction. The monocular visual field consists of central vision, which includes the inner 30 degrees of vision and central fixation, and the peripheral visual field, which extends degrees laterally, 60 degrees medially, 60 degrees upward, and 75 degrees downward Figure Situated in the temporal hemifield is the normal blind spot approximately 12 to 17 degrees from fixation and 1. The blindspot is represented on a visual field chart by an absolute scotoma and corresponds anatomically to the scleral canal through which the retinal nerve fibers leave the eye at the optic disk. I-4e is a larger target than I-2e. A normal visual field is an island of vision measuring 90 degrees temporally to central Fixation, 50 degrees superiorly and nasally, and 60 degrees inferiorly. Depression or absence of vision anywhere in the island of vision is abnormal. Technique A perimetrist is a person who measures the visual field with a machine called a perimeter. Various perimetric techniques and apparatus are available. In each form of testing, however, including confrontation field testing, patients must be continually urged to maintain steady fixation straight ahead while objects of varying size, color, or luminosity transcend their visual threshold. With kinetic perimetry, objects are moved from outside the boundary of visual perception toward fixation. When the patient perceives the particular test object, a set of visual threshold points are plotted by the perimetrist. The line that connects these similar visual thresholds is called an isopter. A smaller target I-2e subtends a smaller amount of visual field. A Goldmann perimeter utilizes different-type targets that can be varied according to size and light intensity. The larger or brighter objects are perceived in the periphery while smaller targets outline boundaries and defects of the central visual field. Depression of the visual field, defined as an inward shift of a particular isopter, is depicted in Figure If all the isopters show similar depression to the same point, it is then called a contraction of visual field. In local contraction, only part of the field including the periphery is restricted; but in concentric contraction, the entire peripheral vision is attenuated. B Contraction of the temporal field. There is a great variety in both the methods and apparatus used for evaluating fields of vision. Quantified visual field testing with either a Goldmann perimeter or a tangent screen is ideal but may be impractical or impossible in a great many situations. For these situations, it is essential to master the techniques of confrontation visual field testing. Each eye should be tested individually in four steps: Ask the patient to look at your nose and count fingers held briefly in the area of central fixation. Move and flash your fingers in each of the four quadrants of vision, simultaneously encouraging the patient to maintain fixation on your nose. It is best to flash only one, two, or all five fingers because three and four fingers are difficult to distinguish. To depict double simultaneous sensory stimulation, hold your hands about 18 inches 45 cm apart and flash fingers simultaneously in the nasal and temporal hemifields. Again, the patient must maintain fixation. A number of permutations should be tried. If the patient first sees only one finger and then in the second part of the test sees only the hand with two fingers, you may suspect a nasal field defect of the right eye. Hold both hands in the hemifield under suspicion in this case, the nasal field of the right eye and flash the fingers above and below the horizontal meridian, thereby testing the upper and lower portions of the affected field of vision. The methods used to explore visual field defects in younger patients are similar to those used in adults who are dysphasic, illiterate, or obtunded. The human face is an excellent fixational target. One of our most primitive visual reflexes is to bring interesting fixational targets into central fixation. Color perception is a more refined and more sensitive parameter of visual field function. The relative lack of color perception in one eye or in one-half of the visual field may be the salient manifestation of an active or resolved intra-cranial lesion. On the wards or in an emergency room, a qualitative assessment of color vision may be obtained by asking the patient to compare the richness or brightness of a primary color shown first to the right eye and then to the left. A patient with a central or cecocentral scotoma, due to an optic nerve lesion, will usually report that the colored objects appear dimmer, duller, or not as bright in the affected eye. A comparison of brightness or richness of

color can also be used to assess nasal versus temporal field perception. Each eye is tested individually. In order to explore the possibility of an hemianopic defect, two similarly colored objects are held before the patient with one in the nasal and the other in the temporal zone of vision. The object in an intact hemifield will usually be described as brighter or richer in hue; perception of a darker or duller object presents a potential zone of defective sight that should be further explored by moving the target from the area of relatively poor saturation into the brighter area. As this is done, the patient is asked to identify the exact point at which the moving object becomes as bright as the companion stimulus. The point of transition is carefully noted. If it lines up with an imaginary line drawn through the point of fixation, it is highly probable that the area of color desaturation represents a subtle hemianopic field defect. Areas of dull perception should always be explored by moving the test stimulus slowly into zones of brighter experience. In this manner, a careful and patient clinician may detect small hemianopic, quadrantic, and even cecocentral field defects. The tangent screen is a black felt screen on which radial lines and 5-degree concentric circles are inconspicuously marked. It is used to examine the central field within 30 degrees from fixation and to determine the size of the blind spot. The examiner stands in front of the patient to observe fixation and works from each side of the screen in turn. White or colored targets are fitted onto wands, which are slowly moved from outside visual perception toward fixation. Although great versatility is a part of this technique, a distinct disadvantage is also obvious: The hemispheric projection perimeter Goldmann perimeter is a precise and popular instrument for testing both the peripheral and central portions of visual field. It affords a remarkable speed of operation for kinetic perimetry and luminence of the hemispheric background can be kept precisely controlled to keep retinal light adaptation constant. Fixation is maintained by the perimetrist through a telescope which is a more accurate method than used with the tangent screen. Projected spots of constant size and fixed contrast are moved from the periphery in toward the center. Basic Science and Clinical Significance Topical Localization of Visual Field Defects To interpret the results of perimetry accurately, the reader must firmly understand some basic neuroanatomy of the visual pathway. The primary visual sensory pathway in humans consists of the retina, optic nerves, chiasm, and optic tract, along with the lateral geniculate bodies, geniculo-calcarine radiations, and the occipital cortex. Secondary complex nerve fiber systems connect the occipital striate cortex with the ipsilateral and contralateral visual association areas. The retina is a well-differentiated stratified sensory membrane. Incident light eventually stimulates the ganglion cell layer of the retina and axons from ganglion cells course toward the optic disk in three basic patterns: Nasal axons subserve the temporal half of vision, temporal axons the nasal hemifield, superior axons the lower visual field, and inferior axons the superior visual field. M, papillomacular bundle; 1,4 superior and inferior arcuate bundles; 2,3 superior and inferior nasal fibers. It projects images from the macula and functions to maintain sharp focus of central fixation. Lesions that interrupt the papillomacular bundle produce central or cecocentral scotomas Figure A scotoma is an area of poor vision surrounded on all sides by relatively better vision. The arcuate fibers surround the papillomacular bundle, originating above, below, and temporal to it. Lesions of the arcuate bundle produce arcuate or cuneate-shaped scotomas Figure Damage to the superior arcuate bundle, for instance, in glaucoma, manifests as an inferior arcuate scotoma.

Chapter 8 : Visual field: MedlinePlus Medical Encyclopedia

A visual field test can also help the doctor find out more about the part of the nervous system that allows us to see. The visual part of the nervous system includes the retina (the "film" in the camera-like eye), the optic nerve (the "wire" that carries images from the retina to the brain), and the brain itself.

Chapter 9 : Visual Fields - Clinical Methods - NCBI Bookshelf

This is the third incident this year of a local ophthalmologist murdering a patient during routine confrontation visual field testing. Police are encouraging patients to avoid confrontational visual fields by cracking jokes or trying to tickle the ophthalmologist.