

## PATIENT EDUCATION HANDOUTS

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## AGING MACULAR DEGENERATION

What is Aging Macular Degeneration?

Aging macular degeneration is a condition that usually affects the elderly. This degeneration affects a person's central vision and often can result in a loss of ability to see detail and colors. Both eyes can be affected but there is seldom a complete loss of vision since side vision usually remains intact. This is not to say that everyone who is diagnosed as having macular degeneration will lose their ability to see detail. In fact, most of the time the loss of vision is minimal or not even noticed by the person affected.

What causes this degeneration?

Many studies regarding this degeneration have provided little information as to it's cause. It is thought that the degeneration begins with a separation of the retina, the structure in the back of the eye that allows you to "see", and the tissue underneath to which it connects. It is believed that there is a decrease in blood supply to the retina which allows the build-up of deposits between these two layers. These deposits can become larger, more numerous and result in increasing loss of vision. As the deposits progress, there is an increased risk of "bleeds" within the eye. These bleeds can lead to sudden, drastic decreases in vision and must be diagnosed and treated, if indicated, as early as possible. As long as no bleeds occur, the progression of this degeneration is usually slow, the loss of vision gradual, and the chance of severe vision loss minimal.

What are the warning signs?

Since the occurrence of aging macular degeneration is often gradual, the problems that result are difficult to detect. The initial deposits may take several years to cause any change in vision and therefore the patient seldom notices any change. Patients should be aware of any alterations in their vision, mild blur not noticed before, distortions of objects, areas in your

vision that seem to be missing, or a sudden, drastic loss of your central vision.

How is Aging Macular Degeneration managed?

Many types of medications have been tried to stop the progression of the deposits that cause the loss of vision but none has proved successful. Presently there is no treatment to either correct or stop the advancement of these deposits. Glasses will not correct the blur nor will surgery reconstruct the retina. If a bleed should occur, the use of a laser may prove helpful in preventing further loss of vision. But at times, the scar produced by the laser may cause as much damage as the natural healing process so it may not be recommended.

Your doctor may also give you a chart with many small squares on it that helps you determine, at home, if there are any changes occurring in your vision. You should check this chart everyday and make an appointment immediately with your eye care specialist if changes are noted. Although there is no treatment for aging macular degeneration, early detection of sudden vision changes may help prevent extensive, permanent vision loss.

## CATARACTS

What are Cataracts?

Cataracts are neither a growth or a disease. Cataracts are usually a normal, benign clouding of the clear lens behind the colored part of the eye. Light is focused on the back of the eye, the retina, by this lens and as it becomes more clouded less light is allowed to pass to the retina. This clouding of the lens also causes the light to be scattered as it passes through to the retina making objects appear blurry. Cataracts can be a small localized area or it can encompass the entire lens.

What causes Cataracts?

By far the most common cause of cataracts is a chemical reaction that occurs within the eye due to the natural aging process. This is a gradual process and may never cause an alteration in vision in some people, yet, may occur early in life in others. Other causes of cataracts are: injury, specific diseases, toxic levels of radiation and toxic substances.

How do we manage Cataracts?

Since cataracts usually develop gradually and painlessly, people may be unaware of the change in their vision. Cataracts can lead to blindness if left untreated but this is rare today due to improved methods of detection and treatment. It is important that you have routine eye exams by your eye care specialist in order to diagnose cataracts early and then properly treat before they have affected your day to day activities.

How are Cataracts treated?

Once cataracts develop to a point that your activities are affected an eye surgeon will evaluate the cataract and recommend surgical removal. This surgical technique is a common procedure and is done hundreds of times each day. The surgeon will remove the clouded and then decide on one of three corrective alternatives:

1. An artificial lens made of plastic can be put within the eye to replace your natural lens.
2. You can wear glasses to replace the focusing ability of the lens that has been removed.
3. Or, contact lenses can be used instead of glasses.

## Ocular Effects of Glaucoma

What is Glaucoma?

Glaucoma is a disease that is the result of an increase in pressure inside the eye. This increase in pressure can be caused by two methods: 1. There may be an over production of fluid, inside the eye, that keeps the eyeball firm, or, 2. the "drainpipe" that maintains the flow of fluid out of the inside of the eye becomes plugged or blocked. Regardless of the cause, the results can be serious and even lead to blindness if not appropriately treated.

What does the increase in pressure do to the eye?

In the back of the eye is a nerve that runs directly to the brain. This major nerve, the Optic nerve, collects information from millions of other smaller nerves that run throughout the inside of the eye. When the pressure within the eye increases, it mechanically compresses the nerves preventing the flow of information to the brain. This can lead to localized "blind spots" in your vision and permanent nerve damage.

What causes Glaucoma?

The exact cause of glaucoma is not known. It is thought that glaucoma is an inherited condition but can also be caused by injury, infection, and the aging process.

How is Glaucoma treated?

Although glaucoma is a serious disease, proper management can prevent further damage to the eye and preserve existing vision. This can be accomplished by eyedrops, pills, a combination of the two, or surgery. The use of a laser has also proved useful in the treatment of glaucoma.

What are the warning signs of Glaucoma?

The symptoms of glaucoma are numerous. You should schedule an

appointment immediately with your eye care specialist if any of the following problems occur:

1. severe pain or redness of the eyes
2. blurred vision that comes and goes
3. seeing halos around lights
4. a noticeable decrease in side vision or unusual "blind spots" in your vision
5. BUT, 9 out of 10 cases of glaucoma show no symptoms at all and can only be detected by routine eye exams.

Remember, glaucoma although serious is a controllable disease. It's early detection is imperative to successful treatment. This can only be accomplished by regular exams by your eye care specialist.

## BLEPHARITIS

What is Blepharitis?

Blepharitis is an inflammation of the skin near the base of the eyelashes. This inflammation can be so subtle that the patient is unaware of it or it can be so advanced that large ulcers may develop on the eyelids. This inflammation often presents as mildly, swollen, red eyelid margins with greasy flakes and "oil droplets" on or about the lashes. The skin of the eyelid may also flake and have a greasy feeling to it. If the inflammation is allowed to advance to the development of ulcers there is an increased risk of secondary infection. Once it reaches this point it is much more difficult to treat.

What are some concerns associated with Blepharitis?

Although blepharitis may be present and go unnoticed, this inflammation still has it's risks. Besides the fact that the mild form can develop into the more advanced form, the presence of blepharitis can lead to a greater risk of conjunctivitis (pink eye). As the flakes or droplets fall off the lashes, they can spread their infective agents to other structures of the eye. This can especially be a problem with contact lens wearers. The contacts can become infected and with every insertion of the lenses the eye is directly re-exposed to the infection.

How can Blepharitis be prevented?

Since the inflammation can go unnoticed, it is important to have regular eye health evaluations by your eye care specialist. This is most important with contact lens wearers and extra care should be taken to properly clean and disinfect your lenses. But the most important factor in prevention is good hygiene of the area around the eyes. This can best be accomplished by the following procedure:

1. Wet an abrasive wash cloth with very WARM water.



2. Place a liberal amount of baby shampoo on the wash cloth, diluting it slightly with more warm water and bring it to a lather.
3. Now vigorously rub the eyelids, including the eyelashes, making sure to clean these areas as good as possible.
4. Rinse with more warm water.
5. Wash in this manner three times a day.

## GIANT PAPILLARY CONJUNCTIVITIS

What is Giant Papillary Conjunctivitis?

Giant Papillary Conjunctivitis (GPC) is an allergic response of the eyes. This response is most often seen with soft contact lens wearers but can also be seen in general allergic conditions. The condition, in soft contact lens wearers, is caused by two factors: 1. a build-up of deposits on the contact lens surface and or 2. the use of contact lens cleaning and disinfecting solutions containing preservatives, particularly thiomersal. The contact lens acts as an irritating surface over which the upper eyelid blinks. This irritation and resulting allergic response causes the problems that the patient experiences.

What are the symptoms of GPC?

Whether the giant papillary conjunctivitis is caused by contact lens wear or a general condition, the symptoms are usually the same. There is often itching of both eyes and a mild nonspecific discomfort. If the contacts are the cause there usually is an increased awareness of the lenses and a resulting decrease in comfortable wearing time. There may also be an exaggerated blink rate especially when the contacts are on the eyes. The patient may also notice an increased mucous, stringy-like discharge from the eyes. Also, under the upper lids, there are bumps which may be few in number or cover the entire lid surface. These bumps, called papillae, are what gives this condition its name.

How to manage GPC?

The most important step in managing GPC, regarding contact lens wearers, is preventing it in the first place. This can best be accomplished by proper lens care and eliminating solutions that contain preservatives from your care system. Your optometrist is the most qualified person to assess the success of your contact lens wear. Regular exams are the only way to determine this. If GPC should occur, your optometrist may assist you in

several ways to clear up this condition. They are as follows:

1. Thoroughly clean the lenses.
2. Discontinue lens wear until the GPC has cleared up.
3. If the GPC reoccurs when the cotacts are worn again, new soft lenses may be needed.
4. If this still doesn't cure the condition, the patient may have to be refit with rigid, gas permeable lenses.
5. Also, the use of cromylyn sulfata has proved to be helpful in slowing the condition and allowing the eyes to naturally heal themselves.

## CONTACT LENS COMPLICATIONS

Why do ocular complications occur with contact lens wearers?

Contact lenses have become a fast growing segment in the vision correction and fashion market. The problem comes from the fact that both the contact lens marketing firms and patients have become apathetic to the care required to maintain normal, healthy eyes while wearing contacts. One should remember that anytime a foreign object is introduced onto the eye, including contact lenses, an unnatural condition is created. You must practice extreme caution in minimizing complications that result from these unnatural conditions. Even the most expertly fit and monitored contact lens can result in problems to it's wearer.

What kinds of complications are possible?

The problems that can arise are numerous but infection of the eye is the most serious. If an infection occurs in the eye and goes untreated the results can be very serious. Since the eye is a warm, moist environment it is an excellent breeding ground for infection and promotes the rapid spread of the infection. Other complications that can occur are; toxic reactions to chemicals used to clean contacts, abrasions from the lenses and allergies to deposits that build-up on the contacts. Many of the above problems result from improper or inadequate cleaning or disinfecting.

What are the warning signs of contact lens complications?

Once contact lens wear has become a problem there are three signs that can warn you of ensuing complications:

1. A noticeable redness of the eyes, whether one or both, that was not present previously.
2. A change in the clarity of vision while wearing the contacts. This may be in one eye, both eyes, constant or intermittent in occurrence.
3. An alteration in the comfort with which the contacts can be worn,

especially if there is pain with contact lens wear.

How can contact lens complications be prevented?

First of all, if any of the above signs occur remove the contacts immediately. If the problem has not corrected itself in one hour, make an immediate appointment with your eye care specialist. To prevent reaching the stage of complications you should follow the instructions of your doctor explicitly and take great care in cleaning your lenses. It is also important to make it to all scheduled appointments in order to monitor your wearing progress.

REMEMBER, your Optometrist is the most qualified individual to properly fit your contacts, monitor your wearing progress and select the most appropriate care systems.

## Ocular Effects of Diabetes Mellitus

What is Diabetic Retinopathy?

Diabetic Retinopathy refers to the changes that occur within the eye that are associated with Diabetes Mellitus. It is a disease process that may affect the small vessels, arteries and veins, in the back of the eye, the retina. Diabetes can cause two opposite yet equally serious problems:

1. occlusion or clogging of the arteries and 2. leakage of the veins.

Occlusion of these vessels is caused by a thickening of the inside lining of the arteries. This thickening can prevent blood flow to areas of the retina which can result in the development of new vessels to these areas. This growth of new vessels may appear to be an effective way to supplement decreased blood flow to an area, but these new vessels are much more fragile and at greater risk of rupturing. The second risk is that of leakage of the veins. This is due to a thinning of the outside wall of the veins causing a localized weak spot. This weak spot bulges and allows blood and fluid from the veins to leak into areas where they should not be. This leakage causes fluid build-up (edema) of the retina and the development of hard plaque-like deposits called exudates.

Bleeds in the retina are also a common sign of Diabetic Retinopathy.

What are the stages of Diabetic Retinopathy?

1. Mild or Background Retinopathy which consists of small dot size bleeds, plaque-like exudates and edema of the retina.
2. Moderate or Proliferative Retinopathy which has all the signs of Background Retinopathy and in addition; clogging of the arteries in the retina, development of small, new vessels and areas of malnourished nerves due to decreased blood flow.
3. Severe or Proliferative Retinopathy involves all of the above signs plus the development of large areas of new, fragile vessels. These vessels may rupture causing large bleeds and resulting

in serious scarring of the retina.

How to manage Diabetic Retinopathy?

1. Good control of blood sugar levels will not prevent Diabetic Retinopathy but will retard the advancement into the more serious stages.
2. Strict control of other physical conditions that affect vessels of the body-Hypertension, Heart Disorders, Lung Conditions, Weight...
3. Having regular exams by your vision care specialist to assure ~~early detection and proper monitoring of your condition~~ (every 3-12 months as determined by your eye doctor).
4. In some cases of Diabetic Retinopathy laser therapy has proved effective in sealing off unhealthy areas of the retina and hopefully preventing the spread of Diabetic Retinopathy to useful areas of the retina.

Warning Signs to watch for:

1. As your blood sugar fluctuates you may notice changes in your vision-even from day to day. New glasses will not correct these fluctuations-regulating your blood sugar will.
2. Any sudden increase in floaters or unusual "blind spots" in your vision should be an indication to see your eye care specialist immediately.
3. Any sudden loss of vision, regardless of the duration, should indicate an immediate appointment with your eye care specialist.

## What causes Spots or Floaters?

The appearance of any spots, specks or floaters in one's vision may be of no concern. These floaters can be of little importance and are usually attributed to the aging process. Inside the eye, behind the colored iris, is a gel-like substance called the vitreous. As one ages this gel-like substance shrinks and liquifies. As it liquifies, areas in the gel form small pockets of debris which cause the appearance of a floater. Although it appears as though these spots are in front of the eye, they are actually within the eye. They appear this way since light entering the eye causes the floaters to cast a shadow on the sensory part of the eye--the retina. Floaters or even flashes of light can be caused by the shrinking of this gel. As the gel gets smaller it pulls away from the retina. This tugging on the retina can cause floaters or flashes.

When are floaters or flashes a serious problem?

Although most floaters are not serious and are due to normal changes in the eye, they are not a problem to be overlooked. Floaters from aging develop gradually over a period of years. It is when floaters, flashes or spots come on suddenly, especially after an injury or infection, that you should be concerned. This sudden onset usually indicates that a bleed has occurred within the eye. This is a medical emergency. Bleeding indicates that there may be a tear in the retina which can be a sight threatening condition. It's early detection and proper management are the most important steps in preventing permanent damage to the eye.

What can be done about floaters?

Aging type floaters are benign and there is no treatment that will eliminate them. The type of floaters or flashes that occur suddenly should be evaluated immediately for their cause and then an appropriate management determined. Surgical intervention or laser therapy may be



necessary to assure rapid healing and therefore the maintaining of normal, useful vision.

REMEMBER, it is your responsibility to make an immediate appointment with your eye care specialist if you notice any sudden onset of floaters, flashes or spots in your vision.

FERRIS STATE COLLEGE  
COLLEGE OF OPTOMETRY

BINOCULAR VISION THERAPY

CONVERGENCE INSUFFICIENCY TREATMENT

This vision therapy program is prescribed to assist you in reaching and maintaining the maximum ability of your eye's aiming and focusing systems. The level of success attained with this program is the responsibility of you, the patient. You should do your best to complete all sections of this program as described and to return for all scheduled follow-up visits. Your doctor and clinician will select any or all of the treatments that pertain to your therapy program.

- Monocular Push-Ups
- Binocular Push-Ups
- Monocular Accommodative Facility
- Aperature Rule Training
- Chiatopic Visual Therapy, ("Thumbs")

Comments:

Activity: Monocular Push-Ups

Equipment: Hart Charts - distance and near or a Push-Up tongue depresser

Set-Up: 1. Place the distance chart on a wall far enough away so you can just read the block of letters.  
2. Do the procedure first with the left eye covered and then the right eye covered.

Lenses: Wear your prescribed glasses or contact lenses

Purpose: To assist you in learning how to shift the focus of your eyes quickly from far to near or near to far.

Procedure: 1. Hold the "near" Hart chart at arms length. Slowly bring it toward your eye until it "blurs" then slowly back it out until it "just clears" - this is tromboning. Keep the letters clear for a count of 10.  
2. Now make 10 jump cycles (near-far-near) clearing each chart as quickly as possible > Make sure the chart is CLEAR with each jump.  
3. Return the Hart chart to arms length - bring it in slowly until it "blurs" - back it out until it "just clears" - Repeat 10 jump cycles as stated above.  
4. Repeat entire procedure as outlined in steps 1 and 2 so that you have completed 10 different tromboning sequences.  
5. Switch eyes and repeat procedure 10 times on other eye.

Time: 10 trombone sequences each eye 8 times a day

Comments:

Record:

Sessions per day:

Activity: Binocular Push-Ups

Equipment: Hart charts - distance and near or a Push-up tongue depresser

Set-Up: 1. Place the distance chart on a wall far enough away so you can just read the block of letters.

Lenses: Wear your prescribed glasses or contact lenses

Purpose: To assist you in increasing the range of distance through which you can see clearly and comfortably. Eventual goal is to be able to bring the "near" Hart chart to your nose without the chart going double.

Procedure:

1. Hold the "near" Hart chart at arms length. Slowly bring it toward your eyes until you notice that it "doubles" - then slowly back it out until it is "single" again - it may not be clear but make sure it is SINGLE - this is tromboning. Hold it single for a count of 10.
2. Now make 10 jump cycles (near-far-near) making sure the near chart is SINGLE and the distance chart is CLEAR AND SINGLE.  
\*To check to see if you are performing the test correctly, note if you see the "near" chart double when you look at the distance chart. Closing one eye or the other should make one of the "near" charts disappear. This awareness of "doubling" is called Physiological Diplopia.
3. Return the Hart chart to arms length - bring it in until it is "single" - hold it single for a count of 10. Repeat 10 jump cycles as stated in Step 2.
4. Repeat entire procedure as outlined in steps 1 and 2 so that you have completed 10 tromboning sequences.

Time: 10 trombone sequences 8 times a day

Comments:

Record:

Sessions per day:

Activity: Monocular Accommodative Facility

Equipment: Plus-Minus lens flipper, near Hart chart

Set-Up: 1. Place the near chart on a table top about 16 inches away in a reading position.  
2. Do the procedure first with the left eye covered and then with the right eye covered.

Lenses: Wear your prescribed glasses or contact lenses

Purpose: To increase the range of plus and minus lens power through which you can maintain clear vision. This will increase the flexibility of the eye's focusing mechanism.

Procedure: 1. With the left eye covered and the near chart on the table, place a lens in front of your eye. When the chart clears flip to the other lens - wait until it clears - then flip back to the first lens - this is one flipper cycle. Make sure the chart is CLEAR. Do 10 flipper cycles noting how long it takes.  
2. Now cover the right eye and do 10 flipper cycles as stated in step 1.

Time: 10 sets of 10 flipper cycles for each eye. Do this 5 times a day.

Comments:

Record:

Sessions per day:

Activity: Aperature Rule Training

Equipment: Vodnoy Aperature Rule, flip card booklet

Set-Up: 1. Place Vodnoy Aperature Rule on table.  
2. Position bar on Aperature Rule so that it is at approximately a reading angle and so that it will just touch your nose when seated at the table.

Lenses: Wear your prescribed glasses or contact lenses

Purpose: To improve your eyes ability to turn toward each other (converge), and to maximize this ability so as to make prolonged near work more comfortable. Eventually you should be able to do all 12 cards quickly and easily.

Procedure: 1. Make sure the cards and the aperature are at the appropriate position. To line yourself up correctly begin with the "star card" placed at the 0 setting and the aperature at position DA. You should see the "star" at the center of the aperature.  
2. Now flip to the "grandfather clock card." Make sure the clock is in the center of the aperature and that you can see both the L and the R. You are now ready to begin.  
3. Flip to the "baseball player card," this is the first vision therapy card. On each card are directions for the placement of the card holder and the aperature. Make sure you have the correct position for each vision therapy card. Now concentrate on fusing the two baseball players together. Once together, hold them CLEAR for a count of 10.

\*To make sure you are doing the test correctly, look for the pair of circles on the card. You should see these circles in 3-D with the inner circle appearing to stand out from the card. Also, make sure that you see a plus sign above the circles and a dot below. Each card has these figures and you should check each time to make sure you see them as described above.

4. Once you have held them CLEAR for a count of 10, jump from near to far to near - this is one jump cycle. Do 10 jump cycles concentrating on fusing the pictures as quickly as possible and making sure they are CLEAR. Once you have done 10 jump cycles proceed to the next card.  
5. Continue as far as you can each day concentrating on keeping the card CLEAR each time and doing it as quickly as possible. Be sure to read the directions on each card for correct placement of the card holder and aperature. Also, remember to check the circles each time to assure yourself you are doing the test correctly.

Time: Do 10 jump cycles for each card 4 times a day proceeding as far as you can each time.

Comments:

Card number reached:

Activity: Chiatopic Visual Therapy ("Thumbs")

Equipment: 2 thumbs-one right, one left

Lenses: Wear your prescribed glasses or contact lenses

Purpose: "Thumbs" are to be used as maintenance therapy once you have completed your visual therapy program. This task will help you maintain your aiming and focusing abilities.

Procedure:

1. Hold your thumbs at arms length, eye level, and about 2 inches apart.
2. Slowly cross your eyes, you should notice that each thumb "doubles".
3. Superimpose the two inner thumbs so that you see a total of three.
4. Once you see three CLEAR thumbs hold it for a count of 10.
5. Now jump from near to far to near - this is one jump cycle. Make sure that the distant object and the center thumb of the three is clear. Do 10 jump cycles as quickly as possible concentrating on clarity of vision.
6. Now try to move "thumbs" farther apart while making sure you only see three thumbs and that the center one remains CLEAR. Do 10 more jump cycles quickly.
7. Move thums to 2 inches apart, slowly separate your thumbs as far as you can while maintaining clarity of the center thumb. Do this until 3 thumbs split into 4. Do this 10 times.
8. Do both sequences at a closer distance.

Time: Do the "thumbs" test whenever you think of it or whenever you notice problems with your vision such as blur with near work, doubling, difficulty in focusing from near to far or far to near or headaches with near work.

Comments:





