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Diagnosis and management of the See Sick Syndrome (neuro-ocular-vestibulardysfunction)

Abstract

Diagnosis and management of the See Sick Syndrome (neuro-ocular-vestibulardysfunction)

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**DIAGNOSIS AND MANAGEMENT OF THE SEE SICK SYNDROME
(NEURO-OCULAR-VESTIBULARDYSFUNCTION)**

By

NORA M.Y. CHAN

HONG T. NGUYEN

**A thesis submitted to the faculty of the
College of Optometry
Pacific University
Forest Grove, Oregon
for the degree of
Doctor of Optometry
May 2005**

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Introduction

Many of your patients complain about headaches right?

How about photophobia and dizziness?

Did you know that of your adult female patients, one in seventeen (1-2% with males) has a constellation of visual related motion sickness that includes dizziness, nausea, photophobia, headache, and fatigue?

Most doctors miss this pattern.

An important reason why doctors usually miss this condition is that patients do not normally complain to their eye doctor about this combination of symptoms (before mentioned) because they do not think it is related to their eyes or visual function.

By taking this course, the practitioner will gain knowledge about sensory conflict, and visually-related motion sickness. Specifically, See Sick Syndrome (SSS), also known as Neuro-Ocular-Vestibular Dysfunction (NOVD), is a combination of motion sickness and photophobia that negatively affects patient quality of life, but yet is almost always unrecognized by medical professionals and eye doctors. This course is designed to help the practitioner learn how to quickly diagnose, manage, and successfully treat this disorder, while ruling out and referring conditions that mimic SSS.

This course includes a step-by-step SSS therapy manual for simple home or office based desensitizing dynamic adaptive vision therapy (DAVT). In addition to the written portion of this course, a companion video DVD is included. The accompanying video illustrates most procedures described in this manual. This DVD also includes ready to print handouts and recording sheets that can be given to patients describing the home therapy activities to be completed and forms for documenting compliance.

This course will be valuable to all practitioners regardless of whether vision therapy in any form, is offered or not. For those course participants who are not interested in offering vision therapy services, this course will help correctly identify and diagnose SSS, provide better patient education, and appropriate referral when necessary. For those practitioners who may later wish to provide a limited form of exclusively home-based DAVT therapy for SSS patients, this course contains descriptive handouts to facilitate that type of care delivery.

The normal SSS therapy program or DAVT, is typically completed within a few weeks by most patients. Reduction of symptoms and improved quality of life is reported to occur with approximately 80% of patients completing DAVT. DAVT for SSS has been available internationally for years from select practitioners as well as from optometric physicians at the Pacific University College of Optometry Vision Therapy Service.

This course is based upon the work of Roderic W. Gillilan O.D. Starting in 1965, Dr. Roderic Gillilan has diagnosed and treated hundreds of patients with SSS in his private practice in Eugene, Oregon. He first published his findings in 1979, and in 1984 wrote and published the SSS manual (Optometric Management of Motion Sickness). Dr. **Gillilan's** SSS work has been featured in numerous health-related newspaper, magazine articles, and television programs. He has lectured nationally about SSS, and regularly lectures to the students and faculty of Pacific University College of Optometry.

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What follows is a typical case presentation of a patient who manifests the See-Sick-Syndrome and a letter **from** a successful post therapy SSS patient.

Case Presentation

S.J.E, a 42 year old Caucasian female presented to the office for a routine eye exam. Her chief concern was one of occasional blur at near point. Upon additional specific questioning, she described her life long history of motion sickness and in recent years, an unusual sensitivity to light.

Medical history was unremarkable and she was taking no medication. Ocular history was unremarkable except for a short period of lens wear as a child. She currently does not use corrective lenses.

Pertinent tests revealed emmetropia and presbyopia, binocularity within **normal** limits, and anterior and posterior eye health findings were unremarkable. Further tests with hand held swinging **Marsden** ball at **arms** length for a few seconds and saccadic tests revealed nausea and headache.

Diagnosis: (1) Severe See Sick Syndrome (**a.k.a.** NOVD) with functional tunnel vision (based solely on case history findings) and (2) Early presbyopia

Treatment and management: (1) Dynamic Adaptive Vision Therapy (DAVT) performed daily at home for four weeks, with weekly office visits for evaluation and instruction. (2) New Rx for near only provided.

Post therapy written comments by patient:

Before I did the exercises, I would have difficulty reading and losing my place after having read **3** lines or so. Consequently, I grew up with a not good image of myself because I thought I was dumb. My mother took me to optometrists and got conflicting opinions because I had **20/20** vision; one would want to put glasses on me and another would not. I would go on having these terrible headaches. After doing the exercises (SSS therapy), I can read without losing my place.

It used to even make me sick to watch people eat. I'd have to get up and leave the table because the up and down motion of their hand and fork or spoon got me. Now I can sit and enjoy the fellowship and the food.

When I would go to a movie, I would have to sit in the very back row and wish the wall was back a lot farther because the light on the screen hurt my eyes so terribly. I had glasses that were very dark to protect my eyes. My eyes are much less sensitive to light now, I go without my sunglasses and sometimes don't even realize I don't have them on until I reach up to adjust them.

I would always be bumping into things like counter comers or door jams or other people, I thought I was klutzy. When in a strange place I would cling to my husband to guide me so I could look at the things around me without falling down. Now, I look at things and also walk around things that happen to be in my path without hardly blinking.

I had developed such a pattern of living that I rarely moved my head or eyes any more than was necessary because it made me either nauseated or gave me a headache. In fact, I used to spend at least 75% of my time either nauseated or head achy and I can't begin to tell you how nice it feels to be free of that. I had given up hope of ever being able to travel comfortably and had decided to give up trying. Now I use my eyes a lot more and see things that I never could look at before. I went for a ride with my husband and thoroughly enjoyed it as much as he did because I didn't get sick and I could look around and see all the things he was seeing. Now I can travel and enjoy it.

S.J.E.

The See Sick Syndrome (a.k.a. NOVD)

See Sick Syndrome is the combination of motion sickness and photophobia. It is the visual sensitivity to motion combined with photophobia that elicits the SSS symptoms.

See Sick Syndrome is not well known by the professions or the public yet. Unfortunately, the SSS patient is not diagnosed during a standard eye or medical examination. It can, however, be self diagnosed rather accurately when the patient reads the long list of common symptoms. Patients often either go **from** doctor to doctor searching for an answer to their problem or don't tell anyone, even their family, about their bazaar symptoms for fear they would be considered "crazy" or appear to be a "complainer".

Epidemiology: This condition occurs in approximately **6%** of the female population and 1% of the males and usually is familial (Reference as Unpublished Survey by Dr. Roderic Gillilan).

Symptoms: All SSS patients have a combination of motion sickness and photophobia. The severity and frequency of the different symptoms in the SSS patients can vary widely. Most severe SSS patients have at least two things in common: (1) motion sickness (nausea, headache, dizziness, fatigue, malaise, drowsiness, depression, bodily warmth, pallor, or cold sweats) with repeated eye movement or when observing rapid motion and (2) unusual sensitivity to light.

Almost all SSS patients have life long histories of carsickness, which occurs almost exclusively in the daytime. The reason for this is that less motion is observed to the sides at night. According to Dr. Roderic Gillilan, approximately half of his SSS patients developed a reduced awareness of objects in the periphery (functional tunnel vision). This is seldom recognized by the patient but is the cause of their klutziness.

The symptoms of SSS and the ability to handle motion **often** vary from day to day. One of the reasons for this is that motion sickness can be accumulative. An exposure to it can make one less able to handle a new exposure up to three days later. SSS is normally mild in nature in children and then gradually becomes more severe over a period of years. This change is probably caused by the avoidance of symptom producing activities and the condition worsens as a result.

Conditions such as fatigue, pre-menstrual syndrome (PMS), and hypoglycemia can also make matters worse. If one develops an inner ear condition in addition to the SSS, the combined condition can be disabling. This complicates matters and the results may not be as complete, but the training is still usually successful in these multi-condition cases.

A complete breakdown of the SSS symptoms is as follows. This chart is just a general guide, it does not include all symptoms. Many variances between cases and categories can occur. In many categories, the moderate or severe SSS symptoms are in addition to the mild or moderate.

See Sick Syndrome Symptoms

	Mild	Moderate	Severe
Car Sickness	Mild car sickness	Necessity to be the driver to avoid nausea while traveling in a car, even on a straight road	Riding in or even driving a car for more than a few minutes may result in severe HA, fatigue, and/or nausea
	Cannot read (look down) in a car more than a few seconds without nausea, HA, and/or dizziness	Inability to look backwards in a car without nausea. Nausea when driving on tree lined roads when the sun casts shadows across the road	
Photophobia	Unusual sensitivity to light to a moderate degree	Eye pain or HA when exposed to a "flash of light" or being outside without sunglasses, even on cloudy days, or being in a brightly lit place	Severe sensitivity to light both indoors and out. They are the type of person to turn off lights and pull down shades
	Must wear sunglasses outdoors, even on cloudy days.	Unusually long "after images" after looking at most sources of light (several minutes). Computer screen brightness causes discomfort.	May say things like "light is my worst enemy"
	Feels uncomfortable in brightly lit buildings or places with shiny floors such as grocery stores, classrooms, offices, or malls.	Sensation of being "blinded" when looking at oncoming headlights.	
Visual	Inability to sit close to a movie screen or watch movement of a train or a carnival ride without nausea, HA, and/or dizziness	Inability to look at stripes or watch rapid movement on television or a moving belt without nausea, headache, or dizziness	Inability to watch more than minimal motion without dizziness or nausea, such as watching ones own hand while eating
Head-Ache	Frequent and sometimes daily "dull" or "pressure" headaches	Exposure to any activities which involve observations of movement or eyemovement for more than a few minutes can cause severe headaches which may last a few days.	Constant or very frequent nausea, HA, or dizziness which can range from mild to severe.
Reading	Frequent use of a finger or marker to keep from losing place when reading or looking from computer to paper documents when patients have developed "functional tunnel vision" (FTV)	Fatigue, HA, dizziness, and/or nausea when reading, bookkeeping, or observing a computer or microfiche	Attempting to read anything on screen or paper for more than a few seconds may create severe nausea, HA, dizziness and/or fatigue
	Sensation that print "floats" at times during reading		
Activities	Difficulty hitting or catching a ball (if patients have developed FTV)	Inability to go shopping or be in a group of people without dizziness, nausea, fatigue, and/or feeling "spacey"	Frequent dizziness and loss of balance, especially when walking, turning around, or bending down
	Nausea, headache, and/ or dizziness on playground equipment	Poor depth perception, noted in activities such as parking a car. Nausea when jogging	Driving is scary or impossible, especially if patients have developed FTV
		Inability to walk up steps with spaces between them without nausea or dizziness	
		Inability to ride in a boat on a flat lake or watch the motion of a river without nausea	
		Tendency to get headaches, become very dizzy or nauseous when turning around in a circle or doing other rapid motion exercises	
Balance & Coordination	Poor sense of balance or equilibrium	Impossible to hit or catch a ball. Must look down when walking on uneven terrain to avoid tripping (if patient have developed FTV)	Seeing the floor or ground as being tilted or wavy
	"Klutziness" and poor coordination. Misses objects when reaching for them and runs into doorways, tables, and other objects frequently (if patients have developed FTV)		Frequent dizziness and loss of balance, especially when walking, turning around or bending down. May fear falling and need to hold on to someone or something when standing or walking.
Others		Frequent or constant unusual tension in neck and shoulders	Feeling that "something" inside the head or body is in constant motion
		Unusual fear of heights and claustrophobia	Inability to leave home without great anxiety
		May develop mild to moderate apparent hypoglycemia, some symptoms which are HA, lightheadedness, fatigue, and/or anxiety	May not be able to be in group of people without anxiety, dizziness, and/or nausea.

How to make a tentative diagnosis based upon history

One can usually make an accurate diagnosis by taking a brief but carefully structured case history since no other tests will **guarantee** as successful a **diagnosis**. **See Sick Syndrome** is usually easiest for the patient to self diagnose, when they read the long list of symptoms. No diagnosis can be made by evaluating only one or two symptoms. On the other hand, if the patient has most of the major symptoms of SSS, has an equilibrium problem, and has difficulty looking at motion, he or she probably has SSS.

Key questions that can quickly rule out or lead to a diagnosis of SSS:

1. CAN YOU READ IN A CAR WITHOUT NAUSEA, HEADACHE OR DIZZINESS?
 - If the answer is "YES" or even if they can read several minutes, ask no more questions. The patient does NOT have SSS or typical motion sickness.
 - If the answer is "no" and they can only read for a few seconds or can't look down at all proceed to #2.
2. DO YOU BECOME NAUSEATED OR GET HEADACHES OR DIZZY WHEN RIDING IN THE BACK SEAT OF A CAR ON A *STRAIGHT* ROAD?
 - If the answer is "NO", ask no more questions. The patient does NOT have SSS.
 - Use the above specific words instead of asking, "Do you ever get car sick?". Many patients consciously or unconsciously avoid car sickness by only looking straight ahead. Some just go to sleep to avoid symptoms. Also, car sickness at night is rare.
3. CAN YOU SIT CLOSE TO A MOVIE SCREEN OR WATCH A TRAIN GO BY WITHOUT NAUSEA, HEADACHE OR DIZZINESS?
 - If the answer is "NO" the patient has at *least* a moderate degree of visually induced motion sickness, but not necessarily SSS. Those considered to have mild SSS symptoms must also have photophobia as a symptom.
4. ARE YOU SUPER-SENSITIVE TO LIGHT? DO STORE LIGHTS SEEM TOO BRIGHT? DO YOU HAVE TO WEAR SUNGLASSES EVEN ON CLOUDY DAYS?
 - If you have gotten this far and answers to all of these questions are "YES," you can make a tentative diagnosis of SSS.

Additional questions that most patients with SSS answer yes to:

5. DO YOU HAVE FREQUENT, SOMETIMES DAILY HEADACHES OR "PRESSURE" IN YOUR HEAD?
6. DO YOU HAVE NAUSEA, HEADACHES, DIZZINESS OR A SPACEY FEELING WHEN SHOPPING OR MOVING THROUGH CROWDS OF PEOPLE?
7. DO YOU HAVE AN UNUSUAL FEAR OF HEIGHTS?
8. DO YOU FEEL AS IF THERE IS *SOMETHING* CONSTANTLY IN MOTION INSIDE OF YOU?
9. ARE YOU KLUTZY? DO YOU LOSE YOUR PLACE EASILY WHEN READING?
10. DOES ANYONE IN YOUR FAMILY SHARE THE SAME SYMPTOMS AS YOU?

Provocative testing to confirm SSS Diagnosis

In most cases, the primary symptoms can be reproduced within ten to twenty seconds, by exposing the patient to visual motion such as watching a **Marsden** ball swing, saccadic eye movements with the head still, or simply rolling the eyes around. Some patients develop these symptoms during the regular exam as well. A few See Sick Syndrome patients are delayed reactors and do not develop symptoms until up to one hour after exposure to motion. This reaction to "eye movement only" activity can serve as a positive demonstration to the patient and be reassuring to the doctor that the eyes are a factor contributing to the symptoms.

Many severe SSS patients have "**made** the rounds" of neurological, ear-nose-throat (ENT), and other medical offices previously because they think they have a brain tumor or an inner ear problem. Usually they have had extensive medical testing done but often are diagnosed with vague inner ear dysfunction or are told "there is nothing wrong with you," or "you have a mental condition." Some have been prescribed medications for dizziness, nausea, and/or depression. When there has been previous medical evaluation **and/or** treatment for the current condition, there is less concern about the need to refer to another medical specialist for evaluation but it does not rule it out.

If differential diagnosis indicates a possibility of another condition or overlapping condition, consider referral and a rule out of health or life threatening conditions as the first option. In addition to the aforementioned, if after two weeks of therapy, the patient does not notice some improvements in the ability to do the therapy, a referral to other medical specialists is recommended.

Furthermore, if you begin the training on the patient and they can tell within a week or two that the therapy is working, then that in-itself can be diagnostic. It is always wise, when making a positive or probable diagnosis of SSS, to also state, "you most likely have SSS but I cannot tell you, with absolute certainty, that you do not also have some other condition as well." Finally and most importantly, when in doubt, refer it out before continuing.

Differential diagnosis:

The following section is used with permission from Dr. Bradley M. Coffey. Dr. Coffey is a nationally recognized expert in the area of sensory conflict, in addition to being a vision therapy and sports vision expert, he is a professor of optometry at Pacific University College of Optometry and has presented and extensively published in vision science literature.

Optometric perspective - dizziness arises from visual-vestibular mismatch

1. Vertical deviations
 - prolonged occlusion
2. Yoked [vertical] prism
3. New vestibular trauma or disease may reveal a previously sub-clinical visual condition.
4. Post-trauma Vision Syndrome (Padula)

Neurotological perspective - dizziness arises from vestibular disorders

1. Inner-ear concussion syndrome
 - traumatic damage to inner ear (including barotrauma, Valsalva)
 - diagnosed by history; establishes etiology
2. Benign paroxysmal positional nystagmus / vertigo (BPPNN)
 - nystagmus and/or vertigo and/or oscillopsia associated with specific head movements or head positions, possibly due to microscopic particles in semicircular canals (also referred as canalithiasis)
 - usually worse upon rising in the morning or after sedentary periods
3. Perilymph fistula
 - fluid leak in vestibular end organ
 - always symptomatic (hearing loss, tinnitus, vertigo, aural fullness) unless perfectly still
 - Sx aggravated by fullness, Valsalva factors, barometric changes
4. Secondary hydrops
 - variable fluid pressure in vestibular end organ causes chronic vertigo, hearing loss, tinnitus, recurrent dizziness **and/or** imbalance
 - sx more continuous than **Mènière's**
 - aggravated by hormonal changes, solute loads (salt)

5. **Mènière's** disease
 - also referred as primary (or idiopathic) endolymphatic hydrops
 - **tinnitus**, fullness, fluctuating hearing, vertigo w/ head movement
 - sx are initially episodic and may be intense (immobility, vomiting)
 - pt **often** symptom-free between episodes
 - longstanding conditions produce more continuous sx
 - overdiagnosed; very limited prevalence (compare to dyslexia)

6. Vestibular neuritis or labyrinthitis -- often after **URI's**
 - usually refers to one or two quickly resolving episodes of dizziness or imbalance that cannot be attributed to conditions above
 - prolonged vertigo attacks lasting days

7. Ototoxicity usually secondary to systemic aminoglycosides
 - Consider newly resistant strains of bacteria; "hospital bugs"

8. Autoimmune mediated vestibulopathy - often secondary hydrops
 - Consider silicone breast implants

Dynamic Adaptive Vision Therapy

The good news is that within a period of four to eight weeks, most See Sick Syndrome patients and simple motion sickness sufferers will enjoy a significant improvement in their symptoms by doing Dynamic Adaptive Vision Therapy (DAVT) procedures at home. The only equipment required is a **Marsden** ball and two pencils. The therapy itself requires motivation and commitment by the sufferer to complete a series of sequential training activities. Initial patient motivation to complete the program is an absolute prerequisite to successful completion of the sometimes challenging therapy. The prescribed DAVT therapy activities should only be completed with careful regular guidance from a qualified therapist.

How the therapy works

The SSS patient is essentially "allergic to visual motion". The training desensitizes and "reprograms" them so they do not then react adversely to moving their eyes or to seeing or feeling motion as they previously did. The therapy could be considered "physical therapy for the eyes". The patient, with the doctor's careful guidance, learns how to adjust the level of training to get the best effect and to minimize the discomfort. The training effect is similar to riding a bike in that it is mostly "the learning and knowing how", not brute strength. Once reprogrammed, most patients remain symptom free for many years, if not forever. The first SSS patient, J.M. did her therapy in 1965 and without **further** therapy, is still **free** of symptoms. **A** few do regress to a degree **after** time. When this happens, they find it quite easy to retrain themselves on their own with much less effort the second time around. Most of the patients that have done the therapy have been middle aged but the youngest was nine and the oldest was eighty-two.

THE DYNAMIC ADAPTIVE VISION THERAPY

Patient training procedures and recording sheets

BEGINNING SERIES

A. Dynamic Adaptive Motility Therapy (Swinging Alphabet Ball Exercises) —“Roving Eyes”

Purpose

To help the patient eliminate their motion sickness and/or SSS symptoms by improving the speed, accuracy, and efficiency of their pursuit skills. To enhance their adaptation to moving their eyes, seeing, and feeling motion without discomfort.

Equipment

Marsden ball (alphabet ball on cord) with a button bracket for height adjustment.

Equipment Set Up

In a room with at least 8 feet of open lateral space, attach an eye screw, bent nail, or wire loop to the ceiling, ceiling beam, or light fixture. Hang the Marsden ball from the loop.

Primary Therapy Procedures

With the ball hanging slightly below eye level and about arms length in front of the patient, have the patient look at only one letter. As the ball rotates, have them find new letters to look at.



Patient Instructions:

1. Swing the ball laterally from side to side
2. Use minimal head turning initially only if needed to keep the letters relatively clear. Attempt to look at one letter at a time during all procedures and follow it as smoothly as possible.
3. Swing the ball forward and backward by holding the ball close to the nose, then releasing it.
4. Swing the ball in a **45°** diagonal direction so that it passes behind the line of sight – first on one side, then the other. Start the swing by holding the ball behind the ear and releasing it.
5. With the ball in front, swing it in a circle. Change the direction of the swing **after** a few revolutions.
6. When #1 thru #5 can be performed without nausea or undue discomfort, increase the difficulty level by hanging the ball approximately **5”** to **8”** above eye level, standing closer to the ball, swinging it farther, **and/or** doing the exercises longer without rest.

Training schedule: Have the patient train a total of at least 15-18 minutes per day on these **Marsden** ball exercises.

If the patient feels nauseous while performing the **Marsden** ball procedures:

back away from the ball (up to 12 feet or more, if necessary)

- increase rest periods
- reduce the amount of lateral swing to about 6 inches, then gradually increase the swing to about **3** feet while standing at arms length from the ball
- it may be necessary to begin by sitting on a chair or even lying on the back and looking up at the ball, in severe cases

How to tell if patient over trained: If the patient feels much worse 30 minutes past the finish of the training session compared to when they began, the patient may have over trained and should reduce the intensity of the next session.

Note: The letters on the ball give the patient a small target to look at (the smaller the target, the more accurate eye movements tend to be) and it enables them to know when they are tracking accurately. If the letter is relatively clear, they are tracking properly.

Goals

To be able to perform the beginning series of the Dynamic Adaptive Motility Therapy without any symptoms.

B. Dynamic Adaptive Saccadic & Convergence Therapy (Pencil Exercises)

Purpose:

To help the patient eliminate their motion sickness and/or SSS symptoms by improving their comfort, speed, accuracy, and efficiency of saccades and increasing peripheral awareness.

Equipment

Two pencils with lettering on them.

Therapy Procedures/Patient Instructions

Do all procedures while standing, but if that is not possible, do them while sitting at first.

I. Convergence Rock:

1. Hold one pencil at arm's length and the other about 12" closer, both straight out from the nose.
2. Focus on the far pencil. As soon as it is clear and single, change focus to the near pencil. As quickly and accurately as possible, keep alternately looking from one pencil to the other.
3. When looking from one pencil to the other, hold the far pencil in place, and slowly move the near pencil closer towards the nose. When the near pencil is so close that it no longer appears single, or it is about 2" from the nose, move it out to the original position and begin again.
4. Repeat the procedures while holding pencils in a variety of positions –left, right, up and down. Remember to hold the far pencil stationary during each set.



II. Convergence Push Up

1. Using only one pencil, hold it at a normal reading distance and position.
2. While looking at the pencil move it slowly towards the eyes.
3. Try to get the pencil as close to the eyes **as** possible while maintaining single vision.
4. If the pencil is within about 1” of the nose, or begins to double, move it out to the beginning position and repeat the procedure moving the pencil in and out as quickly as possible and still keep it single.
5. Repeat the above while moving the pencil in from different positions –left, right, up and down.



III. Fixation:

1. Hold one pencil in each hand side by side, about 6" apart at eye level and at a normal reading distance.
2. Alternate looking from a letter on one pencil to the next letter on the other pencil as quickly and as accurately as possible.
3. While looking from one pencil to the other, slowly move both pencils further apart laterally, until the separation of the pencils limit the fixation ability. Then, repeat the procedure from the beginning.
4. Repeat the above procedures while holding the pencils above and below eye level and in diagonal and vertical positions to increase the level of difficulty.



IV. Far/Near Rock:

1. Hold one pencil straight ahead at a normal reading distance and align it with a small distant target that is at least 11 feet away.
2. Alternate looking from the pencil to the distant target and back again as quickly as possible, while slowly moving the pencil closer to the eyes. When the pencil is within about 1" of the nose, or begins to double, move it out to a normal reading distance again and repeat the procedure.
3. Repeat the above procedure moving the pencil in from different directions –left, right, up, and down, while using different distance targets at various heights.



Training schedule: Have the patient train a total of at least 15-18 minutes per day on these combined pencil exercises.

Patient should spend an equal amount of time on each individual exercise the first four days, then more time should be devoted to the procedures that are most difficult. After the first 5 days, have the patient make an effort to see more objects with their peripheral vision during the training and in their everyday living. Patient should do all the exercises in one session if they can. Appropriate rest periods may be taken if fatigue or discomfort makes it necessary. However, longer training periods without rest are desirable.

The degree of difficulty of each procedure can be increased by:

- moving the eyes faster
- moving the pencils to more extreme positions
- doing the exercises longer without rest

Goals

To be able to perform the beginning series of the Dynamic Adaptive Saccadic and Convergence Therapy without any symptoms.

***When all of the above Pursuits, Saccadic, and Convergence therapy procedures can be performed without any symptoms, then the patient is ready to proceed to the intermediate series.**

***Patient may start the therapy each day with either the swinging ball or the pencil exercises, or alternate the two.**

INTERMEDIATE SERIES

A. Dynamic Adaptive Motility Therapy (Swinging Alphabet Ball Exercises) —“Topsy Turvey”

Therapy Procedures/Patient Instructions

1. Place feet in a wide stance and ball at eye level.
2. Swing ball side to side. Rock body from side to side about 2 feet, opposite the direction of the ball.
3. Swing the ball in a circle in front of the body. Rock back and forth from side to side.
4. Swing ball in diagonal direction—rock back and forth about two feet, opposite direction of the ball.
5. Repeat #1 thru #4 with ball above eye level.



6. Add "head on shoulders" motion to #1 and #4. Tip head towards right shoulder when moving right, then towards left shoulder when moving **left**.

7. Standing directly under the hook the cord is attached to, swing the ball in a circle around the body at eye level. Try to find as many letters as possible. Repeat this step with the ball above eye level. If necessary, use the minimum amount of head rotation that is needed to see a letter or two.

8. Swing the ball in a circle. Walk around the outside of the swinging ball with a shoulder towards the center of the circle while looking at the ball. Walk with and then against the motion of the swinging ball. Change the direction of the ball swing and repeat.

9. Repeat all of the above procedures with the ball approximately **5"** to **8"** above eye level.

10. Patient should be visually aware of surroundings throughout all procedures. The degree of difficulty can be regulated by adjusting the amount of ball swing, the amount of head and body motion, the walking speed, and the diameter of the circle that the patient is walking in.

Training schedule: Have the patient train a total of at least **15-18** minutes per day on these intermediate **Marsden** ball exercises.

B. Dynamic Adaptive Saccadic & Convergence Therapy (Pencil Exercises)

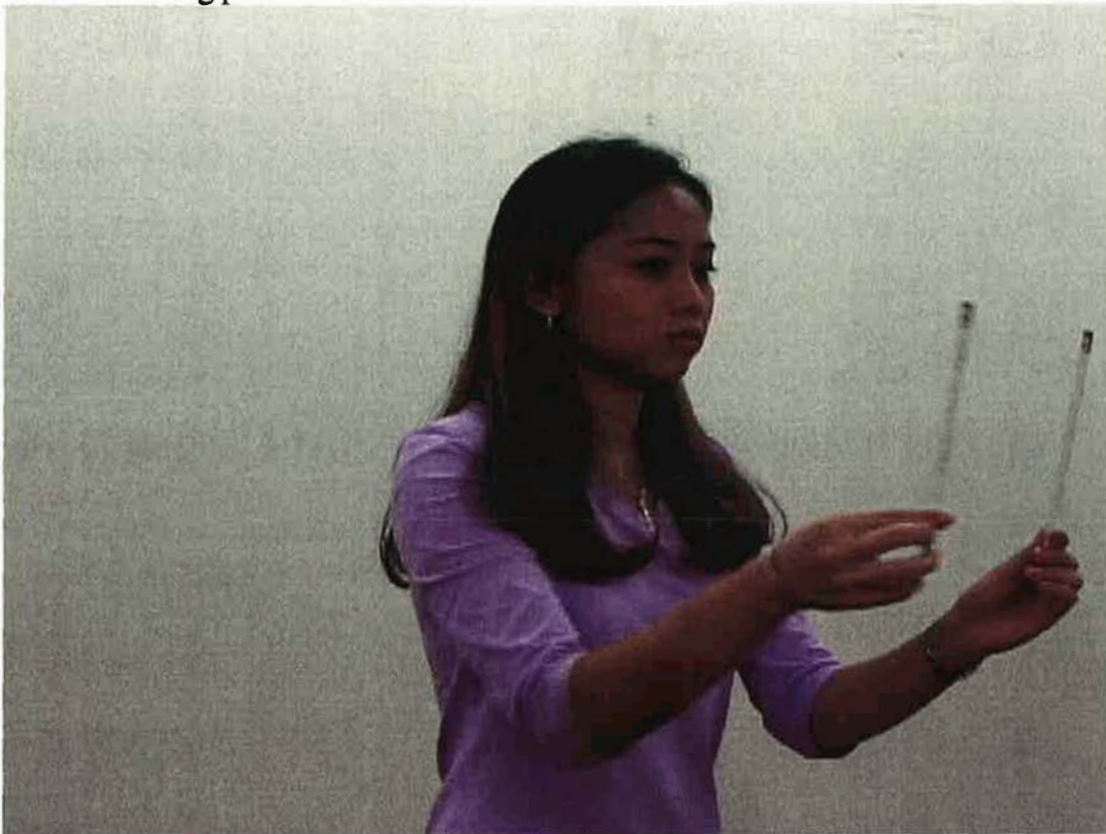
Therapy Procedures

From here on, patient does not need to look at the individual letters, they can just look at the pencils or erasers.

Patient Instructions

1. Do procedures I, II, III, and IV from the beginning series while walking straight ahead. If there are minimal or no symptoms, proceed immediately to #2.
2. Now walking in a large circle, perform the same procedures. Gradually proceed towards as small a circle as possible. Change the direction periodically.

Note: Walk as quickly as possible with minimal nausea and dizziness. Also notice the eyes will not move quickly and easily as when standing still. The degree of difficulty can be adjusted by adjusting the walking speed and the diameter of the circular walking pattern.



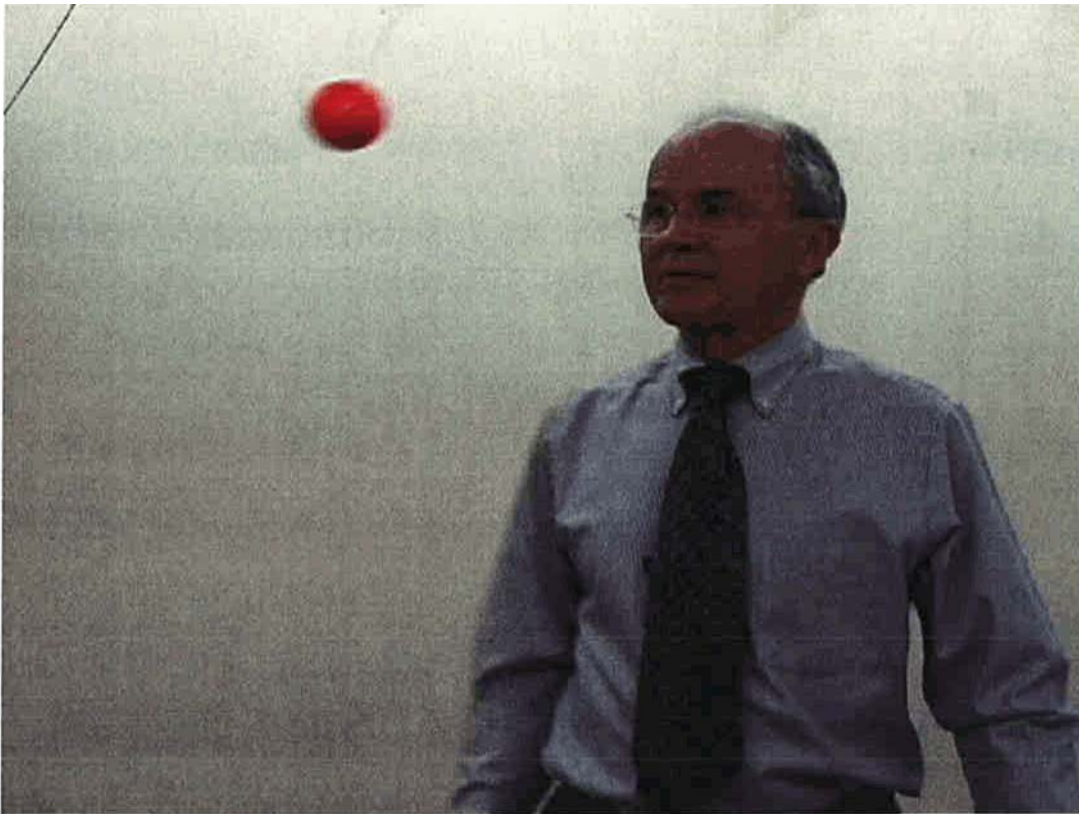
Training schedule: Have the patient train a total of at least 15-18 minutes per day on these intermediate pencil exercises.

ADVANCED SERIES

A. Dynamic Adaptive Motility Therapy (Swinging Alphabet Ball Exercises) —“Merry Go Round”

Therapy Procedures/Patient Instructions

1. Swing the ball in a circle around body at eye level. Then turn in place in circles, first in the same direction that the ball is swinging, then in the opposite direction. Swing the ball in the opposite direction and repeat. Turn **very slowly** at first (not nearly as fast as the ball is swinging) then gradually increase in speed. Turn at the rate that enables 6 or 7 revolutions comfortably without stopping. When dizziness occurs, reverse direction of turn. If nausea occurs begin with turning in place without the ball. Then when this is performed without nausea, add the swinging ball.



2. Repeat all of the above procedures with the ball approximately 5” to 8” above eye level.

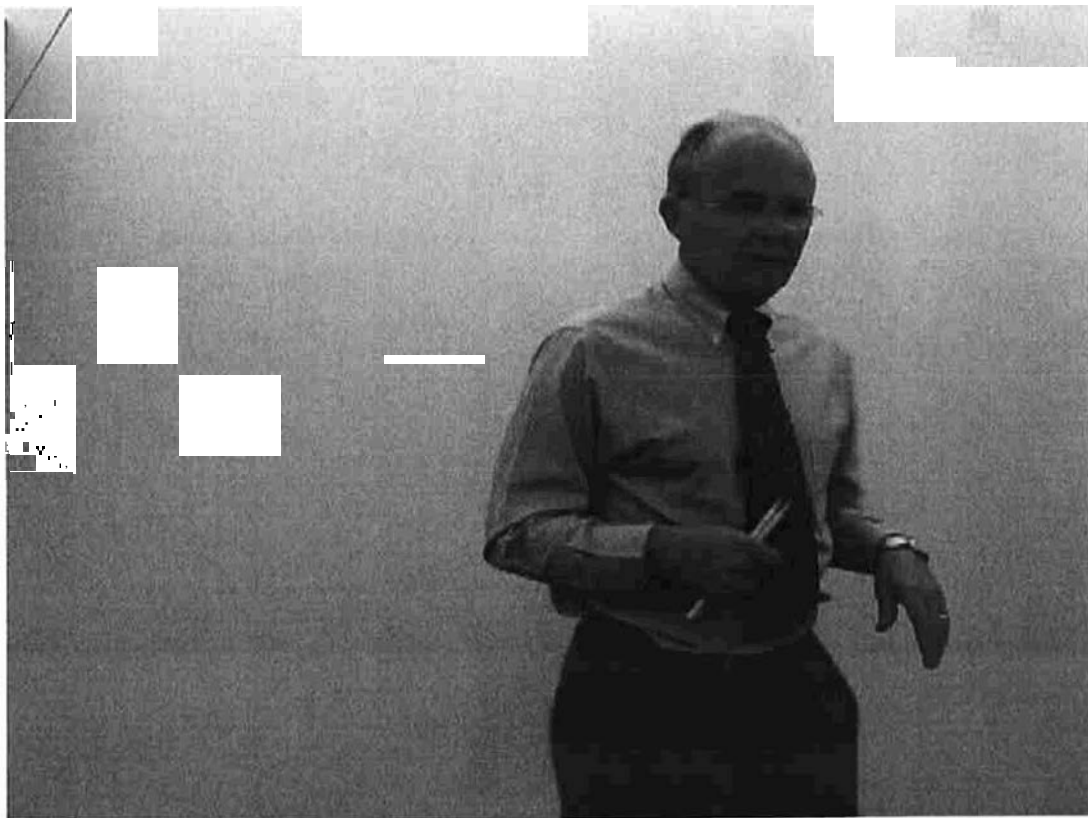
Training schedule: Have the patient train a total of at least 15-18 minutes per day on these advanced Marsden ball exercises.

B. Dynamic Adaptive Saccadic & Convergence Therapy (Pencil Exercises)

Therapy Procedures/Patient Instructions

1. While holding pencils at eye level, do procedures I, II, III, and IV from the beginning series, while walking in a small circle about 3' to 4' in diameter, then progress to turning in one place **as** quickly as possible. Turn slowly for longer periods and occasionally turn quickly for short periods. Change direction of rotation as needed. Reduce turning speed if any nausea occurs.
2. Turn in place with both pencils held above and below eye level while looking laterally and diagonally from one to the other (III, Fixation).
3. To increase the degree of difficulty even **further**, encourage patients to add their own innovations. The higher degree of difficulty they can achieve, the more "bullet proof" they will be.





Training schedule: Have the patient train a total of at least 15-18 minutes per day on these advanced pencil exercise procedures.

Note: Many times during the day, outside of the regular training period, and without pencils, patient could turn in circles in one place. Perform one to five revolutions at a comfortable speed. If dizziness occurs, immediately start turning in the opposite direction. This repeated direction of rotation change should help control dizziness. Patient should not become so dizzy that it may cause danger of falling and hurting themselves. These procedures should be performed in a large, open, and safe place if possible.

At the conclusion of the beginning, intermediate, and advanced series, all procedures should be performed with improved accuracy, minimal discomfort, reduced dizziness and no nausea.

***When all of the above pursuit, saccadic and convergence therapy procedures can be performed without symptoms, the patient can be considered cured of See Sick Syndrome.**

WHAT TO DO AT WEEKLY PROGRESS REPORT APPOINTMENTS

Have the patient bring their instruction manual and daily log to all VT sessions. Each office progress report appointment normally takes **20** to **30** minutes.

1. Review the log and ask for an oral report of their progress with the training. Ask patients if there are any symptoms when they are not training.
2. Have the patient briefly demonstrate each procedure performed at home. Ask for any subjective reactions during the procedures.
3. Determine with the patient if they have reached the goals set for the past week.
4. If the weekly goals have been achieved, prescribe and demonstrate the next and more advanced set of procedures. Praise and congratulate the patient on his or her progress. If the goals have not been **fully** achieved, try to determine the reason and adjust the therapy accordingly (some patients tend to over train in the beginning and need to reduce the level of difficulty).
5. Remind the patient to spend the most time on procedures that are most difficult. Find out what bothers them, then work on it until it doesn't.
6. Help determine when most or all of the patient's goals have been achieved.
7. Once the Advanced Series is completed, discontinue the formal progress reports and advise the patient of ways to maintain their current functional level.

References

Close, D. Fields, A, Huhta-Smith, R, Mason, G. Optometric assessment and co-management of patients with inner ear disorders. Pacific University College of Optometry Thesis, May 2001.

Coffey, B. Clinical issues in vestibulovisual function: dx and tx of sensory conflict. Optometry 726 lecture. Pacific University College of Optometry, 2004.

Gillilan, R. Optometric management of motion sickness. Eugene, Oregon, 1984.

APPENDIX

Do you suffer from headaches, nausea, dizziness or fatigue when you read in a car, shop in a grocery store, sit close in a movie, use a computer or read for an extended time?

If you do, please check off the symptoms that apply to you.
We may have good news for you!

YES **NO**

- | | | |
|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | Can you read in a car without nausea, headache, or dizziness? |
| <input type="checkbox"/> | <input type="checkbox"/> | Do you become nauseated or get headaches or dizzy when riding in the back seat of a car on a straight road? |
| <input type="checkbox"/> | <input type="checkbox"/> | Can you sit close to a movie screen or watch a train go by without nausea, headache or dizziness? |
| <input type="checkbox"/> | <input type="checkbox"/> | Are you super-sensitive to light? Do store lights seem too bright? Do you have to wear sunglasses even on cloudy days? |
| <input type="checkbox"/> | <input type="checkbox"/> | Do you have frequent, sometimes daily headaches or pressure in your head? |
| <input type="checkbox"/> | <input type="checkbox"/> | Do you have nausea, headaches, dizziness or a spacey feeling when shopping or moving through crowds of people? |
| <input type="checkbox"/> | <input type="checkbox"/> | Do you have an unusual fear of heights? |
| <input type="checkbox"/> | <input type="checkbox"/> | Do you feel as if there is something constantly in motion inside of you? |
| <input type="checkbox"/> | <input type="checkbox"/> | Are you klutzy? Do you lose your place easily when reading? |
| <input type="checkbox"/> | <input type="checkbox"/> | Does anyone in your family share the same symptoms as you? |

PRE-THERAPY GOALS AND POST-THERAPY COMMENTS

- To be filled out prior to and after your vision therapy.
Write down in the order of their importance to you, the goals that you plan to achieve as a result of doing your therapy.

Pre-therapy Goals

1. _____
2. _____
3. _____
4. _____

Post-therapy Achievement Comments

1. _____
2. _____
3. _____
4. _____

Goal And Achievement Checklist

In addition to the above, check the goals below that apply to you prior to your therapy. During the therapy you will discover new possible goals. Add them **as** you go. Make an effort to test yourself in **as** many areas **as** possible. After the therapy, check those goals that you have achieved and return this form to our office.

-
- | | |
|---|--|
| <input type="checkbox"/> To be able to read in a car without nausea or headache | <input type="checkbox"/> To eliminate running into curbs when driving |
| <input type="checkbox"/> To be able to ride in a car without nausea, unusual fatigue, or anxiety even when looking out the side window or towards the back of the car | <input type="checkbox"/> To make my night driving easier |
| <input type="checkbox"/> To eliminate air sickness | <input type="checkbox"/> To reduce my indoor or outdoor sensitivity to light to a normal level |
| | <input type="checkbox"/> To reduce or eliminate the frequent headaches that I am having |

- To be able to turn around or bend down without dizziness or nausea
- To be able to walk up "see through" stairs without nausea
- To be able to go on carnival and playground rides without dizziness or nausea
- To eliminate the feeling of "motion within me"
- To eliminate my unusual klutziness (running into, reaching for and missing, or tripping over things)
- To improve to a normal level my ability to watch, catch, or hit a ball. The sport that I am most interested in improving in is _____
- To improve my balance and equilibrium to a normal level
- To eliminate my spells of dizziness that occur without apparent cause
- To be able to walk on uneven ground or stairs without having to look down excessively
- To be able to be in crowds of people or go shopping without nausea, dizziness, or anxiety
- To be able to read print or music without losing my place frequently –not to have to use my finger or a marker to keep my place when reading, typing, doing bookkeeping, or working with a computer
- To reduce or eliminate headaches, fatigue, nausea, or dizziness while reading, writing, doing bookwork, typing, using a computer or microfiche (circle most prominent symptom)
- To be able to watch any motion without nausea, dizziness, or anxiety (such as chase scenes or rolling credits on TV and movies, trains going by, carnival rides, rivers, ocean surf, etc.)
- To be able to ride a bicycle or motorcycle without an unusual fear of falling
- To improve my peripheral awareness to a normal level
- To reduce my fear of heights to a normal level

Additional post-therapy comments (such as comparing feelings and ability to do specific things before and **after** training):

Authorization

I authorize do not authorize the use in part or of all the clinical information regarding my case for scientific research, publication, education, or promotion. Furthermore, I authorize do not authorize that my name be used in the above activities.

Name _____ Date _____

Dynamic Adaptive Eye Motility Therapy (Alphabet Ball) Daily Progress Log

OBSERVATIONS

- Answer each question each day. If you are not sure of the answer, enter a question mark.
- When appropriate you may use a 1 to 10 designation to denote the degree of difficulty, discomfort and progress—with 10 being the most difficult.
- Use an extra plain sheet for additional notes and observations of progress during and between therapy sessions.

Evaluate eye comfort and degree of effort.

Any dizziness, nausea, headaches during or after?

Which swing is most difficult?

Letters clear most of the time?

Overall evaluation of progress.

Practiced how long?

Date

SESSION NUMBER

1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									

Dynamic Saccadic and Convergence Therapy (Alphabet Pencils) Daily Progress Log

OBSERVATIONS

- Answer each question each day. If you are not sure of the answer, enter a question mark.
- When appropriate you may use a 1 to 10 designation to denote the degree of difficulty, discomfort and progress—with 10 being the most difficult.
- Use an extra plain sheet for additional notes and observations of progress during and between therapy sessions.

Evaluate eye comfort, amount of effort, and speed.

Any dizziness, nausea, headaches during or after?

Evaluate changes in light sensitivity.

Pencil how close without doubling?

Evaluate changes in side vision.

Overall evaluation of progress.

Practiced how long?

Date

SESSION NUMBER

1

2

3

4

5

6

7

8

9

10

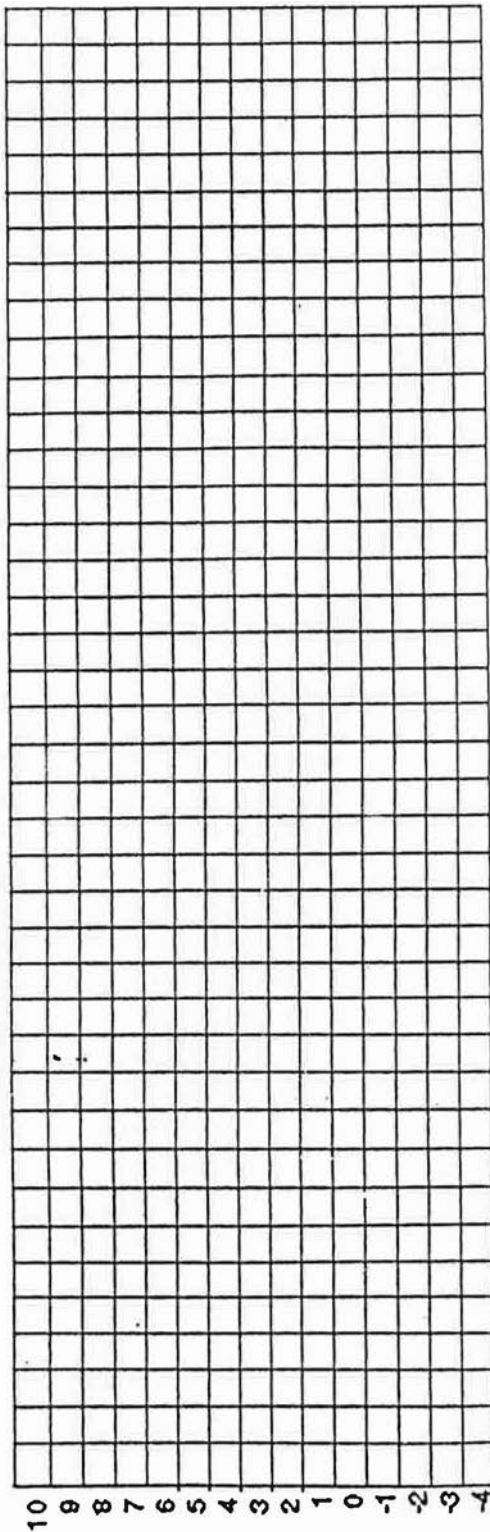
11

12

13

14

Dynamic Adaptive Vision Therapy Progress Evaluation Log



Feeling
very good !

Feeling
very bad

Date

Use circles (o) to indicate the progress that you are making with the therapy

Use dots (.) to indicate the progress that you are making in the way you are feeling when you are not doing your therapy

Notes:

THE DYNAMIC ADAPTIVE VISION THERAPY

Formatted as a hand-out for patients

PATIENT INTRODUCTION TO DYNAMIC ADAPTIVE VISION THERAPY

For: _____

Date: _____

The following recommendations and comments will make your vision therapy easier and give you a better understanding of what to do and what to expect. Read them twice prior to your therapy and at least once or twice during the training period.

What To Expect

Your therapy will enable you to learn new eye and motion related **skills**. As is the case in learning other new skills, such as swimming, water skiing and snow skiing, you will probably feel, as you start each new exercise, that it takes a lot of effort and causes fatigue. Dizziness or slight nausea may come easily; however, as you progress, much less effort will be required to perform each procedure, and you will no longer experience fatigue or other symptoms.

There are several reasons for the disappearance of symptoms. First, you will be "programming" your brain. This "programming" will enable you to achieve an automatic, coordinated, efficient, effortless **skill** level. (It's easy when you know how). Second, you will be improving the flexibility of the muscles that move your eyes. Whenever anyone starts doing any kind of stretching exercises after a long period of relative inactivity, it can be difficult and uncomfortable, and the muscles being stretched may feel stiff and sore for a few days. You will also, during your therapy, adapt to seeing and feeling motion so that neither will bother you. That may seem impossible to you now, but it is important to realize that your previous avoidance of motion has tended to make the condition worse and that this prescribed exposure to it will enable your eyes, mind and body to adapt to it so that it doesn't bother you in any way.

This therapy is essentially a desensitization process which could be compared to giving

shots for allergies. When confronted with a strong dose of the offensive substance (motion) the body adapts in order that the next confrontation will be more tolerable.

Family Understanding

Reread the paper explaining motion sickness or the See Sick Syndrome and have other family members read it also. It is very helpful to have people at home who understand your condition and who are supportive and encouraging during your training. If you are married, we strongly urge you to bring your husband or wife to at least the first training appointment at our office. It will be a real "eye opener" for your spouse.

Goals

It is important that you have strong motivation and specific goals for your training. Fill out your "Goals" form now if you have not already done so. As you progress with your training, you will most likely become aware of additional goals that are achievable. Add them to your list as you go along. When people live with this condition for many years and have adapted to it, they sometimes don't realize how much of a problem they actually have, since they have no basis for comparison.

When to Train

Choose a time for your therapy when you will be able to do the exercises on consecutive days if possible. Do your therapy at a regularly scheduled time each day when you are not overly tired and will have minimal interruptions. Try to do all of your therapy at one daily session if possible. If that is not possible because of discomfort, fatigue or your schedule, divide your therapy into **2** or **3** sessions each day. If you have a severe condition, it is best to start your training on a two or three day period.

BEGINNING SERIES

A. Dynamic Adaptive Motility Therapy (Swinging Alphabet Ball Exercises) —“Roving Eyes”

Purpose

To help you eliminate your motion sickness and/or See Sick Syndrome symptoms by improving the speed, accuracy, and efficiency of your eye tracking skills. To enhance your adaptation to moving your eyes, seeing, and feeling motion without discomfort.

Equipment

Marsden ball (alphabet ball on cord) with a button bracket for height adjustment.

Equipment Set Up

In a room with at least 8 feet of open lateral space, attach an eye screw, bent nail, or wire loop to the ceiling, ceiling beam, or light fixture. Hang the Marsden ball from the loop.

Primary Therapy Procedures

With the ball hanging slightly below eye level and about arms length in front of your, look at only one letter. As the ball rotates, find new letters to look at.

Instructions:

1. Swing the ball laterally from side to side
2. Use minimal head turning initially only if needed to keep the letters relatively clear. Attempt to look at one letter at a time during all procedures and follow it as smoothly as possible.
3. Swing the ball forward and backward by holding the ball close to the nose, then releasing it.
4. Swing the ball in a 45° diagonal direction so that it passes behind the line of sight –first on one side, then the other. Start the swing by holding the ball behind the ear and releasing it.
5. With the ball in front, swing it in a circle. Change the direction of the swing after a few revolutions.
6. When #1 thru #5 can be performed without nausea or undue discomfort, increase the difficulty level by hanging the ball approximately 5" to 8" above eye level, standing closer to the ball, swinging it farther, and/or doing the exercises longer without rest.

Training schedule: Train a total of at least 15-18 minutes per day on these **Marsden** ball exercises.

If you feel nauseous while performing the **Marsden** ball procedures:

- back away **from** the ball (up to 12 feet or more, if necessary)
- increase rest periods
- reduce the amount of lateral swing to about **6** inches, then gradually increase the swing to about **3** feet while standing at arms length **from** the ball
- it may be necessary to begin by sitting on a chair or even lying on the back and looking up at the ball, in severe cases

How to tell if you are over trained: If you feel much worse 30 minutes past the finish of the training session compared to you began, you may have over trained and should reduce the intensity of the next session.

Note: Make sure the letters on the ball are relatively clear to ensure proper tracking.

Goals

To be able to perform the beginning series of the Dynamic Adaptive Motility Therapy without any symptoms.

B. Dynamic Adaptive Saccadic & Convergence Therapy (Pencil Exercises)

Purpose:

To help you eliminate your motion sickness and/or SSS symptoms by improving your eye comfort, speed, accuracy, and efficiency when looking from one point to another and to improve your peripheral awareness.

Equipment

Two pencils with lettering on them.

Therapy Procedures/Patient Instructions

Do all procedures while standing, but if that is not possible, do them while sitting at first.

I. Convergence Rock:

1. Hold one pencil at arm's length and the other about 12" closer, both straight out from the nose.
2. Focus on the far pencil. As soon as it is clear and single, change focus to the near pencil. As quickly and accurately **as** possible, keep alternately looking from one pencil to the other.
3. When looking from one pencil to the other, hold the far pencil in place, and slowly move the near pencil closer towards the nose. When the near pencil is so close that it no longer appears single, or it is about 2" from the nose, move it out to the original position and begin again.
4. Repeat the procedures while holding pencils in a variety of positions –left, right, up and down. Remember to hold the far pencil stationary during each set.

II. Convergence Push Up

1. Using only one pencil, hold it at a normal reading distance and position.
2. While looking at the pencil move it slowly towards the eyes.
3. Try to get the pencil as close to the eyes as possible while maintaining single vision.
4. If the pencil is within about 1" of the nose, or begins to double, move it out to the beginning position and repeat the procedure moving the pencil in and out **as** quickly **as** possible and still keep it single.
5. Repeat the above while moving the pencil in from different positions –left, right, up and down.

III. Fixation:

1. Hold one pencil in each hand side by side, about 6” apart at eye level and at a normal reading distance.
2. Alternate **looking** from a letter on one pencil to the next letter on the other pencil as quickly and accurately as possible.
3. While **looking** from one pencil to the other, slowly move both pencils further apart laterally, until the separation of the pencils limit the fixation ability. Then, repeat the procedure from the beginning.
4. Repeat the above procedures while holding the pencils above and below eye level and in diagonal and vertical positions to increase the level of difficulty.

IV. Far/Near Rock:

1. Hold one pencil straight ahead at a normal reading distance and align it with a small distant target that is at least 11 feet away.
2. Alternate looking **from** the pencil to the distant target and back again as quickly as possible, while slowly moving the pencil closer to the eyes. When the pencil is within about 1” of the nose, or begins to double, move it out to a normal reading distance again and repeat the procedure.
3. Repeat the above procedure moving the pencil in from different directions –**left**, right, up, and down, while using different distance targets at various heights.

Training schedule: Train a total of at least 15-18 minutes per day on these combined pencil exercises.

You should spend an equal amount of time on each individual exercise the first four days, then more time should be devoted to the procedures that are most difficult. After the first 5 days, make an effort to see more objects with your peripheral vision during the training and in your everyday living. Do all the exercises in one session if you can. Appropriate rest periods may be taken if fatigue or discomfort makes it necessary. However, longer training periods without rest are desirable.

The degree of difficulty of each procedure can be increased by: moving the eyes faster, moving the pencils to more extreme positions, doing the exercises longer without rest

Goals

To be able to **perform** the beginning series of the Dynamic Adaptive Saccadic and Convergence Therapy without any symptoms.

***When all of the above Pursuits, Saccadic, and Convergence therapy procedures can be performed without any symptoms, then you are ready to proceed to the intermediate series. *You may start the therapy each day with either the swinging ball or the pencil exercises, or alternate the two.**

INTERMEDIATE SERIES

A. Dynamic Adaptive Motility Therapy (Swinging Alphabet Ball Exercises) —“Topsy Turvey”

Therapy Procedures1 Instructions

1. Place feet in a wide stance and ball at eye level.
2. Swing ball side to side. Rock body from side to side about 2 feet, opposite the direction of the ball.
3. Swing the ball in a circle in front of the body. Rock back and forth **from** side to side.
4. Swing ball in diagonal direction—rock back and forth about two feet, opposite direction of the ball.
5. Repeat #1 **thru** #4 with ball above eye level.
6. Add "head on shoulders" motion to #1 and #4. Tip head towards right shoulder when moving right, then towards left shoulder when moving **left**.
7. Standing directly under the hook the cord is attached to, swing the ball in a circle around the body at eye level. Try to find **as many** letters as possible. Repeat this step with the ball above eye level. If necessary, use the minimum amount of head rotation that is needed to see a letter or two.
8. Swing the ball in a circle. Walk around the outside of the swinging ball with a shoulder towards the center of the circle while looking at the ball. Walk with and then against the motion of the swinging ball. Change the direction of the ball swing and repeat.
9. Repeat all of the above procedures with the ball approximately 5” to 8” above eye level.
10. Be visually aware of surroundings throughout all procedures. The degree of difficulty can be regulated by adjusting the amount of ball swing, the amount of head and body motion, the walking speed, and the diameter of the circle that you are walking in.

Training schedule: Train a total of at least 15-18 minutes per day on these intermediate **Marsden** ball exercises.

B. Dynamic Adaptive Saccadic & Convergence Therapy (Pencil Exercises)

Therapy Procedures

From here on, you do not need to look at the individual letters, you can just look at the pencils or erasers.

Instructions

1. Do procedures I, II, III, and IV **from** the beginning series while walking straight ahead. If there are minimal or no symptoms, proceed immediately to #2.
2. Now walking in a large circle, perform the same procedures. Gradually proceed towards as small a circle as possible. Change the direction periodically.

Note: Walk as quickly as possible with minimal nausea and dizziness. Also notice the eyes will not move quickly and easily as when you were standing still. The degree of difficulty can be adjusted by adjusting the walking speed and the diameter of the circular walking pattern.

Training schedule: Have the patient train a total of at least 15-18 minutes per day on these intermediate pencil exercises.

ADVANCED SERIES

A. Dynamic Adaptive Motility Therapy (Swinging Alphabet Ball Exercises) —“Merry Go Round”

Therapy Procedures/Instructions

1. Swing the ball in a circle around body at eye level. Then turn in place in circles, first in the same direction that the ball is swinging, then in the opposite direction. Swing the ball in the opposite direction and repeat. Turn very slowly at first (not nearly as fast as the ball is swinging) then gradually increase in speed. Turn at the rate that enables 6 or 7 revolutions comfortably without stopping. When dizziness occurs, reverse direction of turn. If nausea occurs begin with turning in place without the ball. Then when this is performed without nausea, add the swinging ball.

2. Repeat all of the above procedures with the ball approximately 5” to 8” above eye level.

Training schedule: Train a total of at least 15-18 minutes per day on these advanced Marsden ball exercises.

B. Dynamic Adaptive Saccadic & Convergence Therapy (Pencil Exercises)

Therapy Procedures/Instructions

1. While holding pencils at eye level, do procedures I, II, III, and IV from the beginning series, while walking in a small circle about 3' to 4' in diameter, then progress to turning in one place as quickly as possible. Turn slowly for longer periods and occasionally turn quickly for short periods. Change direction of rotation as needed. Reduce turning speed if any nausea occurs.
2. Turn in place with both pencils held above and below eye level while looking laterally and diagonally from one to the other (III, Fixation).
3. To increase the degree of difficulty even further, add your own innovations. The higher degree of difficulty you can **achieve**, the more "bullet proof" you will be.

Training schedule: Train a total of at least 15-18 minutes per day on these advanced pencil exercise procedures.

Note: Many times during the day, outside of the regular training period, and without pencils, you could turn in circles in one place. Perform one to five revolutions at a comfortable speed. If dizziness occurs, immediately start **turning** in the opposite direction. This repeated direction of rotation change should help control dizziness. You should not become so dizzy that it may cause danger of falling and hurting yourself. These procedures should be performed in a large, open, and safe place if possible.

At the conclusion of the beginning, intermediate, and advanced series, all procedures should be performed with improved accuracy, minimal discomfort, reduced dizziness and no nausea.

***When all of the above pursuit, saccadic and convergence therapy procedures can be performed without symptoms, you can be considered cured of See Sick Syndrome.**

After You Have Completed Your Formal Vision Therapy

Go over your pre-therapy goals list and evaluate your progress by testing yourself on each point. In fact, go beyond "normal" activities by riding on playground **equipment** (you may be surprised at how much fun it is), looking off of a very high place, playing catch, riding a bicycle, reading in a car, and trying things that would have been difficult or impossible previously. Your tests may cause momentary anxiety because of previous experience, but once you have done them you will find relief in knowing that you won't be trapped in the future in these situations that used to embarrass you or were impossible to handle.

Complete your goals list and return it to our office if you have not already done so.

Please write an informal report comparing your symptoms and skills prior to and after you completed your training. Also, please complete filling out your Post Therapy form. Both of these documents may be very helpful to others who have the conditions similar to yours.

Continue to do informal "maintenance" training periodically forever. This includes engaging in physical exercise and spinning in circles regularly. Just moving your eyes more than you have done in the past is also helpful. If this is done, you probably will never need to go into formal therapy again. You can monitor your own skill level by occasionally doing the advanced training procedures and by staying aware of symptoms in your everyday life.

- Be on the lookout for others with severe motion sickness or See Sick Syndrome (SSS). Sometimes it takes one to know one, so you will find several others like yourself. Tell them of your success and inform your medical doctor about SSS. He or she has probably never heard of it before. You will be doing them and their patients a great favor. Remember also that SSS tends to run in families. Ask family members if they have any symptoms that you had and go from there. We can supply more literature if needed.
- A few patients have regressed back to the old conditions a few years after completing the therapy. If that happens to you, just re-do your exercises in an informal way for a few days and the symptoms should go away. If needed, elimination of the symptoms normally comes much easier the second time around.

Congratulations! You deserve a pat on the back.

HOW TO FABRICATE MARSDEN BALLS

Materials-

- Small rubber sponge balls (about 2" to 2 1/2" is best)
- 1/4" vinyl stick-on letters. Available in 8 1/2 x 9" sheets at office supply stores. One brand is EZ letters Quick Stick, 1/4" vinyl, set No. 401.
- Standard metal paper clips
- Small diameter nylon cord. Available in hardware stores.
- 1" plastic "discs" or buttons with two drilled holes or similar products.
Discs available from: Multi-Craft Plastics, Inc.
225 Madison St.
Eugene, OR 97402
(541) 485-1727

Making the Marsden balls –

First, straighten out all but one end of a metal paper clip into a "J" shape. Push the straightened end of the paper clip through the center of the ball. Clip off the excess on the opposite end and curve to make a loop back into the ball to be use to tie the cord to.

Stick many letters on the ball at random to be used as small visual targets.

Cut off about 8' of nylon chord and bum each end to prevent unraveling.

Drill two small holes at opposites of the plastic disc.

Attach cord to ball and thread through height control button.

PUBLIC RELATIONS

Ideas about how to promote your ability to diagnose and treat See Sick Syndrome to your patients, the public and other professions.

PR directed at your patients:

Please keep in mind that diagnosing the See Sick Syndrome patient is the easy part. Convincing them that their condition is treatable and having them commit to and pay for the therapy is the hard part. Patients **often** state, "I have had this most of my life. How is it possible to cure it in just a few weeks?" The following are some suggestions that may be of value to you and them.

- * If you send out a newsletter, include an article about the symptoms of SSS and that you can treat it. Doug Smith, an Oregon OD, said he did that and seven patients came in for treatment, as a result.
- * Place at least a couple of copies of the SSS symptoms and signs (included in this manual) in your office, where your patients can easily see them. Some SSS patients will then ask you about it.
- * Print copies of "How to Read In A Car or Train Without Headache, Nausea or Dizziness" and place them in a pamphlet rack in your office. This one and another I wrote about presbyopia were the most popular pamphlets in our office. Patients frequently brought them into the exam room and it pointed me in the right direction.
- * Develop a web site devoted to SSS.
- * Mention SSS and its treatment on your office **website**, yellow page ad, and office brochure.
- * Have your treated SSS patients write a letter at the conclusion of their therapy and with their written permission, make copies for other SSS patients and their families to read.
- * Ask successfully trained patients to act as references and support for prospective training patients. Give the list of names and phone numbers to the new patients.
- * Attempt to find an SSS person on your own staff. Have them do the therapy and they can then give a testimonial to your patients in your office.
- * Offer your patients a 50% money back guarantee of the VT fee if they do the therapy as instructed and are not satisfied with the results. This is a real confidence builder.

PR directed at the public and other professions:

- * Ask a **successful** VT patient to write a testimonial letter to local news media sources. Two local newspapers published feature stories when I had patients do this. My patients were eager to help others with their condition and they did.
- * Take your local **ENTs**, neurologists, psychologists, and family **MDs** to lunch and tell them what you are doing and what you can do for them and their patients. Give them SSS handouts that they can give to their patients. Many SSS patients think they have a brain tumor or an inner ear condition and go to one or more of the above specialists. The specialists are unaware of SSS and therefore cannot make an accurate diagnosis or treat the condition. Only you can. Some are referred to psychologists for therapy. The professionals are very **grateful** to have someone to refer to, who understands and can treat the condition.
- * Ask to speak to the above professionals at their study groups and meetings.
- * When your non-referred SSS patient completes their therapy, give them extra copies of the SSS paper to give to their **MDs** and have them tell their **MDs** about their therapy result.
- * Place an advertisement in your newspaper, using something similar to the "in office sign" in this manual.

You will be pleasantly surprised at the patient response when the following sign is displayed in at least two places in your office.

Tell us if you suffer from

Headaches, Nausea,
Dizziness, Light
Sensitivity, or Fatigue



When you:

Read in a car
Shop in a grocery store
Sit close in a movie
Use a computer Or
Read for an Extended time

We may have good news for you!

ESTIMATED NUMBER OF PERSONS WITH SEE SICK SYNDROME

Lane County Population-----	315,700 (1995)
Female SSS -----	9,471
Male SSS -----	<u>1,578</u>
Total -----	11,049

Oregon population -----	3,421,399 (2000)
Female SSS -----	102,641
	<u>17,104</u>
Male SSS -----	119,747
Total -----	

	281,421,906 (2000)
USA population -----	
	8,442,654
Female SSS -----	<u>1,407,109</u>
Male SSS -----	9,849,763
Total -----	

The above figures were calculated on the assumption that:

- **6%** of the female and 1% of the male population has mild to severe SSS (based on survey by Gillilan)
- The population is split 50/50 between male and female

R.W. Gillilan O.D.

The NOVD/Gillilan Syndrome --- **Why Photophobia and Hypoglycemia? Its Stress**

Definition: Photophobia is an unusual intolerance of light, which commonly accompanies NOVD/Gillilan Syndrome. Photophobia can be triggered by DPA (Diffuse Physiological Arousal, which is also known by the name GAS, General Adaptation Syndrome or acute stress response). The General Adaptation Syndrome or three-part reaction to stress is typically referred to as the "fight, light or freeze" response.

When Diffuse Physiological Arousal (DPA) occurs, heart rate increases, rate of breaths per minute increase (and can readily become hyperventilation) and the muscular activity of breathing **shifts** into the chest cavity rather than the abdomen. Typically, pupils dilate during DPA. Surface skin temperature drops and digestion changes dramatically, **i.e.** stomach acid increases dramatically and routine peristalsis stops. Acid **reflux** increases and the stomach may begin spasming (nausea).

Discussion: Photophobia occurs for the same reason that hypoglycemia occurs with the NOVD/Gillilan Syndrome. This is one of the reasons that the NOVD/Gillilan Syndrome is so often misdiagnosed. When the "fight/flight/freeze" response is prolonged as it is with patients who experience high-moderate and severe levels of symptoms, three events occur together: photophobia, audiophobia (unusual intolerance of sound) and difficulty concentrating.

Hypoglycemia occurs because the "fight/flight/free" mechanism accelerates metabolism and changes metabolism from aerobic to anaerobic metabolism called catabasis (the tearing down process). This means that available supplies of glucose within cell walls are depleted and also means that **fresh** supplies of glucose are blocked from entering depleted cells. In brief, normal metabolic process is turned on its head and acts as if the body were exhausted due to extreme and prolonged catabasis metabolic activity.

The biochemistry of the brain (paleocortex) during the "fight/flight/freeze" response.

When hypothalamic releasing hormone is released in alarm, which happens when people experience being overwhelmed as they are when disoriented, dizzy and experiencing nausea (stomach is spasming), the following neurotransmitters are also released:

- Adrenocortico hormone (ACTH)
- Beta-endorphins
- Adrenaline
- Cortisol

Until those biochemicals cease, the **fight/flight/freeze** mechanism is "on" or sympathetic arousal of the autonomic nervous system occurs. This means that:

- The visual field shrinks
- The audio field shrinks
- Our ability to concentrate is radically reduced
- Retinal chemistry changes
- Calcium gates block transport of nutrients across cell membranes

This occurs to focus, i.e., bring our attention immediately to the here and now "distress" so we can "**fight/flee/or freeze**" in self-preservation. Blood flow is radically **shifted** away from the surface tissues of the skin, and muscular blood flow as well as blood volume to the brain increases. These changes occur rapidly so we are mobilized for action and will bleed less if injured.

When these hormones are present, we are incapable of functioning any other way. Or "biochemistry wins." As these three fields shrink, the following changes occur: what and how we see, what and how we hear as well as what and how we think is radically reduced and how we metabolize nutrients is sped up.

Let's focus on light by itself for the moment, although reduction of the ability to tolerate light, sound and thought occurs similarly. The reduction occurs in the occiput or visual cortex. Our eyes, however, do not know that and still keep right on receiving ambient light via the lens, retina and **from** the retina is conveyed as electrical-chemical messages across the optic nerve. Retinal chemistry changes.

Because the **NOVD/Gillilan Syndrome** is a chronic condition, it serves as a constant antagonist. This means that the stressors of disorientation, dizziness, nausea, and headache pain remain constant thus maintaining the "**fight/flight/freeze**" response in a constant state. These chronic stressors ensure that this protective response is "locked on" without relief.

Or, light, lots of **light--** quantum leaps of lumens-- flood into an entire system that is no longer capable of handling the volume because of the protective mechanism of the narrowing of the visual field. Actually, the volume of light does not change but the vision and meaning organism is flooded with too much light.

The change in retinal chemistry may only serve to reduce this capacity. The entire visual and meaning system is overloaded. Eyes hurt, and patients report that they "hurt." It is as if our eyes were suddenly seeing or allowing **more—** much, much **more—light** in. Not unlike pupils locked wide open rather than restricting in response to bright light. But no matter how much the pupils reduce, the ambient light is then interpreted as "too much." And for the visual seeing/perceiving/translating into meaning system, it is "too much." We have an over-loaded visual system. Note how **often** that at this point patients, if you ask them, will also report how much difficulty they have tolerating noise and how much difficulty they have thinking.

Scott Pengelly, Ph.D. is a clinical psychologist who specializes in health psychology and enhancing human performance. He is one of Dr. **Gillilan's** many success stories.

Dr. Pengelly was a life-long victim of the NOVD/**Gillilan** Syndrome until 1986. Dr. Pengelly is an example of the genetic component of the NOVD/**Gillilan** Syndrome. In his family his two sons are affected, as are his two sisters and their children are, also. Before 1986, he experienced headache pain so often he did not know the difference between when he did and when he did not experience headache pain. Twenty years before obtaining relief, he was first in the US Navy **flight training** program and when he left flying because of the devastation of the chronic NOVD symptoms, was third in command of the USS **Rushmore**, LSD-14. Lots of motion with lots of classic NOVD/**Gillilan** Syndrome symptoms: frequent headache pain, nausea, fatigue and being "klutzy," with hypoglycemia and photophobia.

Following Christmas vacation in 1985 when he visited Disneyland and Knots Berry Farm with his family on two successive days, where he rode on many "carnival rides," he experienced chronically moderate nausea, headache pain and photophobia. After more than four weeks when those symptoms persisted at a steady-state, he first sought assistance from his family physician who is an internist. During the office exam, the physician said, "I have looked through your blood work and I can't see that anything is wrong. If I were in a boat, I would know what to tell you. You look sea sick."

He met Dr. **Gillilan** and began dynamic vision therapy not long after that **discouraging** visit in 1986 with his physician. Scott did therapy like he does almost **anything** else in his life: too much too often and then became really ill. Moderately chronic symptoms became acute and severe: severe disorientation, nausea, great difficulty concentrating and **pressure/full** headache pain that persisted for 5 days without relief, which were triggered by photophobia. He had tom away any shred of accommodation he had developed for **light** and motion. Scott looked just like one of his mentally **ill**, hospitalized patients and presented a daunting challenge for Dr. **Gillilan** who patiently guided him to health.

HOW TO READ IN A CAR OR TRAIN WITHOUT NAUSEA, FATIGUE, HEADACHE OR DIZZINESS

The Methods

It is the act of looking down, while seeing motion with your side vision out the side window that causes the symptoms to develop. Using one or more of the following tricks should enable you to read in a car without the headaches, nausea, fatigue or dizziness you have experienced previously.

- **Slouch down in the seat and hold the reading material up close to eye level. In this way by not looking down, you avoid the development of symptoms.**
- **Or turn your back to the window on your side of the car. In this way your eyes do not see the motion out of the side window in the same way.**
- **Or hold your right hand up as a “blinder” to block the view from the right window. In this way, you can look down because you observe no motion from the side window.**

Why The Symptoms Occur

Fatigue, headaches, nausea or dizziness when reading in a car are actually symptoms of motion sickness. About 50% of the female and 20% of the male population are born with an "allergic reaction" to visual motion and thus, the

innate inability to read in a car. The symptoms may vary with road conditions, fatigue, how close road-side objects are, such as trees or bridges, and whether the sun is shining through trees. Also, reading at night in a lighted car is much easier because one does not see as much motion through the side windows. This is why car-sickness at night is rare.

If You Have Serious Car Sickness Even When Not Reading

- **Be the driver if possible, or at least sit in the front seat.**
- **Always look at the road straight ahead.**
- **Drive at night if you have to.**
- **Consider wearing anti-motion sickness wrist bands, that work on the acupressure principle. They are available in drug stores.**
- **An electronic anti-motion sickness wrist band, called the ReliefBand works for many and is available at www.carefreetravel.com and www.reliefband.com.**

A program of eye exercises called Dynamic Adaptive Vision Therapy offers a permanent cure for all degrees of motion sickness in most cases. It consists of precisely prescribed desensitizing exercises that are done at home each day for a few weeks, with weekly in-office consultations. There are a number of optometric physicians and other therapists around the world who provide this service.

R.W. Gillilan, O.D.
Eugene, Oregon

Selected Patient Letters After Completion of Therapy

The following contains excerpts **from** selected post-therapy letters written by severe See Sick Syndrome (SSS) patients with primary symptoms of **dizziness** and/or **imbalance** and one regarding **headaches**. Many other letters are available **from** patients with headache and/or nausea or photophobia **as** the primary symptom.

These letters should be required reading for all interested physicians, **as** they provide the best insight and understanding **as** to what SSS really is, thus making the diagnosis of new patients that much easier.

In addition, it is recommended these testimonials be photocopied and given to all newly diagnosed SSS patients and their families. It helps them have a better understanding of what is happening to them and gives them confidence to do the therapy.

"Before my training I could not ride in a vehicle more than 15 minutes without an excruciating headache or being sound asleep which irritated my husband to no end." ---*J.M.* (the very first SSS patient 1965)

"Light was my worst enemy. To be able to enjoy light is in itself unbelievable and believe me I am enjoying it. I don't have to wear my sunglasses every time I leave the house" ---*P.*

"At last I am able to play tennis or drive down the road on a **beautiful** day and enjoy every second. To be able to sew and read and enjoy it is a pleasure I thought I'd never have. --I have a whole new perspective on life. -- (I had a) negative self image such as clumsy, slow, shy, dumb, negative, bad reader, poor student, bad athlete, selfish, inconsiderate, ungenerous, sickly and others I hope to never have to remember." ---*L.B.*

"You are the 26th doctor that I have seen and the first one that didn't send me to someone else." ---*R.B.*

"I was a very poor student in school --- and now I understand why. I rode a school bus ---by the time I got to school I wasn't able to think. My folks nor I could understand why I was so sick most of the time. I missed over 30 days my first year of school. I would get dizzy headaches and very nauseous when I tried to read. ---Now I read everything. ---It was the first time I had taken a trip without getting deathly sick." ---*P.G.*

"I took an early retirement because of motion sickness. I would get so nauseous and dizzy it was difficult to do the typing and paper work that was needed. --- I became almost a recluse." ---*E.C.*

"I feel I missed so much in my life. Now I am enjoying all the things I couldn't do." ---*V.R.*

"I can now go to exercise class and not come out with a headache each time. ---I was paranoid to drive a car at night because it was so much like going through a dark tunnel and I was always afraid of running into the sides. Now it's like someone removed the tunnel and everything is more open." ---*C.H.*

"I never believed I could read in a car --- I was flabbergasted. ---My legs are no longer covered with bruises. ---Before I always had large purple blotches from walking into **furniture** and doorways and stumbling. ---My tennis game has improved immensely." ---*B.G.*

"I went for a ride with my husband and thoroughly enjoyed it as much as he did because I didn't get sick and I could look around and see all the things he was seeing --- I had given up hope of ever being able to travel comfortably and had decided to give up **trying**. Now I can travel and enjoy it." ---*S.E.*

"For years I was not able to bend over and tie my shoes, or to work in the bottom two drawers of the filing cabinet without feeling like I was going to fall in. I would always get dizzy. Now I am able to do these things with discomfort every day." ---*D.H.*

"As a self protection mechanism I developed tunnel vision so bad that I know that I was dangerous at driving. On the freeway, I could only see the trunk of the car ahead of me. I trusted other drivers to watch out for me. Now I can comfortably drive because I no longer need to have tunnel vision. Since my training, I can now see cows on both sides of the road at the same time." ---*L.M.*

"I went to great lengths to read only the minimum required to get by. If the paragraph was more than 6 lines I would lose my place several times. --- After 10 or 15 minutes of reading I would have to stop because my eyes would be hurting and I would be experiencing a headache. --- The letter moved back and forth. --- I read under 100WPM. (Post therapy) I can read a book from cover to cover without experiencing eye and head pain. All in all, my life has had doors of information and activities opened that were closed because of the anguish I experienced before." ---*D.B.*

"I lived on aspirin and pain killer for years. --- Doctors would say 'I wish I were as healthy' --- All these years I blamed it on allergies. --- I was always tired. --- After about a week (of therapy) the tiredness disappeared and that put me on a high. Here I was feeling less pain and feeling more energy. The headaches are all but gone. Now I can be the last one to leave a party. --- Before, I would always make an excuse to leave early. --- It's been **wonderful** to be able to take my granddaughter for walks in the sun but the biggest thing was the pain in my head and that's gone. It's like a prayer come true." ---*S.M.*

"Going into stores was traumatic. ---It felt like I had to run and get out and go home and hide. I've been since the therapy and it doesn't bother me any more. It never occurred to me that (my motion sickness) was affecting me in these areas. Now I have a sense of freedom. I **am** able to look around when I walk. It was exhausting for me to look around. It would be overwhelming exhaustion if I started to look around. I had always had a problem driving around a curve; it was like I was going to go off the edge of the world and that's not there anymore. Now it's almost like I am waiting for the illness and exhaustion to come over me and it doesn't." ---*D.L.*

"People stop living because they stop moving." --- M. Colette (At our initial exam I told this patient, "you can get well." She then burst into tears and said, "you mean I'm not crazy?")

"My husband used to have to hold my arm and lead me around crowded places. I would bump into people and become dizzy and very distressed. Now I **am** able to mingle in a crowd with confidence and he doesn't have to hold onto me." ---*C.H.*

"My balance, coordination, and sense of well being was gone. I knew something was the matter with me but I didn't know exactly what it was. (Now) I feel like a different person. I can turn in circles. I can bend down. I can walk a straight line without becoming dizzy. Now I can drive with a clear conscience. I feel like I am master of the situation. With the aid of the therapy I feel that I have entered a completely different world of vision." ---*N.A.* (age 79)

See Sick Syndrome

(Neuro-ocular-vestibular Dysfunction)

DIZZINESS and/or IMBALANCE

I can't say how happy I am to feel "normal" again. For years I truly believe I shouldn't have been allowed to drive. I became so dizzy when I would turn around to look to see if I could change lanes that I would **refuse** to. I knew it would only be a matter of time before I hit someone or they hit me. Because I couldn't see anything but the bumper of the car ahead of me. (Post VT) I am now able to drive and to go into a grocery store without a dizzy feeling or a fear that I would fall down in front of everyone. I began to have panic attacks and my self confidence was gone. My depression was getting worse and I thank God that Dr. Gillilan was able to help me. Things so simple like nodding "yes" or "no" with my head would make me disoriented and dizzy. My friends and family couldn't understand why I could never look at them while they were talking because the movement or their hands would make me dizzy when they talked.

T.L.

Thank you so very much for helping me be able to live again. The exercises are a miracle in my life. – I will just list the things I can now do (remembering everyone I could not do before the exercises without being nauseous, dizzy or with severe headaches) without any headache, no nausea and no dizziness. I am able to: swing my daughter, do the dishes, walk down the aisles of a shopping center, stand up from sitting position and walk, vacuum, walk at the mall, read in a car, drive, sit and eat, wear heels on my shoes, visit in a room with lots of people, play with my daughter, take

rides with my husband, go to a movie, stand in the waves at the beach, take walks. M.C.

I want to thank you for the aid you have provided in **treating my vertigo**. – The drifting to the side while walking has diminished substantially. I no longer experience the dizziness or spinning sensation when I turn over while reclining.
L.W.

I personally underwent the treatment about 2 years ago after suffering most of my adult life with dizziness and queasiness. The medical community was unable to diagnose my problem, and I began to think I was "crazy." I became so sick and desperate at one point that I went to a hospital emergency room fearing I was having a stroke. The doctors found nothing and sent me home. After resigning myself to live with the problem, I mentioned it to Dr. Gillilan during a routine eye exam. The treatment improved my quality of life in ways I can't describe. W.B.

I feel this condition started approximately 18 years ago. At the beginning my symptoms were: I experienced so much dizziness that I could not function for approximately 2 years. The movement of water, movement of car, turning my head, could not read during this time. I was in the hospital in Boise for one week undergoing test of the ears. I was diagnosed with infection of the inner ear. Following that, I was worse and practically bed fast. – I lost the hearing in my right ear – and was diagnosed with **Meniere's Disease**. Dr. Maxwell decided to do surgery 'endolymphatic sac decompression' – Following the surgery, my hearing did not return and I was still having attacks – I could not stand light either natural or artificial, had to wear colored glasses all the time, experienced terrific headaches, could not shop, go into stores

due to light – was terribly dizzy and weak – could not bear to be in crowds – could not ride in a car without being nauseated – no longer could drive a car--- moving objects bothered me, could not watch TV, could not walk without assistance, could not turn around nor bend down. (Post VT) After four days of treatment on my eyes I did not wear my colored glasses. I was able to go shopping, go to well lighted stores without feeling nauseated or dizzy. I can walk without assistance --- doing my housework again --- can bend over and go in car rides without feeling sick. I **am** continuing the therapy treatment at home. I am so **grateful** for being able to perform like a normal person once again. --- I have some dizzy spells and feel as though they do come from the inner ear, but they are not as severe nor do they last as long. B.T.

In 1968, I took an early retirement because of motion sickness. I would be so nauseous and dizzy it was difficult to do the typing and paper work that was needed. Over the years, I became almost a recluse. I was given numerous tests, all proved negative. I even took part in a self help program for agoraphobics. (Post VT) --- I can **jump** up out of a chair now and take off without getting sick or dizzy. Last winter when we went to my grandson's program at the church I sat in misery and pain hoping it would soon be over. In April, we went to his Spring program. I enjoyed every minute of it. We are going more places and doing more than I have been able to do for years. I'm sewing once again. We go for long walks. I can't believe it! V.R.

I'd about lost faith in getting vision help as since a young child I'd had motion sickness problems and medical and standard eye examinations did not solve my See Sick problems. --- (Post VT) It wasn't long though until I found my peripteral awareness

improving day by day! My balance and coordination have improved 100% I can walk without the constant fear of tripping, stumbling, or loss of balance, also turn in circles, and even in one place without fear of falling or the need to grab something for support. I've been circling and swinging to music with no dizziness! I'm going to dance again! I can now drive my car without hitting curbs, and can watch motion with little or no see- sickness, where before I dared not turn my head, suddenly or sidewise, without feeling that everything was whirling around me. N.A.

I had developed SSS in 1991 after an injury and being diagnosed with TMJ. Anyway I went from being very athletic all my life to just about helpless. I couldn't walk a straight line, I couldn't stand to watch any kind of motion, I had to stop driving because of it. I could barely walk outside my house and was blinded by too much light and could not walk in wide open space. --- within 4 days of exercise I was so much improved I couldn't believe it. After the training was over, I was better than ever, completely cured, and cured 4 years later, I still am. Thank God I only had six months of the sickness and thank God I found the cure! D.M.

I can now spend a number of hours in the kitchen without becoming unduly fatigued. I **am** able to bend over the sink washing dishes, turn from the sink to the stove, look up into the cupboards, bend down and look into the lower upboards. I can get out of the car, close the door, turn and walk away without looking for something to hang onto. In a restaurant, I can go to the salad bar and fill my plate, no longer wondering if I will be able to make it back to my table. There is no pressure on top of my head and no pain through the back of my neck and head. Light doesn't bother my eyes anymore. ---

It just made me sick to see the sunlight. I was desperate when I came in. I was becoming an invalid. It's given me a new lease... now I feel like I can do something worthwhile with my life ... not just wait to die. *V.R.*

As a child, I had some problems with car sickness, this not being an uncommon problem, I dealt with it as being part of life. During the mid 1970's other dizziness started with no real cause. I would get light headed. I would have to be very careful of sudden turning movements until the dizziness would let up. Also present was a sensitivity to light. When I went to work doing clerical jobs, I had trouble when I ran month end inventory on a full keyboard adding machine. The constant movement of the head looking from the files to the keyboard brought on severe headaches, nausea, and dizziness. An inner ear problem was suspected to be causing the symptoms became more frequent, some trips to the coast would result in possibly up to three days in bed with all of the motion sickness side affects. I truly feel that the article in the Register Guard by Dr. Gillilan was an answer to prayer. After reading what seemed to be my very own problems, I made an appointment, and have not regretted it once. It has made a remarkable change in my work habits, I now feel comfortable on trips, knowing I won't have to pay the price. --- I already feel 99% improved.

L.G.

Dizziness began occurring --- diagnosed as **Miniere's** Disease. Attacks became more frequent and more severe. --- after diagnostic tests at University Hospital in Portland, Sacred Heart Hospital in Eugene, **Mayo** clinic in Rochester Minnesota, and Orology Clinic in Los Angeles, I was forced to retire **from** my position as a professor of music at the University of Oregon.

Diagnosis is: unusual form of Menier's disease with atypical migraine --- cause unknown. I took a visual training course under the direction of **Dr. Gillilan**. Have since discarded all medication, and have experienced no dizziness. I can now read, ride in a car, watch television, and other things I was unable to do two months ago. My attacks of dizziness have come in cycles, and this may be simply another lull. However, I must admit my relief came suddenly and coincided with the visual training. *J.G.*

For years I was not able to bend over and tie my shoes or to work in the bottom two drawers of the filing cabinet without feeling like I was going to fall in. I would always get dizzy. This is very important to me. now I am able to do these things without discomfort everyday. My husband and I have gone back to square dancing and are really enjoying it. My husband is amazed at how light I am on my feet when we are twirling. I used to hang on to him because I was so dizzy and of course, I kept my eyes closed. --- I could not keep my balance either. Now I can look around when I am dancing ---. *D.H.*

After training I can ... read for many hours without headaches, --- do spins and quick turns with my daughter in her dance routines, play racquetball with more successful returns, walk in the dark outside (no light or moon) without falling or tripping, load and unload the dishwasher without dizziness, --- stand on one foot while putting a sock or shoe on the other without holding an object for balance, towel dry after a shower without any loss of balance. --- I feel at ease in situations that require balance and movement. *L.H.*

About twenty years ago I became ill with what was diagnosed as an inner ear

infection. --- So I finally accepted the diagnosis that my problem was probably a damaged inner ear which was aggravated by sinus congestion. I lived --- fighting the sinus congestion, headaches and dizzy spells by using Valium, aspirin and anything which would allow me to breathe. --- I fortunately saw an article about Dr. Gillilan and his See Sickness Syndrome and immediately saw myself in that article ---. I cried with relief while I read. --- I think the worst thing about SSS is the anxiety and depression --- This caused me to become, at least partially, house bound, as I didn't have to pretend there that everything was all right. --- All this time my husband, **friends** and family were not aware that I was in such bad shape. --- Oct. 17, 1982 I visited Dr. G. and started my VT. On Oct. 19, I realized something was very different and much to my surprise, my head was clear and I could breathe. I have not used any type of decongestion medicine since that day. My nagging and at time extreme headaches have stopped. The dizzy spells have ceased as well as the physical compensating movements such as grabbing the floor with my feet --- KG.

(nine year old patient – letter written by father) --- we had seen a number of specialists in **an** attempt to find out what was causing Chad's increasingly severe dizzy spells. From the time Chad was a toddler and first talking, he has always complained periodically about dizziness --- in his first terms he referred to the world as being "tippy". He could never stand to be swung around in circles by the arms, stay on merry-go-rounds more than a few moments, or ride in a car without feeling carsick. --- As Chad became older he mentioned more and more that he felt dizzy. --- Chad always checked out as an exceptionally healthy child by his doctors so his dizziness remained untreated. --- he was having severe spells which **often**

caused him to fall down --- anxiety level was extremely high. --- the specialist found nothing wrong. --- Chad has done the exercises for **23** days and we have seen the following changes: --- He is totally free from dizziness on most days although he occasionally has slight twinges of dizziness. --- he feels quite confident that when he feels those **twinges** of dizziness that he can control them. This is in sharp contrast to the utter panic he was feeling --- He used to over-react to everyday annoyances as though they were life and death situations. That has almost diminished completely. *L.S.*

Athletic Performance And Motion Sickness

Why those who suffer from motion sickness often have difficulty playing ball games and how their athletic skills improve when their motion sickness is cured.

Have you ever known of "klutzes" who frequently completely missed the ball when attempting to hit a tennis ball? Or one who would jump out of the way or flinch and cover their face with their hands for self-protection when someone throws a ball to him or her? Few of us have observed this behavior because the "klutzes," whether they are children or adults, soon give up trying.

The danger of being hit by a ball or embarrassed in front of friends is great. "Klutzes" either take up a sport that doesn't involve catching or hitting a ball, or give up sports altogether. For many of these people, most of whom are female, also tend to trip on things and run into furniture and doorways. They also frequently knock things over when reaching for them and lose their place when reading. If these people also suffer from a fairly severe degree of car sickness and are very light sensitive, they very well may have See Sick Syndrome, also known as Neuro-Ocular-Vestibular Dysfunction. It is estimated that about 6% of adult females, 1% to 2% of adult males, and fewer children have at least some degree of the SSS.

The good news is that in approximately 80% of these cases, this condition can be cured with Dynamic Adaptive Vision Therapy (DAVT). This same therapy is also effective in eliminating more mild degrees

of simple motion sickness. Since 1965, a great many people from the ages of 9 to 82 have successfully completed the therapy. A side benefit for many has been a subtle or dramatic improvement in athletic endeavors.

Approximately 50% of SSS individuals suppress their peripheral vision and develop "functional tunnel vision." Much of the motion that one observes is seen with ones peripheral vision—like when riding in a car or walking or running by objects. After only a few days of DAVT, most patients develop a more normal peripheral awareness, which is sometimes startling to them at first. Comments such as, "*I can now see my shoulders while looking straight ahead,*" or "*I feel like I have eyes in the back of my head,*" are not uncommon. Patient L.M. said after her therapy, "*As a self-protection mechanism, I had developed tunnel vision so bad that I know I was dangerous at driving. On the freeway I could only see the trunk of the car ahead of me. I trusted the other drivers to watch out for me. Now (post therapy) I can comfortably drive because I no longer need to have tunnel vision. I can now see cows on both sides of the road at the same time!*"

Another patient, S.T. commented about her tennis game after just one week of therapy—"*I can hit the ball every time now. I usually missed it completely before. I always thought that I was looking at the ball but I guess I wasn't. My husband can't believe how I can play now.*"

Many SSS patients complain that when trying to hit or catch a ball that "*it just disappears when it gets close to me.*" The reason for this is that the ball is observed through the central "tunnel" initially but as it approaches, as with non SSS persons, fixating on the ball with central vision is no longer possible and the ball disappears in the

peripheral "blind" zone. These people are hopeless when it comes to attempting to play any ball game where they have to hit or catch a moving ball. Even with great motivation and months of lessons and practice, they never advance beyond beginner status until they eliminate their unrecognized visual handicap. However, their skills often improve rapidly after doing DAVT. Excerpts from a letter from 22 year old D.B. illustrates this point. *"For about the past 10 years, I've had **difficulty** with reading, riding in cars, boats and trains. Most everything that moved made life uncomfortable....As for involvement with sports, I hated all games that had balls. My dad insisted that I play baseball, basketball, football and tennis, all of which had the same **effect**. I seldom hit or caught the ball and spent a lot of time on the team bench. When I water skied, I got nauseous. To even get up on the skis, I closed my eyes and concentrated on the "**form**" of other skiers. But after getting on my feet and opening my eye, down I'd go. I would go trap shooting once in a while with my brother. **He figured** that I usually hit 7 out of 100 birds. About a month after my training, I went out again and hit 52 out of 60. I beat my brother and his friend for **the first** time. Before, the birds would just disappear but now they don't ...I used tunnel vision, so I saw one thing at a time. Dancing made me sick when I moved fast or did circles, so I didn't dance...I can now do things I wanted to do during the past years. I hit and catch the ball much better than before, and I can also read a book from cover to cover without experiencing eye and head pain".*

Even mild SSS patients feel "off balance" when jogging or riding a bicycle. Wearing high heels or walking on a narrow board is usually impossible. The more severely affected often have frequent episodes of dizziness and disturbed balance. Sometimes

these patients experience nausea, especially when walking, turning around, or bending down. They tend to touch things for support and sometimes take their shoes off to grip the floor with their toes. The floor sometimes appears to be slanted or wavy. A nine year old boy described it as, *"walking on water with a little boat on each foot."* In addition, headaches are often frequent or constant. Obviously, even athletic activities where no ball is involved, such as exercise classes, are out of the question for these people.

Even simple mild to moderate motion sickness has an adverse effect on some athletic performances, especially at an elite level. Excerpts from a letter written by D.B., a former starting player on a Division II national championship soccer team, help illustrate the point. *"For as long as I can remember, I would always get sick driving in a car. As a very young child, our family lived on a small island in the Caribbean, and the winding roads left me sick all of the time. I just treated it as a normal everyday occurrence. Whenever we went to a carnival or to a playground, I had to avoid any of the rides, especially the merry-go-round, because it would leave me ill for hours afterward. I would always get sick on boat trips but again merely attributed it to normal circumstances.*

*The national sport in the Caribbean was soccer, so I began playing it at a very young age. I really love the sport. At times, however, when I had to make a quick spinning move or had to backpedal while looking over my shoulder, I would get slightly **off** center; it seemed to take a second for me to get my bearing **afterward**...*

Even in college, as my play progressed, I still had some trouble when I had to spin around quickly and would get sick when we

went on the road. During fall quarter we would be traveling the week before finals for **the playoffs**, so many guys on the team would study or read while in the van. I couldn't do it. I could never read in a moving vehicle for more than ten seconds without getting sick. In the early part of April, while undergoing a routine eye examination, I was diagnosed having the See Sick Syndrome. When Dr. Gillilan would swing that ball and ask me to follow it, I would get sick—just like when I would try to read in a car. To my surprise I found out that I did not have to be ill while reading in the car and that some of my uncomfortable moments on the **soccer field** could be remedied as well. I was a graduate student at the University of Oregon at the time, and my school work required that I spend a considerable time at the computer. Whenever I used the **CRT's** the scrolling of the lines would make me nauseous, sometimes so much that I would sign **off** and use the slower printer terminals instead. This could also be helped I was told.

After the exercises I was surprised at the **differences** they made. I traveled frequently to Seattle and could never read in the car, so I wasted a lot of time that could have been productively used. After the first week of exercises I made a trip to Seattle on the weekend and could read in the car all the way up. I was so amazed that I didn't get sick. I told my in-laws all about it, and they looked at me sort of **strangely—as if to** say "big deal." We read all the time in the car! Anyway, to me it was a major accomplishment and worth the money for the exercises in **itself**.

Also, when I returned to the computer terminal, the scrolling on the screen did not bother me as much, and I could finish my work at one sitting—without having to switch terminals.

The greatest benefit, though, has been on the **soccer field**. I only wish I had gone through the program before going on to play college ball. I was playing on a local team at the time and therefore was able to monitor my progress. Obviously it would be foolish to say that I am a fantastically better player now. There are too many intricacies in the game, and skill is based on more than foot coordination. But I noticed some improvement in more subtle areas of the game. I played in a defensive position, which I did not do much in college. This position requires, at times, the ability to control the ball while in full sprint backwards to one's own goal. A sloppy trap or a missed trap, and the **offensive** player can steal the ball and wreck havoc. As mentioned before, whenever I had to spin around, then run backwards while looking over my shoulder for the ball or to see where the other team players were, there was that split second of uneasiness, a feeling of being **off** center somewhat. Through the eye exercises and some spin exercises this phenomenon disappeared. I now am able to spin quickly in either direction without feeling that loss of position or direction.

Another part of the game I have improved upon is my ability to read the ball. This has been helpful in situations where control is critical. As an **offensive** player in college, often the difference between a close call and a goal was the ability to instantly gain control and then put the ball away. To do this required the ability to control the ball even when it did not present itself to you like you would want. Sometimes it would have an erratic spin to it, especially if it just came out of a collision between players. **If you** could read the spin on the ball, you could adjust your body so that when you tapped it, control was instant. After the exercises, I could even read the label of the ball as it

spun towards me. It was easier to determine how fast the ball was spinning and which way it was likely to curl. Since my eye tracking improved, I was able to follow the ball better and would watch it until it contacted my body rather than rely only on my instinct for control. This was especially helpful for controlling head balls.

My defensive play improved because I could turn quickly in either direction to read the field without the feeling of discomfort. The eye exercises improve the quickness in eye movement, so I was better able to track the ball when kicked at high velocity nearby. I didn't "lose" it.

*I do not mean to imply that the eye exercises are a panacea for what may ail someone in a sport, but at a high level of skill, the **difference** between the average player and a very good player is their ability to read or react in a split second to a given situation. The eye exercises have been a great help to me, both in helping with nausea in reading or driving a car and in improving my **ability to perform** on the soccer field."*

The Dynamic Adaptive Vision Therapy mentioned earlier is primarily eye motility

training. The only equipment involved is a ball on a string hung **from** the ceiling and two pencils. The therapy consists of a simple but structured series of eye pursuit, saccadic and accommodative convergence procedures with head and body stationary at first then combined with head and body movement, including turning in place. The exercises are usually done daily at home for 30 to 40 minutes, for four to seven weeks. There are also regular visits to the doctor or therapist for evaluation, instruction, and training during this time.

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Chart review of 51 consecutive pts referred for visual evaluation associated with vestibular disorders or symptoms of imbalance, vertigo, etc.

	Age (yrs)			
Gender	mean	s.d.	min	max
Men n = 13	43.8	9.9	33	69
Women n = 38	48.5	12.5	25	75

Frequency of vestibular diagnosis

Condition	n	%
Hydrops	26	51%
(A-I hydrops)	8	16%
Fistula	19	37%
BPPV/N	11	22%
Post Conc. Synd.	9	18%
None	3	6%
Waardenburg Synd.	2	4%
Otolith Dysfunction	2	4%
Ototoxicity	2	4%
Meniere's	2	4%
Mal debarquement	2	4%
Acoustic Neuroma	1	2%
Nerve section	1	2%
Labyrinthitis	1	2%

**Modified from Clinical issues in vestibulovisual function: dx and tx of sensory conflict.
Optometry 726 lecture**

QUESTIONS

1. What is the See Sick Syndrome?
 - a. Motion sickness only
 - b. Inability to read in a car
 - c. Motion sickness combined with photophobia
 - d. Inner ear disorder

2. What is the See Sick Syndrome also known as?
 - a. Neuro-Ocular-Vestibular Dysfunction
 - b. Vestibular dysfunction
 - c. Motion sickness
 - d. Meniere's disease

3. Which one of these individuals would most likely have See Sick Syndrome?
 - a. A twelve year old boy
 - b. 22 year old female whose mother has a history of motion sickness
 - c. 42 year old female without family history of motion sickness
 - d. 32 year old male with unremarkable history

4. In making a tentative diagnosis of the See Sick Syndrome patient, what is the first question to rule out or lead to a diagnosis of NOVD?
 - a. Are you super-sensitive to light?
 - b. Can you read in a car without nausea, headache, or dizziness?
 - c. Do you have an unusual fear of heights?
 - d. Are you klutzy?

5. In order to diagnose a patient with Neuro-Ocular-Vestibular Dysfunction, it is important to rule out which conditions?
 - a. Meniere's disease
 - b. Vertical deviations
 - c. Otolith dysfunction
 - d. All of the above

6. Which of these conditions may exacerbate the See Sick Syndrome?
 - a. Pre-menstrual syndrome
 - b. Hypoglycemia
 - c. Fatigue
 - d. All of the above

7. Which of the following management can cure the See Sick Syndrome patient?
 - a. Oral Scopolamine
 - b. Dynamic Adaptive Vision Therapy
 - c. Corrective lenses
 - d. Sunglasses

8. How long does the Dynamic Adaptive Vision Therapy usually take to complete?
 - a. 1 week
 - b. 4-5 months
 - c. 4-8 weeks
 - d. 1 year

9. What equipment is needed for the Dynamic Adaptive Vision Therapy?
 - a. **Marsden** ball
 - b. Pencils
 - c. Prism flippers
 - d. a & b are both used

10. How does the Dynamic Adaptive Vision Therapy work?
 - a. Through desensitizing and reprogramming of the visual system
 - b. It repositions the otoliths
 - c. By improving eye movement amplitudes
 - d. By balancing the visual vestibular system

11. What is the approximate success rate of the Dynamic Adaptive Vision Therapy in patients with the See Sick Syndrome?
 - a. 80%
 - b. 10%
 - c. 50%
 - d. 100%

12. How long should the patient NORMALLY train each day on the Dynamic Adaptive Vision Therapy?
 - a. 30-40 minutes
 - b. 15-18 minutes
 - c. 10 minutes
 - d. 1.5 hours

13. If the patient feels nauseous while performing the **Marsden** ball procedures, what are some things they can do to decrease the demand?
 - a. Begin by sitting on a chair or even lying on the back and looking up at the ball, in severe cases
 - b. Increase rest periods
 - c. Reduce the amount of lateral swing to about 6 inches, then gradually increase the swing to about 3 feet while standing at arms length from the ball
 - d. All of the above

14. If the patient feels much worse 30 minutes past the finish of the training session compared to when they began, what is the most likely reason for this?
 - a. The patient is doing a very good job on the exercises
 - b. The patient is not doing the therapy correctly
 - c. The patient has over trained and should reduce the intensity of the next session
 - d. The patient did not perform the exercises long enough

15. What are the goals for ALL series in the Dynamic Adaptive Vision Therapy?
 - a. To be able to perform the series for two hours each day
 - b. To be able to perform the series without any symptoms
 - c. To be able to walk around the **Marsden** ball without nausea
 - d. To be able to go to a movie without feeling nausea

16. How many series are there in the Dynamic Adaptive Vision Therapy?
 - a. Three (Beginning, Intermediate, Advanced)
 - b. Two (Beginning, Advanced)
 - c. One
 - d. Four (L1, L2, L3, L4)

17. When can the patient proceed to the next series (i.e. Beginning to Intermediate) in the Dynamic Adaptive Vision Therapy?
 - a. When the patient has performed all exercises in that series for a week
 - b. When the patient can perform all exercises in that series without any symptoms
 - c. When the patient reaches boredom with the exercises in that series
 - d. At the next progress exam

18. How can you increase the level of difficulty in the **Marsden** ball procedures?
 - a. Hang the ball approximately 5" to 8" above eye level
 - b. Stand closer to the ball
 - c. Swing it **further**
 - d. All of the above

19. What are the four exercises in the Dynamic Adaptive Saccadic & Convergence Therapy (ie Pencil exercises)?
 - a. Pursuits, fixation, convergence push up, **far/near** rock
 - b. Pursuits, prism rock, lens rock, brock string
 - c. Convergence rock, convergence push up, fixation, **far/near** rock
 - d. Hart charts, Michigan tracking, Hadinger brush, convergence rock

20. What is the main difference between the beginning and intermediate series procedures?
- Patient begins to move their body (ie rocking and walking) in the intermediate series
 - Patient is sitting in the beginning and standing in the intermediate series
 - Patient must train for a longer period of time in the intermediate series
 - Patient trains for a shorter period of time in the intermediate series
21. How can you increase the level of difficulty in the Pencil exercises?
- move the pencils to more extreme positions
 - doing the exercises longer without rest
 - b & c are both correct
 - move the eyes slower
22. How long should a progress report normally take?
- 1.5 hours
 - 20-30** minutes
 - 1 hour
 - 2 hours
23. What do you do at weekly progress report appointments?
- Review the log and ask for an oral report of their progress with the training.
 - Remind the patient to spend the most time on procedures that are most difficult.
 - Have the patient briefly demonstrate each procedure performed at home.
 - All of the above
24. Once the Advanced Series is completed, what is the next step?
- Discontinue the formal progress reports and advise the patient of ways to maintain their current functional level.
 - Patient is cured! No other steps necessary.
 - Educate the patient on possible maintenance therapy in the future
 - Both a & c are correct
25. In the Dynamic Adaptive Motility Therapy procedures, where should you have the **Marsden** ball hanging to start with?
- The ball should be hanging slightly below eye level and about arms length in **front** of the patient
 - The ball should be hanging slightly **5"** to **8"** above eye level
 - The ball should be hanging right at eye level and about **1"** in front of the patient
 - The ball should be hanging about **2"** to the side of the patient

26. What is an important task when patient is performing any **Marsden** ball or pencil exercise?
- Attempt to keep the head still
 - Attempt to keep the letter on the **ball/pencil** clear and single
 - Fast pointing accurately
 - Be aware of physiological diplopia
27. How should the **Marsden** ball be swung in the Dynamic Adaptive Motility Therapy?
- Laterally from side to side and in a 45 degree diagonal direction
 - Forward and backward
 - In a circle
 - All of the above
28. Prior to beginning the Dynamic Adaptive Vision Therapy, what should the patient have done?
- Made a list of their pre-therapy goals
 - Taken an anti-motion sickness medication
 - Brought a designated driver
 - none, patient does not need to have anything done
29. What body movement makes the Advanced Series different from the Intermediate Series?
- Running
 - Performing jumping jacks
 - Turning the body in circles (spinning)
 - All of the above
30. A See Sick Syndrome patient comes in with complaints of necessity to be the driver to avoid nausea while traveling in a car, even on a straight road, photophobia, and headaches when exposed to any activities which involve observations of movement for more than a few minutes, what level of severity does this patient have?
- Mild
 - Moderate
 - Severe
 - Patient was misdiagnosed and does not have See Sick Syndrome

Answers

1. c
2. a
3. b
4. b
5. d
6. d
7. b
8. c
9. d
10. a
11. a
12. a
13. a
14. c
15. b
16. a
17. b
18. d
19. c
20. a
21. c
22. b
23. d
24. d
25. a
26. b
27. d
28. a
29. c
30. b