

# OEP

## CLINICAL CURRICULUM NEWS

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### Equipment for Sale

*It's Back!* Billy Boards are again available through OEP. The newly named VIBE Disc costs \$139.99 plus shipping/handling. The product # is XBB100. Call OEP 800 424 8070 to place your order.

### CONSULTATION CORNER

*Edited by: Robert Hohendorf*

This is a continuation of the case of AH which was first published in the Clinical Curriculum Newsletter February 2005. Click below to review case.

<http://www.babousa.org/CLINICAL%20Curriculum%20News%20February%202005.pdf>

The case on AH continued in the October 2005 Clinical Curriculum Newsletter . Click below to continue review of case.

<http://www.babousa.org/Clinical%20Curriculum%20News%20October%202005.pdf>

**This case began in 1983 and is being updated to October of 1999 with this installment**

**Patient:** AH                    **DOB:** 2/14/74 Female (age 25 yrs. 8 mos.)  
**Occupation:** Teacher of 4year old pre-school program in small town school system

**Chief Complaint:** 1) It's time (Last eye exam 3 ½ years ago)  
2) No subjective visual symptoms. Distance acuity still good  
3) Frame of glasses falling apart. I need new frames.

**Case history:** 1) I examined AH in 10/84, 1/86, 4/92, 6/94, and 6/96.  
2) I changed glasses to +0.75 after the 10/84 visit to this office.  
3) She has headaches without her glasses when reading. The last reported headache problem was at the 4/92 exam (It was associated with typing class without reading glasses), and then again at the 6/94 exam, but only without her glasses for near work.  
3) Negative for ocular health issues and medication use.  
4) She was a cheerleader in 5<sup>th</sup> grade (1984), AH played softball and volleyball through grade school and high school 1984-1991. She also played softball at the Community College level and now plays in a church league. She plays first base and third base and made the comment at the 1/86 exam that she hits better without her glasses on.

In spite of her athletic involvement and history of dance classes, she still complained of general clumsiness and participated in these activities in an attempt to improve her coordination.

- 5) She was an A/B student when she applied herself (which was most of the time). Her local Community College (CC) choice was for financial not academic reasons. She also attended a local private college after her two years at CC to attain her teaching degree and certificate.
- 6) She currently uses the word processor in the evenings. She limits her reading and cross stitch hand work due to eye fatigue in the evenings after work. AH was also considering pursuing her Masters in education degree.

## CURRENT EXAM (10/6/1999)

### Chairside Tests and History:

**King Devic** Last done 1/86 at Chronological age 11yr, 11 mos.

1	0 errors	20 seconds	Eyes lead, no head movement
2	0 errors	20 seconds	Repetitive leg movements seen
3	<u>0 errors</u>	<u>23 seconds</u>	
Totals:	0 errors	63 seconds	<b>Speed</b> age 10 1/2, <b>Accuracy</b> age 14+

### Unaided Visual acuity:

	10/84	01/86	04/92	06/94	06/96	10/99
<b>Far</b>						
<b>OD:</b>	20/20-	20/20	20/20-1	20/20-	20/20-	20/20-1
<b>OS:</b>	20/20	20/20-	20/25-1	20/25	20/25	20/20-3
<b>OU:</b>	20/15-1	20/15-	20/20-	20/20	20/20	20/20-

### Near:

	10/84	01/86	04/92	06/94	06/96	10/99
<b>OD:</b>	20/20	20/20	20/25	20/25	20/20	20/20

**OS:** 20/20- 20/20 20/25 20/25 20/20- 20/20

**OU:** 20/20 20/20 20/25 20/25- 20/20 20/20

**Working distance:**-----not recorded-----8-9 inch 8-9 inch 12 inch

06/94 VA improved to 20/20 at 10-11 inch working distance through her habitual +0.75 DS

### Cover test:

(Lo = less than 2pd, Medium = 3-6pd, High = greater than 6pd)

<b>Far:</b>	Ortho	Ortho	Lo Eso	Lo Eso	Lo Eso	Lo Esophoria
<b>Near:</b>	Lo Eso	Lo Exo	Lo Eso	Lo Eso	Ortho	Orthophoria

### Motilities:

(scale of 5, 1=head and body, 2=head, 3=freq loss, 4=some loss, 5=WOW)

<b>Pursuits:</b>	3.25	4	4.5	4.5	4.5	4.5
<b>CNP:</b>	ttn	2"	ttn	3"B/3"R	2"B/4"R	3"B/4"R
<b>Notes:</b>	jerky-----	diplopia	OS lag	none	StopsConvOU	Stops Conv OU

### Stereopsis:

(BABO stereo test)

Not Done	9/9	9/9	9/9	10/10	10/10
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**Color Vision:** No Changes Noted

**Internal:** Nothing Significant To The Case Noted  
**External:** Eyes itch Occasionally

**Subjective:**

<b>OD:</b>	+1.00	+1.25	+1.00	+0.75	+0.50	+0.75
<b>OS:</b>	+1.25	+1.25	+1.00	+0.75	+0.50	+0.75

**#7A Largest**

<b>OD:</b>	+0.75	+0.75	Pl	+0.25	Pl	Pl
<b>OS:</b>	+1.00	+0.75	Pl	+0.25	Pl	Pl
<b>VA OU:</b>	20/20	20/20	20/20	20/20	20/20	20/20

/...Likes Minus on OD Monocular Refraction....

**#8 dist phoria through Plano:**

	Ortho	2+exo	1-1/2eso	0 to 1/2 eso	1 exo	2 exo
<b>FAR CONTROL LENS:</b>						
<b>OD:</b>	+0.75	+0.75	+0.50	Pl	Pl	Pl
<b>OS:</b>	+1.00	+0.75	+0.50	Pl	Pl	Pl

**#9/10 Far Equilibrium BO:**

	18/30//17	26/35/29	not done	9/32/18	6/Max BO	20/30/15
<b>Note:</b>	SLO				slight left mvmt	

**#11 Far Equilibrium BI:**

	x/6 <sup>2</sup> /3	x/7/3	x/8/5	x/4/-4	x/4/3	x/9/6
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**VERTICAL PHORIA AT FAR:** Orthophoria for all dates

**#13B Near Phoria and +1 gradient:**

	3exo(2/1)	6exo(1/2 to 1)	1exo (4/1)	4exo (2/1)	3-1/2exo(1/1)-3esophoria (6/1)
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**#14A Unfused Cross Cylinder** (*Findings are recorded as gross numbers in the phoropter not adjusted*)

	<b>10/84</b>	<b>01/86</b>	<b>04/92</b>	<b>06/94</b>	<b>06/96</b>	<b>10/99</b>
<b>OD:</b>	+2.25	+2.50	+2.25	+2.50	Hi Plus	+2.00
<b>OS:</b>	+2.00	+2.50	+2.25	+2.00	+3.00	Hi Plus

**#15A Phoria with 14A:**

	6exo	7exo	6exo	4exo	7exo Used+3 OU	3esophoria Used +2 OU
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**#14B Fused Cross Cylinder:** (*Findings are recorded as gross numbers in the phoropter not adjusted*)

<b>OD:</b>	+1.25	+1.50	+1.50	+2.50	+2.75	Hi Plus
<b>OS:</b>	+1.00	+1.50	+1.50	+2.00	+2.75	Hi Plus
						Est +3.75

**#15B Phoria with 14B:**

	5exo	4exo	6exo	4+exo	1-1/2 to 2exo	5exophoria
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**NEAR CONTROL:**

	+0.75	+0.75	+0.75	+0.75	+0.75	+0.75
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**#16 Near Equilibrium BO:**

X/36/21	29/32/19	23/26/9	16/27/10	X/22/14	X/Supp OS/10
SILO	SILO	SILO		SILO	SILO

**#17 Near Equilibrium BI:** (No BI SILO responses for any dates tested)

X/21/10	X/12/5	11/16/10+	X/16/11	X/14/11	16/17/13
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**#20 PRA:** (all lens powers are adjusted powers compared to the near control lens)

-3.50	-3.25	-3.00	-3.00	-2.75	-3.25
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**#21 NRA:** (all lens powers are adjusted powers compared to the near control lens)

+2.50	+3.00	+1.50	+1.50	+1.50	+1.50
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After the 10/8/84 evaluation, I changed the glasses prescription to +0.75 D spheres and recommended a Marsden ball activity to work on balance, pursuit eye movements and peripheral field awareness. I often like to give a little something to help the patients that I feel are not lens only cases.

When I saw her the last time, I felt this was not a lens only case. Her immediate symptoms of headaches and stamina were satisfied with the +0.50 D lenses at near, but the increased academic demand and general coordination problems were not being fully addressed.

Since she turned down the vision therapy option after the 1983 visit, as described in the last newsletter, I suggested a simple home therapy technique she could use if she was truly interested in improving her vision beyond what we could do with the lenses only.

At the start of the next visit, I asked her about the therapy procedure and she told me that she did not use it at all (So much for her self motivation at age 10). After that point a full therapy program (OEP Clinical Curriculum VT 1) was discussed and offered at each visit and turned down except for this last (1999) visit.

She was employed, living in her parents home, had some insurance, and was thinking about returning to school for her Masters degree. She stated she didn't know if she could handle teaching and returning to all that near work at school. She remembered what a struggle it was to complete her original schooling to get her teaching degree. She wanted to start an in office therapy program so she could work and get her advanced degree without the excessive time and discomfort she was anticipating. I was thrilled! All that investment throughout the years to help her understand the interference her vision was causing in her life's needs now came to fruition. This is also occurring none too soon in my opinion. She is basically into near work avoidance in the evenings. With her 1996 and this 1999 evaluation, some change in my findings are also a bit concerning. To me they show her visual system is becoming more compromised and using more adaptation patterns than when I first saw her in the second grade (see Feb 2005 newsletter

<http://www.babousa.org/CLINICAL%Curriculum%20News%20February%202005.pdf>).

Specifically; the receding near points of convergence, the preference for minus in the monocular refractions at far, esophoria at near on a couple of Von Graefe phoria tests, the loss of accommodative stability (towards a high plus blur out) in the unfused cross cylinder findings, the suppression on base out equilibrium testing at near, and the drop (persistent) in negative relative accommodation since 1992. I would suspect without the avoidance of near point activity other symptoms or visual adaptations would have been revealed as well.

Now all I have to do is to deliver on years of promises. Fortunately, thanks to the curriculum and years of VT success, my confidence is high.

Please forward any questions or comments to [TheresaKrejciOEP@Verizon.net](mailto:TheresaKrejciOEP@Verizon.net) or fax to 1-410-252-1719. We look forward to your input.

## Mind Candy

*By: Rob Lewis, O.D.*

During both the Art & Science and the Essentials courses (Essentials is similar to the Art & Science course, but is for therapists and other office personnel) we describe astigmatism in detail. There are five broad categories of astigmatism we are concerned with in the courses. The categories include: 1) Small cylinders X 90. 2) Small cylinders X 180 3) Occupational astigmatism 4) Pathological Astigmatism 5) Genetic Astigmatism. The following is concerned with this last unusual category.

High, relatively symmetrical, with the rule cylinders are endemic in many Native American populations. They are rarely seen away from those populations, at least in North America. As it turns out a large percentage of our Native American populations are descendents of peoples native to the Gobi desert who seem to have migrated across the Bering Strait to what is now Alaska; and from Alaska throughout North America. This can be traced with genetic and Athapascan linguistic links. The languages which compose the Athapascan family are plainly related to each other and are clearly distinct from other American languages. The Navaho "code talkers" were able to speak their Athapascan language freely over the radio during WW II because their language is so distinct that it was impossible for outsiders to understand. Athapascan is the most widely distributed of all the Indian linguistic families of North America, extending over parts of the continent from the Arctic coast far into north Mexico. For more information on these links you may want to access:

<http://www.accessgenealogy.com/native/tribes/athapascan/athapascanindiantribe.htm>

Recently Paul Harris was in Greece teaching. A Greek ophthalmologist showed him a topograph of a Greek patient that showed astigmatism similar to that found among Native American populations in the US. How did this happen? As it turns out, there was once quite a bit of traffic from Africa to Asia and throughout the Mediterranean carrying Frankincense and Myrrh to the East and bringing trade items westward from India to the Mediterranean. This traffic went at least as far east as India. Some of those roads are still there and can be seen in satellite views.

<http://www.nizwa.net/env/frankensence/fkensence.html>

There is a city (Petra) in modern day Jordan carved out of a mountain that played an important role. The city is probably more famous for it's role in an Indiana Jones movie than it's historic role for thousands of years as a portal between Asia and the Middle East.

<http://www.raingod.com/angus/Gallery/Photos/MiddleEast/Jordan/Petra/>.

<http://www.usu.edu/anthro/museum/exhibits.php?gallery=Petra>

The Mongol connection with India is direct. Shah Jehan, the fifth Mughal (Persian for Mongol) emperor was the builder of the Taj Mahal. The point is that there is a plausible genetic trail from Asia to Europe as well as from Mongolia to the Americas. The incidence of the high cylinders might be less common in Europe due to multiple genetic influences where individuals or smaller groups left their genetic imprint compared to the much larger and homogeneous migrations in North America.

In the US, we see these cylinders show up in the -3.00 or greater range, they are relatively symmetrical, and very near to axis 180. The visual acuity with the compensating lens is about 20/25 and with out the compensating lens it is about 20/25. Kids who grow up without compensation on the reservation seem to do well without glasses or contact lenses. The reservation kids often will not wear their glasses, even if they have them. Similar kids who grow up in town and who wear glasses seem to loose their ability to function without the lenses. Their VA without glasses is more like we might expect among the population at large

who have greater amounts of astigmatism. This, by itself, is an interesting phenomenon and speaks to the adaptability of the visual process.

Where might this astigmatism have come from? Human beings adapt along the lines of stress to meet the stress. This is true on both an individual and a population basis. This special type of high astigmatism may be based on a phenomenon similar to sickle cell anemia in Africa and diabetes in Native American populations.

The principle is that there is a biological advantage to a trait in a specific environment that would be a disadvantage otherwise. The sickle cell trait in Africa makes the person less affected by malaria and confers a benefit in an environment rife with a disabling disease. The cost is a decreased ability to provide oxygen to the tissues. Diabetes can be a metabolic advantage in feast or famine conditions such as are found in a desert environment like in Mongolia, the desert American SW or on the Great Plains. When a person with diabetes or a metabolism that favors diabetes encounters a northern European diet, they tend to put on weight easily and become a full blown diabetic with all the associated problems.

How does the high cylinder confer a benefit? The biological advantage of astigmatism is the ability to move vision through space by shifting attention without the need for a shift in focus. With astigmatism, there is an enhanced depth of focus based on the circle of confusion created by the cylinder coupled with the normal depth of focus in the visual system. There is some penalty in resolution, but less than a purely optical model of vision would predict. In contrast, motion detection is not impaired and may even be enhanced by a reduced emphasis on foveal information. Since the important information for the desert hunter was: "Is it there?", "Will it eat me?", or "Will I eat it?", fine discrimination was less important than motion detection and quick visual reaction. Those who could catch the mouse, ate the mouse, made babies, and passed on their genetics. Those less able to catch the mouse faded from the evolutionary picture. This led, here in the US, to a population with a genetic predisposition to low metabolism, diabetes, and high astigmatism.

How should one of these patients be treated? It is tempting to say, "Just like anyone else". In many ways this is true. It really depends on their goals. A 25 year old Navajo shepherd is probably going to do well with no compensating lenses and in fact probably wouldn't wear them. Unless there is something he can't do that he wants or needs to do; unless he has an unmet visual need, glasses probably won't help him. A seven year old who has been raised in town and who is having trouble seeing the chalkboard will probably do well with the appropriate glasses prescription. Young people with this kind of astigmatism will have learned to move their vision through space, but may not have learned to change focus to do so. It is highly likely that a person with high cylinders such as those we are talking about will benefit from a near prescription.

What about vision therapy? If therapy is done solely to change the refractive condition, it is not likely to be successful. While the refractive condition may change in response to changes in the visual process, the goal of therapy is improved visual skill, not different glasses. If vision therapy is a treatment option chosen to develop an improved visual process, one could expect the same success as with any other vision therapy patient.