Kendall Optometry Ministry, Inc

Testing Children without dilation

By

Holland Kendall

10-16-2012

This procedure should only be used when the law prohibits your dilating the patient or if the team is not willing to dilate the patient.

Table of Contents

1.0 Introduction.

Kendall Optometry Ministry provides either the Retinomax 2 or 3 autorefractor to Christian mission teams going all over the world. These hand held devices can be extremely accurate on both young and old patients as long as the young patients are dilated. The rules for dilation are as follows:

> Dilate 100% of the patients which are 20 years or younger. If the patient is between 21 and 30 and you are not pressed for time dilate them. If you are pressed for time, then test the patient twice and compare the sphere number. If it differs by .50 or more, then dilate the patient. In some case you may have to dilate a patient more than 30 years old.

This document is to accompany a video which was produced to show a technique which can be followed to get more accurate results when measuring a young patient without dilation. It should only be used when the law prohibits your dilating the patient or if the team is not willing to dilate the patient. Four patients are tested in this video. Each of the following sections can be read while reviewing the video.

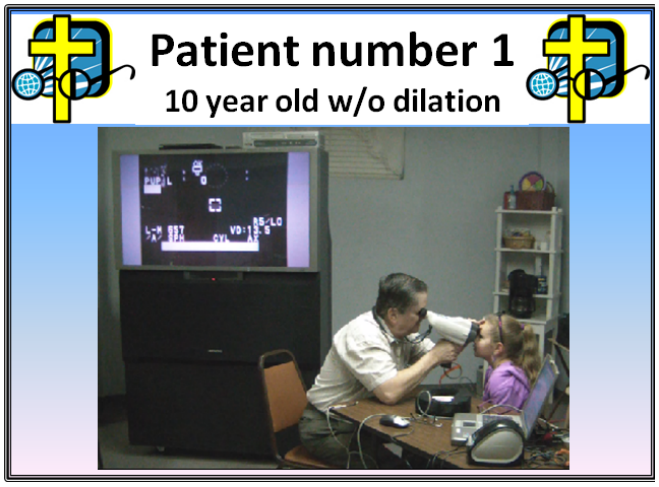
Recently we have found that sometimes a team cannot or is not willing to dilate. For example, the law in Nicaragua states that only an Ophthalmologist (an eye surgeon) can dilate the eyes. Even an optometrist cannot dilate a persons eyes. There is no good reason for this law. The dilation drugs we recommend are safe and have never caused an adverse reaction.

The teams are then faced with two options:

1) do nothing or
2) do a poor job.

I consider neither of these to be acceptable. That is why we developed the procedure documented in this video.

2.0 Patient Number 1 (10 year old w/o dilation)



Slide 1:

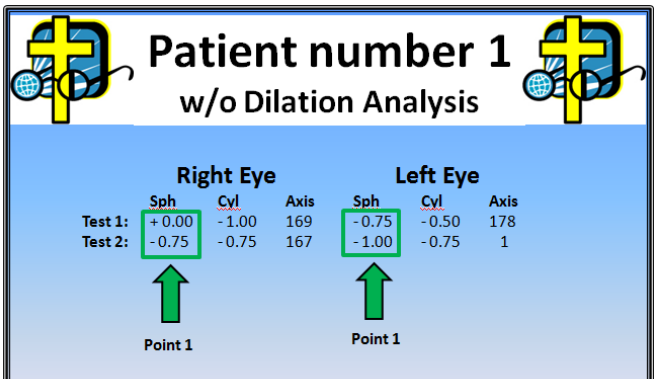
This first patient is a 10 year old girl. In this segment I will measure her eyes without dilation. At the end of the video we will analyze the results of the test.

Review the next 2 videos.

Slides 2-3 below are after the first 2 videos.

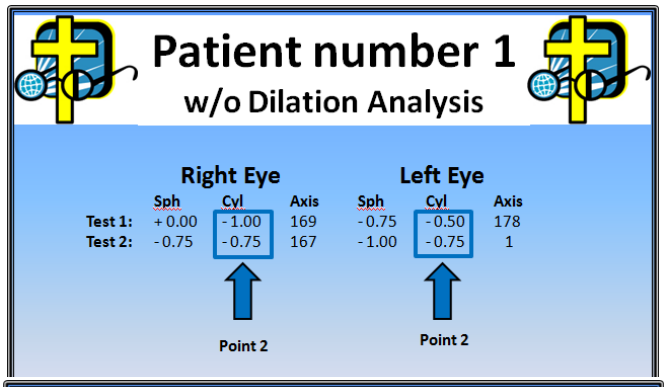
Slide 2:

The results of the two previous tests are shown on this screen. Look at the numbers with a green box around them. These are the sphere numbers. These numbers vary as the patient focuses on different objects. This "focusing" is called accomodation. Notice how with the right eye under point 1 you see the sphere change from 0 (perfect vision) to -.75 (near sighted vision). Notice also that the left eye is also showing that the patient is near sighted.



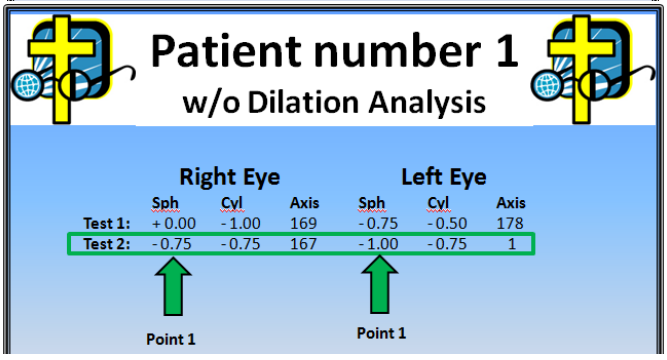
Slide 3:

Look at point 2. The Cylinder numbers indicated the amount of astigmatism that the patient has. The variance of this number between the two readings is very small (.25).



Slide 4:

So from Test 2 we would assume that the patient is near sighted. She is not.



3.0 Patient Number 1 (While Looking Afar)

Slide 1 (Before "Looking Afar" test):

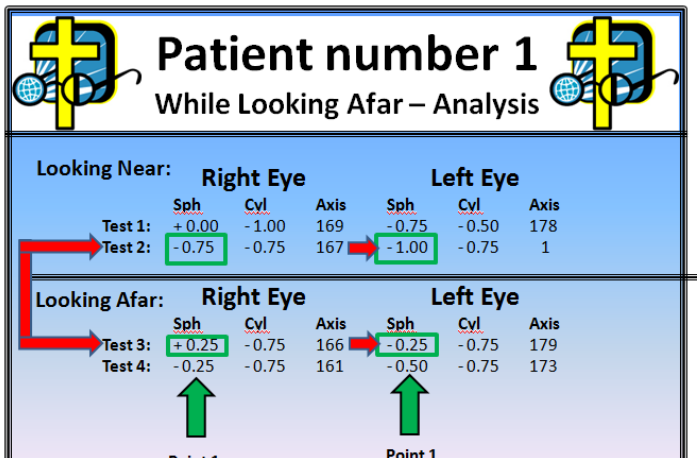
Now I will get the patient to look at some object across the room (a monkey with cymbals in this case). She will focus on this object and not change her eyes while I move in front of her to get a reading.

(Review the next 2 videos.)

Slides 2-3 below are the analysis while looking Afar.

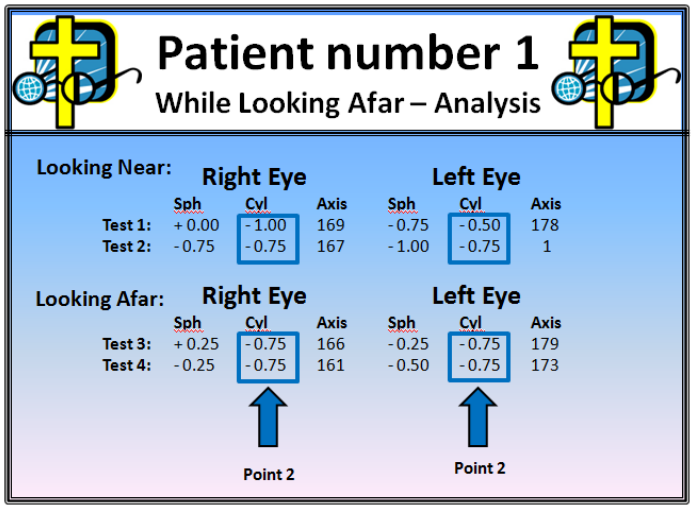
Slide 2:

Comparing tests 2 and 3, notice that at point 1 the right and left sphere goes from a significant minus number of -.75 and -1.00 to a much smaller number of +.25 and -.25).

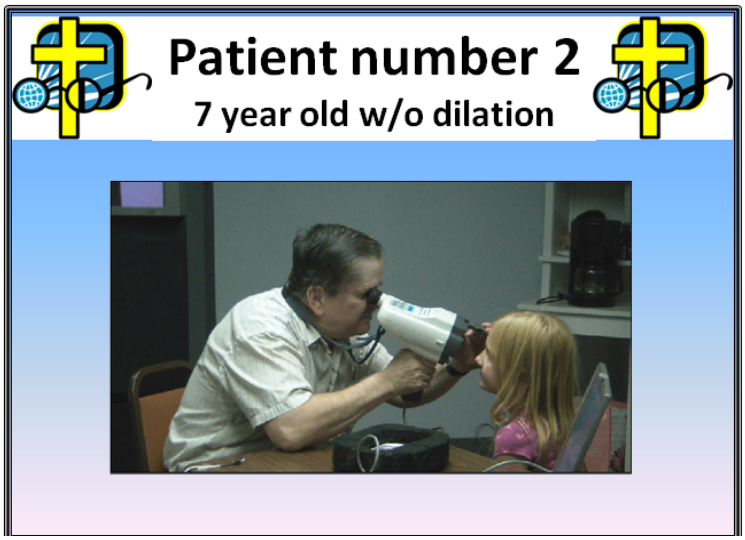


Slide 3:

However the cylinder and axis at point 2 stay relatively constant. Focusing afar while measuring the eyes leads to accurate results without dilation.



4.0 Patient Number 2 (7 year old)

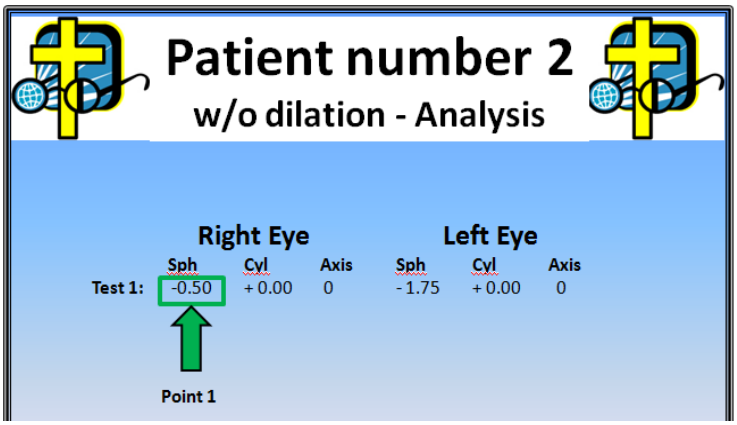


Slide 1 (7 year old w/o dilation):

This is a 7 year old child. First I will measure her asking her to focus on the instrument and not at a distance.

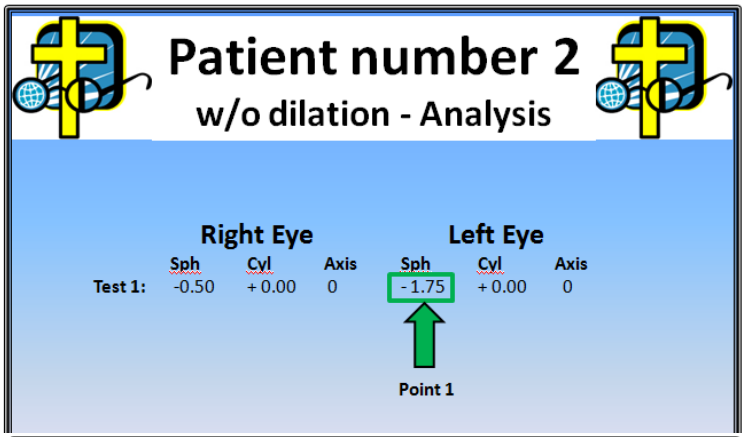
(Review the next video)

Slides 2-4 below are the analysis of the results without dilation.



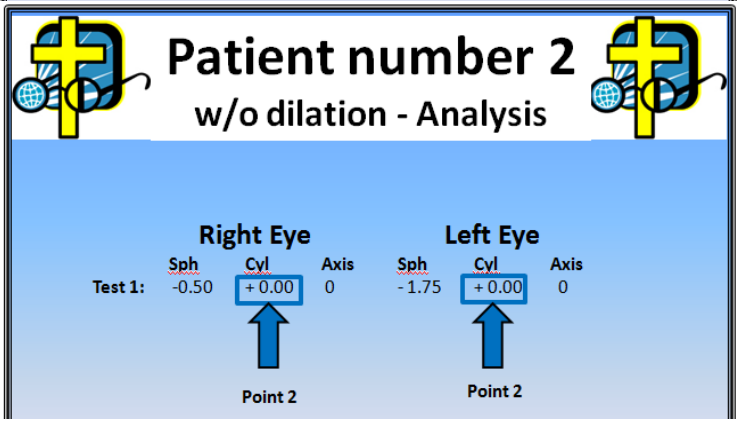
Slide 2:

Look first at point 1 for the right eye. It shows a minus number which indicates the child is near sighted.



Slide 3:

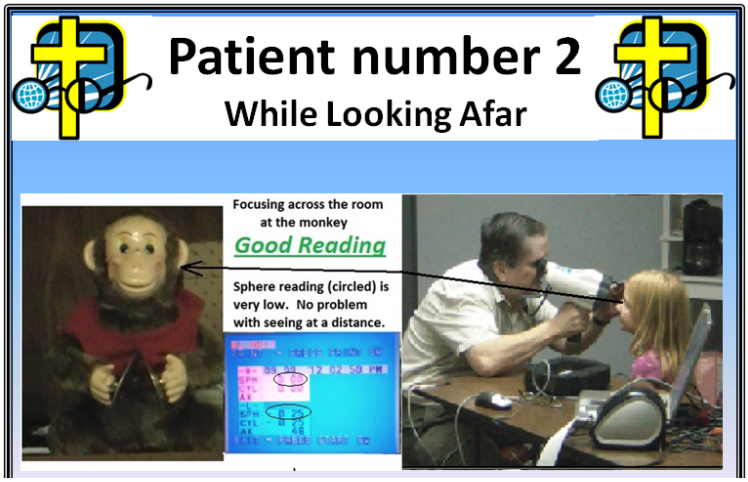
Look at the left eye where it shows at point 1 that she is highly near sighted. She is not.



Slide 4:

Point 2 indicates that she has no astigmatism at all.

5.0 Patient Number 2 (7 year old-Afar)

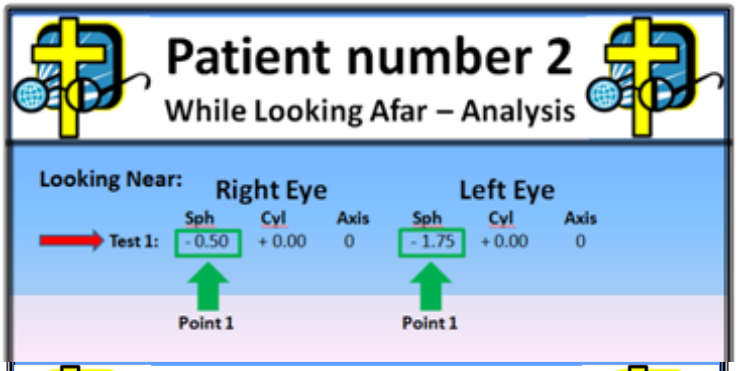


Slide 1 (While looking Afar):

Now I will get the patient to look at an object (the monkey) far across the room.

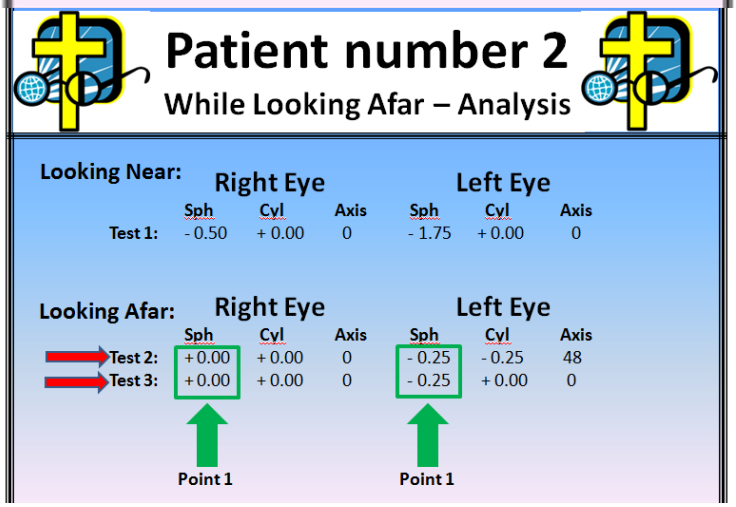
(Now look at the next 2 videos.)

Slides 2-4 below cover the analysis while looking afar.



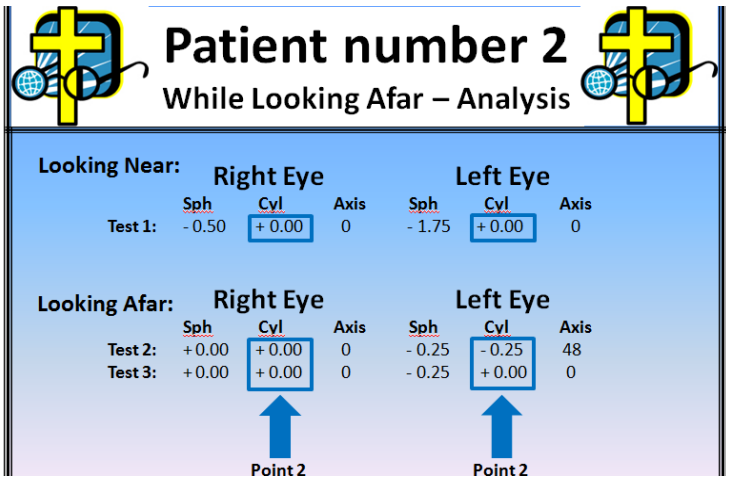
Slide 2: (from the previous test)

Now look at point 1 of test number 1. Notice how both sphere readings are highly negative, especially the left eye.



Slide 3:

Now look at point 1 of tests 2 and 3. The sphere readings for both the left and the right eyes went to zero or nearly zero. The correct reading for this child was achieved by looking afar while doing the test.



Slide 4:

Now look at point number 2. The child consistently has little or no astigmatism. The astigmatism or cylinder reading is accurate in all cases.

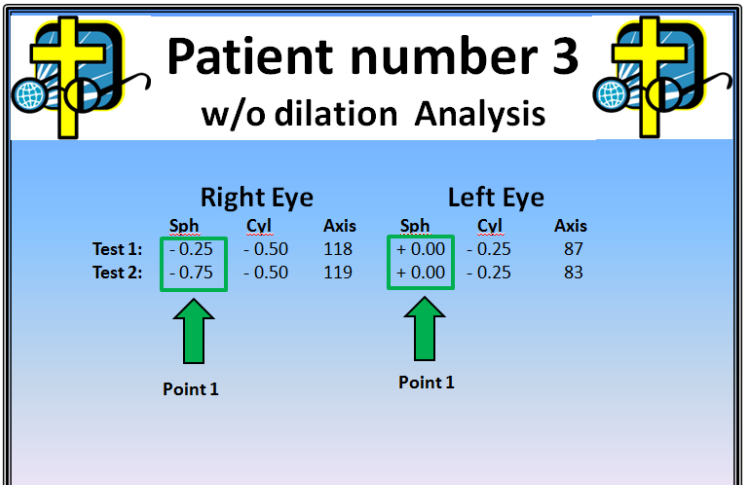
6.0 Patient Number 3 (10 year old w/o dilation)

Slide 1 (10 year old w/o dilation):

Now I will test a 10 year old child without dilation and without focusing afar.

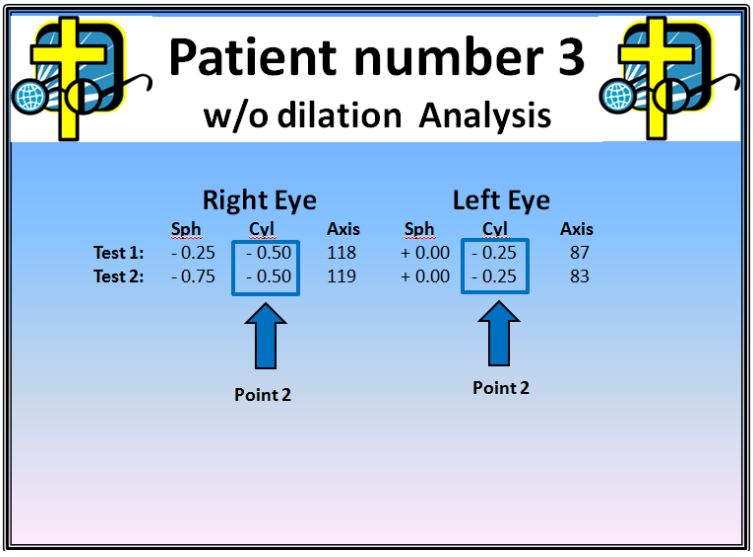
(Now review video of 2 tests)

Slides 2-3 below are the analysis without dilation.



Slide 2:

At point 1 above the right eye is a minus prescription indicating that the child is near sighted which he is not. The left eye remains at zero between measurements.



Slide 3:

At point 2 you can see that the cylinder reading between the two readings do not change. The instrument is always accurate on the cylinder reading with or without dilation.

7.0 Patient Number 3 (While Looking Afar)

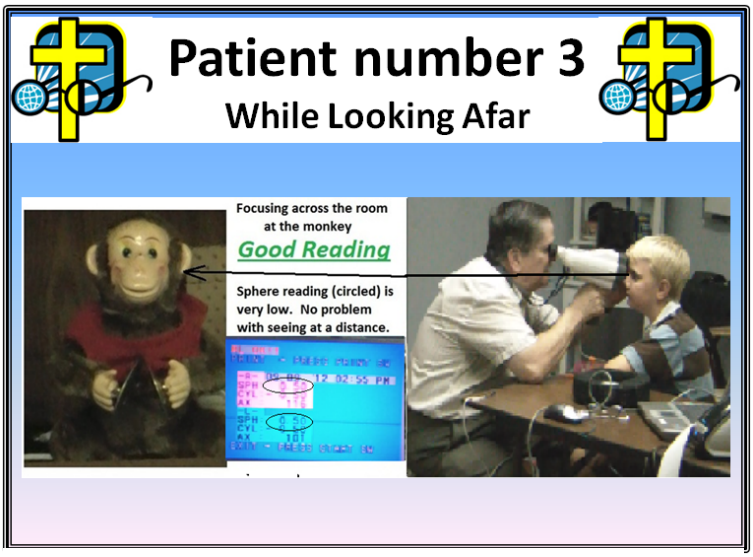
This is a 10 year old patient.

Slide 1 (While Looking Afar):

Now I will test the patient while he is looking at something across the room. In this case it is a monkey.

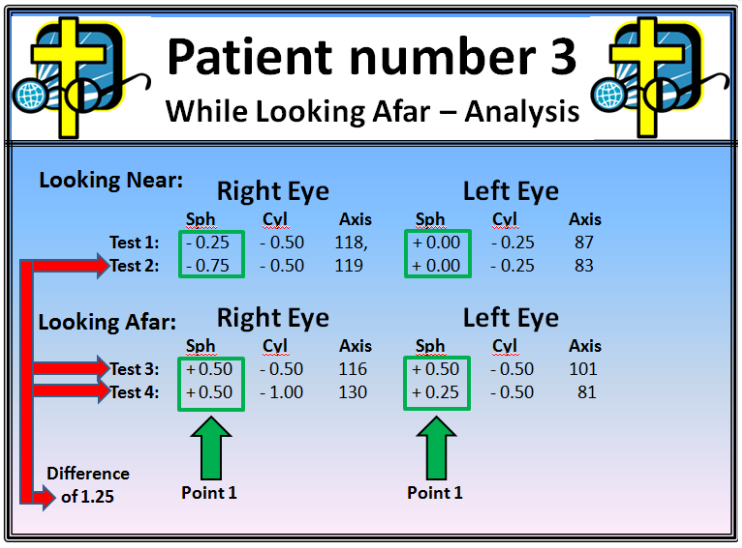
Now review the next 2 videos.

Slides 2-3 are analysis while looking Afar.



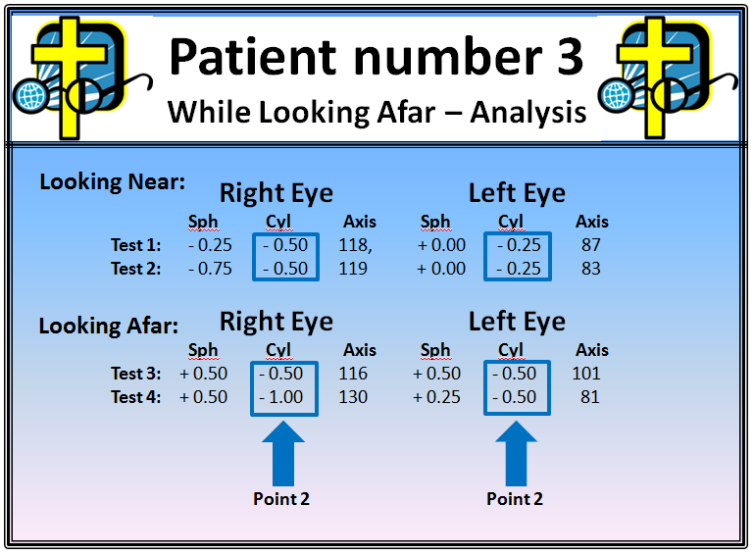
Slide 2:

If you look at all 4 readings you see the difference especially in the right eye. The difference between the Sphere reading of test 2 and the same reading with tests 3 and 4 is 1.25. The readings on the left eye are not so different. This is likely because for this test only the right eye was blocked while it was being tested but both eyes were blocked while testing the left eye. The child likely changed his focus.



Slide 3:

At point 2 the cylinder stays fairly consistent in all 4 tests. This is expected as the cylinder is unaffected by dilation.



8.0 Patient Number 4 (14 year old w/o dilation).

Slide 1 (w/o dilation):

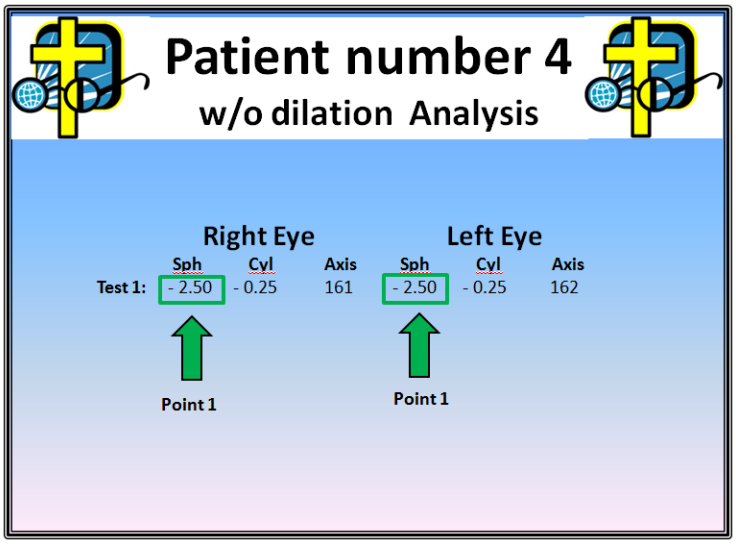
Now I am going to measure a 14 year old patient without dilation.

Review the next video.

Slide 2 is the analysis of the test without dilation.

Slide 2:

Notice the high minus sphere reading for both eyes at point number 1. This is while focusing on the instrument.



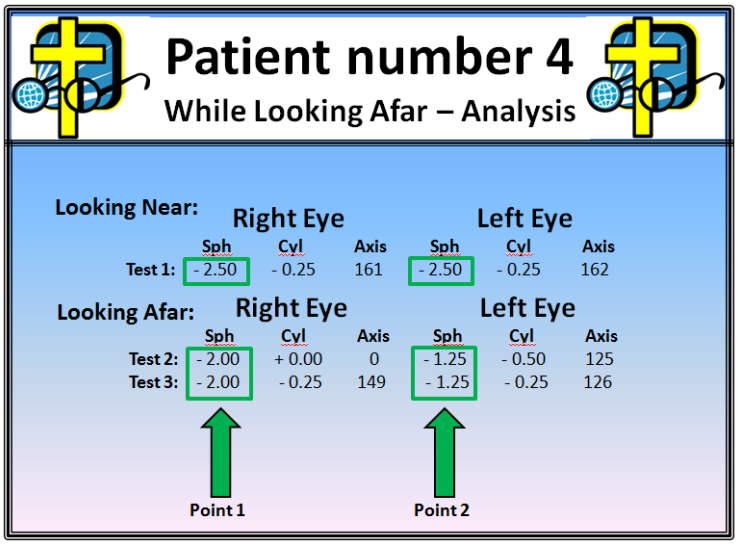
9.0 Patient Nr 4 (14 yr-Looking Afar).

Slide 1 (While Looking Afar):

Now I am going to test this patient while looking at an object across the room.

(Watch 2 more videos.)

Slides 2-3 are the analysis while looking afar.

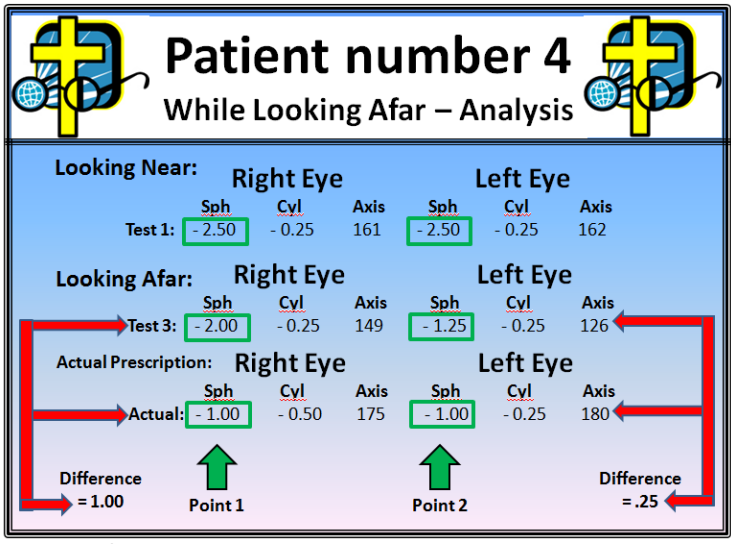


Slide 2:

Comparing test 1 with test 2 look at the right eye sphere at point 1. It changes by .50 between looking up close and looking afar. Now look at the left eye sphere at point number 2. It changes by 1.25. Looking at a distance makes a significant difference in the patient's prescription.

Slide 3:

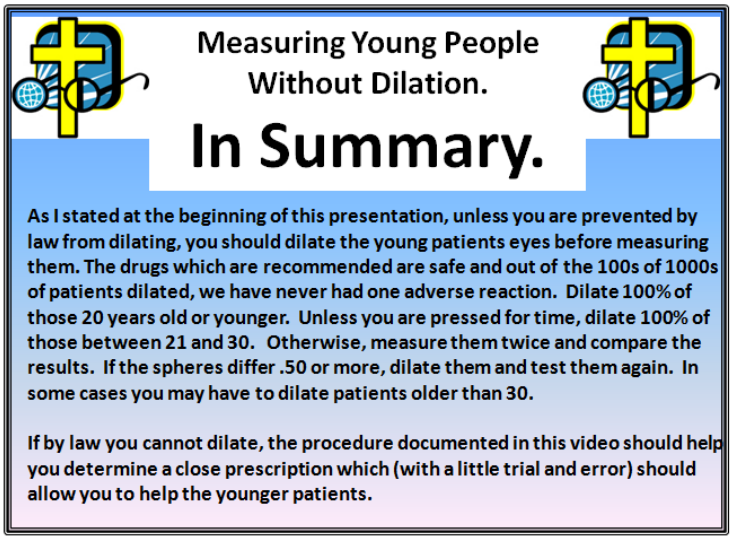
For this patient we had an actual glasses prescription. The results didn't compare very well (a difference of 1.00) on the right eye between test number 3 and the actual prescription at point 1. It did compare quite well (a difference of .25) with the left eye between test 3 and actual at point number 2.



The actual right eye prescription was not as large as -2.50 from test number 1 but didn't go as far down with test 3 as it should have to match the actual prescription. In this case, the best suggestion is to try a pair of glasses which are less minus than the prescription that you measured for the patient. Because this child is near sighted, likely he could not see well enough to focus on the object across the room. For this child it might have been better to move the object (the monkey) closer.

10.0 In Summary

As I stated at the beginning of this presentation, unless you are prevented by law from dilating, you should dilate the young patients eyes before measuring them. The drugs which are recommended are safe. Out of the 100s of 1000s of patients dilated, we have never had one adverse reaction. Dilate 100% of those 20 years old or younger. Unless you are pressed for time, dilate 100% of those between 21 and 30. Otherwise, measure them twice and compare the results. If the spheres differ .50 or more, dilate them and test them again. In some cases you may have to dilate patients older than 30.



If by law you cannot dilate, the procedure documented in this video should help you determine a close prescription which (with a little trial and error) should allow you to help the younger patients.