

Accelerated orthokeratology

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Thank you, Dr. Henao for this opportunity to speak to this august group. I'm here to introduce to you an improved and expanded orthokeratology that can accomplish excellent results in a very short time period. We now can temporarily change corneal refraction of six diopters of myopia; three diopters of hyperopia and 2.5 diopters of corneal astigmatism. These changes can be accomplished in days and sometimes in just hours. This new system called accelerated orthokeratology or A-Ok for short is a miracle to witness. In 1972 I started learning all there was to know about orthokeratology. Within six years I realized a better system was needed to afford more control over the changes in our patients vision. Until that time doctors knew the cornea could be changed but it was a slow, arduous process which took from six months to two years to complete. Also, the range of these changes was limited to about two diopters. This meant this treatment could only be offered to a relatively small number of patients.

I had thought long and hard about designing lenses in the shape we wanted the cornea to attain. I actually solicited every contact lens laboratory in the country inquiring whether they could manufacture a lens with a flat center and steeper periphery. My thought was fitting the periphery of the cornea and using the center of the contact lens to flatten the cornea. This would cause changes to take place at a much faster pace. After calling dozens of labs and having them tell me the design I wanted was impossible to manufacture, I temporarily gave up my search for an improved ortho-k lens. Early in 1987 I read in a professional contact lens journal that a contact lens laboratory in California would make any design. I thought, «Here's my chance!». I called the manufacturer and described to him what I wanted and he said he could make it without a problem. I was doubtful this lab could make something all

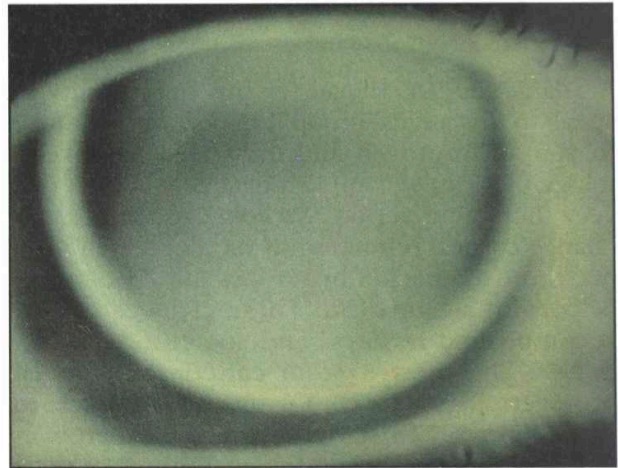
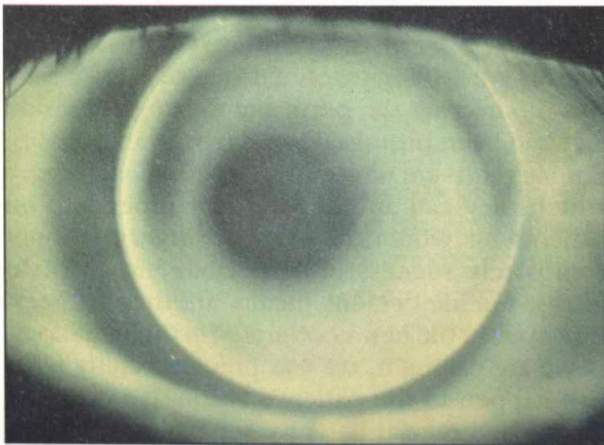
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those other labs said couldn't be made. So, I asked this man to make the lens I needed and send it to me. Well, sure enough, when the lens arrived I checked it in my instruments and it was flatter in the center and steeper on the periphery. When I put a lens of this design on a patient's eye. I was elated to find it changed the correction as much as two diopters in an hour. That's something that would previously have taken six months to one year.

I immediately set up a clinical study in my own office. My staff and I found that not only could we change eyes more quickly but also we could change greater amounts of myopia. All the patients who participated in the original study were written up in August 1989 Spectrum, a contact lens periodical printed in the United States. This study has regenerated an interest in this procedure among optometrists around the world. Before the study many doctors were not interested in ortho-k because they thought it was too complicated and too time consuming for the patients. This new technique enabled the process to be completed sooner and now patients with astigmatism were experiencing the same improvements. As the study had progressed I discovered patients with hyperopia could have improved vision by fitting the new lens in a different way. Some have considered radial-keratotomy as the answer to their quest for «natural vision». Now, after several years of this surgery, doctors are finding cases of damaged eyes. We are also discovering the permanent change in vision that had been promised is not true in most cases. The surgeons are now doing an additional surgery which they call an enhancement procedure on patients for whom the original surgery was not completely successful or permanent. In plain terms, enhancement means another surgery. However, in the new accelerated orthokeratology, as we are calling it, we can predict exactly what will happen to the patient's vision. It's no guess work! On a regular basis we see patients for a di-

agnostic fitting at which time lenses are applied. At the end of the patient's office visit I know if the A-ok will work because in an hour or two the patient will have gained up to three or four lines of improvement in uncorrected vision. This is exciting! It's exciting for the doctor and I know it's exciting for the patients. I've asked a couple of them to share their enthusiasm.

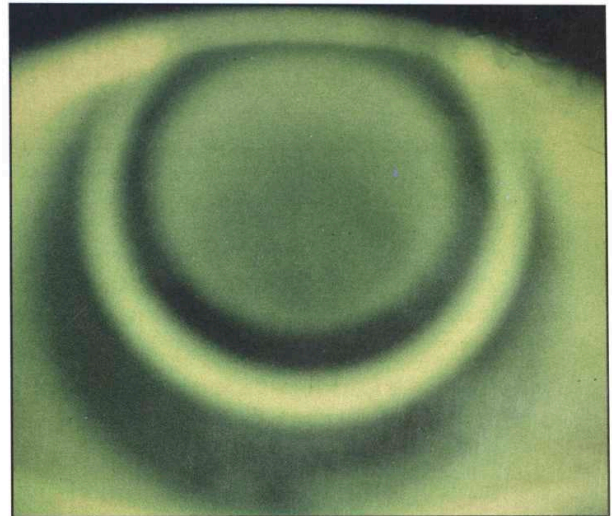
Here's what Chris Hansen wrote following his first experience with A-Ok . «In august 1992 I heard about the accelerated orto-K that Dr. Wlodyga was involved with. I immediately made an appointment to find out more about this produre. I also contacted my eye doctor to get his opinion on Dr. Wlodyga's new procedure. He gave his approval immediately. I started this new procedure in September 1992. My first appointment for my contacts was totally amazing. I remember getting my new contacts, being told to go have lunch and return in about one hour. After only one hour of wearing these special contacts I was able to read the 20/20 line on the eye chart. I was totally amazed!. «At that point I was instructed to wear my contacts for only eight hours per day. Of course I asked what did I do for the remainder of the day. Would I have to wear my glasses? Dr. Wlodyga reminded me that I had just read the 20/20 line with no help and that my glasses would no longer help because the strength of my eyes had changed!». After her first fitting with A-ok lenses Lisa Ashmore wrote, «I felt wonderful when I experienced improved vision! When Dr. Wlodyga tested my eyes for the program, I was able to see 20/20 after the first session!» (Fig. 1y2).



When I find the lenses do not change the cornea within an hour or two it's fairly certain this patient does not have a cornea that will change. Of all patients, on whom I do diagnostic fittings, about five per cent will be rejected because the cornea is not moldable. With the new technique patients do not need to invest large amounts of either time or money before discovering accelerated ortho-K may not work. Now I can tell the patients after the first fitting that he is a candidate for the A-OK and be reasonably sure the procedure will be successful. Also, as a result of the work with the A-OK method, several universities have shown a renewed interest in this miraculous treatment called orthokeratology. Professors are now completing their own studies because they intend to begin teaching ortho-K to optometric students in their colleges. Thankfully, doctors of optometry who graduate in the future will have knowledge of ottho-k for their future patients who need or want this «natural vision. Basically, people who need this procedure to qualify for their jobs are airline pilots, fire fighters, police officers, FBI agents, border patrol agents and some military personnel. In addition, there are thousands of people who want to have «natural vision». They wish to get rid of glasses and contact lenses and yet need to be funtional without these optical aids.

One of the most exciting cases was of a young woman having all the qualifications needed to be an FBI agent, except one. She needed a minimum of 20/200 uncorrected vision and she had less than

20/600 uncorrected vision. She had worn contact lenses most of her life and now needed to pass this eye test. She was the patient of a colleague of mine in Michigan. Her doctor called me and asked if I thought her vision could be changed in a matter of two weeks so she could pass her test. I said, «Terry, if you asked me this two years ago, I would have said, «Not possible», but with this new technique using accelerated lenses, it is possible, send her down!». With the older system, this would have taken two or three years, but after only two weeks she passed her FBI test with 20/50 vision. This young woman was able to enter the FBI training program and, indeed, she is an FBI agent today. For her, this is a dream come true (Fig.3y4).



In conclusion, I hope I have presented information that will inspire you to investigate this new accelerated procedure. I invite all of you to the global meeting of the national eye research foundation in Chicago in July 1993. At that time I will present an in depth lecture on this new procedure. At the same meeting we will be presenting a Manual of all the Ortho-K Procedures known at this time.