American Academy of Optometry

Founded in 1922 the goal of the American Academy of Optometry is to maintain and enhance excellence in optometric practice. This is accomplished by fostering research and the dissemination of knowledge in both basic and applied vision science. Since its founding, the Academy’s success in achieving this objective has moved the Academy to the forefront of American and international optometry and made fellowship in the Academy a significant and cherished achievement.

Johnson & Johnson Vision Care, Inc. is a company committed to transforming the “world’s” vision. Since their inception, they have strived to increase awareness of the importance of vision and vision care and to provide the world’s most exceptional vision correction options. To that end, Johnson & Johnson Vision Care, Inc., through their passion for innovation and unwavering commitment to the highest standards of quality, has become a world leader in vision care, providing a family of outstanding contact lens and spectacle products. Johnson & Johnson Vision Care, Inc. is comprised of two divisions that are fully committed to enhancing patients’ lives and partnering with Eye Care Professionals. The Spectacle Lens Group, which is headquartered in Roanoke, Virginia, manufactures the next generation of high tech multifocal spectacle lenses. Vistakon, headquartered in Jacksonville, Florida, is the maker of ACUVUE® Brand Contact Lenses, the world leader in soft lenses, scientific papers, leadership courses, exhibits, and numerous awards granted to leading students and outstanding professionals.

The 2002 exhibit hall was the Academy’s largest and most informative to date. The Academy was proud of the numerous rave reviews regarding the quality of the exhibit hall, and the new products and services learned about while visiting with the over 170 companies who were exhibiting with them.

The Academy website is: http://www.aaopt.org
disposable contact lenses. Stanley J. Yamane, OD, FAAO, and Howard B. Purcell, OD, FAAO, are proud to note that “Vistakon has been a top supporter of the Academy for almost a decade”. Their division generously provided the soft tote bags for meeting attendees.

At the meeting’s conclusion scientists, students, administrators, and supporting attendees headed for the San Diego Airport. Some, while waiting for flights, strolled down “San Diego’s hall of fame” corridor and viewed the various framed presentations of San Diego’s hometown hero’s.

It was there, directly in front of the Bill Walton poster that he suddenly became a reality, all 7 foot, plus, of him. Had it not been for this editor’s traveling sports authority, Vic Thatcher, pictured here with Bill Walton, we would not have had the privilege of talking with the exceptional scholar-athlete. During our brief conversation, he displayed a genuine interest in the definition, nature and progression of Keratoconus. He urged me on when I spoke of the courage, dedication and commitment of our, 1,209 study participants. We spoke about the, 1,457 persons who either wanted to participate in our trial or have joined our newsletter and study generated journal reprint mailing list, which includes 284 Doctors of Optometry and 152 international subscribers. This conversation was not about him, but about, you, our study, and our collaborative aims to describe and identify factors related to corneal curvature, scarring, disease progression (corneal curvature) and quality of life issues.

Bill Walton’s professional career includes numerous awards, honors, championship titles and hall of fame inductions. He remains active in basketball through clinics, camps, coaching and television commentary. Walton has received Emmy awards and has had roles in feature films such as Little Nicky, Celtic Pride and Ghost Busters. He is a regular contributor to television shows including The Wheel of Fortune, The Jeff Foxworthy Show, Pacific Blue and The Weakest Link. His commercials include Tostitos, Reebok, Anacin and Best Western Hotels.

Although pictured here, with “his” Vistakon tote bag, Bill Walton is not a spokesman for, nor does he endorse any product or services shown. Rather he is a highly accomplished, generous, soft spoken, 7’4”, husband to Lori, father of Adam, Nathan, Luke and Christopher, humanitarian from San Diego sharing a piece of his style with one of his loyal fans and the editor of the Insight, the official newsletter of the Collaborative Longitudinal Evaluation of Keratoconus (CLEK) Study.

**CLEK Study Chairman’s Message**

The end of eight years of follow-up of the CLEK Study patients looms large on the horizon. I can hardly believe that so many dedicated patients have been willing to participate annually, but it is the only way to learn more about a very rare condition like keratoconus.

I recently heard a prominent cancer researcher here at Ohio State give a presentation on where we stood, worldwide, on finding a cure for cancer. His point was that we all know great strides have been made in treating cancer, but we aren’t at the “cure” stage yet. His central point was that the only way to make greater strides towards that cure phase would be to have more people participate in cancer clinical trials. Nationwide, that participation rate is about 2%; at Ohio State, it is only 15%. Obviously, individuals have their own reasons for not participating as research patients, and there are important protections from the federal government for the patients who do participate that also protect people’s right to choose whether or not to participate.

But, the 1,209 keratoconus patients who have chosen to participate in the CLEK Study have made a decision that directs us to more knowledge, better therapies, and, perhaps someday, a cure.

Yesterday, a young keratoconus patient who is also a first year optometry student (and not a CLEK partici-
Contact Lens Comfort and Performance in Keratoconus

Researchers at The Ohio State University conducted a clinical trial with 20 patients with Keratoconus.

The purpose of the study was to investigate whether a contact lens, which has been marketed as a lens that provides clearer vision (visual acuity) and improved comfort than other rigid, gas permeable, (lenses that permit oxygen through the lens to the cornea) lenses actually did. The study participants were currently wearing rigid contact lenses and were refitted with the Rose K lenses. Measurements for visual acuity were completed at the first visit with their usual lenses and with the Rose K lens at the completion of the study. Participants completed a questionnaire that addressed quality of life issues specific to vision, contact lens comfort and a self-assessment of vision.

The statistical results of the study did not yield major changes in high or low contrast visual acuity with the Rose K lenses. However, there was significant improvement in the self-reported assessment of vision and self-reported comfort in the eyes of persons with more advanced Keratoconus. At study conclusion, 87% of the participants reported that they would continue to wear the Rose K lens, and 72% reported that they preferred the Rose K lens over the lenses that they had previously been wearing. The study concluded that there was no difference in the visual acuity with the Rose K lens compared to the lens the patient usually wore. The self reported assessment of vision and comfort did show a statistical improvement for individuals with more advanced Keratoconus. Researchers speculate that a placebo effect could be responsible for the self reported vision and comfort improvement. A placebo effect is a physical or emotional response to a substance or device that is taken or administered, reflecting the expectation of the patients, and often the expectations of the person giving the substance. The overall success of the fit rate along with the patient preference supports the usefulness of the Rose K lens in clinical practice.

Jodi Tanner Malone, RN
Study Coordinator
CLEK Chairman’s Office
TOSU College of Optometry
WKYC TV-3
during the 7:00PM Hour

Jonathan H. Lass, MD
Loretta B. Szcztoka, OD, MS

Channel 3 reporter, Jennisfer Murphy, and Carol Chandler, Channel 3’s medical reporter, interviewed Jonathan H. Lass, MD at the University Ophthalmologists, Inc. Landerbrook facility.

Presented was the amazing success story of a double cornea-transplant patient. Legally blind from complications of keratoconus, this courageous patient continued to ride her horse in national competitions despite of her vision impairment. Now 23, she has received donor transplants of both corneas, the most recent operation being in November, in surgeries performed by Dr. Lass, and has regained her vision.

Also a contact lens patient of Loretta Szcztoka, OD, MS she still rides her horse in competition, is newly married and is employed full-time but with a brand new outlook on life, quite literally.

Loretta B. Szcztoka, OD, MS
Principal Investigator

Jonathan H. Lass, MD
Co-Investigator

University Hospitals of Cleveland
Department of Ophthalmology
11100 Euclid Avenue
Cleveland, OH 44106

Keratoconus:
Diagnosis and Management

Ralph E. Gundel, OD, FAAO
David P. Libassi, OD, FAAO

In: Clinical Manual of Specialized Contact Lens Prescribing
Edited by Terry R. Scheid, OD, FAAO

This chapter was written as a clinical guide for the practicing eyecare provider to ensure they are able to provide the optimal level of care for their keratoconic patients. Drawing on their experience as faculty members of the Specialty Contact Lens Service of the State University of New York College of Optometry, as well as their involvement in the CLEK study, they have assembled some of the most recent information available on the treatment of keratoconus.

The chapter begins with an overview of what is known about the causes of the disease, the signs and symptoms, as well as some information concerning the likely progression of the condition. The core of the chapter is devoted to the various methodologies for fitting keratoconic patients including the use of soft versus rigid gas permeable (RGP) lenses, large versus small diameter RGP lenses, aspheric design lenses, as well as the lens design used for corneal shape evaluation as part of the CLEK study. Finally, some of the potential complications that may be associated with lens wear by the keratoconic patient are presented, along with suggestions for their amelioration.

Dr. Gundel and Dr. Libassi hope that by sharing their clinical experiences they can enhance the overall level of clinical care that can be afforded to the keratoconic patient.


Dr. Libassi - Principal Investigator
Dr. Gundel - Co-Investigator
SUNY State College of Optometry
CLEK Clinical site
FAQs
Frequently Asked Questions

I have been diagnosed with keratoconus. Does that mean I’m a good candidate for “RK” surgery?

Radial keratotomy is a procedure where radial incisions are made that go part of the way through the cornea to flatten the central cornea and correct nearsightedness. It is not as popular since the development of laser procedures for the correction of nearsightedness. One of the problems with RK is its unpredictability. As you might imagine, the irregular curvature and protrusion of keratoconus only make RK more unpredictable, and the thinned keratoconic cornea would make the “most of the way through” the cornea incisions in RK very difficult to accomplish safely.

I read that it is common to be diagnosed with keratoconus when a person is in their early twenties. How accurate is this information?

This is a common age for the diagnosis of keratoconus. However, in some cases it could be diagnosed years prior to this age or even as late as the 30s. Actually the “onset” may be long before the person’s impression that something is wrong, for example blurred vision, or before the doctor detects it with special instrumentation.

I have been wearing hard contact lenses for over 22 years (before the day of gas permeable lenses). I was diagnosed with keratoconus a few months ago. Did my hard contact lenses contribute to this disease?

We do not believe that contact lenses cause keratoconus. However, there is literature with suggests this possibility. If keratoconus has a genetic cause, then you were destined to have it regardless of contact lens wear. There is recent biochemical evidence that contact lenses could complicate keratoconus but at this time, we strongly believe the benefits of the best vision obtained with state of the art rigid gas permeable contact lenses far outweigh any potential risks.

Does excessive eye strain for tasks such as computer related work have any effect on my keratoconus?

Although eye strain from tasks like computer work may be irritating, it is not likely that it causes the keratoconus to worsen. However, ask your doctor if other problems may be part of the problem such as focusing complications or binocular vision coordination. Sometimes special reading glasses and in some cases vision training can be helpful.

I have keratoconus with a scar on one cornea. How can my vision be corrected? What long term changes should I anticipate?

Scarring is a part of the natural course of keratoconus. The scarring generally occurs later or in more advanced stages of the disease. We believe scarring contributes to a decrease in vision and is not a simple issue to correct. Wearing rigid contact lenses will likely improve your vision compared to glasses at this point. If the vision is not “good enough”, that would represent one of the indications for a corneal transplant operation, to replace your affected cornea with a healthy cornea.

I have keratoconus in both of my eyes. I have undergone corneal grafting surgery in my right eye. I am wearing normal glasses now. My left eye is not severely affected. What can I expect in the future?

Great question. The simple answer is we don’t know. There doesn’t appear to be a predictive relationship where having one transplant portends your eventually needing the other eye operated on. On the other hand keratoconus is a “progressive” disorder meaning things tend to worsen with time. The rate of progression is highly variable and goes nowhere is some folks and in some eyes. We hope that the CLEK study will give us further “statistics” for you and your doctor to better answer your question. Stay tuned.

Is there a “right time” for corneal transplant?

In general, keratoconus patients undergo corneal transplants as an elective procedure. It is very rare to have the keratoconus “get so bad” that surgeons must perform the procedure. People generally elect to have the surgery either when they can no longer tolerate contact lenses and/or when the contact lenses do not provide adequate vision for their everyday activities.
What is the best way to find a skilled corneal surgeon?

The best way is to ask a trusted eye care practitioner. If you have been seeing an optometrist, for example, for your contact lens fitting, he or she probably has experience with corneal surgeons in the area and can recommend someone. Alternatively, if it is someone you’ve located through the Yellow Pages, local medical society, or the Internet, be sure that your surgeon is Board Certified in Ophthalmology, was educated in a corneal fellowship following his or her ophthalmology residency, and performs more than just a few corneal transplants each year. These are all evidence of expertise.

What is cornea transplant surgery? Is it the same as corneal grafting surgery?

Corneal transplant surgery is the same thing as corneal grafting surgery. The formal name for the operation is "penetrating keratoplasty". This operation consists of removing the central 2/3 or so of the host cornea (yours) and replacing it with donor cornea cut to the same shape. The tissue is sewn into place with very tiny sutures. The sutures hold the tissue in place until it can scar in and heal. This process takes months. The surgery is very common and is quite successful. In fact the best success seems to come with eyes with keratoconus. Even though the operation is highly successful, we wait until glasses or contact lenses no longer are sufficiently helpful because the risks associated with the surgery are great than those found with glasses or contact lenses. We manage the risks vs. the benefits throughout the course of the disorder, adding risk only when it makes sense in terms of the benefits gained.

My wife has been diagnosed with keratoconus. What are the chances that our children may inherit this disease?

The etiology or cause of keratoconus is not known. The issue of this disease being a heritary disease pops up from time to time—this is one of those points in history where the issue of a heritary origin for keratoconus is a popular one. A few facts for you. Somewhere between one-in-eight and one-in-ten families have other family members someplace in their family tree with keratoconus. All the rest don’t. Therefore the likelihood that your children will have the disease is very small. On the other hand, when we look at family members of subjects with keratoconus using corneal topography measurements (color coded maps of the corneal surface) a little over half those family members will have unusual corneal topography suggestive of keratoconus, but no other signs or symptoms of the disease. Therefore, for the present the jury is still out as to whether keratoconus is a inherited disease or not. Clearly, the chance of one of your kids developing the symptoms of the disease is less than one-in-seven.

I started wearing gas permeable hard contact lenses 5 years ago when I was diagnosed with keratoconus. I have recently started scratching and am experiencing much pain and discomfort. Should I stop wearing my lenses?

If you experience excessive discomfort, pain or blurred vision while wearing your rigid contact lenses, you should consult with your eye care practitioner. Discomfort may indicate the need for contact lens re-fitting or modification to your current lenses. It may also be indicative of a compromised cornea and the need for treatment with eye drops or temporary discontinuation of contact lens wear.

Is keratoconus more prevalent in males or females?

Approximately 60 percent of the 1,209 keratoconus patients enrolled in the CLEK study are male.

Does hormonal therapy play a role in this disease?

It has been reported in the literature that hormone supplements may cause minor steepening of the cornea’s curvature, but these changes are probably not clinically significant in affecting the natural course of keratoconus. More important clinically, hormone therapy may increase symptoms of dry eye leading to decreased lens tolerance and reduced wearing time.

Is there anything that can be done to alter the progression of keratoconus?

In the past many eye care practitioners felt that rigid contact lenses should be fitted flat relative to the curvature of the cornea to retard or decrease the progression of keratoconus. Concerns were raised that fitting the lenses too flat could result in insult to the corneal tissue and resulting scar formation. The current thought is that rigid contact lenses should be fitted only to optimize vision, not to alter the course of the condition, and the lenses should only lightly touch the cone.

I heard about a new surgery procedure that does not require corneal transplant. Is there information regarding clinics offering this procedure as an option to correct the keratoconus?

I am not sure what "new surgery procedure" you refer to. A few keratoconus patients are undergoing
What is the best way to find a skilled corneal surgeon?

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I heard about a new surgery procedure that does not require corneal transplant. Is there information regarding clinics offering this procedure as an option to correct the keratoconus?

I am not sure what "new surgery procedure" you refer to. A few keratoconus patients are undergoing
laser-assisted in situ keratomileusis (LASIK) and a plastic ring that’s inserted into the cornea is being worked on in Europe. But, in my opinion, the corneal transplant is still the procedure of choice for keratoconus. If I were you, I would consult with your eye doctor and/or a corneal surgeon to better determine what your options are.

I have had multiple episodes of rejection, ongoing photophobia in both eyes, and recent irritably in the left eye. I have been fitted with piggy back lenses in both eyes. A problem with the piggyback fit is that the hard lens that rests on the soft lens can roll or get blinked out rather easily, despite multiple fittings by a well-qualified optometrist.

I don’t think there are many advances in contact lenses for keratoconus. The piggyback lens is often used as an option in advanced keratoconus. You might seek a second opinion on your fit. Unfortunately, short of sunglasses and hats, we don’t have any wonderful solution for the photophobia some keratoconus patients experience.

What is a piggyback lens?

A piggyback lens system is one in which the patient wears a soft contact lens with a rigid gas permeable lens over it. Each lens is cared for separately, although with compatible solutions, and the lenses are inserted separately. A Softperm, or so-called hybrid lens, is actually a rigid gas permeable lens center bonded to a soft lens “skirt.” The lens is inserted and cared for as a single lens.

What are the rare, the newest and possible future treatments for keratoconus?

One rare treatment which is improved is gas permeable scleral contact lenses which fit over the entire front of the eye. “Semi-scleral” gas permeable rigid contact lenses are also used somewhat. These lenses cover the entire cornea like a soft lens does. Another approach which may be underutilized, although it is more work for both the patient and practitioner is piggy-back; a soft lens with a rigid lens over the top. Another twist to this treatment is using the new highly oxygen permeable silicone hydrogel as the soft lens and the best fit rigid gas permeable over the top.

Nonsteroidal anti-inflammatory drops (not FDA approved for keratoconus) are being tested to minimize discomfort for keratoconus.

In the distant future, using enzymes such as protease inhibitors to minimize corneal tissue changes in keratoconus or proteases to allow the cornea to be re-shaped will probably be investigated.

Are there any other treatment options besides corneal transplant?

When vision gets very poor (worse than you can tolerate to do your work or get through your day) or comfort with rigid contact lenses is not adequate for enough hours to satisfy our needs, corneal transplant is considered. Most practitioners recommend at least one more try with contact lenses in the hands of a very experienced practitioner and some patients would like to avoid surgery at all costs. Here are the advanced contact lens and some other options to consider:

- Piggy-back (soft lens under a rigid lens)
- Semi-scleral rigid lens (fits over he entire cornea and just beyond like a soft lens)
- Scleral lens (not fitted in many places)
- SoftPerm lens (a rigid center, soft periphery lens)

Also, consider asking an experienced corneal surgeon about phototherapeutic keratectomy. A small number of keratoconus patients may benefit from this laser procedure or other minor surgical procedures that are not as invasive as penetrating keratoplasty. However, LASIK or PRK laser procedures are rarely recommended for keratoconus patients.

Is there a relationship between wearing hard contact lenses and keratoconus?

Although even the scientific literature speculates about whether hard (or rigid) contact lenses may actually cause keratoconus, it is probably not the case. In any event, it is a "chicken and egg" argument. If a patient with early, subclinical keratoconus presents to his or her eye doctor, the patient might very likely get fitted with rigid contact lenses to optimally correct his or her vision. Then, when full-blown keratoconus develops, did the contact lenses cause it? You can see that we would never be able to answer that question as long as rigid lenses are the primary treatment for keratoconus.

How does keratoconus impact on activities of daily living?

Although keratoconus affects vision and often requires rigid contact lens wear (in 75% of the CLEK patients), there are few restrictions on activities imposed by having the condition. Patients can, literally, do anything they want and that their vision will allow them to do. This varies from patient to patient, of course, but we have keratoconus patients who scuba dive, perform surgery, work at computers all day, lift weights as a hobby, etc. In short, the sky’s the limit! When a patient’s
vision or contact lens tolerance no longer permits him or her to do the things that make life worthwhile, doctors often encourage patients to obtain a consultation about corneal transplantation.

**Do people wear contact lenses and glasses together to make vision better with keratoconus?**

Patients with mild presentations of keratoconus may be satisfied with their vision through spectacles or soft contact lenses. If the condition progresses and the cornea becomes more irregular in shape, the use of rigid contact lenses is generally required. Rigid lenses provide a uniform front optical surface resulting in improved quality of vision as compared to spectacle correction. Some keratoconus patients are prescribed spectacles to wear over their rigid contact lenses to correct an unacceptable amount of astigmatism or to provide a bifocal type of prescription.

**What are the scleral lenses like for people with this condition?**

Scleral (large diameter rigid contact lenses that cover the entire corneal surface) lenses are occasionally prescribed for more advanced keratoconus if standard designs are not successful. This is a more common practice in Europe than in the United States.

**What is a floater?**

A floater is one or more spots that appear to drift in front of the eye, caused by a shadow cast on the retina by vitreous debris. The vitreous humor is a clear, gel-like substance that fills the cavity behind the lens of the eye. Most floaters are benign and represent remnants of a network of blood vessels that existed prenatally in the vitreous cavity. The sudden onset of several floaters may indicate serious disease. Careful ophthalmologic examination through a well-dilated pupil is recommended for all people who experience a sudden occurrence of floaters. Please contact your eye care professional for appropriate evaluation and treatment. The technical term for floater is muscae volitantes

**I am undergoing a corneal transplant and am curious about what to expect.**

Although every patient's experience is different, there are some universal experiences that occur with corneal transplantation.

You should ask a prospective corneal surgeon specific questions about the experience. Inquire whether he or she thinks general or local anesthetic would be best for you. Ask how long you will be off work, restricted from lifting heavy objects, embargoed from showering, etc. Ask when you will receive your first

**Is it too late to be placed on the CLEK Study Newsletter, Insight, Mailing list?**

No, it is not too late. Everyday is an opportunity to join the current Mailing list which number totals 1,457 persons. This number includes 485 professional Doctors and is in addition to the 1,209 study participant mailing list.

We invite you to contact us by which ever method is most convenient for you. There is no fee or charge for the newsletter.

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http://optometry.osu.edu/CLEK

**The NKCF offers two free booklets:**


“Corneal Transplant Surgery: A Reference Guide for Patients and Their Families”

To receive a copy, call or write:

The National Keratoconus Foundation
Cedars-Sinai Medical Center
8733 Beverly Blvd., Suite 201
Los Angeles, CA 90048
800 521.2524
info@nkcf.org
http://www.nkcf.org
Spotlighting
STAFF

Jason Nichols, OD, MPH, The Ohio State University College of Optometry, completed his studies and earned a Masters in Public Health Degree in December 2002.

Carol E. Rosenstiel, OD, Co-Investigator, University of Alabama at Birmingham School of Optometry was promoted to Associate Professor during 2002.

Pat Sanders, Study Coordinator, University of Missouri, St. Louis (UMSL) concurs, “Mothers, really DO know BEST!”. Recently, two study participants’ annual reminder cards were returned by the USPS as “addressee unknown”. Subsequent to follow-up calls to contact information on file, Pat was able speak with the participants mothers, who in turn, provided updated contact information on the study participants! - - Thanks, Mom!

Theresa Berger, Study Coordinator, Pennsylvania College of Optometry (PCO) traveled with her two daughters to Paris, France in January 2003 for 7 days. Unfortunately, her son was unable to join them since his Marine reserve unit has been activated and is scheduled to go to the Iraq region. Theresa appreciates your thoughts and prayers.

Lanna Blue, Secretary/Administrative Assistant, joined the CLEK Chairman’s Office in August 2002. Lanna returned to the University following a brief stint in the private sector. Lanna has been extremely busy and valuable researching and documenting address changes to insure that the study participants receive their study reimbursement. She enjoys quilting and genealogy. According to Lanna, she has been “researching her family history looking for the missing link!”

Lourdes Aslain, BS, joined Southern California College of Optometry (SCCO) in the position of CLEK Study Coordinator.

SCCO’s Clinic Principal Investigator, Timothy Edrington, OD, MS, was pleased to report that Julie Yu has been officially ranked as CLEK Principal Investigator.

Dawn Marie McIntyre, LDO, Licensed Optician, joined University Ophthalmologist Inc., (CWRU) in February, 2002. Dawn has successfully completed testing and has been CLEK certified in Visual Acuity, Study Coordination and Keratometry.

CLEK Publications
as of October 10, 2002


CLEK - Topography Analysis Group (TAG)

CLEK Participating Clinics

The Ohio State University
College of Optometry
Chairman's Office
Study Coordinator: Jodi Malone, RN
(614) 688-5837

University of Alabama at Birmingham
School of Optometry
Study Coordinator: Maria Voce Stephens
(205) 934-6734

University at Berkeley
School of Optometry
Principal Investigator:
Nina E. Friedman, OD, MS
(510) 642-5456

University Hospitals of Cleveland
Department of Ophthalmology
Study Coordinator: Stephanie Shaffer, MA
(216) 844-7408

Gundersen Lutheran
Study Coordinators:
Jill Nelson, COT (608) 782-7300 (ext 52191) and
Janet Hess, COT, NCLC (608) 782-7300 (ext 52834)

University of Illinois-Chicago
Department of Ophthalmology
Study Coordinator/Technician/Photographer:
Tina M. Laureano (312) 996-5410

Indiana University
School of Optometry
Study Coordinator/Technician:
Donna K. Carter, BGS, AS
(812) 855-4093

UCLA School of Medicine
Jules Stein Eye Institute
Study Coordinator:
Lillian Andaya, NCLC, COA
(310) 206-6351

University of Missouri-St. Louis
School of Optometry
Study Coordinator: Patricia (Pat) Kay Sanders
(314) 516-5116

Northeastern Eye Institute
Study Coordinator: Patricia McMasters
(570) 340-8000

NOVA Southeastern University
College of Optometry
Study Coordinator: Arnie Patrick, OD (954) 262-1448

The Ohio State University
College of Optometry
Study Coordinator:
Lindsay Niccole Florkey, BS (614) 688-5367

Pennsylvania College of Optometry
Study Coordinator: Theresa Berger (215) 780-1417

Southern California College of Optometry
Study Coordinator: Lourdes Asiain, BS (714) 449-7490

SUNY State College of Optometry
Principal Investigator: David Libassi, OD (212) 780-5037

University of Utah
Department of Ophthalmology
Study Coordinator: Kimberley Wegner (801) 581-6265

CLEK
Collaborative Longitudinal Evaluation of Keratoconus Study
KERATOCONUS-LINK

Electronic Network for Keratoconus Patients and Eye Care Practitioners

The National Keratoconus Foundation moderates a worldwide forum for people with keratoconus. The forum is interactive and participation includes a host of eye care practitioners - optometrists, ophthalmologists and contact lens fitters. This is an opportunity to share "KC" experiences, concerns and subject matter that is of general interest to all subscribers as well as the opportunity for direct link to Information on other relevant Internet resources.

Individual diagnosis and medical advice is not offered and the forums intent is to build a camaraderie of support and does not substitute for a subscribers advice from their personal eye care professional.

Subscribers may choose either an Individual (multiple messages throughout the day) or Digest (one daily message with multiple attachments) participation format.

In order to subscribe to the list an email message should be directed to:

info@nkcf.org

or

a registration form can be completed at:

www.nkcf.org