How to Build Your Orthokeratology Practice

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Financial Disclosures

Speaker/Consultant: Blanchard
Boston Sight
Coopervision
Eaglet
Euclid
Paragon
Pentavision
Vistakon / Johnson & Johnson
Valley Contax
Wave

Speaker/Consultant:
Johnson and Johnson
Coopervision
Alcon

Acknowledgements/Thanks

Norman Leach, Patrick Caroline, Randy Kojima,

Sami El Hage, Katrina Parker

Leah Johnson, Melanie Frogozo

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🔊 **build**

/bɪld/

verb

1. construct (something) by putting parts or material together.
   "the ironworks were built in 1736"

   Similar: construct · erect · put up · assemble · set

2. make stronger or more intense.
   "we **built up** confidence in our abilities"

   Similar: boost · strengthen · increase · improve

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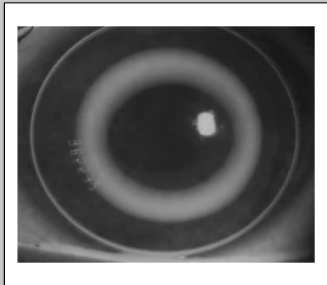
Orthokeratology Introduction

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Orthokeratology Defined

"The reduction, modification, or elimination of refractive anomalies by the programmed application of contact lenses or other related procedures."

Orthokeratology, vol. 1, 1972

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What is Orthokeratology?

- A.k.a. Corneal Reshaping
- Historically known as the temporary reduction of myopia via corneal reshaping GP contact lenses worn during sleep
- Freedom from daytime correction
- Can fit all ages!
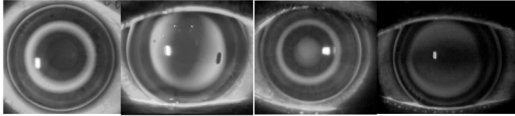- Strong roots in myopia control

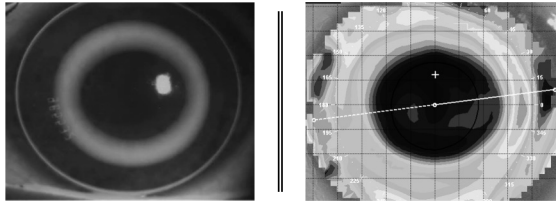2024-03-01

Contemporary Orthokeratology

Computer controlled precision lathes now allow for incredible accuracy

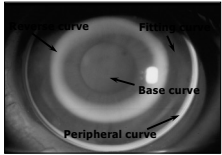### Myopia – Astigmatism – Hyperopia - Post-Lasik

2024-03-01   Images: Jaume Paune Fabre & Joan Perez; slide provided by Melanie Frogozo
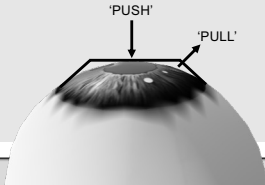
How Does it Work?

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Lens Geometry: 4 curve 3 zone

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How Does it Work?

- Push and pull… positive and negative force
- Need sealed lens for pressure system beneath the lens to work
- Ortho-k SUCKS!

'PUSH'   'PULL'
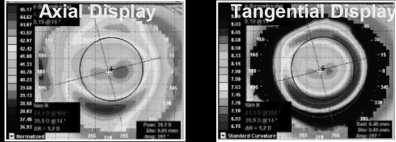

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Redistribution of corneal tissue

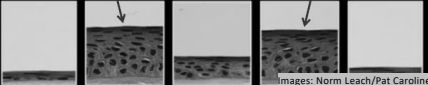**Apex:** Reservoir thickness between 5-10 microns

Reverse Curve: Reservoir thickness between 30-60 microns

Corneal epithelium becomes dehydrated, losing cytoplasm and becoming thin.

Corneal epithelium under the reverse curve takes in the fluid increasing the volume of cytoplasm and becomes thicker

Axial Display   Tangential Display

Increasing (+) Power Over the Pupil

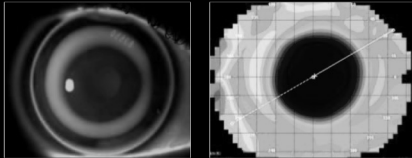2024-03-01   Images: Norm Leach/Pat Caroline

What does the data tell us?

Very little epithelial tissue compression is needed to obtain rather significant changes in refractive error.

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Positive Impact on Vision-related Quality of Life

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Positive Impact on Vision-related Quality of Life

1. Clarity of vision at distance and near
2. Less activity restriction
3. Greater self-image/confidence
4. Elimination of Daytime contact lens wear symptoms (dryness, itching, discomfort)
5. Less glare than LASIK

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Why Fit:

1. Children?

2. Adults?

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PROs of OrthoK for Young Children

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Orthokeratology Candidacy

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Best and Worst OrthoK Candidates

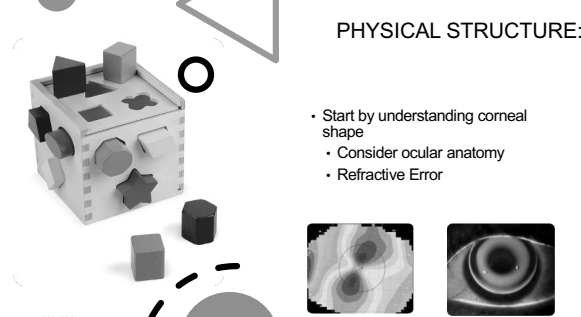| BEST ORTHOK CANDIDATES	PATIENTS TO AVOID FOR ORTHOK

• Myopia -6.00 sph / -1.75 cyl
• Keratometry 37D to 52D
	• ATR astigmatism
	• Limbus to Limbus astigmatism
	   • Though DUAL AXIS can be helpful
	• Lenticular astigmatism
	   • Inside the eye, cannot correct easily on the cornea
	• Ocular conditions that contraindicate CL wear

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Orthokeratology Candidacy Considerations

• Always consider (in addition to physical structure of eyes)
  • Age
  • Attention/maturity
  • Lifestyle/Hobbies
  • Experience of parents or siblings
  • Dexterity
  • Motivation

• **PHYSICAL STRUCTURE…**

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PHYSICAL STRUCTURE:

• Start by understanding corneal shape
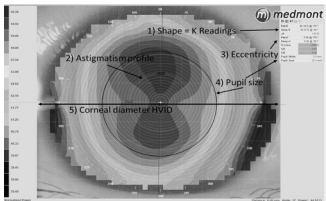 • Consider ocular anatomy
  • Refractive Error

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Physical Structure: Baseline Maps

Helpful to identify

Initial shape

Astigmatism profile

Eccentricity

Pupil size

Corneal size

1) Shape = K Readings
2) Astigmatism profile
3) Eccentricity
4) Pupil size
5) Corneal diameter HVID

It also provides for the difference map comparison to be acquired at each follow-up visit!

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Image: Leah Johnson

Myopia Management with Orthok

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Myopia Control with Orthok

Peripheral Plus

Central Flattening

The Role of Orthokeratology in Myopia Control: A Review

Michael J. Lipson, o.o. f.a.a.o. f.s.l.s., Maya M. Brooks, m.o. and Bruce H. Koffler, m.o.

FEATURE ARTICLE ON LINE

Orthokeratology for Myopia Control: A Meta-analysis

Jun-Kang Si*, Kai Tang*, Hong-Sheng Bi*, Da-Dong Guo*, Jun-Guo Guo*, and Xing-Rong Wang*

ABSTRACT

Purpose. To conduct a meta-analysis on the effects of orthokeratology in slowing myopia progression.
Methods. A literature search was performed in PubMed, Embase, and the Cochrane Library. Methodological quality of the literature was evaluated according to the Jadad score. The statistical analysis was carried out using RevMan 5.2.6 software.
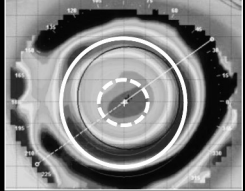*Results.* The present meta-analysis included seven studies (two randomized controlled trials and five nonrandomized controlled trials) with 435 subjects (orthokeratology group, 218; control group, 217) aged 6 to 16 years. The follow-up time was 2 years for the seven studies. The weighted mean difference was −0.26 mm (95% confidence interval, −0.31 to −0.21; p<0.001) for axial length elongation based on data from seven studies and −0.19 mm (95% confidence interval, −0.33 to −0.05; p < 0.02) for vitreous chamber depth elongation based on data from two studies.
Conclusions. Our results suggest that orthokeratology may slow myopia progression in children. Further large-scale studies are needed to substantiate the current result and to investigate the long-term effects of orthokeratology in myopia control.
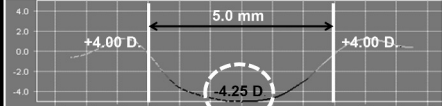(Optom Vis Sci 2015;92:252–257)

Key Words: orthokeratology, myopia, myopia progression, myopia control, axial length, meta-analysis


Rule #1
In OK
The distant optical zone is only 1 to 2 mm in diameter

Rule #2
The amount of plus power in the periphery equals the amount of minus power corrected

5.0 mm

+4.00 D.   +4.00 D.

-4.25 D

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Images: Norm Leach/Pat Caroline

Applications for Orthokeratology 'Outside of the Box'

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Dry Eye
Soft lens dropout

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Hyperopia, Monovision

- Not FDA approved in the US for hyperopia
- Off-label
- Aim to steepen the central cornea
- Can use in presbyopia (monovision) and low to moderate hyperopes
  - Monovision: intentional under-correction of the near (non-dominant) eye

- Future uses include possible intended axial length increase…
  - Opposite of myopia management but same principles of optical defocus theory

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Post-lasik (correct residual refractive error)

- Patients have great motivation for freedom from spectacle or contact lens correction during the day
- Difficult and not commonly done… consider enhancements w OMD

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Athletes

- Excellent application for the use of orthokeratology
- Water sports
- Contact sports
- High speed/wind conditions

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Safety

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Safety: What Does the Literature Say?

- Mind your safety education and compliance
  - **Do not minimize risk factors**

- Have peer-reviewed resources

- ***When used as directed contact lenses are safe for kids & adults***

Equip Yourself & Your Clinic

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Equipment Needs

- Slit Lamp
- Contact Lens Fitting Equipment and Materials
- Topographer
- Axial Length (in the myopia clinic)
- Refractive lane

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Fitting Techniques

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Toric Ortho-K: the (not so) New 'Black'

- Analogous to where we have gone with Scleral Lens fitting?
- Each patient has a unique 'ocular fingerprint'
  - **Spherical Cornea**
  - **Regular Astigmatic Cornea**
  - Irregular Cornea

Though not all patients need toric…

How to choose your lens design?

- Find a system that fits in your practice… consider geography/shipping, consultation service, products

- Choose the design that works best for you and become an expert in that design

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Orthokeratology Fitting Styles

Paths to Fit

1. Diagnostic

2. Empirical

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Orthokeratology Case

- 6yo male, unremarkable health,
- (+)fhx Mother -4.00; Father -6.00
- Jan 2016: -1.50 OU
- Oct 2017: -2.75/-2.50
  - Recommended myopia control, patient did not proceed
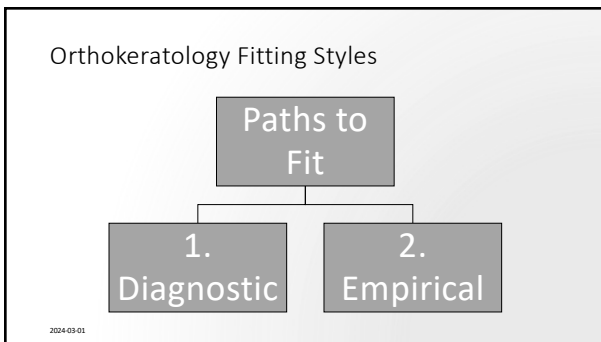- April 2018: 4.00/-3.75
  - Started atropine drops
- April 2019 (9yo) : -4.50/-4.25
  - Add adjunct therapy…. Soft Day Wear vs Hard Night Wear

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Orthokeratology Case

- Competitive BMX Biker
- No older siblings with contact lenses
- Parents wear glasses
- Mom likes the idea of no glasses or contact lenses during the day

- **NEED TO EVALUATE STRUCTURE**

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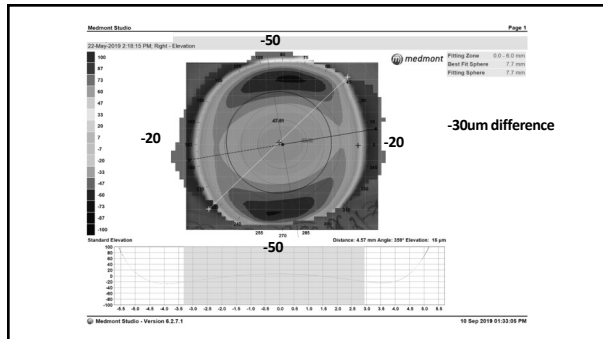## Orthokeratology Case:
Contact Lens Therapies

ORTHOKERATOLOGY	SOFT MULTIFOCAL
Sphere between -1.75 and -6.00 Cylinder up to -2.00 (WTR is best) Avoid limbus-to-limbus	Low sphere <-1.50 High sphere >-6.00 High cylinder >-2.00
Very young patients Swimmers	Parents or siblings that wear soft lenses
Larger pupil size	Smaller pupil size

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-4.50 SPEC RX

HVID

-50

-20   **-20**

-30um difference

-50
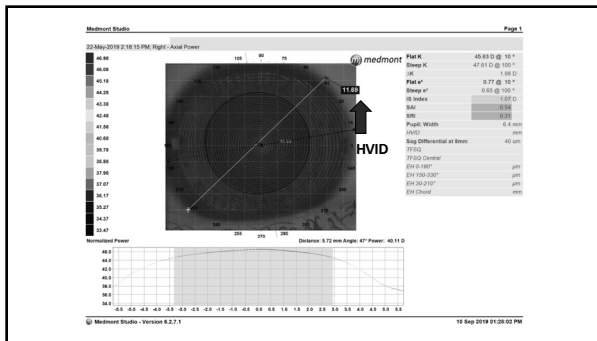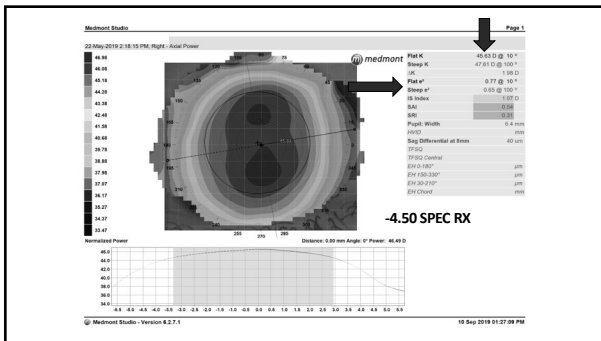
Empirically Ordered Orthokeratology Lens Results

- ◆ 1 Day: 50% reduction
- ◆ 1 Week: Trace central SPK and 80% reduction
- ◆ 1 Month: doing well

'Empirical' Design in Pediatric Practice

- Empirical contact lens design offers significant advantages
  - **Save resources**
    - Time – patients/parents, technicians, **YOURS**
  - **Psychology of contact lens fitting in kids**
    - Fear of the unknown in new fits at initial visits
    - Works well to set kids up with 'positive mind priming' prior to first time lens application
  - **Logistics of myopia management**
    - Already lots of extra testing – Health Eye Exam, Myopia Consultation, CL fit
      - Children get tired
      - Empirical fit or separate lens fitting visit recommended

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Difference Display Maps in Corneal Topography to Measure Treatment

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Difference Display Maps: Which Map Best Tells Us Centration?

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AXIAL POWER DIFFERENCE DISPLAY MAP

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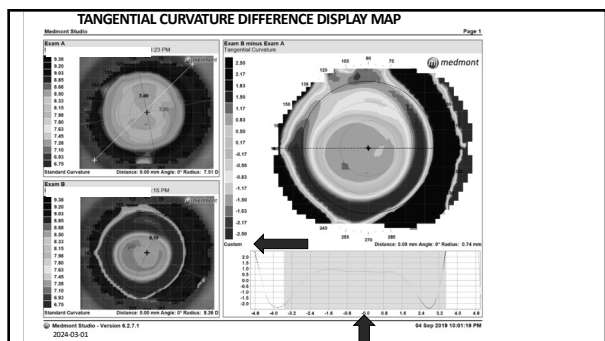**TANGENTIAL CURVATURE DIFFERENCE DISPLAY MAP**

TANGENTIAL CURVATURE DIFFERENCE DISPLAY MAP
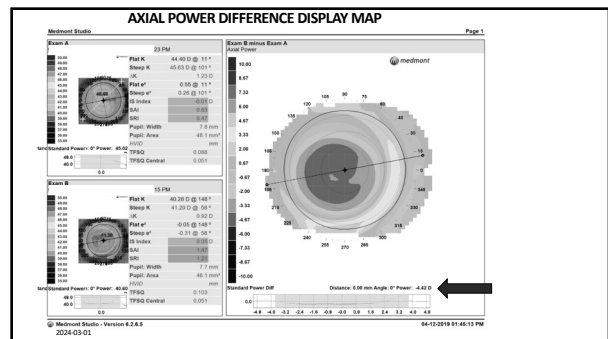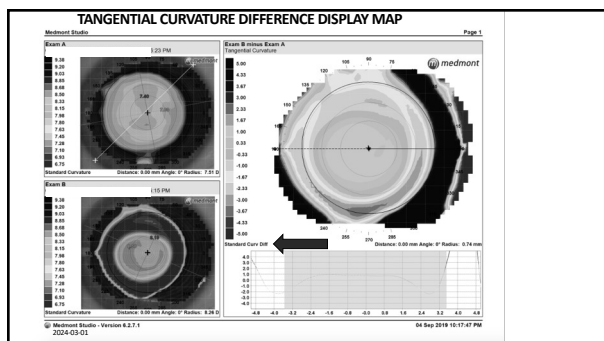
Proper Fitting Characteristics

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Lens Evaluation in Effective Ortho-k

1. Centration
2. 3-4mm Base Curve/Treatment Zone
3. Uniform mid-peripheral alignment 360°
4. Appropriate edge lift

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Image: Jane Beeman

Appointments and Clinical Testing

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Sample Follow-Up Schedule

Next day

As early as possible with or without lenses... up for debate

Lens adherence...

One week

One month

Three months

Six months

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Sample General Testing for Follow-up Visits

- Unaided visual acuity
- Refraction with BCVA
- Slit-lamp examination
- Corneal topography
- Record time of visit
  - Time lenses were worn
  - Time lenses were taken off
- Inspect lenses
- History of cleaning and conditioning solutions

Remind Patient:
Bring lenses with you to every visit

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Ortho-K Follow-Up Protocol: Day 1

- Check VA
- Slit-lamp examination/corneal health
- Corneal topography: axial, tangential, difference maps
- Record time of visit: time lenses worn, on/off
- Inspect lenses
- Double check on solution use
- Do not make lens changes too quickly (consider 7-14 days)
- Schedule next visit

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Extra Special Testing Considerations

- Pupil Size
- Binocular Vision Testing
  - Accommodative lag
  - Accommodative amplitude
- Dry Eye Testing
  - Contact lens wear is associated with dry eye
  - Atropine contains harsh preservatives
  - DED exacerbated by increasing use of screens in youth

2024-03-01   (2019) Invest Ophth Feb: IM Edition
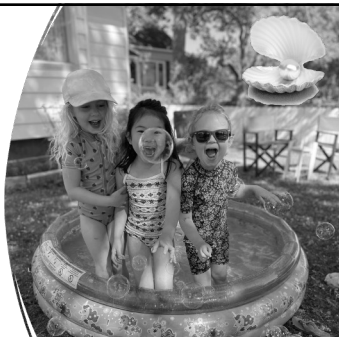
Communication + Clinical Pearls

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Embrace Contact Lenses for Youth

- Perception
  - Fear
  - Attention
  - Difficult Application/Removal
  - Non-compliance
- Reality
  - Trust
  - Motivation
  - Coachable
  - Lower complication rate
- ALWAYS REINFORCE COMPLIANCE

Kids are a great source of FREE advertising!

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Create an Appeal for Kids

Education is Key

- Safety & handling compliance education is key for all contact lens wearers to avoid red eye
  - Training Staff
  - Training Patients

Train Your Staff

- Quality of care of patient experience relies on your technicians in smooth business model
  - Initial phone triage
  - Consultation appointment
  - Contact lens fitting technicians
    - Spend extra time teaching topography
  - Application and removal training PROs
  - Assistance with marketing and social media

Develop a Clear Vision

Systems and protocols are essential for CLINICAL SUCCESS

Create (1) exam flow and (2) fee structure that pays for your expertise

Have (many) Conversations with Your Industry Partners

- They are 100% committed to positive patient health outcomes and experiences

- Your practice management success is a priority for them

- Provides you with networking opportunities

- Stay up to date with products and technology, patients appreciate that

Business Aspects of Orthokeratology

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Amazing Practice Builder!

- High revenue per patient
- Low competition
- No or minimal vision plan involvement
- Patient loyalty
- Patient referrals

Growth

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Costs of Orthokeratology (Ortho-K)

Range: $1,000 - $4,000

(includes an eye exam, the fitted lenses and some of the follow-up care)

Costs increase with a higher level of refractive error because you'll need more than one fitted lens
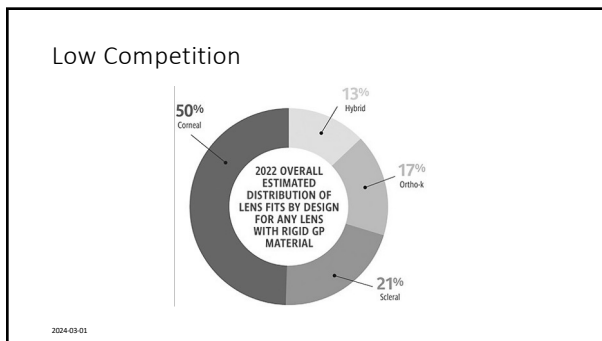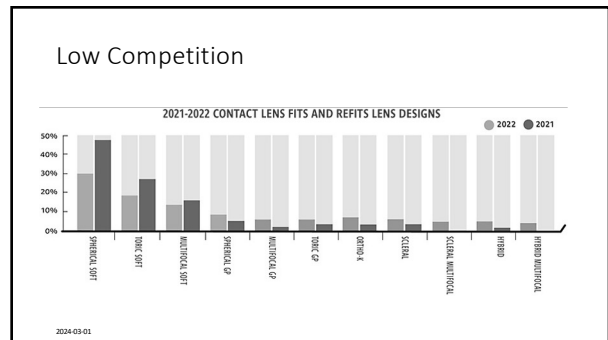
(or more than one pair of fitted lenses)

Low Levels of Error: $1,000 - $2,000

High levels of Refractive Error: $4,000

Retainer Lenses: $300 - $500

After Second Year: $650 per year

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Low Competition

2021-2022 CONTACT LENS FITS AND REFITS LENS DESIGNS

● 2022 ● 2021

(Bar chart with categories: SPHERICAL SOFT, TORIC SOFT, MULTIFOCAL SOFT, SPHERICAL GP, MULTIFOCAL GP, TORIC GP, ORTHO-K, SCLERAL, SCLERAL MULTIFOCAL, HYBRID, HYBRID MULTIFOCAL; vertical axis 0% to 50%)

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Low Competition

50% Corneal

13% Hybrid

17% Ortho-k

21% Scleral

2022 OVERALL ESTIMATED DISTRIBUTION OF LENS FITS BY DESIGN FOR ANY LENS WITH RIGID GP MATERIAL

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No or Minimal Insurance Coverage

Your standard vision/health insurance will not cover orthokeratology treatments because they are considered **elective procedures**.

Health savings accounts may help you cover some of the costs of orthokeratology and follow-up eye exams.

Flexible spending account, or FSA
Medical spending account, or HSA
Tax saving plan

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So what is the challenge?

Types of Marketing

- Internal Marketing
  - Targeting patients that already exist in the practice
- External Marketing
  - Targeting patients that haven't worked with you before

Internal Marketing - Orthokeratology

- Front desk appointments
  - Script: "Are you scheduling for orthokeratology or a routine exam?"
- Signage within the office
  - What is your patient seeing, reading or listening to in the waiting room?
- Utilizing the information received at check-in
  - How are you using email addresses?
- Multiple advocates
  - Are you the only one presenting orthokeratology as an option?
- Are you an advocate
  - When are you presenting orthokeratology as an option?

Internal Marketing TIP!

- Must have ~~a SYSTEM~~ a PERSON in place
  - Who is fielding all of these referrals?
  - Who is answering all of their questions?
  - Who is following up with leads?

It is vital to have someone in the practice who's role is to support and act on your leads.

Empower That Staff Member!

- Resources to succeed
  - Adequate training
  - Space to cater to prospective patients
  - Personal contact information (email, phone line, etc.)
  - Applications to monitor leads

- Motivate them
  - Higher pay – Management position?
  - Set goals and rewards
  - Commission based

External Marketing - Orthokeratology

- Traditional marketing
  - Radio and television advertising done correctly
- Billboards and Signage
  - Advertisements placed in high volume areas to get peoples attention
- Targeted Google Ads
  - LASIK alternative, Orthokeratology, No more glasses
- Retargeting Ads
  - Sending constant reminders to people that have come across your ads
- Social Media
  - Understanding how to use the different platforms

Slide 1

Traditional Media **TIP!**

Every Door Direct Mail

PRSRT STD
ECRWSS
U.S. POSTAGE
PAID
EDDM Retail

****************ECRWSSS*****
Local
Postal Customer

PROVIDED BY **UNITED STATES POSTAL SERVICE** ®

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Slide 2

Refine Search

View as: Map Table

Route	Residential	Business	Total	Age: 25-34	Size	Income	Cost
—	—	—	—	—	—	—	—

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Map Key — Show

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Slide 3

Orthokeratology is an AMAZING option!

Don't Keep it To Yourself

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Slide 4

Thank-You!

Orthokeratology lenses can (and do) change lives for the better in a multitude of indications; your education and hard work can build a successful business model.

sheilamorrison000@gmail.com
jcompton@comptoneye.com

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