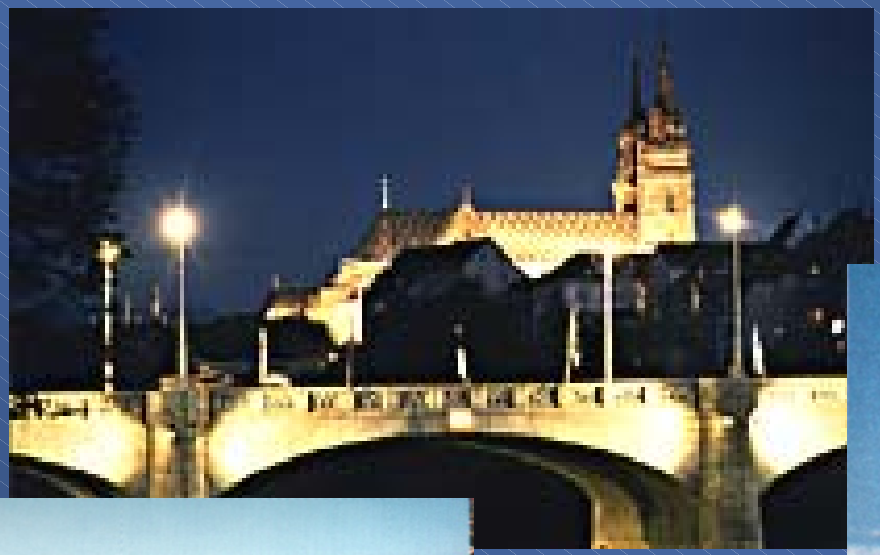
Primary care over there:
Basel + Bern, Switzerland



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Multifocal RGP contact lenses for aphakic children

M i c h a e l B a e r t s c h i

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Overview

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Objectives

To present to the audience new ways and possibilities for optical help for aphakic children.

To offer a new thinking of fitting young children with contact lenses instead of eyeglasses.

Introduction

3/10‘000 new born babys need cataract surgery (congenital cataract)

1/10‘000 toddlers need cataract surgery due to systemic diseases or traumas (infantil cat.)

100 % of them need a optimal optical device

Source : MedLine/PubMed (Spain,Sweden,GB,USA)
Appr. 29‘000 / year in the US/Canada and Europe

Introduction

Traditional optical or surgical devices :

- Eyeglasses (SV, bifocal, multifocal)
- Contact lenses (SV)
- Contact lenses (SV) and eyeglasses
- IOL and eyeglasses
- Multifocal IOL or Epikeratotomie

Introduction

Currently best optical results :

- Contact lenses (SV)
- Contact lenses (SV) and eyeglasses
- IOL and eyeglasses
- Multifocal IOL (only with monkeys)

Contact lens or IOL (SV)

CL or IOL and bifocal eyeglasses

Introduction

Children are probabely handicapped by wearing sub-optimal optical devices in their:

- Social environment
- Mobility
- Personal development (Spychosocial problems like: anxouis/depressed, attentions problems, agressives behavior,delinquent behavior,.....)

Source : Roger L. Hyatt,MD : „Rehabilitation of children with Cataracts“ 1998 and patient/parent questionaire at the University Eyeclinic Basel 2000

Purpose

To support aphakic children in their visual and personal development with optical devices, by fitting multifocal contact lenses.

Methode

Fitting of multifocal RGP contact lenses to correct ametropia, astigmatism and aphakia.

High Dk-RGP contact lenses because of:

- physiological reasons (Boston XO, HDS 100)
- enormous technical possibilities
- optical or anatomical changes are easy to handle
- children well tolerate RGP CL‘s (age dependend 75-95%)*

* Source : Amaya et al.,Amos et al.,Neumann et al.,Moore, ...

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Methode

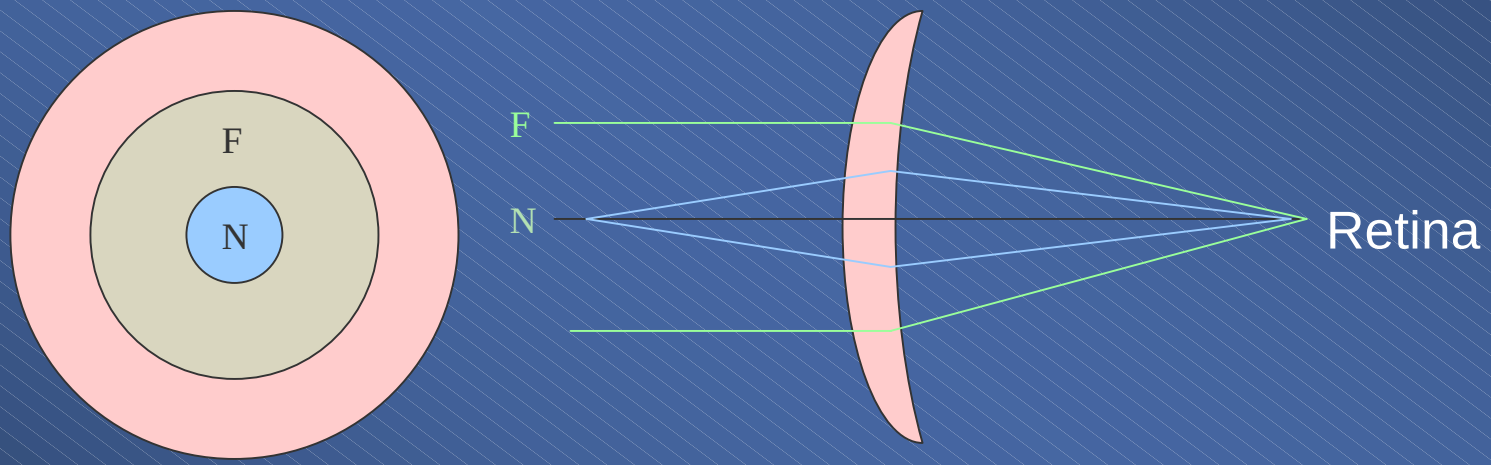
Methode (Estimation table)

Age	Ametropia	CL Basecurve	Add.Near
1. Month	+ 35 dpt	6.80 - 7.00 mm	+ 6.00 dpt
6. Month	+ 30 dpt	7.00 - 7.20 mm	+ 5.00 dpt
1 Year	+ 25 dpt	7.20 - 7.40 mm	+ 4.00 dpt
2 Years	+ 23 dpt	7.40 - 7.60 mm	+ 3.75 dpt
3 Years	+ 21 dpt	7.60 - 7.80 mm	+ 3.50 dpt
5 Years	+ 20 dpt	7.60 - 8.00 mm	+ 3.25 dpt
8 Years	+ 18.5 dpt	7.60 - 8.00 mm	+ 3.00 dpt Text

Table invalid for Microphthalmus or Megalocornea !

Methode

Bifocal Systems (Falco, Switzerland)

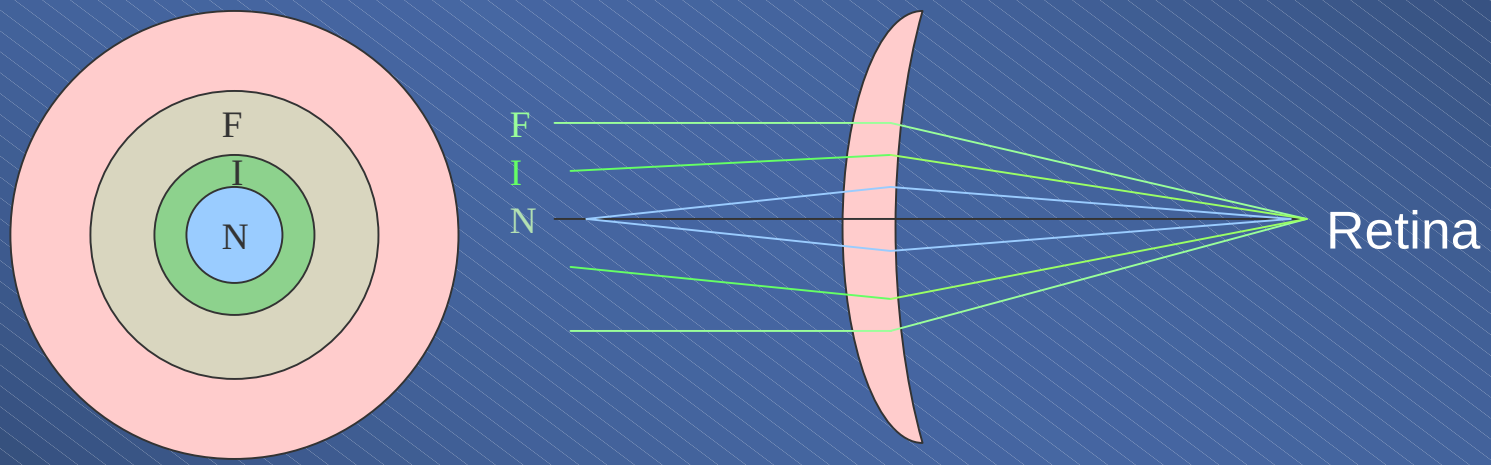


Available :

Power +/- 35.00 dpt; Cyl. Up to –10,0 dpt ; Axis 0°-179°; Basecurve 4,0 bis 9,9 mm ;
Progression 0,75 bis 6,00 dpt; Ø 6,0 bis 15,0 mm; Boston or Paragon Materials,
Diameters of all optic zones variable

Methode

Multifocal and Trifocal Systems (Falco, Switzerland)



Available :

Power +/- 35.00 dpt; Cyl. Up to –10,0 dpt ; Axis 0°-179°; Basecurve 4,0 bis 9,9 mm ;
Progression 0,75 bis 6,00 dpt; Ø 6,0 bis 15,0 mm; Boston or Paragon Materials,
Diameters of all optic zones variable

Methode ⓘ T I P ⓘ

1. CL diameter as large as possible and as small as needed for good centration.
2. CL geometry fit slightly tighter then for most adultes. (e.g. parallel to cornea)
3. Size of front optic zone as small as possible for thin lens design, but + 2mm larger then the visible pupil diameter.
4. Use only white or slightly colored materials. (e.g. Ice blue)

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R e s u l t s

Francesca, 5 years

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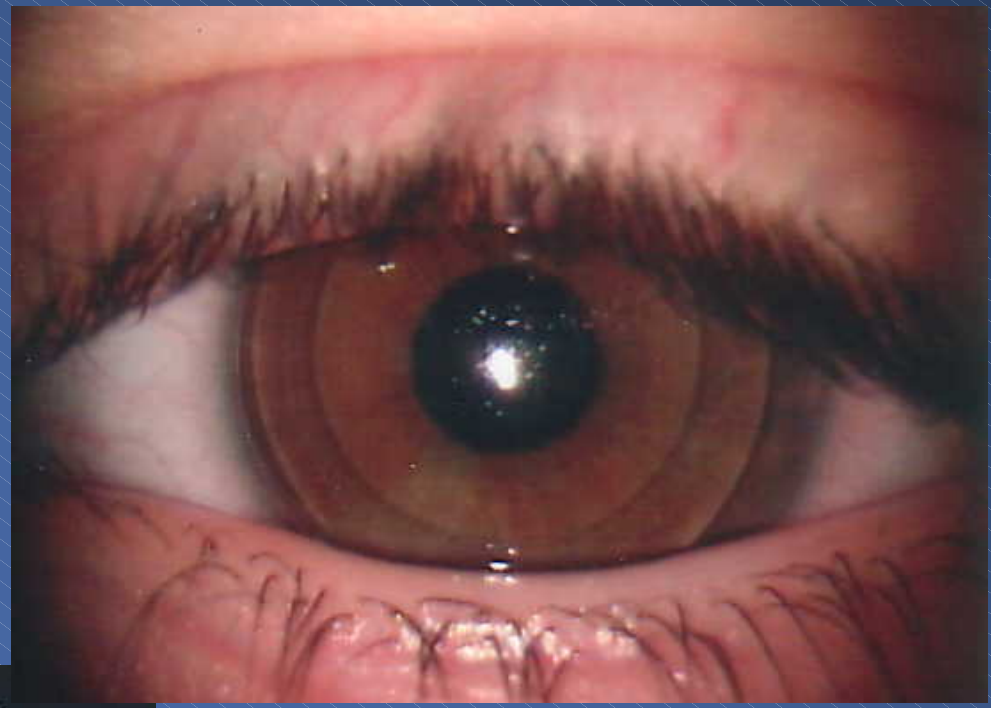
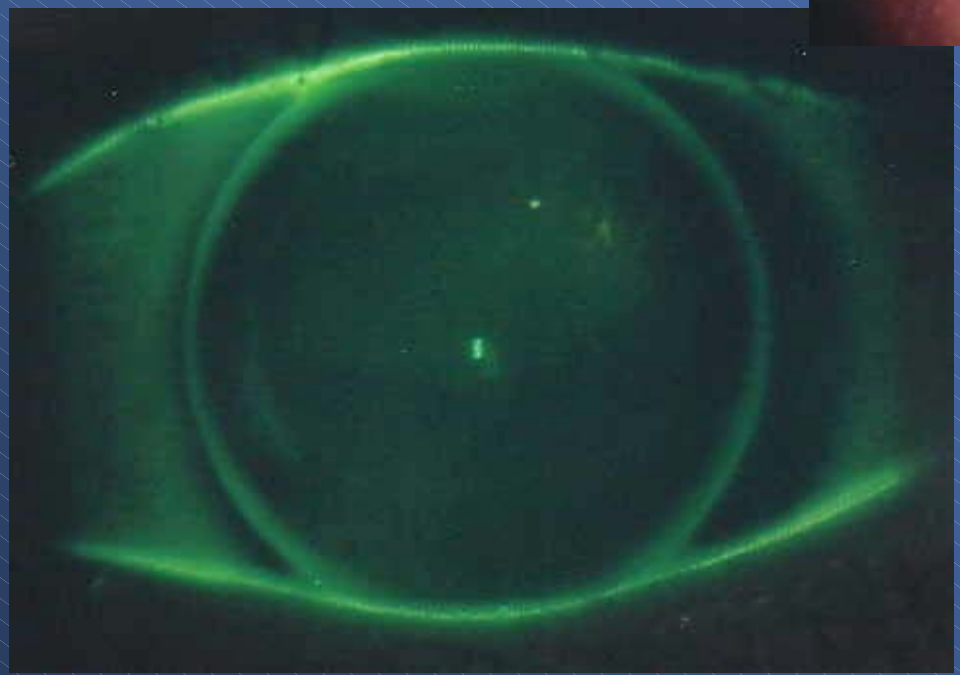
Multifocal RGP‘s





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Multifocal RGP CL

Contact lens or IOL (sv)

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Multifocal RGP CL

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Francesca, 6 years

Michael, 2 years

Michael, 2 years

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Multifocal RGP CL

CL or IOL and bifocal eyeglasses

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Multifocal RGP CL

Jessica, 6 years

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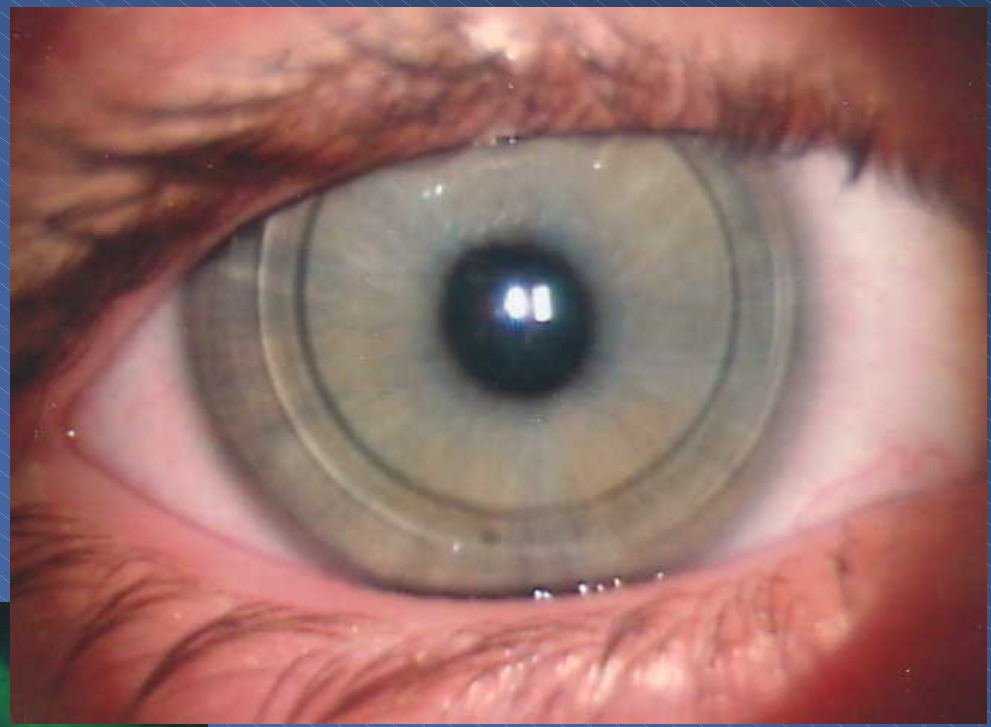
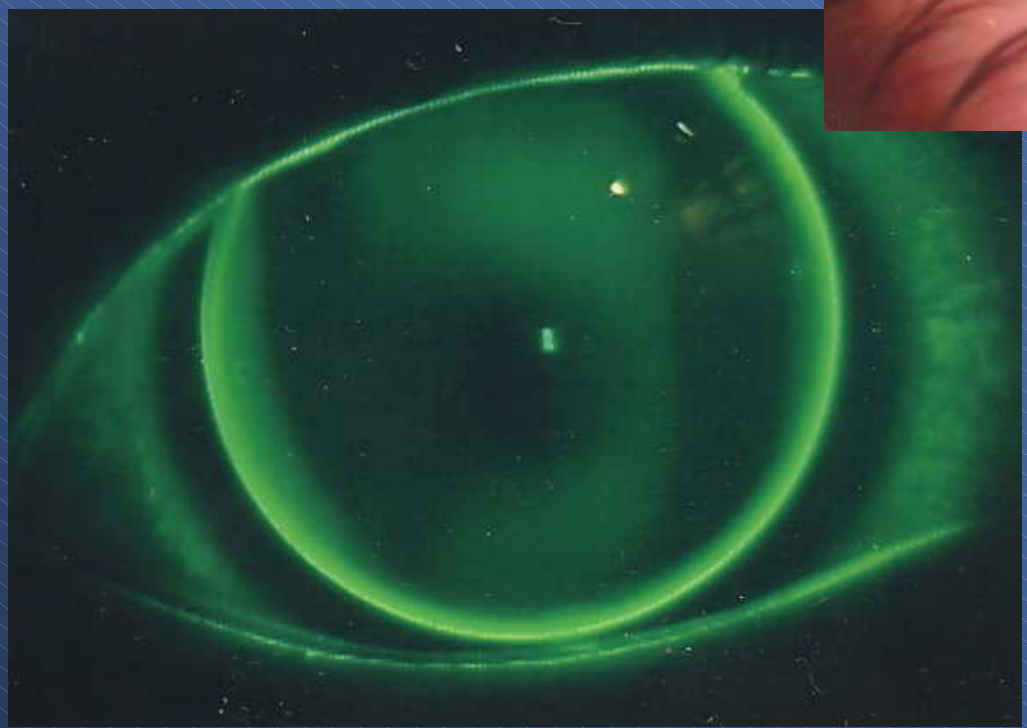
Multifocal RGP‘s





Jessica, 8 years

Results 1

92 % of all babys, toddlers and pre-school children, new fitted with SV or multifocal RGP CL at the University Eyeclinic Basel, are wearing their RGP CL‘s every day successfully.

(n = 24 / 10 month)

Results 2

All of the aphakic children, fitted with multifocal RGP CL, are developping higher social competences and attitudes, are more mobile and are more socially integrated then they were with their old bifocal glasses.

(Source : Parents and health care personal questionaire University Eye Clinic Basel 2000 / 2001; n = 8)

Results 3

Multifocal RGP CL :

- ✓ Support amblyopia therapy
- ✓ Assist to prevent monocular dominance and help to develop some binocularity
- ✓ Are easy to handle and to clean
- ✓ Are safe

Discussion

Children are tolerating RGP CL‘s very well.

They can be fitted with RGP‘s as young as 8 weeks of life.

The usually have less ocular problems then adultes.

Multifocal RGP CL‘s let them grown up „normal“ as every other child.

Thank you !

In the name of
this children.