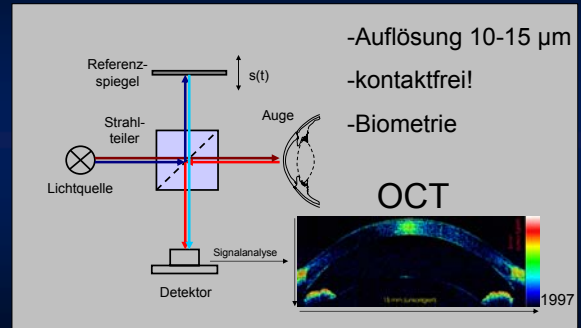


Neue Entwicklungen zum Vorderabschnitts-OCT

Christopher Wirbelauer

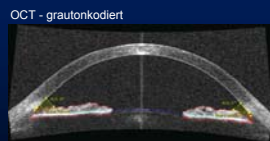
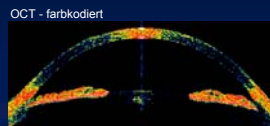
Klinik für Augenheilkunde
Vivantes Klinikum Neukölln, Berlin
Direktor: Prof. Dr. D.T. Pham

Optische Kohärenz-Tomographie



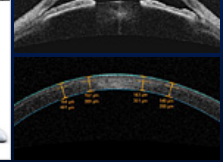
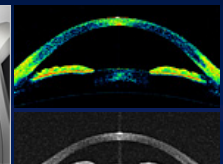
SL-OCT (Heidelberg Engineering)

- Axiale Auflösung 10 μm
- Wellenlänge 1310 nm
- Scangeschwindigkeit 200 Hz
- Max. Bilddurchmesser 15 x 7 mm



Visante-OCT (Zeiss-Meditec)

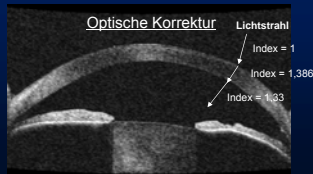
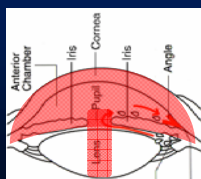
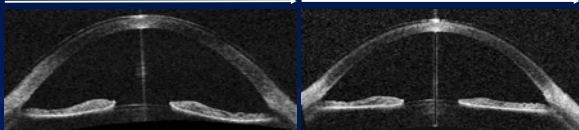
- Axiale Auflösung 18 μm
- Wellenlänge 1310 nm
- Scangeschwindigkeit 2000 Hz
- Max. Bilddurchmesser 16 x 6 mm



Vorderabschnitts-OCT Vergleich

SL-OCT

Visante-OCT



Klinischer Einsatz

Informationszuwachs (n=233):

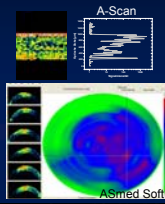
- Hornhaut / LASIK 28% (65)
- Vorderkammer / Kammerwinkel 37% (85)
- Linse / IOL 36% (83)



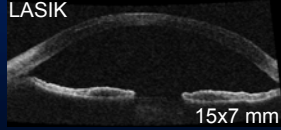
Hornhaut

- OCT-Pachymetrie
- Kontaktlinsenanpassung
- Keratokonus
- Glaukomdiagnostik
- Refraktive Chirurgie
- Flap/Reststroma (Interface)
→ Nachbehandlungen!

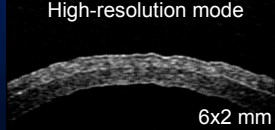
OCT-Pachymetrie



LASIK

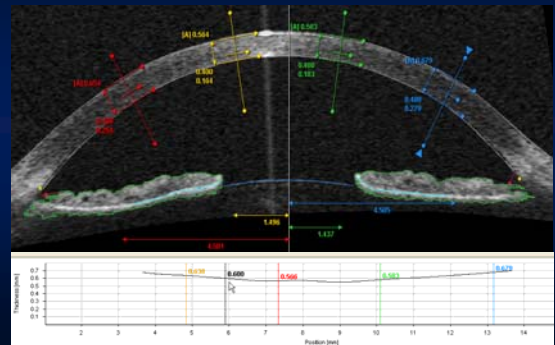


High-resolution mode



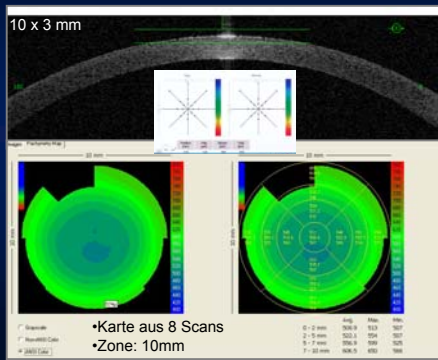
Pachymetrie-Profil

SL-OCT



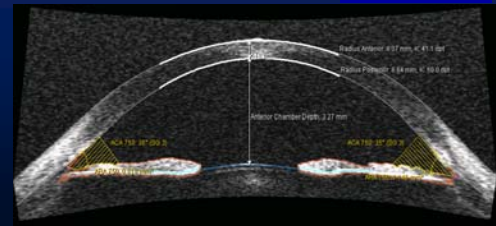
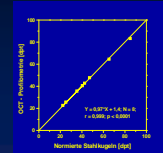
Pachymetrie-Karte

Visante-OCT



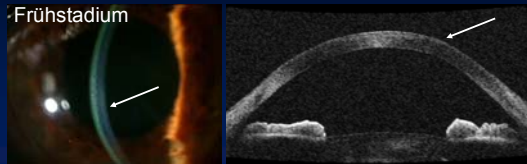
Profilometrie

- Profilometrie:
- Vorderfläche
 - Rückfläche!
 - Gesamt – Brechkraft

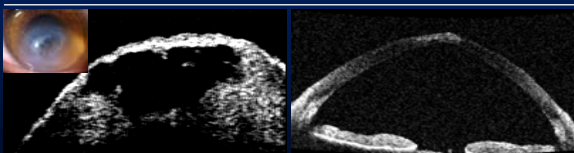


Keratokonus

Frühstadium

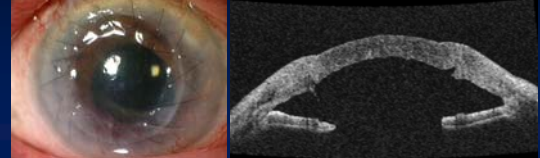


Spätstadien

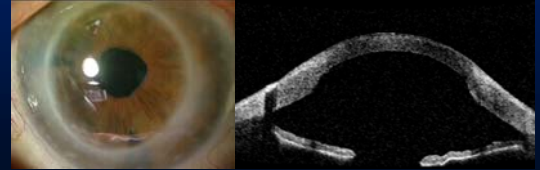


Hornhaut-Transplantation

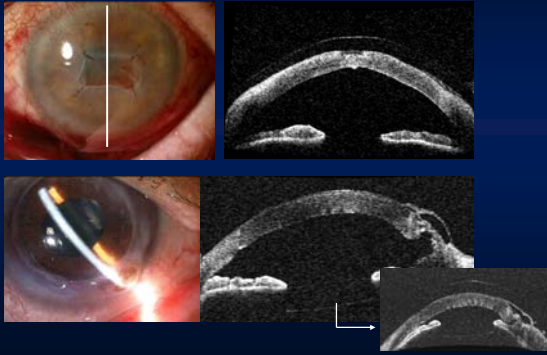
Nach 1 Woche



Nach 1 Jahr



Trophische Störungen Amniondeckung und Kontaktlinse



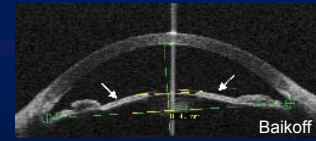
Biometrie der Vorderkammer

Parameter:

- Zentrale ACD
- Reale ACD!
- VK-Volumen
- Kammerwinkel
- Kammerwinkelabstand
- Pupillendurchmesser

Funktionen:

- Akkommodation
- Zunahme der Linsendicke



Einsatz:

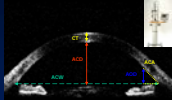
- Katarakt-OP
- Glaukom
- Phake IOL

Maximale Bewegung der Linse:

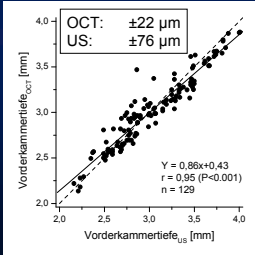
20 Jahre	300 µm
40 Jahre	100 µm
65 Jahre	0 µm

Vorderkammertiefe

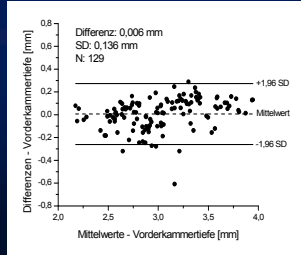
- 49 Patienten zur Kataraktoperation
- OCT (SL-OCT, Heidelberg Engineering)
– Biometrie der Vorderkammer!
- Ultraschall-Biometrie (A+ Auto Scan, Sonomed)



Lineare Regressionsanalyse

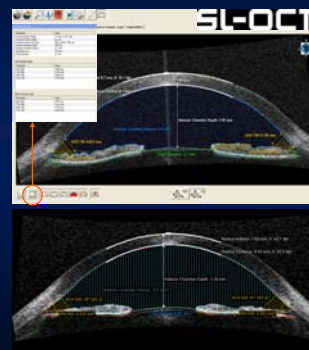


Bland-Altman-Analyse

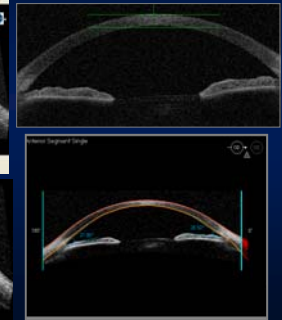


Automatische Biometrie

Komplette automatische Biometrie der vorderen Augenabschnitte



Visante-OCT



Phake Intraokularlinsen

Indikationen:

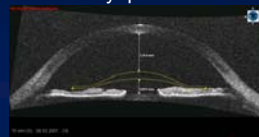
- dünne Hornhaut $< 500 \mu\text{m}$
- hohe Korrekturen $> -10 \text{ D}$
- Vorderkammertiefe $> 3,0 \text{ mm}$



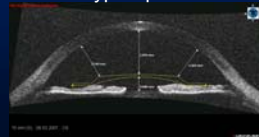
Irisklauenlinse (Verisyse/Artisan)

Simulation

Myopie-IOL



Hyperopie-IOL

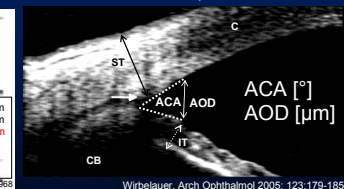
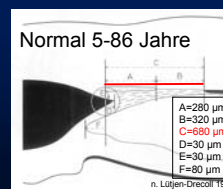


Glaukom-Diagnostik

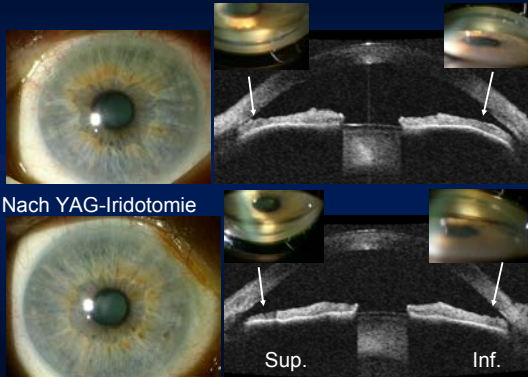


Digitale Gonioskopie:

- Anatomie:
 - Trabekelwerk
 - Schlemm Kanal
- OCT:
 - Sklerasporn
 - $500 - 750 \mu\text{m}$!

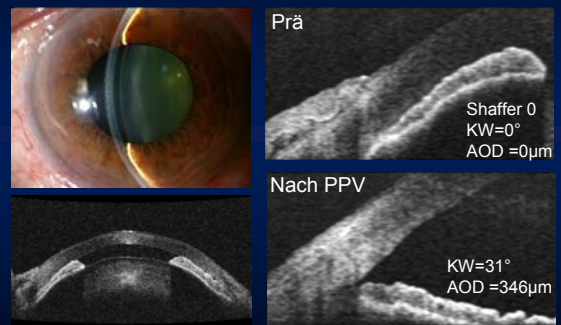


Plateauriris



Malignes Glaukom

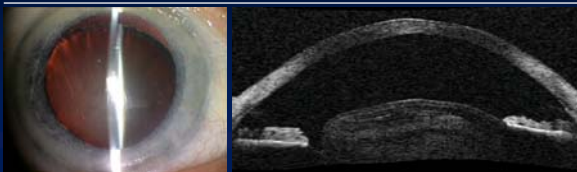
Malignes Glaukom nach fistulierender Glaukomoperation



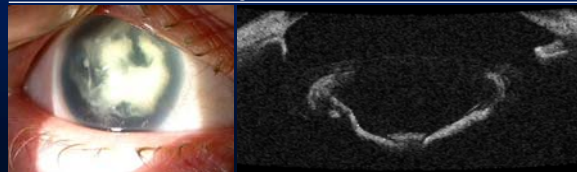
Wirbelauer. Br J Ophthalmol 2003; 87:952-955

Linse

Subluxatio lentis



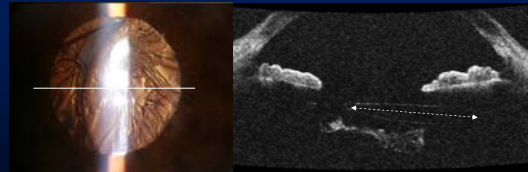
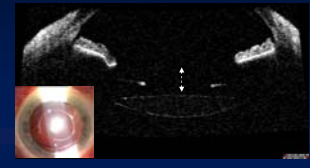
Kongenitale Katarakt



IOL-Darstellung

IOL:

- Axiale Verlagerung
- Dezentrierung
- Verkipfung
- Nachstar



Zusammenfassung

- Vorderabschnitts-OCT:
 - Neue Entwicklungen
 - Vielzahl von Anwendungen
- Hohe Auflösung, kontaktfrei, schnellere Scanner
- Automatische Biometrie
- Untersuchungen:
 - Hornhaut
 - Vorderkammer/Kammerwinkel
 - Linse/IOL

