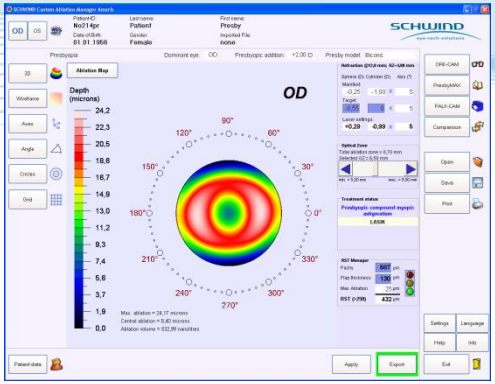
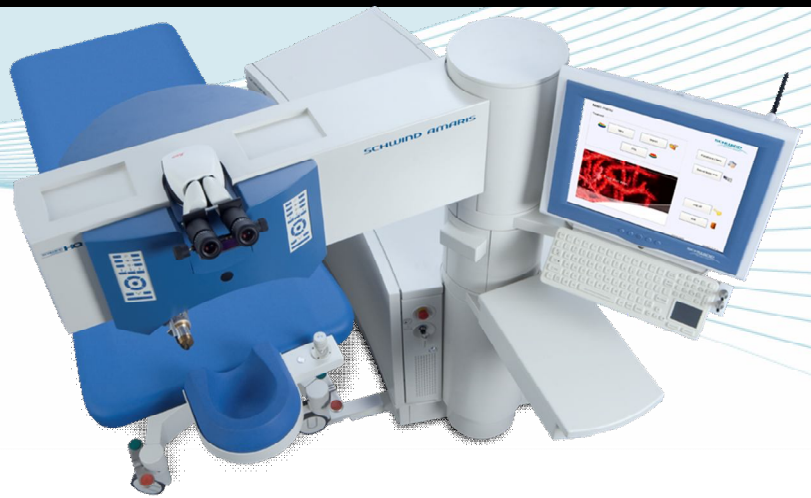
SCHWIND
eye-tech-solutions

SCHWIND PresbyMAX®
Patient Selection and other Important Aspects

[redacted]

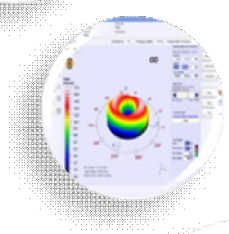


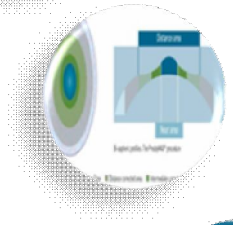


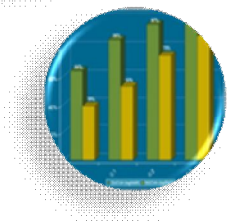
[redacted]

An Ablation Planner for Presbyopic Refractive Surgery

Directory







PresbyMAX® - Patient Inclusion Criteria

SCHWIND eye-tech-solutions

- Basically all patients who are willing to undergo PresbyMAX®, even knowing the expected complications:
  - » Insufficient near vision correction may be related to pupil size.
  - » Due to the small pupil size in bright light conditions (e.g. sunny environment) the distance vision might be reduced.
  - » Patients may require sunglasses for distance vision in bright light conditions (e.g. sunny environment).
  - » Patients will pass through a period of typically 2 to 4 weeks until adaptation.
- Clinical decision to enrol patients shall be made in an ethical way (e.g. professional drivers may suffer from reduced distance vision).
- Patients with positive thinking preoperatively knowing that reduced distance vision postoperatively (DBCVA pre-op vs. UCVA post-op) may occur.
- **Easiest patients are hyperopes, then high astigmatics, then high myopes, then emmetropes, then low myopes.**

PresbyMAX® - Patient Exclusion Criteria / Contraindications

- Patients with ectopic pupils (more than 1.0 mm off-centered).
- Corneal topography with signs of keratoconus.
- Dry eye syndrome.
- Further exclusion criteria for regular corneal refractive surgery.
- Professional drivers may suffer from the reduced distance vision.
- Over expectations from patients (e.g. in postoperative image quality and visual acuity).
- Professions with demands on focused close work.

PresbyMAX® - Key Factors for Success

SCHWIND eye-tech-solutions

- Take time to decide whether a patient is a PresbyMAX® candidate: profession, hobbies, expectations, …
- Decision can be based on the catalogue that is successfully used in refractive multifocal IOLs (in your clinic).
- Trial with multifocal contact lenses (centre for near, periphery for distance) could be done prior to surgery or easier, even if no influence/effect in multifocality (SphAb) can be demonstrated, simulate a vision of 1 to 2 lines less than BSCVA and ask for the postoperative acceptance (e.g. simulate distance refraction 0.25 to 0.50 D less than BCVA to the patient; simulate near refraction with addition +0.25 to +0.50 less than BCVA to the patient).

PresbyMAX® - Key Factors for Success

- For manifest refraction, use the optometric rule:
  - » take the measurement with the least negative (most positive) amount of defocus (SEq), if several of them are equal in terms of SEq, then
  - » take the measurement with the least amount of astigmatism (Cyl) , if several of them are equal in terms of Cyl, then
  - » take the measurement with the astigmatism closest to with-the-rule, and if you still did not make a decision,
  - » take the one with less High- Order-Aberration-RMS

    → „principle of minimum risk“
- The manufacturer’s default optical zones (OZ) shall be considered as guideline for OZ as a compromise between
  - » tissue removal,
  - » biomechanical stability, and
  - » reasonable contributions of the central and peripheral for near and distance vision, respectively.

PresbyMAX® - Key Factors for Success

SCHWIND eye-tech-solutions

- Exports are done for selected OZ
  - » equal or larger than 5.80 mm in presbyopic myopia,
  - » equal or larger than 6.20 mm in presbyopic hyperopia,
  - » equal or larger than 6.50 mm in presbyopic astigmatism dominance
- Make sure the ablation map is large enough for the scotopic pupil size.
- Do both eyes simultaneously since otherwise the binocular vision will suffer from the multifocality on only 1 eye (anisometropia and aniseikonia).
- High photopic conditions postoperatively are optimal for reading.
- Use of sunglasses in photopic conditions postoperatively helps for distance vision.
- Treat myopes, emmetropes, hyperopes, and astigmatics on the corneal vertex to reduce induction of coma aberrations disturbing vision at all distances.

PresbyMAX® - The Influence of the Pupil Size

SCHWIND eye-tech-solutions

- Postoperatively, the pupil size plays a critical role.

  For that reason it is important to have an adjustable illumination condition in the refraction unit in order to teach the patient how to get the best possible results under changing light conditions.

- A pupil size of … 4.25 mm seems optimal for far distance ∞,

  4.00 mm seems optimal for 1.50 m,

  3.50 mm optimal for 70 cm, and

  3.25 mm for near distance 40 cm.

- A pupil size of … 4.50 mm seems to cover the distances from infinity to 1 m (1.00 D DoF),

  3.75 seems to cover 2 m to 50 cm (1.50 D DoF), and

  3.00 mm for 45 cm to 30 cm (1.25 D DoF).

- A pupil size of 3.75 mm to 4.00 mm seems to cover enough distance range.

- Some dynamics on the control of the pupil size may be needed, since smaller areas are optimized for near vision and wider areas optimized for far vision.

PresbyMAX® - Reading Acuity vs. Print Size

SCHWIND eye-tech-solutions

study

» 0.8 logRAD (J12; 20/125) ≡ 20 Pt @ 40 cm

One month LASIK outcomes
PresbyMAX® – the new presb

J.L. Alió, MD (Alicante, Spain), E. Martines, MD
T. Wahab, MD (Cairo, Egypt), D. Uthoff, MD (Kie

» 0.7 logRAD (J10; 20/100) ≡ 18 Pt @ 40 cm

» 0.5 logRAD (J8; 20/63) ≡ 12 Pt @ 40 cm

Introduction

Fast, powerful, precise, and safe – if it is presbyopia, the SCHWIND PresbyMAX® is a step ahead. It provides an enhanced prolate multifocal cornea, based upon bi-aspherical multifocal ablation profiles developed by SCHWIND eye-tech-solutions in cooperation with VISSUM[1,2] and the OCIVIS[1] group from the University of Alicante. This solution

Metho
- All
- Only
- All
- The 7.0
- Trea both

» 0.4 logRAD (J6; 20/50) ≡ 10 Pt @ 40 cm normally suffices to clearly recognize newspaper print in well lit conditions

Imprint: SCHWIND eye-tech-solutions GmbH & Co. KG · Mainp
fon: +49 (0) 60 27 508-0 · fax: +49 (0) 60 27 508-208 · email: info

» 0.2 logRAD (J4; 20/30) ≡ 6 Pt @ 40 cm

(Radner) Reading Charts with letter sizes up to 0.2 logRAD only could be preferable to use avoiding overexpectations in patient‘s reading performance.

Re-treatment Options

- PresbyMAX® can be repeated if reading-spectacles demands renew.
- PresbyMAX® can be repeated if reading quality (multifocality) is not sufficient but distance vision is satisfying.
- Aberration-Free treatment (with equal optical zone size to previous PresbyMAX® procedure) can be performed on top for improved distance correction if reading quality (multifocality) is satisfying.
- Corneal Wavefront guided ablation profile with distance best corrected refraction included can be performed if the patient does not accept the PresbyMAX® concept at all (too much compromise for the individual).

Due to healing process and neuronal adaptation, a re-treatment procedure shall not be performed prior 6 months after surgery.

PresbyMAX® after Previous Refractive Surgery

- Previous Corneal Refractive Surgery (with the aim of emmetropic distance vision)

  Decision shall be equal to patients with virgin corneae.
  Futhermore, the SCHWIND decision tree for Aberration-Free, Corneal and Ocular Wavefront treatments might be considered

- Previous cataract surgery (natural lens exchange)

  Multifocal enhancement can be performed on the patient's cornea.

Intraocular Surgery after PresbyMAX®

SCHWIND eye-tech-solutions

- Aspheric IntraOcular Lenses:

  Properly calculated aspheric lenses (in the sense of aberration-neutral) after PresbyMAX provide the best quality of vision without compromising the already achieved pseudoaccommodation. (No decentration and tilting of the IOL and correct IOL power assumed)

- Spheric IntraOcular Lenses:

  Spheric lenses induce positive spherical aberration and thus would remove in part or in total the already achieved pseudo-accommodation.

- Multifocal IntraOcular Lenses:

  Multifocal (refractive, diffractive, or accommodative) lenses induce negative spherical aberration and multiple foci and thus would enhance the already achieved pseudoaccommodation.
  But centration issues of the lenses become critical and may induce large amounts of coma from the misalignment between the PresbyMAX® multifocal cornea and the multifocal IOL.

Thank you very much for your kind attention!
Vielen Dank für Ihre Aufmerksamkeit!
¡Muchas gracias por su amable atención!

Tobias Ewering
SCHWIND eye-tech-solutions

fon: +49(0)6027 / 5 08-0
fax: +49(0)6027 / 5 08-208
email: tobias.ewering@eye-tech.net
internet: www.eye-tech-solutions.com