Non - Tolerance

Remake - Retest - Resolve

C-102566

ROOT CAUSES OF NON TOLS

1

MEASUREMENTS

- OC's
- Heights
- BVD
- Panto
- Face form

2

LENS FORM

- Varifocal design
- Corridor length
- Refractive Index

3

REFRACTION

- Adaption
- Re-test
- Effects on final product

4

EXPECTATIONS

- Communication
- Cosmetics
- Misunderstanding

01

MEASUREMENTS

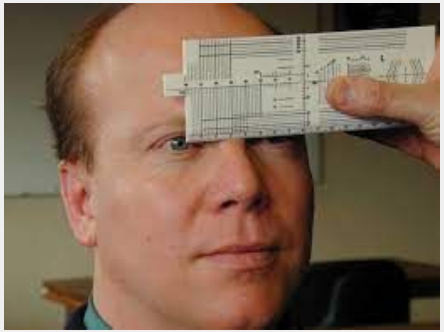
DISCUSSION POINTS

- What impact do the following measurements have on the performance of the spectacles: OC's, Heights, BVD, Pantoscopic tilt,Face form angle
- If the following Rx is dispensed with the optical centres 3mm decentered nasally from the pupil, how much prism will be induced?
  Rx: -5.75DS

IMPACT OF INACCURATE MEASUREMENTS

OC's:

- Induced prism - vertically & horizontally
- Prentice rule: P=CF
- Px may experience diplopia, eye strain, eyes "pulling", headaches
- 1-2D should be tolerable



Heights

- Differential prism at near due to anisometropia needs to be considered
- Varifocal issues with reading and distance
- Position of gaze & fit of frame when measuring
- Considerations for aspheric lenses

IMPACT OF INACCURATE MEASUREMENTS

BVD:

- Affects field of view, oblique distortion, & prismatic error
- Also affects lens power due to effectivity
- Impacts on frame fitting and position of gaze

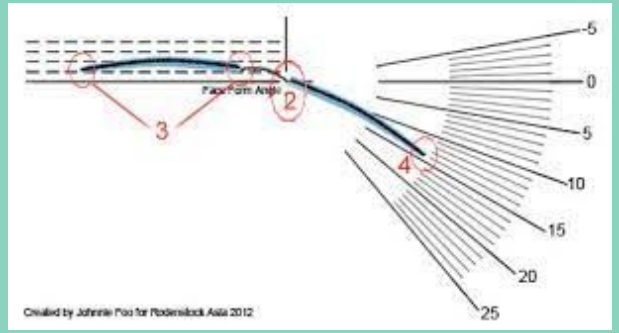
Pantoscopic Tilt:

- Measured with frame in situ
- Ensures optical & visual axis are closely aligned
- Brings NV area into alignment with angle of rotation on downward gaze
- Incorrect panto causes oblique aberrations
- For aspherics drop heights by 0.5mm for every degree of pantoscoptic tilt

IMPACT OF INACCURATE MEASUREMENTS

Face Form Angle:

- Also known as “Dihedral Angle”
- Enables frame to match the rotation of the eye
- Pushes peripheral distortion further away from visual axis
- Helps maintain uniform BVD across visual path on rotation
- Reduces effects of off axis performance



- If the following Rx is dispensed with the optical centres 3mm decentered nasally from the pupil, how much prism will be induced?
  Rx: -5.75DS

Prentice Rule: P=CF

P = ?
C = 0.3cm & F = 5.75 so:

P = 0.3 x 5.75

P = 1.73D BASE OUT

02

LENS FORM

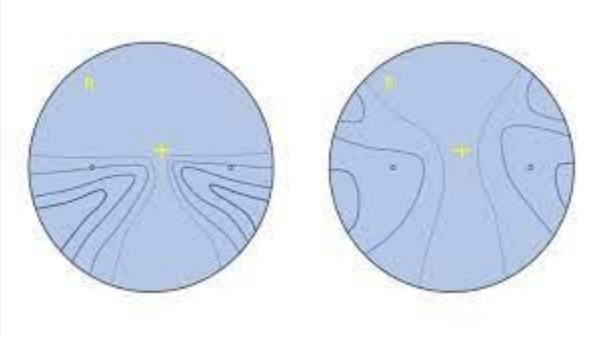
DISCUSSION POINTS

- How may varifocal design impact on non tolerance?
- What issues may be caused by corridor length?
- How can a change in refractive index affect non tolerance?

IMPACT OF VARIFOCAL DESIGN

Types Of PAL Design

- Hard
- Soft
- Firm
- Free form



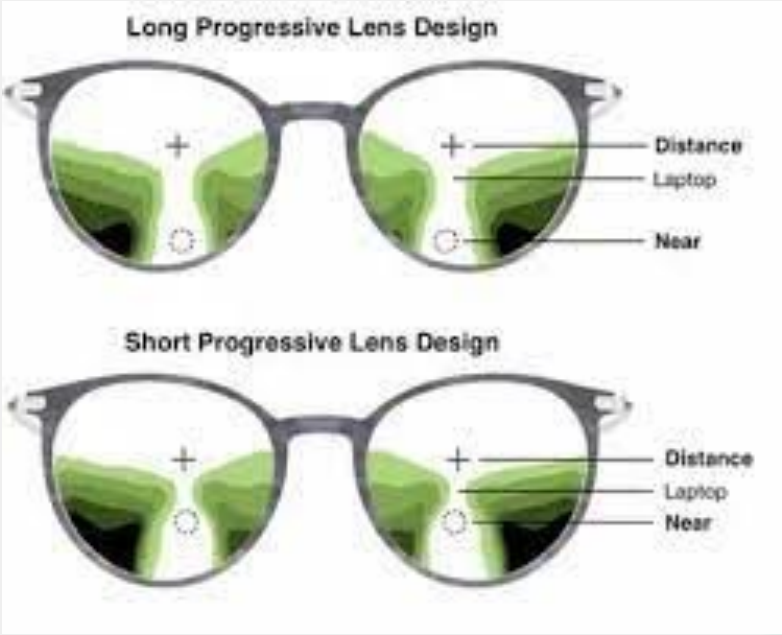
Differences between designs:

- Width of field of view
- Amount of “soft focus”
- Front surface/back surface progression
- Free Form - what measurements are required for that specific design?

IMPACT OF CORRIDOR LENGTH

Corridor Lengths:

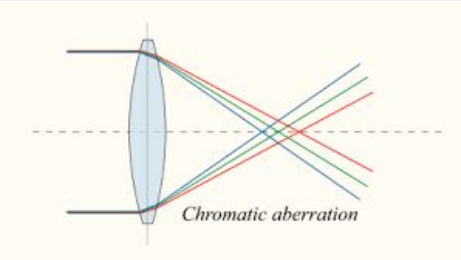
- Often available in short or standard
- Distance between distance fitting cross & near visual point
- Long corridors require px to look further down to reach NVP
- Short corridors raise NVP but also increase peripheral distortion
- Short corridor reduces intermediate area
- Longer corridors often selected for high vertical OC measurements but can often cause px difficulty reading
- Select appropriate corridor for px's visual needs



IMPACT OF REFRACTIVE INDEX

Refractive Index:

- Non tolerance to transverse chromatic aberrations when index increases
- Higher index more likely to be aspheric
- Consider effects of refractive index in relation to spec mag - especially with hyperopes
- Thinner = lighter? Not necessarily!



PLASTICS				
Refractive index (n_d)	Material	Abbe number ν	Density specific gravity	CVF
1.498	CR39	58	1.3	1.050
1.53	Trivex	45	1.1	0.987
1.56	Mid index	38	1.17	0.934
1.586	Polycarbonate	30	1.2	0.892
1.601	Mid index	42	1.31	0.870
1.670	High index	32	1.36	0.781
1.74	Very high index	33	1.47	0.706
1.76	Very high index	30	1.46	0.688

03

REFRACTION

DISCUSSION POINTS

- How can changes in refraction impact on the patient's ability to adapt to a new pair of spectacles?
- What key things should you be aware of?

IMPACT OF REFRACTION

Refraction Issues:

- Subjective - lots of variables to consider
- The test room is not real life
- Short form room adjustments
- Over plussing - overly common prescribing error
- Cyl/axis changes - can the px tolerate the change?
- How does the final Rx impact on the finished product?

RETEST REMAKE

Retest - Remake:

- Logical conclusion to resolve issue
- Step by step process
- Are all measurements correct?
- Are all other modifiable variables impacting on adaptation?
- Refraction may be correct in the room, BUT, effects on final product may render refraction unsuitable
- Previous Rx?
- Real life tests to solve real life issues
- Weigh up the potential costs - re-test before remake?
- Pathology present?
- Communication - managing expectations

04

EXPECTATIONS

DISCUSSION POINTS

- How do you manage px expectations?
- What kind of issues may arise from poor communication?
- What issues may arise with cosmesis?

IMPACT OF COMMUNICATION

2. Communicate effectively with your patients

- Give patients information in a way they can understand. Use your professional judgement to adapt your language and communication approach as appropriate.
- Patients should know in advance what to expect from the consultation and have the opportunity to ask questions or change their mind before proceeding.
- Be alert to unspoken signals which could indicate a patient's lack of understanding, discomfort or lack of consent.
- Ensure that the people you are responsible for are able to communicate effectively with patients and their carers, colleagues and others.
- Ensure that patients or their carers have all the information they need to safely use, administer or look after any optical devices, drugs or other treatment that they have been prescribed or directed to use in order to manage their eye conditions. This includes being actively shown how to use any of the above.
- Be sensitive and supportive when dealing with relatives or other people close to the patient.

IMPACT OF COMMUNICATION

Communication:

- Explanation is key - especially with new varifocal users
- Under promise & over deliver
- Visual aids - pictures say a thousand words
- Written information - both on the records and the information given to the patient
- Where pathology is present extra information may be required
- VA's don't mean anything to a px - real life demonstrations are always better
- Include family members - with px consent

IMPACT OF COSMESIS

Cosmesis:

- Communication is key
- Frame selection - be aware of how the refraction will look
- Avoidable issues
- Px will often try and blame a multitude of issues when really cosmesis is the issue
- Foster a trusting relationship - be honest from the start