


Demystifying Near Task Specific Lenses for Today's Work Environment



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- ◆ Mindful Eyes Foundation | Founder and Executive Director
- ◆ SightLine Ophthalmic Consulting | Co-founder and CEO
- ◆ Doctor of Optometry (OD)
- ◆ Master in Ophthalmic Optics (ABOM)
- ◆ Registered Spectacle Lens Dispenser (CA-SLD)
- ◆ Licensed Optometrist (CA-DCA)



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Learning Objectives

- Technology Timeline
- Trends and Demographics
- Ergonomics
- Lens Analysis and Contour Plots
- Task Specific Lens Solutions
- Understanding Near Task Specific Lens Designs
 - Near Variable Focus (Computer, Occupational)
 - Full Range
 - Intermediate/Near
 - Powerboost
- Product Portfolios
- Case Presentations



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Technology Timeline

Technology a century ago: 40 years from radio to color TV



Radio - 1920's-30's



B&W TV - 1940's-50's



Color TV - 1950's-60's

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Technology Timeline

Technological Revolution
1970's - 90's

- Electronic games
- Personal computers
- Laptops
- Cell phones

INTERNET ACCESS!

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Technology Timeline

50 years - Radio to computer
20 years for digital devices to become a major part of our lives (2000-2020)

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How is the relevant to vision care?

Today's presbyope is not the same as 20 years ago
Younger onset of symptoms

90% Nearly 90% of Americans use digital devices for major entertainment and work.

More than nine out of 10 people with digital eye strain see symptoms for less or more than an hour daily.

60% Nearly 60% of Americans use digital devices for five or more hours each day and 53% of Americans use two or more devices at a time.

77% 77% of the individuals who suffer from digital eye strain use two or more devices simultaneously.

90% of patients do not talk with their eye care provider about digital device usage.

Eyestrain is a normal part of life we simply put up with.

The Vision Council 2016 Digital Eye Strain Report, EYES OVEREXPOSED: THE DIGITAL DEVICE DILEMMA

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Who are our Patients?

BUSINESS BY AGE BRACKET
Boomers still rule the roost, but for how much longer?

Age Bracket	Percentage
Baby boomers (53-71)	30%
Gen X (37-52)	25%
Millennials (28-36)	17%
Seniors (72+)	16%
Gen Z + Kids 19 and under	13%



Eyecare Business Mega Market Trends


- Baby Boomers + Gen X = largest segments of most practices
- 62 % Dispensary revenue is premium lenses
- Computer, anti-fatigue, PAL's sales are increasing

Vision Monday: June 2022, Millennials are the New Emerging Presbyopes



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Increased Usage/Poor Ergonomics



THE EVOLUTION OF MAN





Tx = Personalized near task specific lenses

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Digital Eye Strain – Symptoms

- Red, Dry, Irritated, Sore Eyes
- Blurred Vision at Distance and/or Near
- Eye Fatigue
- Neck and Back Pain
- Headaches
- Double Vision



Digital Eye Strain – Areas of Concern

- Refractive Errors
- Accommodative Disorders
- Binocular Vision Dysfunctions
- Presbyopia





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Why Use A Computer Lens?


PAL	Computer Lens
<ul style="list-style-type: none"> Narrow corridor Intermediate positioned low Small near zone 	<ul style="list-style-type: none"> Wide corridor Intermediate positioned at straight gaze and/or below Large near zone

Small, narrow Intermediate



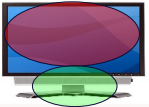
Classic PAL

Intermediate + Near w/small distance



Full Range NVFL

Intermediate + Near No distance



Intermediate/Near

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Presbyopic Personal Computer Work: A Comparison of Progressive Addition Lenses for General Purpose and Personal Computer Work

Kolbe, Oliver, MEng¹; Dagle, Stephan, MSc, PhD¹

190 presbyopic computer users compared GW PAL to dedicated computer glasses for 2 weeks each using a 24 item questionnaire.

Abstract
Author Information
Article Metrics


SIGNIFICANCE Computer-specific progressive addition lenses (PC-PALs) are shown to reduce computer vision syndrome (CVS) symptoms, increase visual comfort and tolerance, and improve body posture at the personal computer. They are highly preferred by computer workers. Increasing their use may aid prevention measures within the workplace health management.

PURPOSE This study investigates whether technical differences between general-purpose progressive addition lenses (GP-PALs) and PC-PALs are subjectively manifest in CVS.

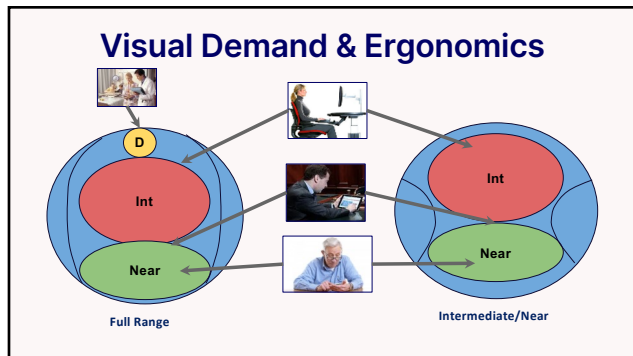
MATERIALS AND METHODS One hundred ninety presbyopic visual display unit (VDU) workers aged 53 ± 6 years (mean ± SD) were fitted with GP-PALs and PC-PALs in a subject-masked, randomized, crossover study. Subjects tested both corrections at their personal workplace for 2 weeks each, for VDU work only. Comfort and lens type preferences were assessed using a 24-item questionnaire developed for this study.

RESULTS Computer vision syndrome was perceived approximately seven times more often with GP-PALs compared with PC-PALs. Eighty-four percent of subjects preferred PC-PALs for their VDU work. Computer-specific progressive addition lenses ratings were statistically and clinically significantly better than GP-PALs (5.95 vs. 4.42 of 7 points; 1.53; 95% confidence interval, 1.20 to 1.85). An existing ametropia or prior experience with PALs did not influence the score. Only 14.2% of subjects had received information about specific VDU eyewear from their optician or optometrist, whereas 78% expressed the wish to be informed about these products.

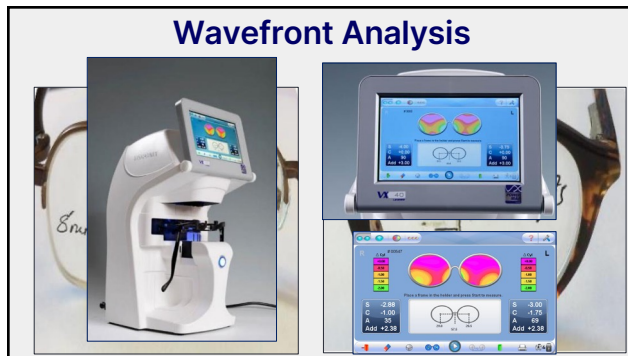
CONCLUSIONS Computer-specific progressive addition lenses reduce the perception of the CVS and are highly preferred by VDU workers.



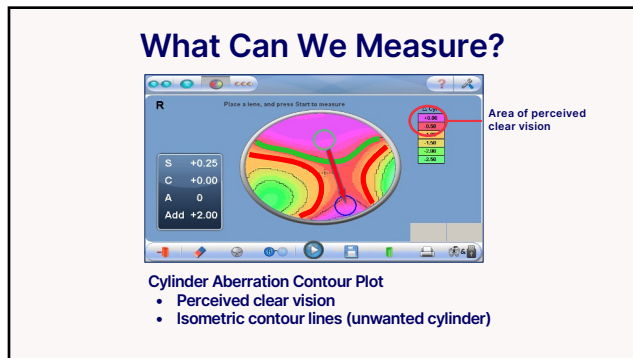
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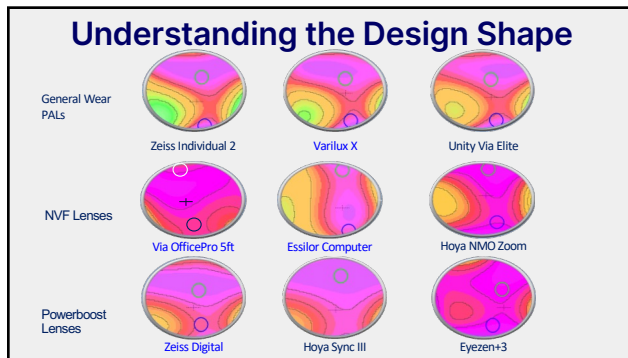
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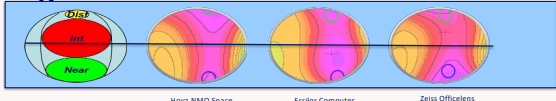
Understanding Computer Lenses

Near Variable Focus - Full Range



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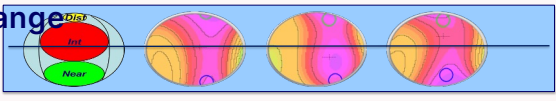

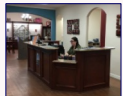
Designs: Near Variable Focus - Full Range



- Intermediate Add power designed for 60cm – 90cm working distance is at the fitting cross (FC)/fitting reference point (FRP)
- FRP is set at pupil center
- Distance zone is 10-15mm above FRP
- Transition zone length is 20-30mm
- Full Near zone 10-15mm below FRP
- Large frame 'B' dimension (min. 30 mm)

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Designs: Near Variable Focus - Full Range

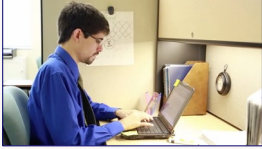




- Mobile presbyopes - multiple stations/rooms, require some distance vision
- Doctors, teachers, managers, consultants, receptionists, technicians
- Lens Design: Intermediate prioritized with some distance vision at the top

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Understanding Computer Lenses

Near Variable Focus for Intermediate/Near



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Design: NVF Int/Near

- Add Power for 60cm – 90cm (24-36 inch) working distance is centered around fitting reference point
- +0.50 to +1.00 EA at "distance"
- Full Near zone 10-15mm below FRP
- FRP is set at pupil center
- Large frame 'B' dimension (min. 30 mm)

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Designs: NVF - Intermediate/Near

- Stationary Presbyopes – Intermediate to Near with wide FOV
- Multiple computer screens, cubicle workspace, multiple OTC readers

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Understanding Computer Lenses

Powerboost as Intermediate/Near

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Design: Powerboost as Intermediate/Near

- "Powerboost": designed and marketed to pre-presbyopes
- Can be designed for intermediate/near use for presbyopes
- Large, wide, stable "top" half of lens: Minimal peripheral aberration, edge-to-edge clarity at FRP
- Transition zone is 3-4 mm below FRP
- Corridor to full near 9-10 mm
- Can use smaller frame 'B' dimension (min. 20mm)

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Designs: Powerboost as Intermediate/Near

- Stationary occupation – Intermediate to Near with wide FOV (no distance)
- Multiple computer screens, cubicle workspace, multiple OTC readers

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Product Portfolio Summary NVF Lens Designs

	Effective add at Fitting Reference Point (FRP)	Effective add at Top of lens
HOYA CARL ZEISS HOYA Office Lens: Room, Desk, Book	Room +0.50 Desk +0.75 Book +1.25	Room +0.25 Desk +0.50 Book +1.00
ESSILOR (COMPUTER LENS)	50% of Back off	0.00 to +0.25 (max back off -2.50)
HOYA New Media Optics: Space, Screen, Zoom	Space/Screen: 50% add @2.5mm below FRP Zoom: 50% of Add	Space +0.00 Screen +0.50 Zoom +1.00
SHAMIR Workspace/Computer	Workspace: 50% of Add Computer: 50% of Add plus +0.25D	Workspace +0.25 Computer +0.75
SHAMIR Autograph II Office	50% of Backoff	Add minus Backoff (max -2.25)
UNITY Via OfficePro: 10ft., 5 ft.	range of vision for: 10ft @110cm 5ft @80cm	10ft +0.33 5ft +0.67

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Essilor COMPUTER LENS

ADD Power	Engraving	Back Off
+1.00 to +1.25	10	1.00
+1.50 to +1.75	15	1.50
+2.00 to +2.25	20	2.00
+2.50 to +3.50	25	2.50

- Traditional surfacing
- Poly only
- Full back off 10mm above FRP
- Near 14mm below FRP
- 50% of back off at FRP
- Lab selects back off, max 2.50

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Example: NVF - Full Range

Essilor Computer 2.00 w/50% backoff


- Rx: Plano Add +2.00
- Essilor recommends Computer 2.00 (2.00D Backoff)

NVF - Full Range	Transition Length	Distance (above FRP)	Near (below FRP)	Power at FRP
Computer Lens	24mm	10mm	14mm	50% of BO

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HOYA

New Media Optics: iD Space, iD Screen, iD Zoom



- Far point/distance 11-14mm above FRP
- Near 15-18mm below FRP
- Intermediate EA is 50% of patient's full Add

Design	EA @ Far point/Distance	Intermediate EA placement
iD Space	plano	2.5mm below FRP
iD Screen	+0.50 D	2.5mm below FRP
iD Zoom	+1.00 D	at FRP

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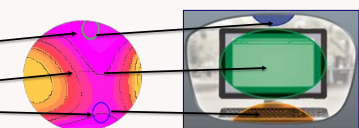
Example: NVF - Int/Near

Hoya NMO Screen and Zoom


- Rx: Plano DS +2.50 Add
- Desktop Computer at 70 cm (+1.25D); near work at 40cm, no distance visual requirements

Hoya NMO	Corridor Length (mm)	"Distance" (above FRP)	Effective Add at "Distance"	Near (mm below FRP)	Power at FRP (~2.5mm below)
Screen	18-24mm	7-10mm	+0.50D	11-14mm	50% ADD*
Zoom	18-24mm	7-10mm	+1.00D	11-14mm	50% ADD

Screen	Zoom
+0.50	+1.00
+1.25	+1.25
+2.50	+2.50

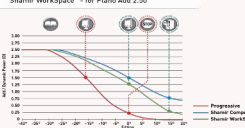


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WorkSpace, Computer

Power profile PAL vs. Shamir Computer™ and Shamir WorkSpace™ - for Plano Add 2.50




Dynamic reduction 8mm above FRP
Add 16mm below FRP

WorkSpace

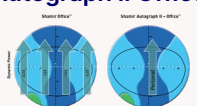
- Dynamic Back off Power to +0.25 EA
- EA at FRP is 50% of add

Computer

- Dynamic Back off Power to +0.75 EA
- EA at FRP = 50% Add plus +0.25D




Autograph II Office



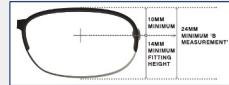
Autograph II Office

- dynamic power reduction 8mm above FRP, max -2.25
- Add 16mm below FRP

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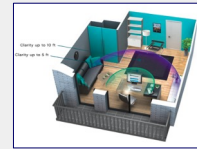
Via OfficePro 5ft & 10ft



EA at top 8-10mm above FRP
Full ADD 9-14mm below FRP

Unity Via OfficePro 5ft
Power at FRP designed for 80cm

- EA +0.67D at top



Unity Via OfficePro 10ft -
Power at FRP designed for 110cm


- EA +0.33D at top

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OfficeLens: ROOM, DESK, BOOK


Unique Feature:
Intermediate power is predetermined by the design

3 feet = 100 cm




ZEISS OFFICELENS BOOK

7 feet = 200 cm



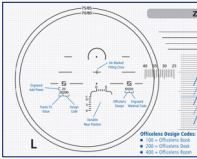
ZEISS OFFICELENS DESK

14 feet = 400 cm



ZEISS OFFICELENS ROOM

WORKING DISTANCE MADE EASY!








OfficeLens design codes:

- 100 = 100cm Book
- 200 = 200cm Desk
- 400 = 400cm Room

- Fixed intermediate add at FRP
- Book +1.25D add
- Desk +0.75D add
- Room +0.50D add
- 0.25 reduction 4mm above FRP
- Full add 10-15mm below FRP

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Product Portfolio Summary - Powerboost Lenses

Power Boost Lenses		Boost at the bottom
	Essilor Eyezen +1, 2, 3, 4	+0.40, +0.60, +0.85, +1.10
	Hoya Sync 5 Hoya Sync 9 Hoya Sync 13	+0.57 +0.95 +1.32
	Relieve 50 Relieve 70	+0.50 +0.70
	Zeiss Digital Lens Digital 500 Digital 750 Digital 1000 Digital 1250	+0.50 +0.75 +1.00 +1.25
	Relax 50 Relax 65 Relax 80	+0.50 +0.65 +0.80

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How to Design a Powerboost as EXAMPLE RX Intermediate/Near

Plano with +2.25, Intermediate effective ADD is +1.25

- Determine the EA at intermediate distance
- Select the appropriate Powerboost lens design

Powerboost Lens	Boost	Fit	EA Int/Near
Sync5/Sync9/Sync13	0.55 / 0.95 1.32	Pupil	+1.25 / +1.80 +1.25 / +2.20 +1.25 / +2.57
Zeiss Digital Lens	0.50 / 0.75 1.00 / 1.25	Pupil	+1.25 / +1.75 +1.25 / +2.00 +1.25 / +2.25 +1.25 / +2.50
Eyezen+ 1/2/3/4	0.40 / 0.60 / 0.85 / 1.10	Pupil	+1.25 / +1.65 +1.25 / +1.85 +1.25 / +2.10 +1.25 / +2.35
Unity Relieve 50, 70	0.50 / 0.70	Pupil	+1.25 / +1.75 +1.27 / +1.95
Shamir Relax 50,60,80	50 / 60 / 80	Pupil	+1.25 / +1.75 +1.25 / +1.85 +1.25 / +2.05

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Case Presentations



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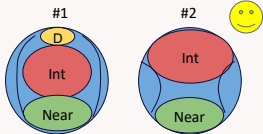
Case #1

- 58 YO Female
- New Administrator job
- CC: Tired eyes, neck/back pain
- MR = -2.25 DS OU Add +2.50
- Int. EA = +1.25



Visual Case History

Previous Visual Demands	New Visual Demands
Removes glasses Int/Near	Removes glasses Int/Near
Int/Near 2-3 hr/day, intermittent	Int/Near 6 hr/day
ipad	Desktop computer
WD = 40 cm	WD = 70 cm



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Product Portfolio Summary NVF Lens Designs

	Effective add at Fitting Reference Point (FRP)	Effective add at Top of lens
ZEISS CARL ZEISS VISION Office Lens: Room, Desk, Book	Room +0.50 Desk +0.75 Book +1.25	Room +0.25 Desk +0.50 Book +1.00
ESSILOR COMPTON LENS	50% of Back off	0.00 to +0.25 (max back off -2.50)
HOYA New Media Optics: Space, Screen, Zoom	Space/Screen: 50% add @2.5mm below FRP Zoom: 50% of Add	Space +0.00 Screen +0.50 Zoom +1.00
SHAMIR Workspace/Computer	Workspace: 50% of Add Computer: 50% of Add plus +0.25D	Workspace +0.25 Computer +0.75
SHAMIR Autograph II Office	50% of Backoff	Add minus Backoff (max -2.25)
UNITY Via OfficePro: 5ft, 10ft	range of vision for: 5ft @80cm 10ft @110cm	5ft +0.67 10ft +0.33

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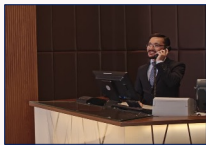
Product Portfolio Summary - Powerboost Lenses

Power Boost Lenses	Boost at the bottom
Eyezen Essilor Eyezen +1, 2, 3, 4	+0.40, +0.60, +0.85, +1.10
HOYA SYNC III Hoya Sync 5 Hoya Sync 9 Hoya Sync 13	+0.57, +0.95, +1.32
UNITY Relieve 50 Relieve 70	+0.50, +0.70
ZEISS CARL ZEISS VISION Zeiss Digital Lens Digital 500 Digital 750 Digital 1000 Digital 1250	+0.50, +0.75 +1.00, +1.25
Shamir Relax™ Relax 50 Relax 65 Relax 80	+0.50 +0.65 +0.80

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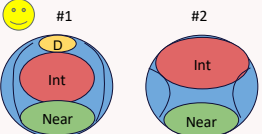
Case #2

- 55 YO Male
- Receptionist
- CC: GW PAL is not working
 - Tilting head up / neck pain
 - Small FOV
- MR = +1.00 DS OU Add +2.00
- Intermediate add +1.00



Visual Demands

Dist 40%, Int/Near 60%
Desktop computer
WD = 55 cm




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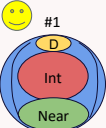
Product Portfolio Summary NVF Lens Designs		
	Effective add at Fitting Reference Point (FRP)	Effective add at Top of lens
ZEISS CARL ZEISS VISION OfficeLens: Room, Desk, Book	Room +0.50 Desk +0.75 Book +1.25	Room +0.25 Desk +0.50 Book +1.00
ESSILOR COMPUTER LENS	50% of Back off IN THIS CASE BACK OFF IS 2.00	0.00 to +0.25 (max back off -2.50)
HOYA New Media Optics: Space, Screen, Zoom	Space/Screen: 50% add @2.5mm below FRP Zoom: 50% of Add	Space +0.00 Screen +0.50 Zoom +1.00
SHAMIR Workspace/Computer	Workspace: 50% of Add Computer: 50% of add plus +0.25D	Workspace +0.25 Computer +0.75
SHAMIR Autograph II Office	50% of Back off IN THIS CASE BACK OFF IS -2.00	Add minus Backoff (max -2.25)
UNITY Via OfficePro: 10ft, 5ft	range of vision for: 10ft @110cm 5ft @80cm	10ft +0.33 5ft +0.67

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Case #2

- 55 YO Male
- Receptionist
- CC: GW PAL is not working
 - Tilting head up / neck pain
 - Small FOV
- MR = +1.00 DS OU Add +2.00
- Intermediate add +1.00





#1



#2


EA @Distance


Essilor Computer	0.00
Hoya NMO iD Space	0.00
Shamir Autograph II Office	0.00
Shamir Workspace	+0.25
Unity Via OfficePro 10ft	+0.33

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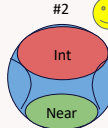
Case #3

- 48 YO Female
- Homemaker
- CC: Wants one pair of glasses for Int/Near
- MR = Plano with +1.75ADD, Int = +0.75D
- H/O stacking OTCs





#1



#2

Visual Case History






Visual Demands
Dist = no Rx
Computer = OTC +0.75D
Near = OTC +1.00D over +0.75D

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Product Portfolio Summary NVF Lens Designs		
	Effective add at Fitting Reference Point (FRP)	Effective add at Top of lens
ZEISS CARL ZEISS VISION OfficeLens: Room, Desk, Book	Room +0.50 Desk +0.75 Book +1.25	Room +0.25 Desk +0.50 Book +1.00
ESSILOR COMPUTER LENS	50% of Back off	0.00 to +0.25 (max back off -2.50)
HOYA New Media Optics: Space, Screen, Zoom	Space/Screen: 50% add @2.5mm below FRP Zoom: 50% of Add	Space +0.00 Screen +0.50 Zoom +1.00
SHAMIR Workspace/Computer	Workspace: 50% of Add Computer: 50% of Add plus +0.25D	Workspace +0.25 Computer +0.75
SHAMIR Autograph II Office	50% of Backoff	Add minus Backoff (max -2.25)
UNITY Via OfficePro: 10ft, 5ft	range of vision for: 10ft @110cm 5ft @80cm	10ft +0.33 5ft +0.67

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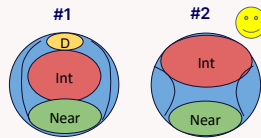
Product Portfolio Summary - Powerboost Lenses

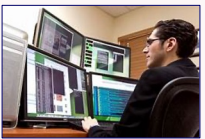
Power Boost Lenses	Boost at the bottom
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 Hoya Sync 5 Hoya Sync 9 Hoya Sync 13	+0.57, +0.95 , +1.32
 Relieve 50 Relieve 70	+0.50, +0.70
 Zeiss Digital Lens Digital 500 Digital 750 Digital 1000 Digital 1250	+0.50, +0.75 +1.00 , +1.25
 Relax 50 Relax 65 Relax 80	+0.50 +0.65 +0.80

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Case #4

- 52 YO Male
- Daytrader
- CC: GW PAL is good, SV near blur
- Lensometry: SV = -5.00DS
- MR = -6.25DS OU Add +2.00, Int +1.25











Visual Case History

Visual Demands
GW PAL, SV Int/Near
Int/Near 90%
Desktop/4 screens, WD 75 cm






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Product Portfolio Summary NVF Lens Designs

	Effective add at Fitting Reference Point (FRP)	Effective add at Top of lens
 Office/Lens: Room, Desk, Book	Room +0.50 Desk +0.75 Book +1.25	Room +0.25 Desk +0.50 Book +1.00
	50% of Back off	0.00 to +0.25 (max back off -2.50)
 New Media Optics: Space, Screen, Zoom	Space/Screen: 50% add @2.5mm below FRP Zoom: 50% of Add	Space +0.00 Screen +0.50 Zoom +1.00
 Workspace/Computer	Workspace: 50% of Add Computer: 50% of Add plus +0.25D	Workspace +0.25 Computer +0.75
 Autograph II Office	50% of Backoff	Add minus Backoff (max -2.25)
 Via OfficePro: 10ft, 5ft	Range of vision for: 10ft @110cm 5ft @80cm	10ft +0.33 5ft +0.67

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Product Portfolio Summary - Powerboost Lenses

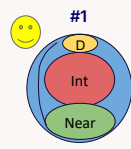
Power Boost Lenses	Boost at the bottom
 Essilor Eyezen +1, 2, 3, 4	+0.40, +0.60, +0.85 , +1.10
 Hoya Sync 5 Hoya Sync 9 Hoya Sync 13	+0.57, +0.95, +1.32
 Relieve 50 Relieve 70	+0.50, +0.70
 Zeiss Digital Lens Digital 500 Digital 750 Digital 1000 Digital 1250	+0.50, +0.75 +1.00, +1.25
 Relax 50 Relax 65 Relax 80	+0.50 +0.65 +0.80

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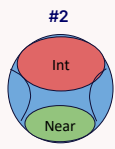
Case #5

- 59 YO Female
- Violin player, first chair, SF Symphony
- CC: PAL not ideal to see music
- MR = -4.50 DS OU Add +2.50 Int = +1.25





#1



#2

Visual Case History

Visual Demands
Music and conductor
Dist/Int
WD 80 cm - opt. infinity

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Product Portfolio Summary NVF Lens Designs

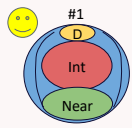
Effective add at Fitting Reference Point (FRP)		Effective add at Top of lens
CARL ZEISS VISION Office/Lens: Room, Desk, Book	Room +0.50 Desk +0.75 Book +1.25	Room +0.25 Desk +0.50 Book +1.00
ESSILOR COMPUTER LENS	50% of Back off IN THIS CASE BACK OFF IS 2.50	0.00 to +0.25 (max back off -2.50)
HOYA New Media Optics: Space, Screen, Zoom	Space/Screen: 50% add @2.5mm below FRP Zoom: 50% of Add	Space +0.00 Screen +0.50 Zoom +1.00
SHAMIR Workspace/Computer	Workspace: 50% of Add Computer: 50% of Add plus +0.25D	Workspace +0.25 Computer +0.75
SHAMIR Autograph II Office	50% of Back off IN THIS CASE BACK OFF IS -2.25	Add minus Backoff (max -2.25)
UNITY Via OfficePro: 10ft, 5ft	range of vision for: 10ft @110cm 5ft @80cm	10ft +0.33 5ft +0.67

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Case #5

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#1



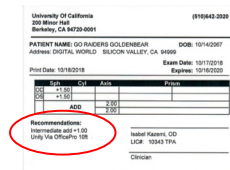
#2

	EA @Distance
Essilor Computer	0.00
Hoya NMO iD Space	0.00
Shamir Autograph II Office	0.00
Shamir Workspace	+0.25

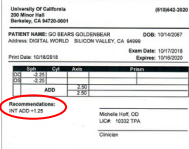
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Final Written Rx Examples

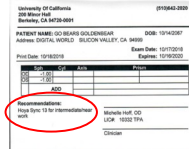
Master Rx including Near Variable Focus Lens Design



Master Rx with Int. ADD

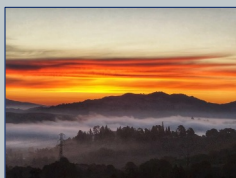


Powerboost Rx for Int./ Near use



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At the End of the Day



Sunset over Orinda, CA

- Did I address the chief concern with appropriate recommendations?
- Is what I am prescribing an improvement over what the patient has or is used to?

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Thank You

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