

# THE **CHRONICLES** OF DIGITAL DEVICES AND THEIR RELATIONSHIP TO CVS & DES

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## 100 YEARS AGO

1923

Technical Drafting Tools

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## DEFINING

CVS/DES

- Diagnosis
- Comprehensive Eye Exam
- Assessment

The Struggle Is Real



## WHO IS AT RISK?

- >2 Continuous Hours
- 7 Hours on Screens
- 4 Hours on Smart Phone
- >2 Screens
- Multi TV + Smart Device
- 2.5 Hours Scrolling Social Media
- Teens, Tweens 5-8 Hours Scrolling
- All Ages



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## COMPUTERS

- Stationary
- Heavy
- Large Footprint
- Cables



## PHYSICAL AFFECTS - CVS

- Posture Considerations
- Neck Pain
- Shoulder Pain
- Back Pains
- Muscle Spasms
- Wrist Problems
- Carpal Tunnel Syndrome



## DISCOVERING ERGONOMICS

*The study of people's efficiency in their work environment*

- Desks - Adjustable
- Sunken Monitor Surface
- Chairs - Adjustable - 5 Legs
- Mice - Wireless - Stationary
- Lighting - Screen Affects



## RECOMMENDATIONS

- Lighting
- Behind Without Reflections
- Overhead
- Not Directly in Face



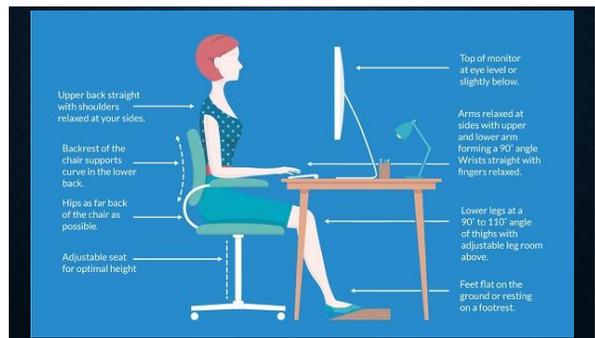
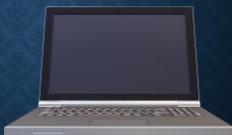
## RECOMMENDATIONS

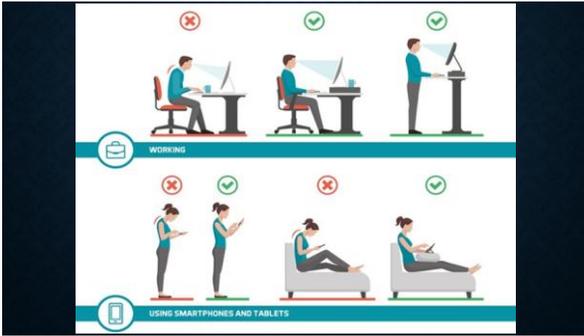
- Adjust Screen Position
- Magnify Screens
- Check Screen Brightness
- Check Screen Reflections
- Anti-Glare/Reflective Screen Protector
- Gaze Straight Ahead/Downward
- Equal Distance Multi-Screens (helpful)
- Hard Copy Reference Same Distance as Screen



## LAPTOPS

- Portable
- Smaller Footprint
- Varying Viewing Distances
- Varying Widths
- Touch Screens





## 7 BENEFITS OF STANDING AT WORK

- Burns More Calories than Sitting (even standing still).
- Gives You an Energy Burst.
- Improves Posture.
- Reduces Back Pain.
- Helps with Wrist Position.
- Keeps Circulation Going.
- Boosts Your Mood and Focus.



## VISUAL AFFECTS - DES

- Similar to Carpal Tunnel Syndrome - Repetitive Motion
- Eyes Continually Follow the Same Path
- Printed Page Sharply Defined
- Digital Page Reduced Contrast/Not Defined
- Uncorrected Vision Problems Increases CVS
- Farsightedness, Astigmatic, Presbyopia
- Worsens Over Time – Not Permanent



## VISUAL AFFECTS – CONT.

- Eye Fatigue
- Fluctuating Vision
- Squinting/Rubbing
- Headaches
- Double Vision
- Eye Strain
- Dry Eye
- Blinking Concerns



## RECOMMENDATIONS

- Eye Drops
- Preservative Free?



## RECOMMENDATIONS

- Humidifier
  - Bleach, Hydrogen Peroxide
  - Vinegar Soak
- Hygrometer
  - Ideal 35% - 50%
  - Mold >60%



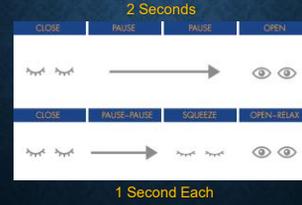
## RECOMMENDATIONS

### Please Blink on Purpose

- Tear Distribution
- Tears Provide Nutrients/Moisture/Oxygen
- Average 15-20 Blinks per Minute
- Average 900-1200 Blinks per Hour
- Average 24,000 Blinks per Day
- Digi Use Reduces Blinking Less/Not Fully Closing
- Driving Reduces Blinking
- Chronic Use Causes Oil Glands to Atrophy
- Blink Exercises



## RECOMMENDATIONS



## RECOMMENDATIONS

### Resting Point Accommodation

- RPA Foggy Room
- Relax Your Eyes
- 13 13 13 Adult Rule
- 3 3 3 Kid Rule



## DIGITAL DEVICES

- On The Go Digital Devices
- Varying Sizes
- Varying Viewing Distances
- Varying Widths



## LIGHTING CONCERNS

- Contrast Concerns
- Indoors & Outdoors
- Low Light



## LIGHTING CONCERNS

- Bright Light
- Device Positioning
- Squinting

Where is the Shade?



## EYEWEAR RECOMMENDATIONS

- Single Vision Restrictions
- Segmented Multifocals
- Piano?
- Boost Lenses



## EYEWEAR RECOMMENDATIONS

- PALs - Not Just For Computers
- Distances May Be Needed
- Varying Working Environments
- Office, Room Distance
- Cubicle, Computer, Tablet



## EYEWEAR RECOMMENDATIONS

- PALs - Not Just For Computers
- Depth Considerations
- Fixed Corridors
- Variable Corridors



## EYEWEAR RECOMMENDATIONS

- PALs - Not Just For Computers
- Widths?
- Minkwitz Theorem
- Add Power - Low = Wide
- Add Power - High = Narrow
- Corridor - Short = Narrow
- Corridor - Long = Wide



## LENS TREATMENTS

- Premium A-R
- Anti-Static
- Anti-Particulate
- HEV Absorption
- 99.75 Light Transmission



## LENS TREATMENTS

- HEV aka Blue
- Sun vs Artificial
- LEDs <35%
- CFL <25%
- Sun 100 x more intense
- Facing 500 x more exposure



## REAL LIFE RECOMMENDATIONS

### Wake Up First

- Wait 15 Minutes
- 80% of Us Don't Wait
- Increased Stress & Anxiety
- Your Time & Attention are Hijacked



## REAL LIFE RECOMMENDATIONS

### Time Out Apps

- Time Out Free
- <https://www.dejal.com/timeout/>
- eyeCare - Protect your Vision
- Workrave - [www.workrave.org](http://www.workrave.org)
- Eyeleo - [www.eyeleo.com](http://www.eyeleo.com)



## REAL LIFE RECOMMENDATIONS

### Night Shift

- iPhone, iPad, iPod
- Android
- Night Owl, Halo, Twilight, Darker, CF.lumen, Night Screen, sFilter, Midnight



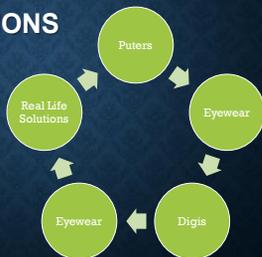
## MEDICAL RECOMMENDATIONS

- Comprehensive Eye Exam
- Visual Acuity Exam
- Vision Therapy (Vision Training)



## RECOMMENDATIONS

### Full Circle



## THANK YOU!

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