Intro to Sports Vision:

Children Who Play Sports Need Safety & Eye Protection

Vittorio Mena O.D., M.S.

On behalf of Vision Expo, we sincerely thank you for being with us this year.

Vision Expo Has Gone Green!

We have eliminated all paper session evaluation forms. Please be sure to complete your electronic session evaluations online when you login to request your CE Letter for each course you attended! Your feedback is important to us as our Conference Advisory Board considers content and speakers for future meetings to provide you with the best education possible.

VISION EXPO

Dr. Vittorio Mena Industry Disclosures

Sports Vision Background

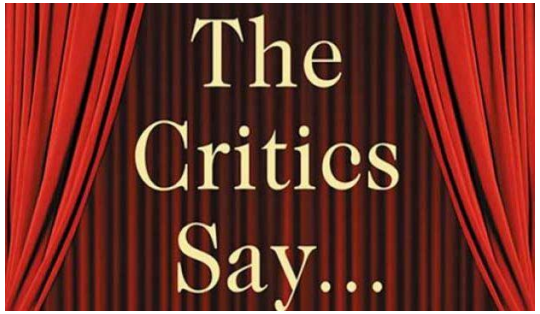
- 2013: AOSA National Liaison Sports Vision Section
- 2014-2016: Examined players/coaches/staff NY Giants
- 2017-Present: Director Sports Vision (Optical Academy)
  - Also work with NYC Dept. of Ed and Health
- 2018: Special Olympics Opening Eyes Clinical Director
  - New Jersey, Pennsylvania, Seattle, Orlando
- 2019: NJSOP Young O.D. of the Year
- 2020: Public Service Award: Salus University
- 2021: AOA Sports & Performance Vision Section
- Mentors/Colleagues:
  - Dr. Stephen Morris (University of Miami)
  - Dr. Paul Berman (NJ Devils & NJ Nets; Global Senior Advisor)
  - Dr. Fraser Horn (Nike, Dean of Pacific University)
  - Dr. Keith Smithson (Washington Wizards, Nationals, D.C. United)
  - Dr. Fred Edmunds (NY Mets, XTREMESIGHT)
  - Dr. David Kirschen (Boston Red Sox, U.S. Olympic Teams)
  - Dr. Michael Galloway (T.E.I. & Special Olympics)
  - Dr./Lt.Col. Richard Baird (U.S. Airforce)

Dr. Amanda Nanasy

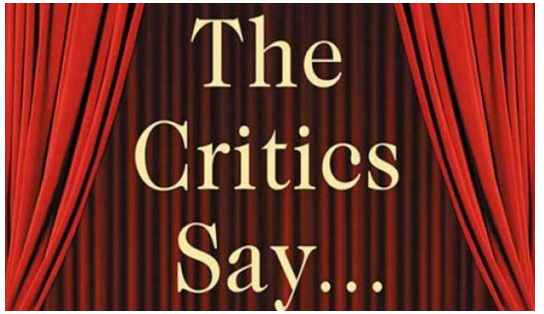
VISION

IN SPORT

IMPROVING PERFORMANCE BY TRAINING THE EYES



Trust The Critics



- "Every player was looking for a way to gain a competitive edge, and it made complete sense to me that improving my eyesight was the way to go if I truly wanted to raise the level of my game...Optimizing eyesight can mean the difference between a good vs an elite athlete" Bucky Dent (Shortstop NY Yankees; World Series MVP:1978; 3x All star, Manager: 89-90)
- "Every professional team or athlete is in a constant search to improve performance. Sports vision is a vital avenue in this search" Steve Donohue (Head Athletic Trainer NY Yankees)
- "The future of athletic development will be in the hands of vision-training coaches as much as the strength and fitness coach. This is truly cutting edge for the amateur or professional athlete" Mike Saunders (Former NY Knicks Head Medical Trainer; NBA trainer of the year)
- "The improvement of efficient vision skills over the years had a huge impact on MLB especially the hitters" Chris Chambliss (Former MLB All-Star 1st baseman)
- Carlos Beltran signed with the New York Mets before the 2005 season. Included in his $119 million contract was a clause that required the Mets to purchase an $85,000 "enhanced ocular device!

Vision vs. “VISION”

- Current Paradigm:
  - Perfect vision = 20/20 (VA only!)
- Vision = Seeing, processing and responding to visual info
  - Motor and sensory process
  - Central Vision (3%; Cones) Closure and identification
  - Peripheral Vision (97%; Rods) Visual impressions of space, orientation and movement
    - Human capacity = 190%
  - Processes optical stimuli in 100-200 milliseconds
  - At least 15 vision related skills needed for great sports performance
- Visual Feedback = Assess/update relative movements, distances and masses of objects in order to anticipate the appropriate forces required for a successful motor plan
- Redefine ‘Vision’: (An Athlete’s Vision)
  - Visual Calisthenics
  - Sports-Specific Visual Motor Skills
  - Visualization & Positive Imagery

See Clearer… See Better… See Faster
or
See More, Observe More, Learn More

What are your child's *vision skill* grades?

Student Name: A. Kid

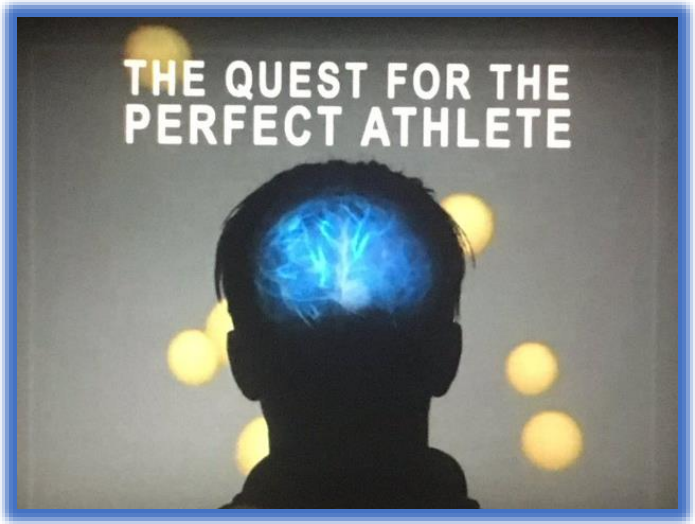
There's more to vision than this!

Time for a comprehensive vision exam!

Acuity:	20/20	Eye Coordination:	?
Focusing:	?	Eye Mvmt. Ctrl:	?
Teaming:	?	Peripheral Vision:	?
Tracking:	?	Visual Integration:	?
Alignment:	?	Color Perception:	?

What is Sports Vision A.K.A. Performance Vision?

- Definition:
  - Visual care and consultation designed to protect, correct and enhance vision in order to make sports and athletic competition safe, enjoyable, worthwhile and more successful
  - High performance vision = Distinction between the ability to see clearly and ability to see even better than that
- All sports vary as they require different visual demands:
  - Each individual has a unique visual system
  - Assessment/remediation of functional visual inefficiencies
- Refractive compensation (Vision is more than 20/20)
  - Spectacles vs contact lenses vs refractive surgery
- Prevent/manage eye injuries by particular protective devices
- Visual performance enhancement training
  - Can improve stereovision (3D)
- Consultation services



Benefits: Sports Vision

- Improve:
  - Batting average?
  - Fielding percentage
  - Save/shot ratio
  - Pass completion percentage
  - Accuracy of passes, consistency of receptions
  - Field goal / free throw percentage
- Slows the game down around you – more time to react appropriately
- ***"If two similar athletes meet in competition and one has a better trained visual system, the athlete with enhanced visual system will perform better."***
  – Loran, D., Griffiths, G., Visual performance and soccer skills in young players. Optometry Today, v. 41, p. 32-34. 2001.
- Help student/athlete become a better student!
  - Increased reading speed/comprehension and greater concentration

American Optometric Association

W m?

- 6mo, 3 yo, 5yo
- What are we c
  - Distance/Ne
  - Dynamic Vis
  - Binocular Co
  - Eye Moveme
  - Focusing Ski
  - Eye Fatigue/
  - Peripheral A
  - Depth Perce
  - Eye-Hand/Ey
  - Ocular Dom
  - Contrast Ser
  - Color Vision
  - Dry Eyes
  - Headaches?

Visual Abilities In Sports: How Important?

	Visual acuity	Dynamic visual acuity	Ocular-motor skills	Eye/hand coordination	Binocular stereopsis	Accommodation	Central-peripheral awareness	Visual reaction time	Visual adjustability	Visualization
Archery	4	1	3	5	2	3	5	1	1	2
Baseball hit	4	5	5	5	5	5	5	5	5	5
Baseball pitch	3	2	3	4	3	3	5	1	3	5
Basketball	3	3	4	5	5	3	5	5	5	5
Bowling	2	1	3	5	3	2	4	1	3	4
Boxing	2	2	5	5	3	3	5	5	5	4
Football (Quarterback)	4	5	5	5	5	3	5	5	5	5
Golf	3	1	4	5	5	3	5	1	3	5
Gymnastics	1	3	3	5	5	3	5	5	5	5
Hockey (Goalie)	4	5	5	5	5	5	5	5	5	3
Pool	2	1	4	5	5	2	3	1	4	5
Race car driving	5	5	5	4	5	2	5	5	5	5
Racquetball	4	5	5	4	5	4	5	5	5	5
Running	1	1	2	1	1	1	4	3	1	4
Skiing	5	5	5	5	5	3	5	5	5	5
Soccer	3	4	5	5	5	3	5	5	5	5
Swimming	1	1	1	1	1	1	4	3	1	4
Tennis	4	5	5	5	5	5	5	5	5	5
Track — high jump	1	3	3	4	4	3	3	4	4	4
Track — pole vault	1	3	3	5	5	3	4	4	4	5
Wrestling	2	1	1	3	2	1	3	5	5	4

Arnold Sherman, O.D., Merrick, N.Y., is Chairman of the American Optometric Association's Sports Vision Section.

Scoring: 1 — not related to 5 — extremely important

K IDS NEED COMPLETE EYE EXAMS TOO

20/20 Quantity. 20/20 Quality.

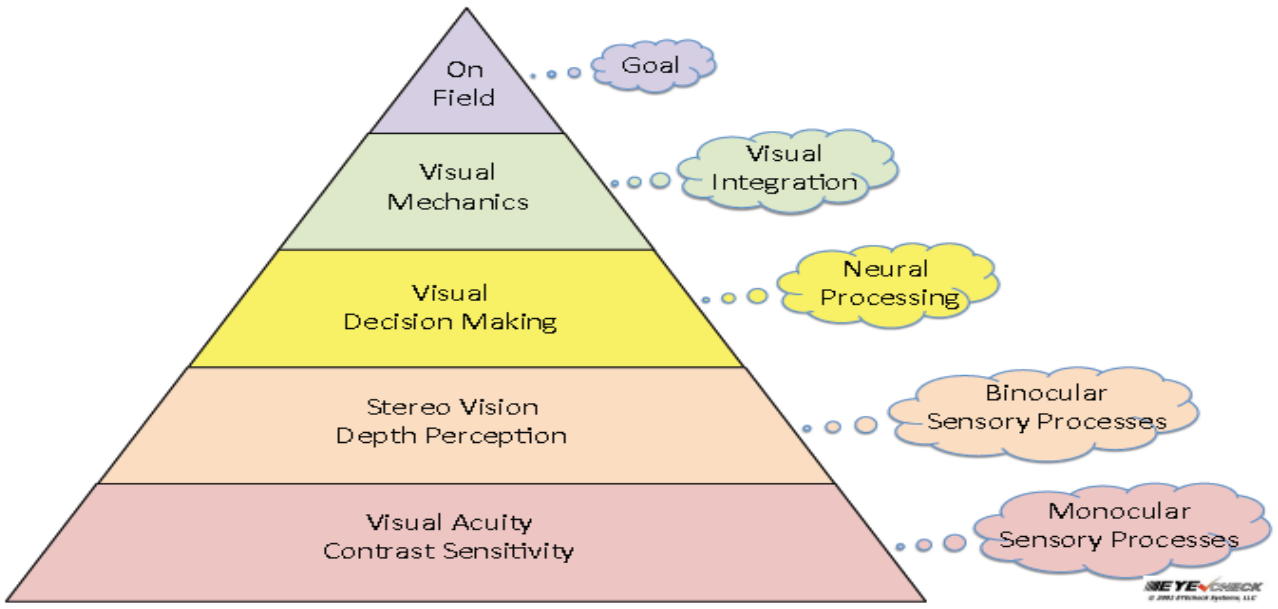
* Early eye examinations are crucial … better at schoolwork or play.

Statistics: Sports Vision Screenings

	Jr. Olympics	High School	College
Never had an exam	24.9%	30.5%	23.0%
Less than 20/20 in either eye	27.3%	20.0%	24.0%
Represent visual symptoms	34.5%	31.0%	20.5%
Reduced depth perception	32.2	20%	18.5%
Inaccurate eye movements	12.0%	10.5%	10.1%

Designing a Visual Training Program

- Vision Training = Ocular motor and neuro-visual conditioning
- Use as a reference when organizing and designing a training program
- Work on foundational visual skills first and then progress up the pyramid
- Training Regime: (Sport/Position Specific)
  - General: 2-3 days a week for 20-30 min for at least 6 weeks
  - Pre-Season: 6x week for 20-30 min for 2.5 weeks
  - In-Season: 1x week if necessary



Courtesy of Drs. David Kirschen and Dan Laby

Percentage of Professional Athletes Needing Visual Assistance

MLB	29.6%
NHL	20.2%
NFL	17.1%
NBA	16%

Letter: Coach/ Athletic Trainer/Team Doc

Dear Athletic Trainer, Team Physician:

The purpose of this letter is to introduce myself to you. I am an optometrist who has taken a special interest in Sports Vision.

As we all know, many decisions that athletes have to make are influenced by their visual ability. Studies have shown that up to 80% of all information processed during athletic events is visual. Vision is actually a timing device for athletic movements and allows one to know when and where to react.

Many professional sport teams are beginning to realize this and are incorporating the services of a Sports Vision Optometrist to give their athletes the competitive edge. Studies have shown that on most teams there are athletes that are in need of remedial care. These athletes are not seeing as clearly as they should in order to make accurate judgements.

In addition, there are many areas where skills, such as eye movement skills, depth perception, eye/hand coordination and peripheral awareness can be enhanced. All coaches talk about vision and are aware that the great players have superior visual skills. Now the visual skills of all players can be enhanced to improve their performance in a particular sport.

I hope you would agree that an athlete is not physically fit unless they are visually fit.
I will be calling shortly to see if we can arrange a meeting to discuss how sports vision might be helpful to your team.

Naturally, if you have any questions before that, please do not hesitate to contact me.

Sincerely,

Coach's Questionnaire

QUESTIONNAIRE FOR COACHES ON SPORTS VISION

Name of Coach_____Sport_____Team_____

Do you feel vision is important for the sport which you coach? Yes_____No_____

Please rate following visual skills and how important they are for your particular sport.
Rate from 1 (not related to) --- 5 (extremely important).

Visual Acuity – The ability to see _____

Dynamic visual acuity – The ability to see something moving _____

Ocular-motor skills – The ability to follow a moving object _____

Eye/hand (body) coordination – The ability for your body to quickly react to what you see _____

Accommodation – The ability to change your focus from far to near _____

Central – perpheral awareness - The ability to be able to process information that is not directly in front of you _____

Visual reaction time – The need to make very quick visual decisions _____

Binocular vision stereopsis – The ability to see depth and localize objects accurately in space _____

Visualization – The ability to rehearse performance in your mind _____

What visual skills do you feel are particularly important for your sport? _____
_____

What players on your team do you feel have particular visual problems?

Name	Visual Skill
_____	_____
_____	_____
_____	_____
_____	_____

Do you have your players do any particular visual exercises?_____
_____

Would you be interested in learning some particular visual exercises that might be helpful for your sport?_____
Would you be interested in having your entire team screened?_____

Would you be interested in having particular players screened?_____

Thank you for your cooperation

Athlete's Questionnaire

Name_____ Age_____ Sex_____

Coach_____ Sport_____ Position_____ Yrs. of experience at this level_____

Home Address_____ Home Phone (____)_____
(Street) (City) (State) (Zip)

Case History: If you have questions regarding any of the following items, please ask a doctor for assistance. This evaluation is designed specifically for athletes. The purpose is to evaluate the efficiency of those visual skills necessary for peak performance. Our goal is to assist you in reaching your potential. Please consider all questions carefully and answer as thoroughly and accurately as possible.

YES NO 1. Have you ever had a complete visual examination by an eye care practitioner?
a. If yes, when was your most recent examination?_____
b. What is the name of your eye doctor and where does he/she practice?_____

YES NO 2. Have you ever been involved in a visual training program? (remedial or enhancement)
a. If yes, when and for what reason(s)?_____
b. If yes, do you feel it was successful?_____ Explain_____

IF YOU DO NOT CURRENTLY WEAR GLASSES OR CONTACT LENSES, SKIP TO QUESTION 5.

YES NO 3. Do you wear glasses?
a. If yes, how old are they?_____
Are they satisfactory at present? YES NO
When used? Near distance Far distance Both
During sports? YES NO

YES NO 4. Do you presently wear contact lenses? If yes, what type? Soft Rigid Gas Permeable
a. Do you wear them all day? YES NO
When did you last have them checked by your eye care practitioner?_____
List any problems with your present lenses_____

YES NO 5. If you do not wear contact lenses or glasses, have you ever worn them in the past?
a. Which did you wear? Glasses Contact Lenses Both
b. When and why did you stop wearing them?_____

YES NO 6. Do you ever see blur?
a. If yes, where? Near distance Far distance How often?_____
b. During sports? YES NO How often?_____
If yes, please describe_____

YES NO 7. Do you ever see double?
a. If yes, where? Near distance Far distance How often?_____
b. During sports? YES NO How often?_____
If yes, please describe_____

YES NO 8. Do you ever feel you have difficulty "keeping your eye" on a moving object (i.e. ball, puck, etc.)?
a. If yes, please cite examples and describe_____

YES NO 9. Do you experience loss of concentration during sports performance?
a. If yes, please cite examples and describe_____

YES NO 10. Are you experiencing any visual difficulties?
a. If yes, please describe_____

11. a. Please rate your feeling regarding the importance of vision in your sport.
(1 = not important, 9 = extremely important, circle one)
1 2 3 4 5 6 7 8 9
b. How do you feel vision is important in your particular sport?_____

YES NO 12. Do you use visualization/imagery techniques?
a. If yes, please describe_____

YES NO 13. Have you ever suffered a head injury; or have you ever had injury, surgery, infection or disease involving your eyes?
a. If yes, explain_____

14. Further information (List any other visual performance concerns you may have)_____

What Sport Teams Utilize Sports Vision

- U.S. Olympic Teams
- Colleges (Duke, Alabama, Cincinnati, etc)
- NFL (Jets, Colts, Vikings, Saints)
- NHL (Hurricanes)
- MLB (Yankees, Mets, Nationals)

AP College Football Top 25 (Dec 2021)

1. Georgia
2. Alabama
3. Michigan
4. Cincinnati
5. Baylor
6. Ohio State
7. Oklahoma State
8. Notre Dame
9. Michigan State
10. Oklahoma
11. Ole Miss
12. Utah
13. Pitt
14. Clemson
15. Wake Forest
16. Louisiana
17. Houston
18. Kentucky
19. BYU
20. NC State
21. Arkansas
22. Oregon
23. Iowa
24. Utah State
25. San Diego State

Sports Vision: Football

Quarterbacks

1. Scan the field more effectively, read defenses quickly.
2. React to the play more accurately, respond more efficiently.
3. Increase consistency and accuracy when passing and handling the ball.
4. Improve field awareness, concentration and boost consistency.

Running Backs

1. Recognize gaps in the line more easily and react more quickly to other players.
2. Handle the football more precisely and catch the ball with greater consistency.
3. Play angles on the field more accurately.
4. Improve overall decision-making, balance and timing.

Receivers

1. Increase awareness of your position on the field
2. Catch more consistently, improve perception or localization of where the ball is.
3. More easily determine location of down markers, sidelines and other players.

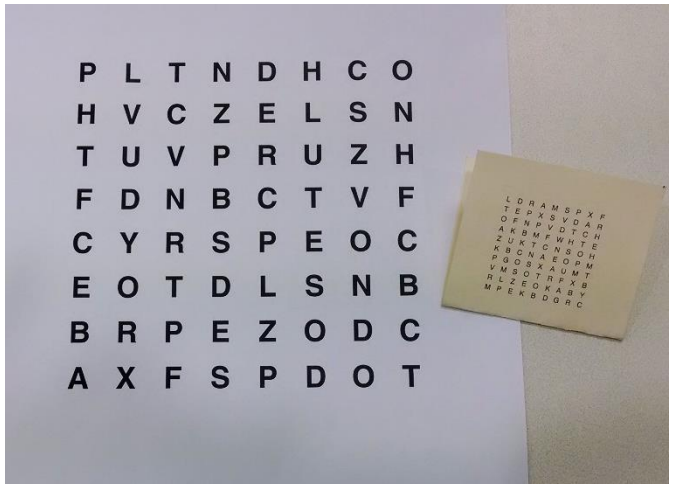
Linemen/Backers

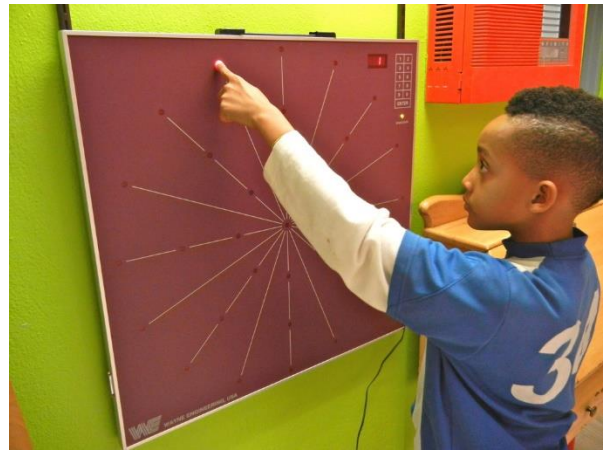
1. React to the snap faster.
2. Improve concentration and read the play after the snap more accurately.

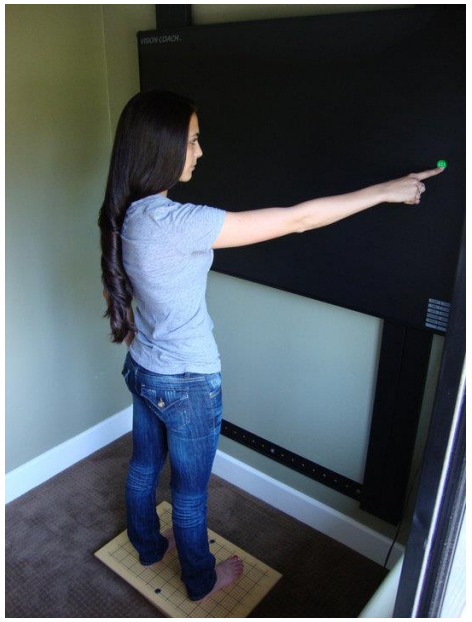
Kicker/Punter

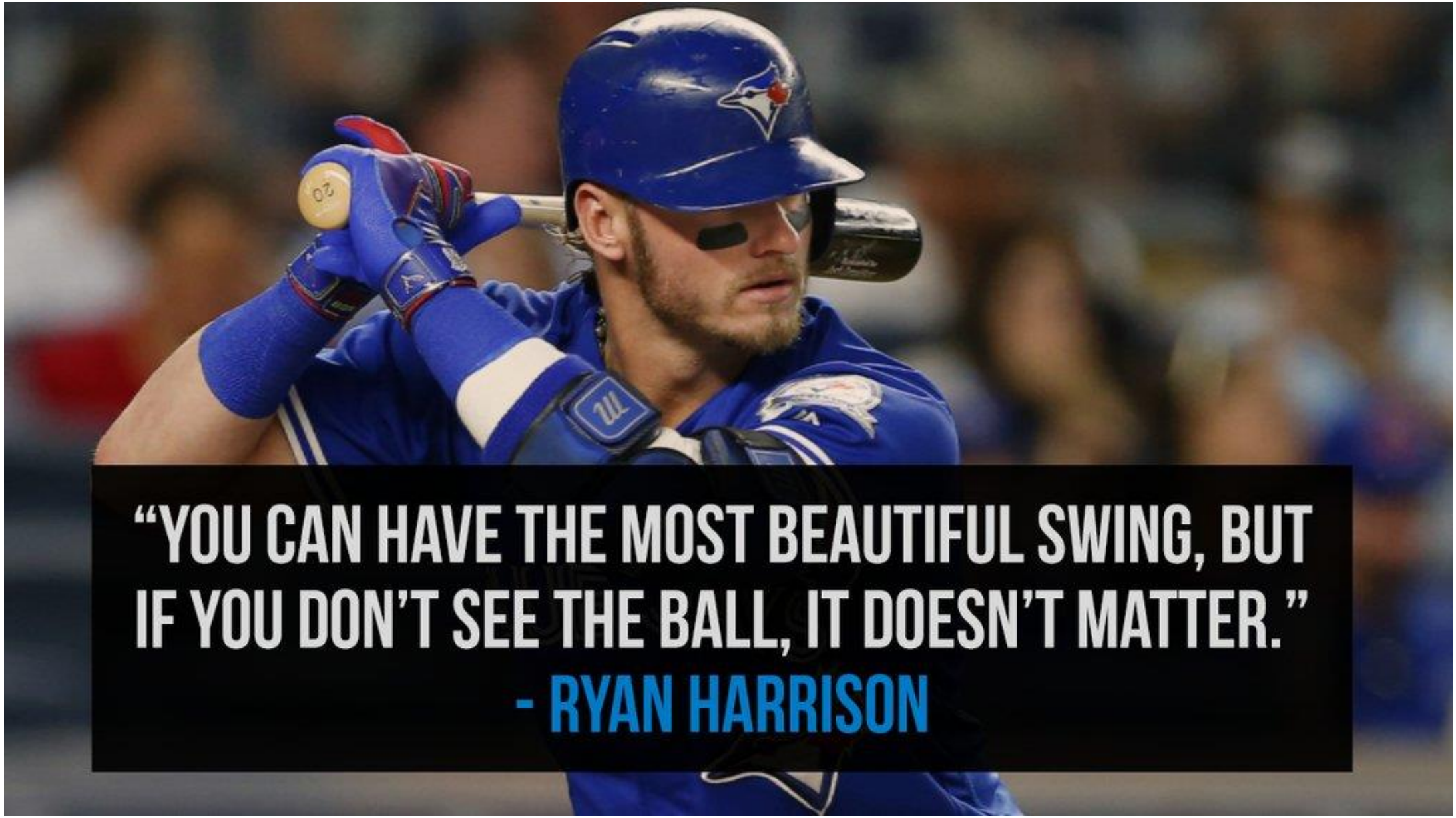
1. Read the field/defense more quickly.
2. Handle poorly snapped balls with confidence, kick with greater accuracy.
3. Judge distances, angles and goal posts/crossbar with greater consistency.

POSITION	VISUAL SKILLS	TRAINING
Quarterback	Visual acuity	Prisms/lens sorting, Hart chart with isolated letters (blur interpretation)
	Stereopsis	Lifesaver card, bucket toss, Brock string
Wide receiver	Contrast	Use filters (ie. snow goggles) during activities
	Depth perception	See “Stereopsis” above
	Eye-hand coordination	Test quickness with Wayne saccadic fixator, MOART, Reaction Plus
	Peripheral awareness	Wayne, Sacc fixator, Sanet integrator, juggling
	Dominant eye	Place athlete on field that promotes binocularity
Linebacker	Eye-hand coordination	See above
	Peripheral/Soft Focus	Touch boards
	Balance	Activities on balance ball/beam
Kicker	Fixation	Visual processing activities ie. Add metronome
	Eye-foot coordination	Test reaction time
	Peripheral awareness	See above







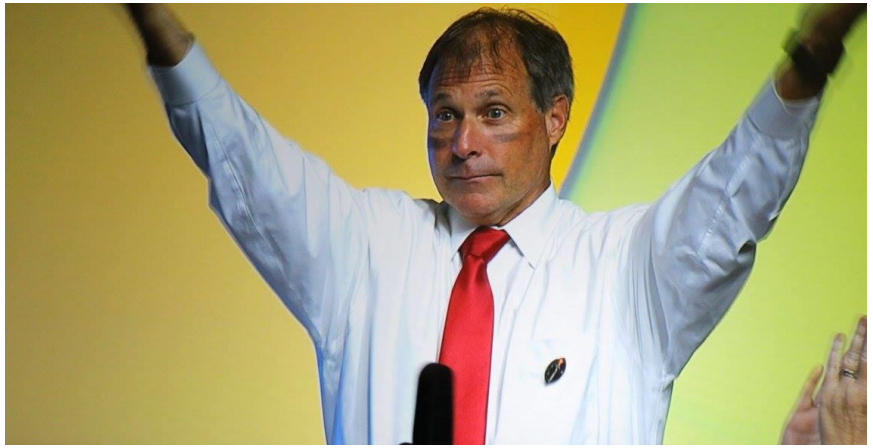


"It's a superhuman feat that is clearly impossible"
-Robert Adhair Yale Physicist

ESPN Sports Science

Why Incorporate Sports Vision Training Into Practice?

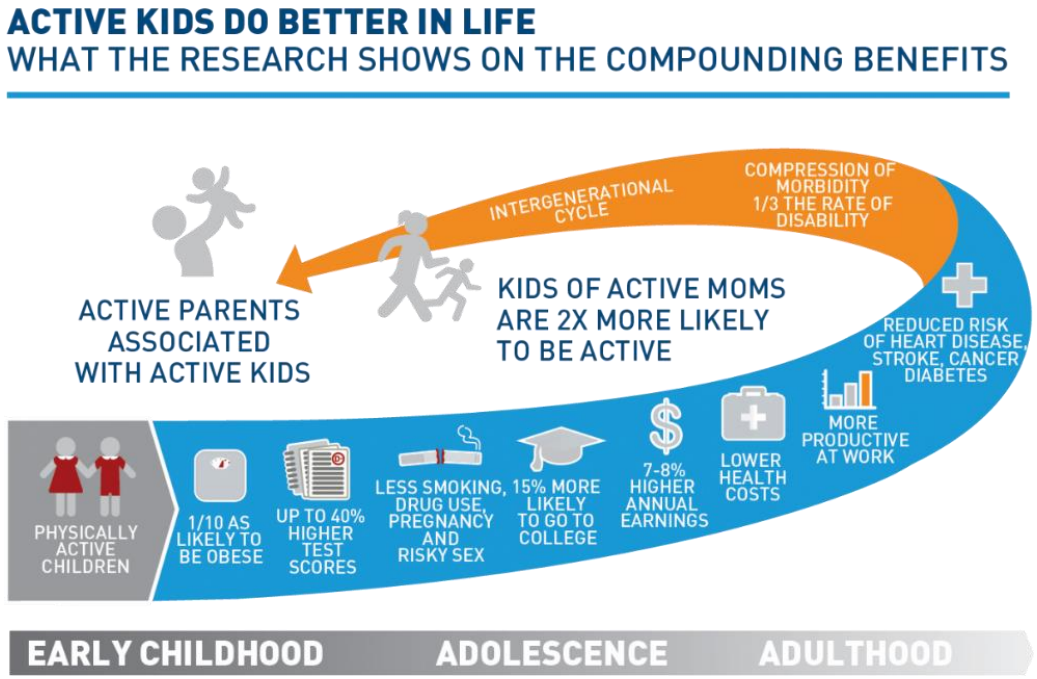
- Increase the number of patients to the office
- Set yourself apart from your competition
  - Expands what you can offer to a patient
- Have fun at the office
- Increase your bottom line



- Help improve vision, lead to quicker sensory processing, more accurate eye movements and improve athletic performance
  - Also help reduce injuries

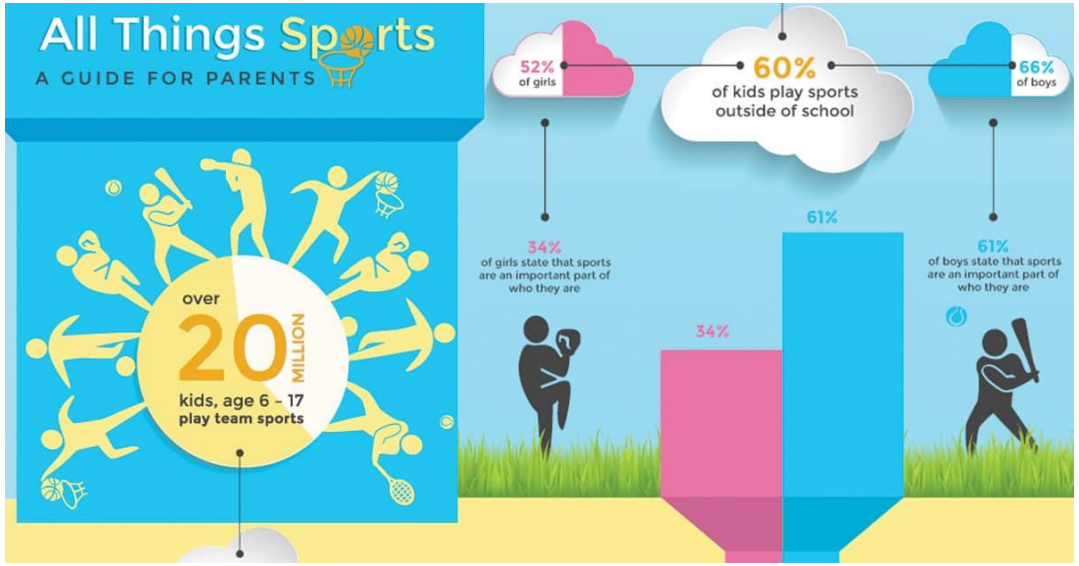
Sports: More Than Just Fun

- Children & Youth Who Play Sports:
  - Build strong bodies
  - Acquire skills and provide life lessons
  - Learn how to get along with others (Teamwork)
  - Learn how to handle winning and losing
  - Learn how to solve problems and develop a sense of competence and solid self-esteem
  - In addition, it has been shown that kids who play sports have less anxiety and depression and are less likely to become involved in risky behaviors such as sex and drugs



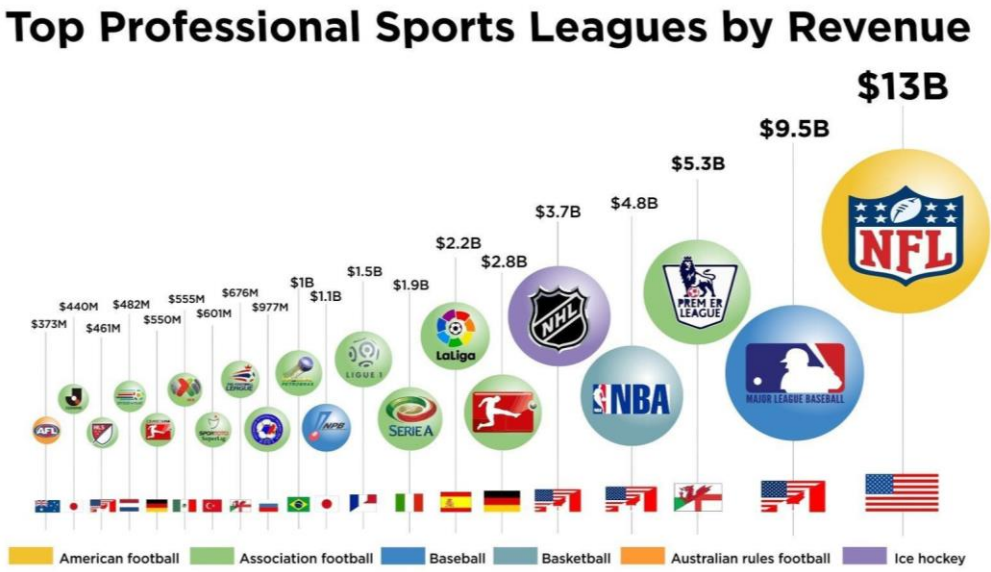
Participation in Sports

- According to the CDC nearly 30 million children and adolescents participate in sports in the U.S.
- People spend more than $250 million on sports
- 97% of parents want their children to be physically active
- 100% of parents want their kids to be safe

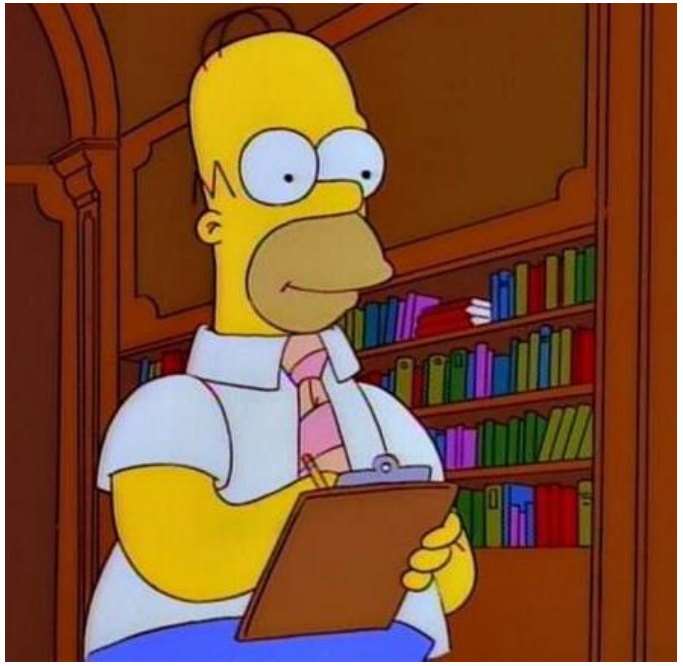


Profitability of Sports Vision in Practice

- Instrument Investment:
  - ~ $300 (Basic Sports Vision Screening)
  - ~ $30,000 (Couple key instruments)
  - ~ $125,000 (5 key instruments)
- Sports Vision Training:
  - ~ $25,000-$100,000 annually
- Sales of Sports Eyewear/Sunglasses:
  - ~ $25,000-$75,000 annually
- Fitting & CL Sales for Athletes:
  - ~ $15,000-$30,000 annually
- Break Even Time:
  - ~ 3 months (Low end)
  - ~ 12 months (High end)



History Taking



- What sport(s) and position(s) do they play?
- Which hand/foot do they hit or throw with?
- Level and frequency of play?
- How long do they wear their glasses or contacts for?
  - Do they even own or wear anything while playing a sport?
  - Are you seeing clearly with your current prescription?
- Eye care history (Past surgeries/injuries/concussions)
- Any dryness/light sensitivity issues?
- Do you experience loss of concentration during sports performance?
- Do you ever notice decreased peripheral vision during sports performance?
- Eyes may be holding you back if:
  - Show little improvement in sports, even with practice
  - Make the same mistake time and again in competition
  - Have difficulty judging ball rotation or knowing where the ball or other players are

Doc Are Eye Exercises A Thing & Do They Work?

- Google Search: However there is lack of empirical peer review research
  - April 2009 = 13,400,000 hits
  - April 2012 = 244,000,000 hits
- Doctor Oz Show: Do daily and possibly better results within 1 month
  - Warm your eyes by rubbing palms and place against eyes 3x for 5 seconds
  - Roll your eyes by looking up and do slow circles 10x clockwise/counter
  - Focus on a pen by moving it closer and further away
  - Massage your temples with your thumb knuckles 20x one direction and then the other direction
  - Take a mini-nap by closing your eyes and relaxing for 3 minutes
- “Eye exercises can have an impact on visual perception (proprioception) and increases the accuracy and speed of eye muscles” Abernethy 1996

Testing:

Traditional Eye Exam	Visual Performance Eye Exam
Hx & Symptoms	Hx & Symptoms
Static VA	Dynamic VA
Refraction	Contrast Sensitivity
Ocular Alignment	High & Low Contrast logMAR Acuity
Ocular Motility	Ocular Dominance
Accommodation	Light Sensitivity/Adaptation
Stereopsis	Vergence
Fixation Disparity	Glare Recovery
Ant Seg Exam	Peripheral Awareness/Gaze Angles
Pupil Function	Anticipation Timing
Color Vision	Visualization
Tonometry	Color Preference
Visual Fields	Eye-Hand/Body Coordination
Fundus Exam	Eye Discipline

Effective Evaluation

PubMed.gov

Advanced

Save Email

J Exerc Rehabil. 2016 Dec 31;12(6):604-609. doi: 10.12965/jer.1632728.364. eCollection 2016 Dec.

Effect of sports vision exercise on visual perception and reading performance in 7- to 10-year-old developmental dyslexic children

Rokhsareh Badami [1], Sahar Mahmoudi [2], Bahman Baluch [3]

Affiliations + expand

PMID: 28119884 PMCID: PMC5227324 DOI: 10.12965/jer.1632728.364

Free PMC article

"Sports vision exercises increases motor skills, perceptual skills and reading skills in developmental dyslexic children"

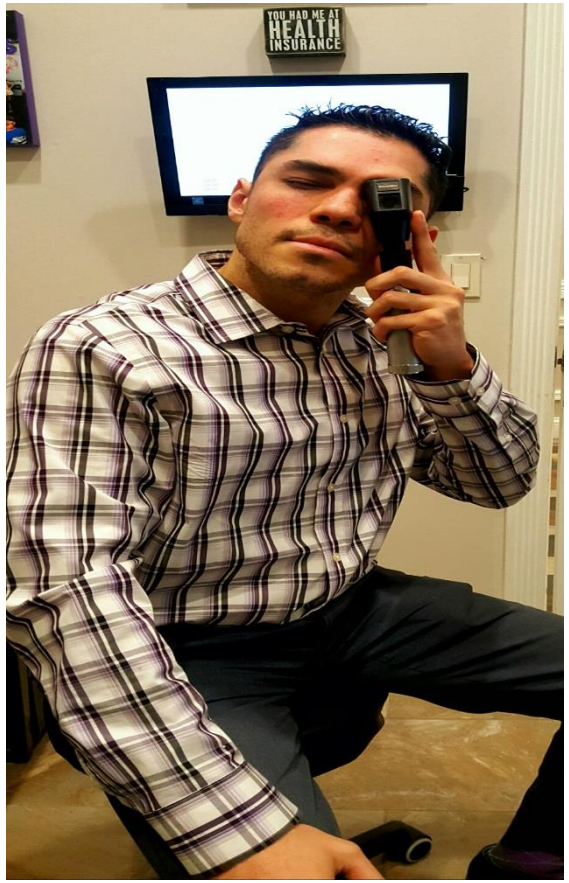
Success in School: 20/20 is Not Enough!

Sporting Visual Task/Environmental Analysis

- Target size and distance
- Speed of target/athlete
- Boundaries
- Contrast of target against its background
- Color of target and background
- Ambient light levels (Indoors vs Outdoors)
  - Visibility starts to diminish with reduced lighting
- Environmental variability/distracters/dust
- Precipitation and wind speed
- Temperature/humidity/altitude
- Length and energy demand of sport
  - Adrenaline fluctuations or exhaustion
- Reflectivity of the playing surface
- Eye protection requirements

Retinoscopy

- Retinoscopy should be conducted on all children:
  - Gold Standard
- When to prescribe:
  - Based on VA's?
  - Based on sport demand?
  - Based on patient's motivation?
  - Based on refractive error guidelines?
  - Based on effort required to achieve clarity?



The Glorious Glasses of MLB

THE DEADBALLER
Will White

THE ORIGINAL
Specs Torporcer

THE DIMAGGIO
Dom DiMaggio

MOST VALUABLE GLASSES
Jim Konstanty

THE IT GUY
Darrell Porter

THE 70'S SIDEARM
Kent Tekulve

MR. OCTOBER
Reggie Jackson

THE SABO
Chris Sabo

GLASSESMANIA
Fernando Valenzuela

THE PROFESSOR
Greg Maddux

THE MODERN GOGGLE
Jason Phillips

THE NERD
Eric Sogard

THE RELIEVER
Tyler Clippard

THE TITO
Terry Francona

THE CELEBRATION
Colby Rasmus

THE BROADCASTER
Harry Caray

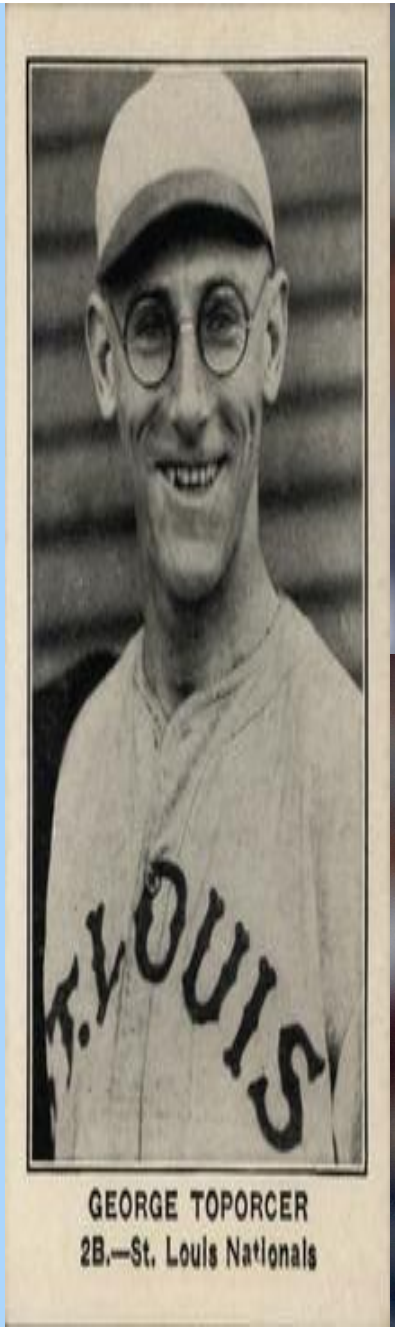
THE ECLIPSE
Bartolo Colon

THE '90S KID
Jeff Bagwell

THE FLIP-UP SHADE
Nolan Arenado

THE ACE
Denny McLain

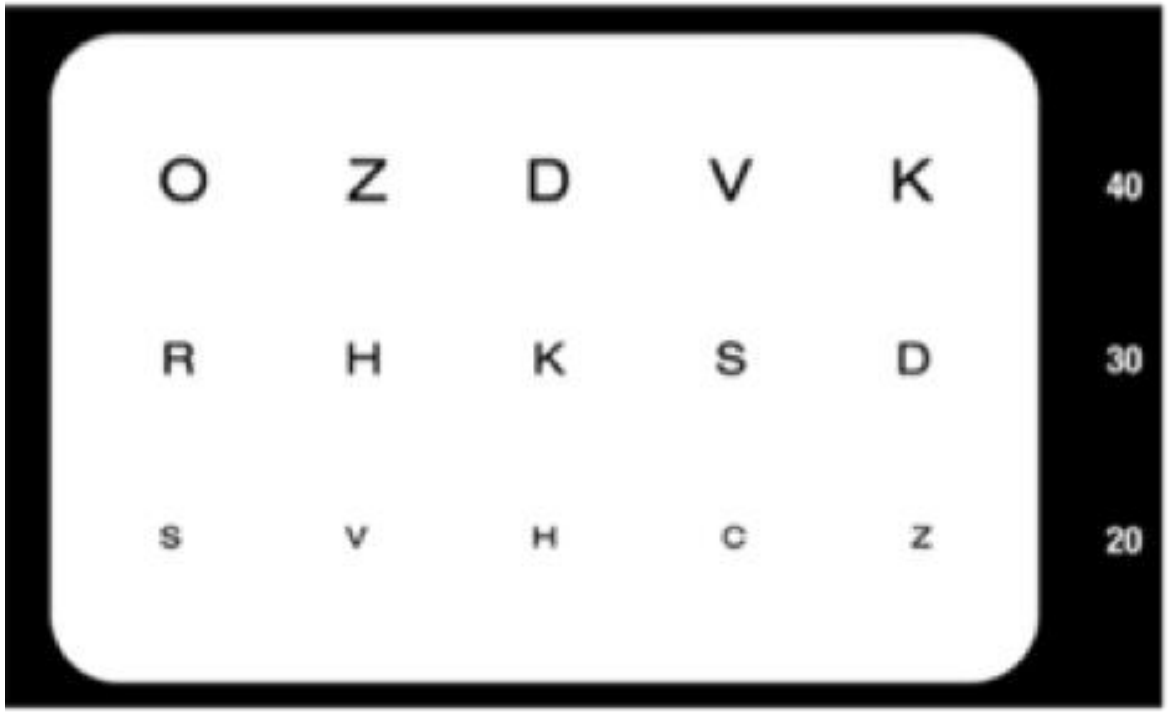
THE HIPSTER
Bryce Harper



GEORGE TOPORCER
2B.—St. Louis Nationals

Prescribing Guidelines: “Raising the Bar”

- Myopia: Beginning at -0.25D
- Hyperopia: Beginning at +1.00D
- Astigmatism: Beginning at -0.50D
  - WTR VS ATR VS OBLIQUE
- Anisometropia: Beginning at 0.50D
  - Consider each meridian
- Accurate refraction
- Binocular balance
- Leave low presbyopes (the young ones) unless symptomatic or appreciative
- Avoid progressives when possible



Optimal correction
of -0.75DC

Uncorrected / “Masking”
of -0.75DC

High Risk Sports	Moderate Risk Sports	Low Risk Sports
Paintball/Air Riffle	Football	Cycling
Badminton	Archery/Darts	Swimming/Diving
Baseball/Softball	Rugby	Athletics
Basketball	Soccer	Rowing/Canoeing
Cricket	Volleyball	Skiing/Snowboarding
Fencing	Water Polo	Water Skiing
Field Hockey/Ice Hockey/Lacrosse	Golf	Wrestling
Boxing	Fishing	
Tennis/Racquet Ball		

Sports & Eye Injuries

- Leading cause of Blindness in Children (Trauma: > 50%)
- **Baseball** leading cause of eye injuries in Children 14 and under
  - Batted baseballs are 3.5x more likely to cause eye damage than a pitched ball!
- Basketball leading cause of eye injuries in Children 15 and older
- 27% of all eye injuries are sports related
- Every 13 min, an ER in the U.S. treats a sports related eye injury
  - >100,000 each year
  - 1/3 of sports related eye injuries involve children (Ages 11-14)
  - 1/18 College Athletes with sustain an eye injury, Odds are 1/10 if Basketball
- Sports related eye injuries cost $175-$200 **MILLION** a year!
  - Hockey face protectors have saved society $10 million a year!
  - Avg cost of eye injury to child under age of 15: $3,996
- 90% of sports related eye injuries can be prevented with protective wear

Sports Related Injury Statistics



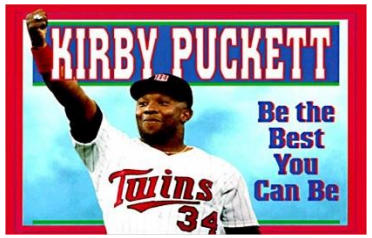
- High school athletes account for an estimated 2 million injuries and 500,000 doctor visits and 30,000 hospitalizations each year.
- Accounts for 20% of unilateral blindness; 7% of bilateral
- Children ages 5 to 14 account for nearly 40% of all sports-related injuries treated in hospitals. On average the rate and severity of injury increases with a child's age.
- Although 62% of organized sports-related injuries occur during practice, one-third of parents do not have their children take the same safety precautions at practice that they would during a game.
- Injuries associated with participation in sports and recreational activities account for 21% of all TBI's among children in the United States.

Prevent Blindness Stats (2014)

Activity	0-14 Yrs Old	Ages 15+	Estimated Injuries
Basketball	1,789	4,518	6,307
Water/Pool	2,510	2,995	5,505
Guns (BB/Pellet)	1,265	1,132	2,397
Baseball/Softball	1,154	945	2,100
Football	686	1,040	1,726
Cycling	271	1,212	1,483
Soccer	229	1,109	1,338
Exercising/Lifting	318	1,007	1,325
Fishing	476	708	1,183
Racquet Sports	405	643	1,048

Most Common Ocular Injuries

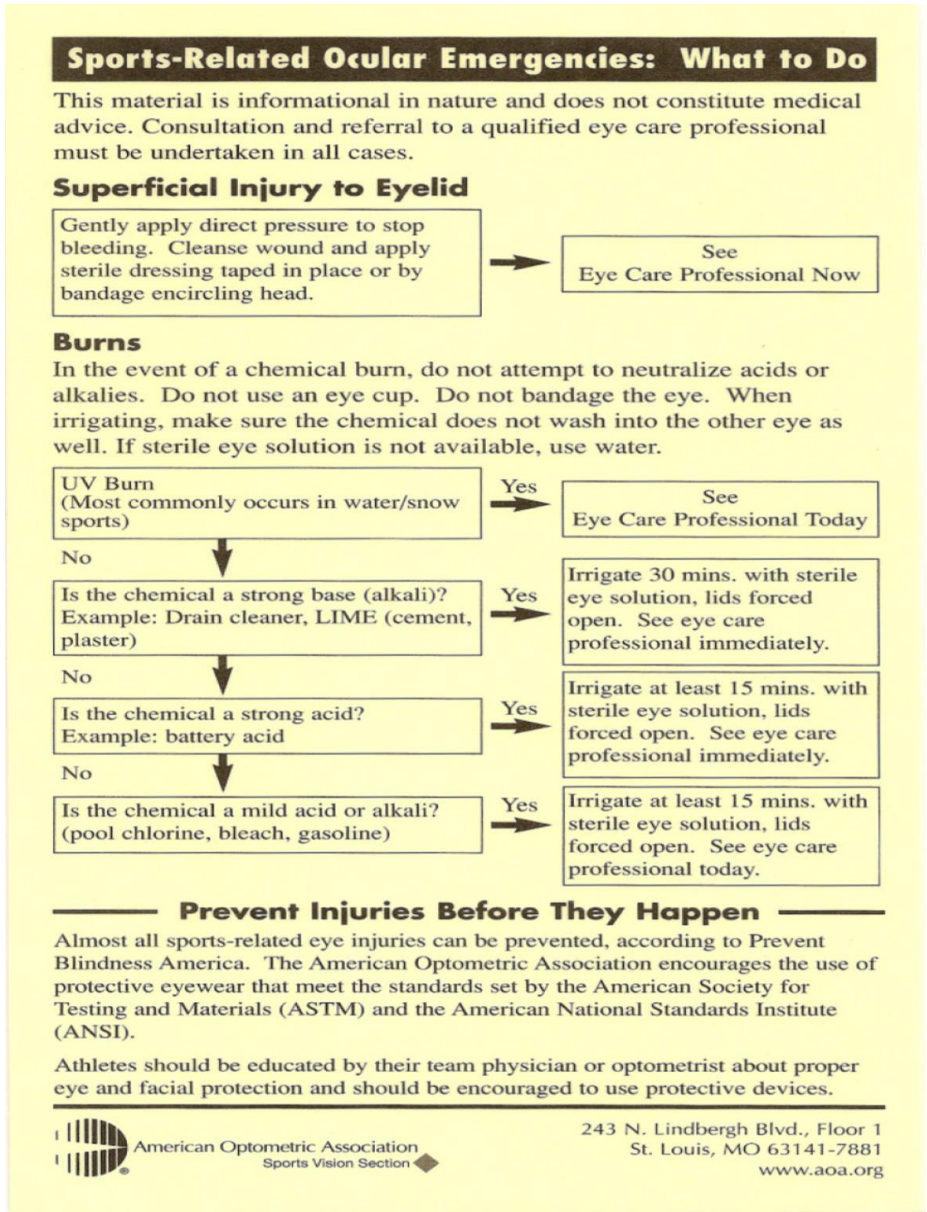
- Corneal Abrasions
- Periorbital Lacerations
- Diplopia
- Foreign Bodies
- Trauma to the globe may result in:
  - Periorbital contusions, edema or fracture
  - Blow-out orbital fracture
  - Entrapped extraocular muscles
  - Subconjunctival hemorrhage
  - Miotic, mydriatic or fixed pupils
  - Iris defects
  - Hyphema
  - Angle recession
  - Traumatic cataract or lens subluxation
  - Vitreous or retinal hemorrhage
  - Retinal tears or detachment



Ocular Emergency Kit For The Athletic Trainer

- Bottle saline eye wash/irrigating solution
- Bottle contact lens disinfecting solution
- Lubricating/rewetting drops and allergy eye drops
- Spare contact lenses and cases
- Anesthetic (Proparacaine/Tetracaine)
- Sterile cotton swabs or cotton tipped applicator
- Medical tape, gloves, mirror, sani-wipes, ice pack
- Fox aluminum eye shield or eye pads
- Fluorescein strips
- Penlights (White & Blue lights)
- Pocket Vision Card
- Informational sports-related ocular emergency triage card
- Team doctors contact information

Triage Card from AOA SVS



Sports-Related Ocular Emergencies: What to Do

This material is informational in nature and does not constitute medical advice. Consultation and referral to a qualified eye care professional must be undertaken in all cases.

Superficial Injury to Eyelid

Gently apply direct pressure to stop bleeding. Cleanse wound and apply sterile dressing taped in place or by bandage encircling head. → See Eye Care Professional Now

Burns

In the event of a chemical burn, do not attempt to neutralize acids or alkalies. Do not use an eye cup. Do not bandage the eye. When irrigating, make sure the chemical does not wash into the other eye as well. If sterile eye solution is not available, use water.

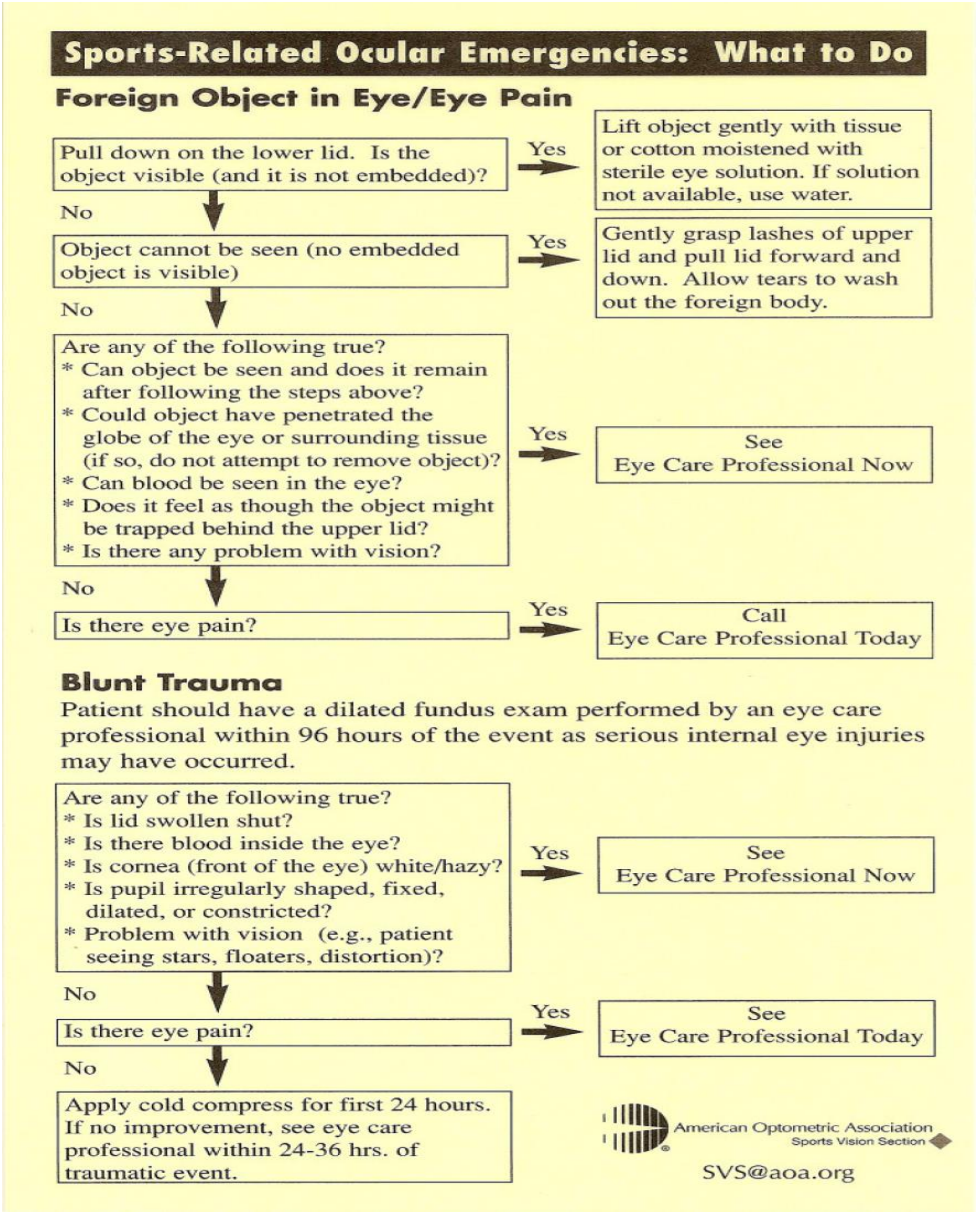
- UV Burn (Most commonly occurs in water/snow sports) — Yes → See Eye Care Professional Today
- No
- Is the chemical a strong base (alkali)? Example: Drain cleaner, LIME (cement, plaster) — Yes → Irrigate 30 mins. with sterile eye solution, lids forced open. See eye care professional immediately.
- No
- Is the chemical a strong acid? Example: battery acid — Yes → Irrigate at least 15 mins. with sterile eye solution, lids forced open. See eye care professional immediately.
- No
- Is the chemical a mild acid or alkali? (pool chlorine, bleach, gasoline) — Yes → Irrigate at least 15 mins. with sterile eye solution, lids forced open. See eye care professional today.

Prevent Injuries Before They Happen

Almost all sports-related eye injuries can be prevented, according to Prevent Blindness America. The American Optometric Association encourages the use of protective eyewear that meet the standards set by the American Society for Testing and Materials (ASTM) and the American National Standards Institute (ANSI).

Athletes should be educated by their team physician or optometrist about proper eye and facial protection and should be encouraged to use protective devices.

American Optometric Association
Sports Vision Section
243 N. Lindbergh Blvd., Floor 1
St. Louis, MO 63141-7881
www.aoa.org



Sports-Related Ocular Emergencies: What to Do

Foreign Object in Eye/Eye Pain

- Pull down on the lower lid. Is the object visible (and it is not embedded)? — Yes → Lift object gently with tissue or cotton moistened with sterile eye solution. If solution not available, use water.
- No
- Object cannot be seen (no embedded object is visible) — Yes → Gently grasp lashes of upper lid and pull lid forward and down. Allow tears to wash out the foreign body.
- No
- Are any of the following true?
  * Can object be seen and does it remain after following the steps above?
  * Could object have penetrated the globe of the eye or surrounding tissue (if so, do not attempt to remove object)?
  * Can blood be seen in the eye?
  * Does it feel as though the object might be trapped behind the upper lid?
  * Is there any problem with vision?

  — Yes → See Eye Care Professional Now
- No
- Is there eye pain? — Yes → Call Eye Care Professional Today

Blunt Trauma

Patient should have a dilated fundus exam performed by an eye care professional within 96 hours of the event as serious internal eye injuries may have occurred.

- Are any of the following true?
  * Is lid swollen shut?
  * Is there blood inside the eye?
  * Is cornea (front of the eye) white/hazy?
  * Is pupil irregularly shaped, fixed, dilated, or constricted?
  * Problem with vision (e.g., patient seeing stars, floaters, distortion)?

  — Yes → See Eye Care Professional Now
- No
- Is there eye pain? — Yes → See Eye Care Professional Today
- No
- Apply cold compress for first 24 hours. If no improvement, see eye care professional within 24-36 hrs. of traumatic event.

American Optometric Association
Sports Vision Section
SVS@aoa.org

Treatment Options

- Corneal Abrasion:
  - Debridement of the cornea
  - Bandage CL's?
- Recurrent Corneal Erosions:
  - Oral Doxy 50 mg BID + FML or Lotemax Gel TID x 4-8 weeks
  - Freshkote 1 gtt qd or Muro ung qhs
  - Azasite
  - Amniotic membrane
- Blow To The Eye:
  - Gently apply small cold compress to reduce pain and swelling (DO NOT APPLY PRESSURE)
  - Black eye, pain or visual disturbance seek optometric services
- Punctured or Cut Eye:
  - Gently place shield over the eye
  - **DO NOT**: Rinse with water, remove object stuck from the eye, rub or apply pressure,
  - Avoid giving aspirin, ibuprofen, or NSAIDs
- Iritis: 7 Rules
  - R/O keratouveitis
  - R/O previous ocular surgery
  - Check IOP
  - Gauge severity (Systemic work-up)
  - Go beyond AC cells and flare (Restore BAB)
  - Dilate Dilate Dilate!
  - TREAT AGGRESSIVELY!!!
    - Never prescribe Pred Forte QID! (Must be 1gtt q1 or 2hrs even for grade 1) Must Shake!
    - Prescribe Durezol with half dosing of PF (No shaking req'd)
- Importance of Cycloplegia: (Homatropine 5% or Cyclo 1% BID)
  - Re-establish vascular permeability
  - Prevent synechiae
  - Pain management

Billing & Coding: Bandage Contact Lens Protect Yourself & The Patient

- Athlete suffers a corneal abrasion to their right cornea from being struck with a basketball
- CPT Specifics:
  - 920X2 or a 992XX: Office visit code
  - 92071: Fitting of a contact lens for treatment of ocular surface disease
    - Modifier: -RT for right; -LT for left
- ICD-10 Specifics: Corneal Abrasions & Sports Related Eye Injuries
  - S05.01XA: Injury of conjunctiva and corneal abrasion w/o foreign body, right eye, initial encounter
  - W21.05XA: Struck by basketball right eye, initial encounter
  - Y92.310: Basketball court as the place of occurrence of the external cause
  - Y93.67: Activity, basketball
  - Many carriers DO NOT require the W or the Y codes
    - But it is the appropriate way to code
  - A = Initial visit and patient under active management
  - Follow up: Remove BCL
    - Bill 992XX code and S05.01XD
    - D = Indicates a subsequent encounter

When Should You Place It?!

FDA-Approved Soft Bandage Contact Lenses

Acuvue Oasys	Air Optix N&D	Purevision	UCL 55%

Diagnostic Codes Supporting Therapeutic Bandage Lens	Procedures Placing BCL on Same Day Service
G51.0 Bell's Palsy	65435 Superficial Keratectomy
H16.01X Central Corneal Ulcer	65780 Ocular Surface Reconstruction (Amniotic Membrane)
H16.05X Mooren's Corneal Ulcer	65781 Limbal Stem Cell Allograft
H16.07X Perforated Corneal Ulcer	65782 Limbal Conjunctival Autograft
H16.12X Filamentary Keratitis	68371 Harvesting Conjunctival Allograft
H16.21X Exposure Keratoconjunctivits	66999 Refractive Surgery
H18.83X Recurrent Corneal Erosion	65770 Keratoprosthesis
M35.01 Sicca Syndrome (Sjogren)	0402T Corneal Collagen Crosslinking
S05.0XXX Injury of Conjunctiva & Corneal Abrasion W/O FB	-
T15.0XXX Foreign Body in the Cornea	-

History

- In 1886 Sports specs were offered by Sears, Roebuck & Co and later advertised in the Time of London 1909
- Eskimos first to introduce sports specs to reduce glare from snow and water (Donald 1917)
- Chinese used transparent colored pebbles for magnification and light protection (Duke-Elder 1970)
- In the 1920's Behavioral Optometry was developed which led to sports vision enhancement training on the premise that visual skills are learned and could be improved

Laws Promoting the Use of Protective Eyewear

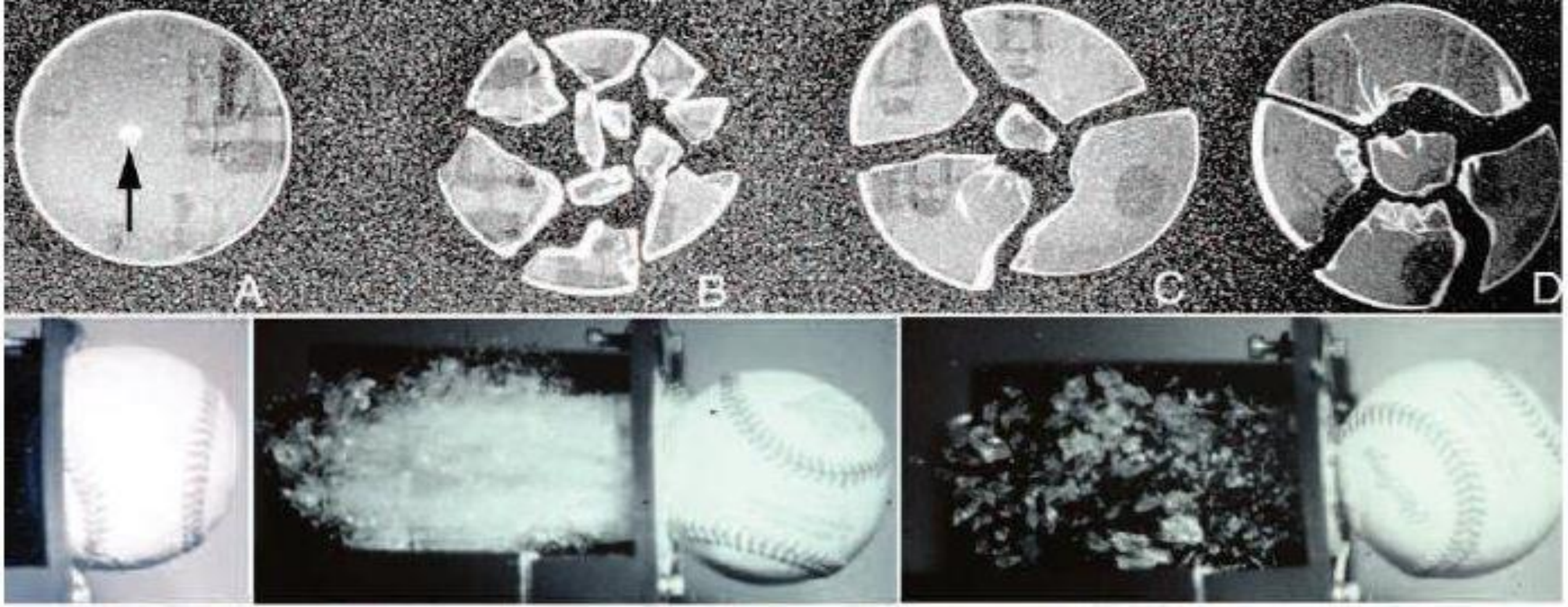
- American Public Health Association:
  - Strongly recommends that all participants in defined moderate- to high-risk sports utilize protective eyewear appropriately certified for the specific sport
  - Further urges state legislatures to mandate that all children wear sports protective eyewear that meets the lens and frame standards of ASTM F80318 and other ASTM standards relating to eye protection in sports
    - [Ex: F513 (Hockey), F659 (Skiing), F910 (Baseball), F1587 (Hockey Goaltenders), F1776 (Paintball)]
- Encourages insurance companies to employ risk management strategies to communicate the risks of sports eye injuries and provide guidance in their mitigation, such as training coaches, referees and participants in the proper choice and use of sports eye protection
- The State of New Jersey has acted upon these aforementioned policy/position statements to enact the first law ever in the United States to require use of protective eyewear by children participating in organized sports

Prevention & Management of Eye Injuries

- Eye injury is the leading cause of loss of vision for people under the age of 40
- Coalition to Prevent Sports Eye Injuries (www.sportseyeinjuries.com)
- Sports participants using "street wear" are at a far more severe risk of eye injury than participants using no eye protection at all
- The use of protective devises for the face and eyes could effectively reduce the frequency or severity of sports related eye injuries by 90%
- *Increasing the use of protective eyewear in sports is an objective of the National Health Institute's "Healthy People 2020" initiative*

Protective Eye Wear

- Certification Seal of Approval (Organizations)
  - ASTM (American Society for Testing and Materials)
  - HECC (Hockey Equipment Certification Council)
  - PECC (Protective Eyewear Certification Council)
- ASTM (F803):
  - Basketball, racquet sports, field hockey, women's lacrosse, baseball fielders
- Baseball: 90-110 mph ASTM (F910)
  - Faceguard (Attached to helmet) with polycarbonate material
  - Sports eye guards with polycarbonate or trivex with UV protection
  - Youth baseball batters/runners
- Football:
  - Polycarbonate shield attached to a faceguard
  - Sports eye guards with polycarbonate or trivex (Padding/helmet compatible)
- Hockey: Puck travels 90-100 mph ASTM (F513)
  - Helmets with face shields
- Swimming: Prescription lenses (Custom goggles)
- Tennis/Racquet Ball: 12 yr old can strike a ball 80 mph ASTM (F803-94)
- Paintball: ASTM (F1776)
- Ski Goggles/Face Shields: ASTM (F659)



A. Polycarbonate ASTM F803

B. Mineral

C. Allyl Resin Plastic

D. High-Index Plastic

GAME FACE

According to the American Optometric Association's 2014 American Eye-Q® survey,

ONLY ABOUT 21 PERCENT OF ADULTS

wear protective eyewear during sports, and only 46 percent of parents make their children wear eye protection. Get in the game about the importance of protective eyewear in sports.

More than **600,000** eye injuries related to sports/recreation occur yearly. This is about **15 percent** of the 2.5 million eye injuries in the United States yearly.

1 in 18 college athletes will sustain an **eye injury** each season. This increases to **1 in 10** **for basketball players.**

Protective eyewear is made of **ultra-strong polycarbonate**, which is **10 times** more impact-resistant than other plastics.

More than **90 percent** of all eye injuries can be prevented with use of **appropriate eyewear.**

Baseball is the leading cause of eye injuries in **children under age 14.**

The National Eye Institute classifies **baseball/softball, basketball, boxing, hockey, lacrosse, paintball and racquet sports** as **"high risk"** for eye injury.

Basketball is the leading cause of eye injuries among **15- to 24-year-olds.**

Most eye injuries among **children ages 11 to 14** occur while **playing sports.**

To find a doctor of optometry near you, visit **aoa.org.**

AMERICAN OPTOMETRIC ASSOCIATION

Sources: Coalition to Prevent Sports Eye Injuries, National Eye Institute

BASKETBALL PLAYER: LEONID DORFMAN/THINKSTOCK. ICONS: MISSBOBBIT/THINKSTOCK

helmet on their wintersports holiday

65.8% of skiers and snowboarders have had an injury on the slopes

Two thirds of skiers who have been injured and were wearing a helmet believe that their helmets prevented a more serious injuries.

I don't wear a helmet, because...

29% Uncomfortable **24%** Reduced Vision

73% Never Worn One

29% Low Risk **26%** I Ski/Snowboard Carefully

23% Inconvenient to pack **12%** Dislike the way they look **5%** Too expensive

10-15% Head injury

The general head injury rate for wintersports across Europe and North America of all snowsport injuries.

Head injuries between men and women

Helmet wearers 2.3 %

Non helmet wearers 5.8 %

The proportion of cases of concussion among hospital visits for snowsports in the EU from 2002 to 2008

A 2005 Scottish survey of injuries showed that

ANATOMY OF PROTECTIVE SPORTS EYEWEAR

Double slide adjustable strap

Every lens is stamped certifying for ASTM F803 standards

Unique softness of the material allows the temple to bow/flex thereby acting as an extension of the strap - providing comfort and hugging the face during play

Polycarbonate lenses that meet or exceed ASTM F803 standards

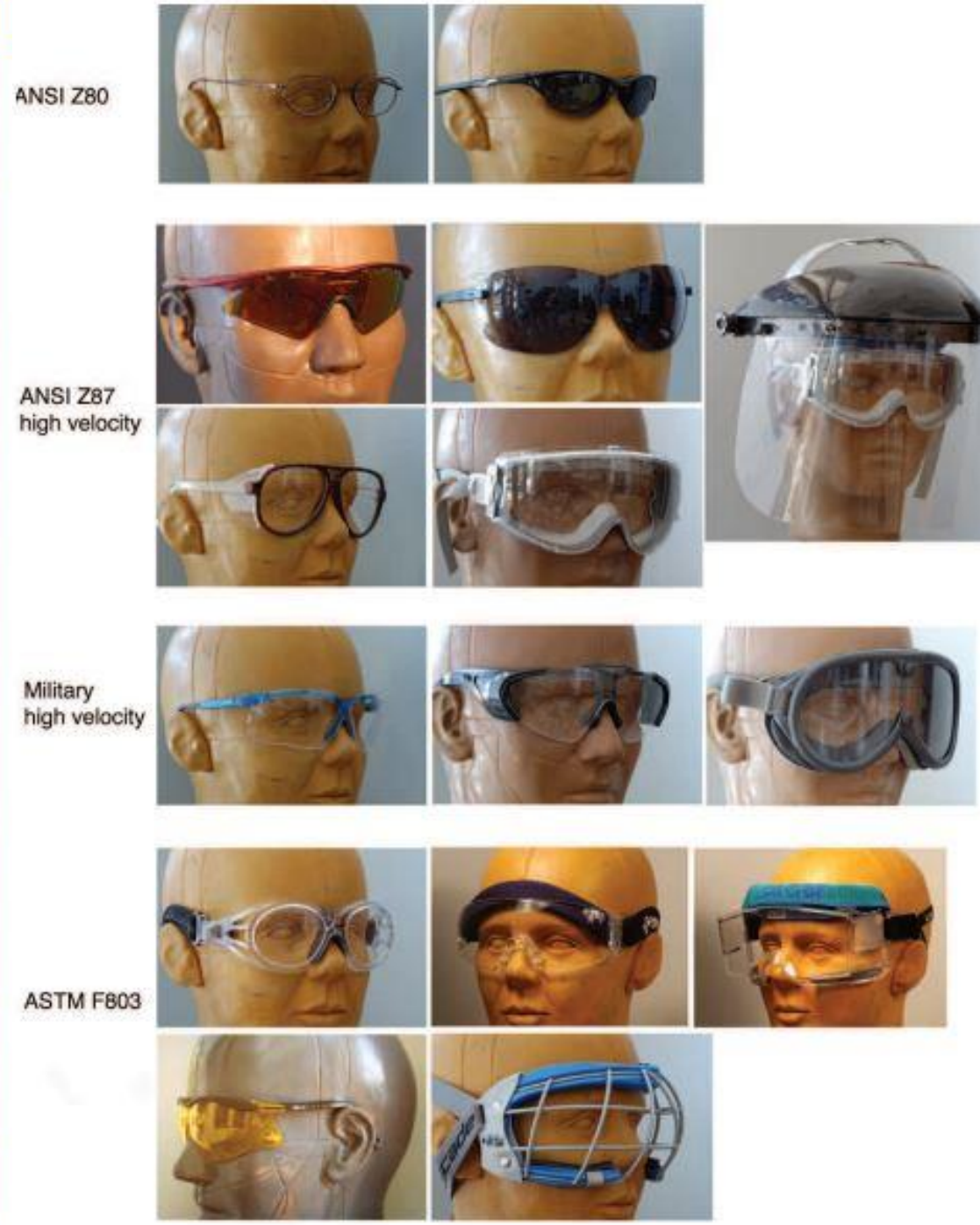
Frame is made out of high impact nylon

Molded padding for durable long lasting protection. Provides grip and comfort

Soft TPR bridge padding for comfort and fit *(Hypo Allergenic)*


TIM HOWARD
IS OVERPROTECTIVE
YOUTH FORCE™
WX
WILEY X
ASTM F803 SAFETY RATED
SPORTS PROTECTIVE EYEWEAR

	Minimal Eye Protector	Comment
Baseball/Softball Youth Batter/Base Runner	ASTM F910	Face guard attached to helmet
Baseball/Softball, Fielder	ASTM F803 for baseball	ASTM specifies age ranges
Basketball	ASTM F803 for basketball	ASTM Specifies age ranges
Bicycling	Helmet plus: Streetwear ANSI Z80, industrial ANSI Z87.1, or sports ASTM F803 eyewear	Use only polycarbonate or Trivex lenses. There are excellent plano industrial spectacles that are inexpensive and give good protection from wind and particles
Boxing	None available. Not permitted in sport.	Contraindicated for functionally one-eyed
Fencing	Protector with neck bib	
Field hockey (both sexes)	Goalie: full face mask others ASTM F2713 for field hockey	
Football	Polycarbonate eye shield attached to helmet-mounted wire face mask	
Full-contact martial arts	None available. Not permitted in sport.	Contraindicated for functionally one-eyed
Ice hockey	ASTM F513 face shield on helmet HECC or CSA certified full face shield	
Goaltenders	ASTM F1587 face shield on helmet	
Lacrosse, Men's	NOCSAE face mask attached to lacrosse helmet	
Lacrosse, Women's	ASTM F803 for women's lacrosse	Should have option to wear helmet with attached face mask
Paintball	ASTM F1776 for paintball	
Racket Sports: (badminton, tennis, paddle tennis, handball, squash, racquetball)	ASTM F803 for specific sport	
Soccer	ASTM F803 for any selected sport	Eye protectors that comply with ASTM F803 for any specified sport are recommended
Street Hockey	ASTM F513 Face mask on helmet	Must be HECC or CSA certified
Track and Field	Steetwear/fashion eyewear	Use only polycarbonate or Trivex lenses
Water Polo, Swimming	Swim goggles with polycarbonate lenses	
Wrestling	No standard is available	Custom protective eyewear can be fabricated, but no standards available. Not recommended for functionally one-eyed.

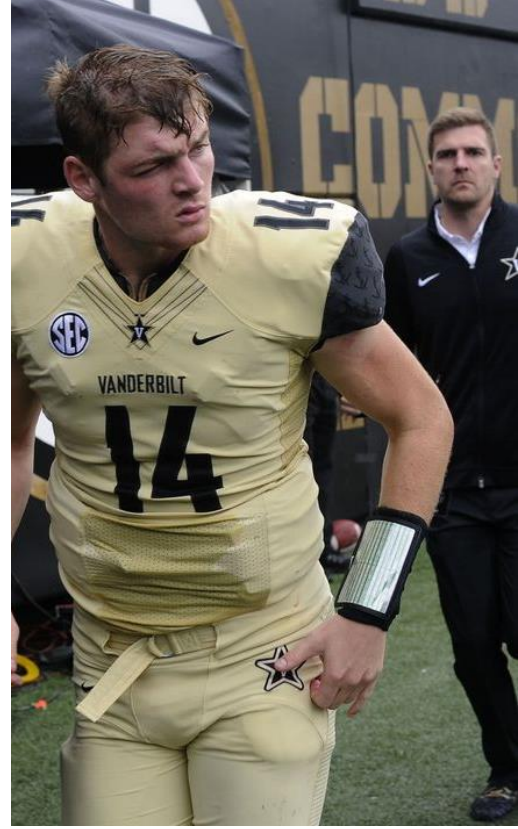



Community
JOHNA FORD

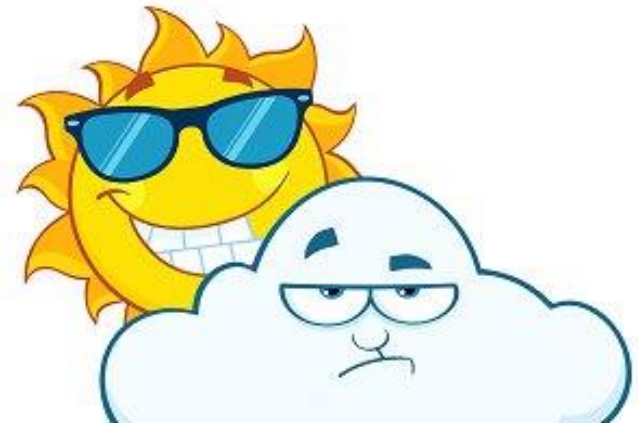
Sport	Features	Action
Cycling/Skiing	Glare, Wind, Cold, Dust, Debris	Resilient plastic wrap around frames with impact resistant lenses. UV blockers and high optical centers for cycling
Golf	Head turn with visual axis stationary, glare. Working distances 40cm (Card) to 1 metre (Ball) and infinity	Large eye sizes, tints/photochromics, low segment, ADD bifocals or single displaced segment (Down to right for presbyopic right hander)
Soccer/Rugby	Good peripheral awareness, depth perception, eye-hand/foot coordination;	Soft contact lenses
Hockey/Racquet Ball	Good visual performance, glare	Eye protectors/tints
Water Sports	Tonicity, osmolarity, pH, chlorine, glare, spray	C E approved googles (Plano or RX), scleral contact lenses, soft contact lenses (Under suitable goggles), UV blockers, saline rinse, silicone hydrogels for long distance events
Shooting	High acuity, discharging lead and debris	Plastic spectacle lenses, use dominant eye for aiming, prescription, telescopic sight. Tinted lenses to enhance contrast
Boxing	68% sight threatening, 12.5% Retinal detachments, 8% angle recession	Regular eye exams with dilation, prompt medical attention, discourage high risk groups
Fishing/Angling	High acuity, glare, spray, injury from hooks	Plastic lenses, Bifocals with low segments, polarizing lenses, tints

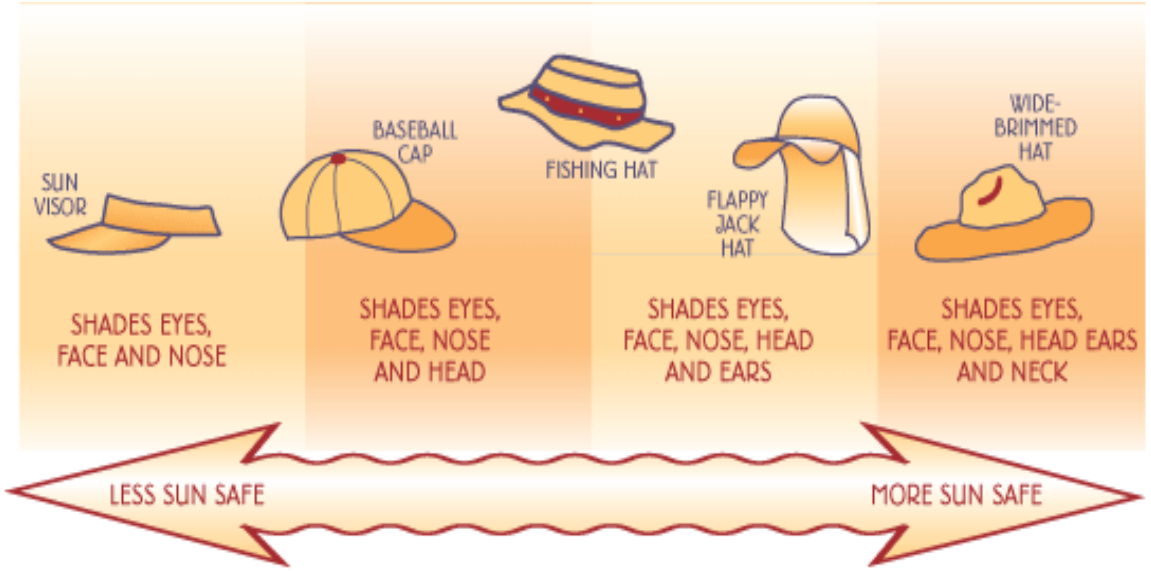
Functionally Monocular Athletes

- Criteria: <20/40 (6/12) best corrected
- Risk of blindness increased by >15x
- Risk is averted with protective eyewear use
- Discourage participation in sports with a risk for serious eye injury in which an effective method of eye protection does not exist
    - Examples: Boxing, wrestling, martial arts



Measuring & Responding to UV





UV Index	Risk Level	Recommendations
< 2	Low	1. Wear Sunglasses 2. If burn easily = SPF 15+
3-5	Mod	1. Wear Sunglasses 2. Cover up and use sunscreen 3. Stay in the shade near midday
6-7	High	1. Wear Sunglasses and a hat 2. Cover up and use sunscreen 3. Reduce time in sun 10AM-4PM
8-10	Very High	1. Wear Sunglasses and a hat 2. Cover up and use sunscreen 3. Minimize sun exposure 10AM-4PM
11+	Extreme	1. Wear Sunglasses and a hat 2. SPF 15+ q 2 hrs 3. Avoid sun exposure 10AM-4PM

Sun Protection: Lenses & Tints

- Rose colored (Vermillion): Trap shooters, skiing, snowboard
  - Excellent clarity in low light and enhance contrast, enhance visibility of objects against blue and green backgrounds
- Brown/Gray/Green: Golf, biking, running
  - Reduce glare without distorting appreciation of different colors
  - Help with moderate bright to very bright conditions
- Yellow/Gold/Amber: Baseball, tennis, soccer, skiing, snowboard
  - Mod bright to low level light conditions, provide depth perception, dawn/dusk
  - Block out blue light
- Mirrored: Outfielders and boating sports
  - Reduce glare by reflecting as much light that hits the lens (Only downside it makes objects appear darker)
- Transitions: Take longer to work in colder conditions and does not work in the car
  - UVB does not penetrate the windshield
- Polarized: Water sports or very sensitive to glare
  - When sunlight bounces off the water the rays align in a horizontal pattern creating intense glare
- Visible light transmission (VLT): Sunglasses have around 15-25%
- Polycarbonate: Excellent impact resistance, and very good optical clarity, lightweight
  - Found on astronaut helmet visors and windshields of spaceships
  - Gold standard for all kids, sports goggles, safety glasses

Lens Tint Guide

Sport	Example colour/s
Skiing	Brown, red/orange, neutral grey
Shooting	Reddish brown, orange, yellow to brown, green
Golf	Green, neutral grey, yellow to brown
Water sports	Polarising brown or grey
Football (and fast-moving ball sports)	Amber
Cycling	Polarising, yellow
Tennis	Green
Fishing	Polarising
Running	Green, neutral grey
Motor sports	Polarising, yellow, red

1,633 views | Aug 28, 2019, 08:50am

NFL Partners With Oakley, Allowing Players To Wear Visors Using Their Prizm Technology

Simon Ogus Contributor ⓘ
SportsMoney
I previously co-founded SportTechie, covering tech's impact on sports

The NFL and Oakley have partnered to allow players to wear visors on the field that utilize their Prizm Technology OAKLEY

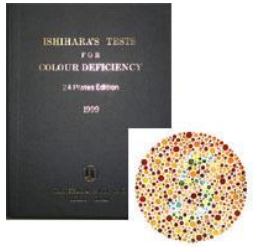

LIGHT UP THURSDAY NIGHT
NFL NIKE COLOR RUSH 2016
NIKE.COM/NFL

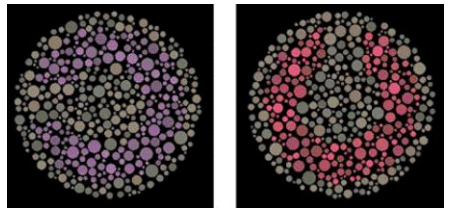
JETS

BILLS

How To Diagnose?

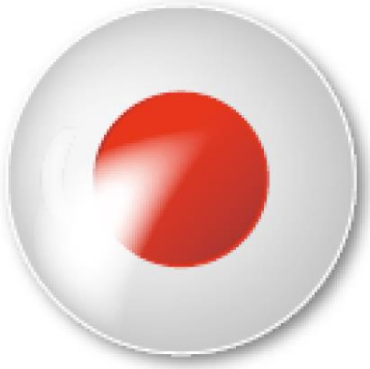
- Ishihara Plates (Most common)
- Hardy Rand & Rittler (HRR) Pseudoisochromatic Color Test
- Cambridge Color Test:
  - Displayed on a computer
  - “C” shape different in color from the background
- Anomaloscope:
  - Look through an eyepiece and make upper and lower halves the same brightness and color
- Farnsworth-Munsell D-15 Hue Test:
  - Set of blocks or pegs roughly the same color but different hues
  - Graphic design, photography, food quality inspection
  - Uncovered blue-yellow defects in diabetic patients
- Farnsworth Lantern Test:
  - Developed in the 50’s for U.S. Navy
  - Present a series of 9 combinations of two colored lights (Red, Green or white)
    - 2 seconds
  - Mild forms can still serve





What Can Be Done?

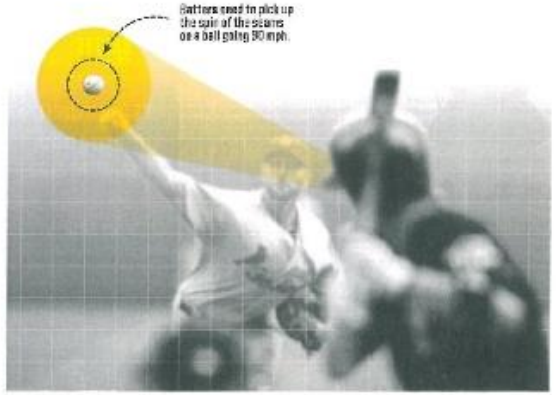
- ZELTZER X-CHROM Contact Lens:
  - Created by Harry Zeltzer O.D. (NECO ‘52)
    - Introduced in the 60’s
  - Monocular red soft contact lens
    - 6.0 mm (Pupil Only)
    - 14.5 mm lens diameter
  - Improves:
    - Color identification
    - Color matching
    - Discernment of figures of a background
- X-CHROM Rigid Lens (Art Optical)
  - PMMA material only
- Enchroma:
  - Indoor & Outdoor Sunglasses
  - Partner with restoringvision.org
- iphone/ipad Apps:
  - Color Blind Pal



EnChroma®
Color for the Color Blind™

Sports Illustrated

SCORECARD



TRAINING WITH

See World

Baseball players have set their sights on a nutrient that improves vision

ASK PIRATES second baseman Neil Walker *(hitting)* for the most important qualities of his game, and he won't talk about catching or hitting. "You can't do those things without good vision," he says.

Ocular workouts and vision drills on computers have become ubiquitous around MLB, and now players are also eating their way to improved sight. In a 2014 study published in *The Archives of Biochemistry and Biophysics*, researchers from the University of Georgia found evidence linking visual processing speed and reaction time with the daily intake of zeaxanthin, a nutrient found in many deeply pigmented vegetables and paprika. A year later all 30 major league teams have started experimenting with the nutrient.

Walker tried zeaxanthin in spring 2014 after experiencing dry eyes and struggling with glare. "After taking it every day, I felt like my contrast was better, and I wasn't squinting as much," says Walker, 29. "It was like internal sunglasses, especially during day games."

Zeaxanthin works in the macula, the small, cone-packed area of the retina that provides high-acuity vision, says optometrist Graham Erickson. Naturally occurring phytonutrients (the pigments that give food its colors) are distributed throughout the body when digested, but zeaxanthin concentrates in the macula. "Because the eye can process light faster," says Erickson, "there can be improvements to reaction time and coincidence anticipation, like timing the arrival of the ball from a pitch."

As more players start to use zeaxanthin, nutritionists learn more about optimizing dosages and timing, but for now, Walker is happy with the results. "I get that [the improvement] is something that's hard to measure," he says. "But when you're trying to track baseballs at the plate or in the field for a living, that's kind of your own little test." —*Jamie Lisanti*

EDGE

Most teams use zeaxanthin in supplement form—Reys assistant athletic trainer Paul Harker keeps it next to the multivitamins and fish oil—which is available at health and nutrition stores. The nutrient is also found naturally in several foods that can be incorporated into anyone's diet for similar effects. —J.L.

Greens Swap iceberg and romaine for dark leafy greens like kale, spinach, collard greens and dandelion greens.

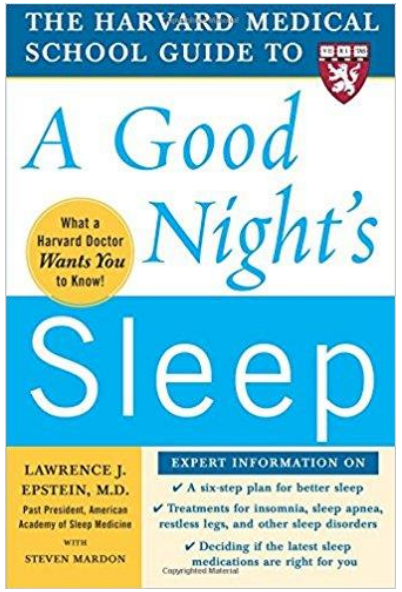
Reds Zeaxanthin is derived from the chili pepper that produces paprika, but red bell or spicy cayenne peppers are also good sources, as are goji berries.

Yellows Egg yolks have a high concentration of zeaxanthin and lutein, another naturally occurring nutrient that improves vision.

For more athlete training profiles and tips, go to ***SI.com/edge***

Super Human Effects of Better Sleep!

- Disruption of Sleep:
  - Cognitive impairment and mental function (Brain fog)
  - Harder to learn in school
  - Delayed reaction time (Ex: Workouts/Injury risk)
  - Long term = Neurotoxin buildup
  - Disrupting melatonin and sleep = Obesity risk
- Get 8-9 hrs of sleep each night (No exceptions!)
  - Crucial for muscle repair/recovery/growth, reaction times, mental clarity, mental toughness, skill and motor development, decision-making, judgment and mood!
  - Stanford Study = Football players ran faster sprint times when they got at least 10 hrs of sleep each night for 7 weeks or more
  - Carnegie Mellon Study = 3x more likely to catch cold virus with less than 7 hrs of sleep a night
  - Athletes who sleep an avg < 8 hrs per night have 1.7X greater risk of being injured
  - <u>Athletes reaction time speed up by at least 7% for every hr of sleep</u>



Growth of Sports Vision

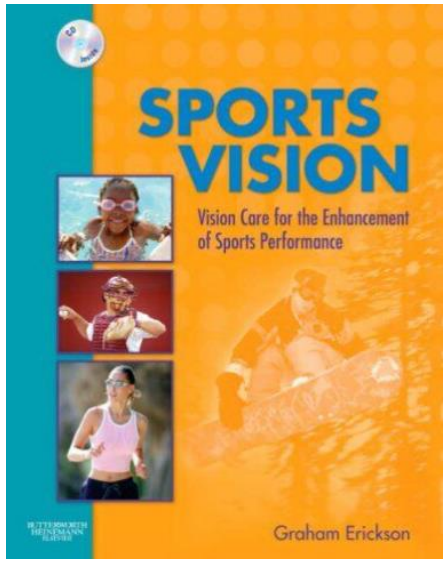
- Improved performance – Vision therapy patients
- Superior visual skills of superior players
- Testimonials by players after care
- Research organization
- Interprofessional Relations with Organizations:
  - U.S. Olympics
  - Special Olympics
  - Amateur Athletic Union (AAU)
  - American College of Sports Medicine
  - National Athletic Trainer's Association
  - National Collegiate Athletic Association

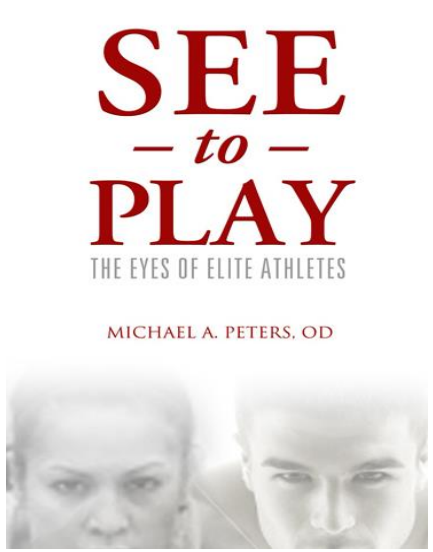
Marketing

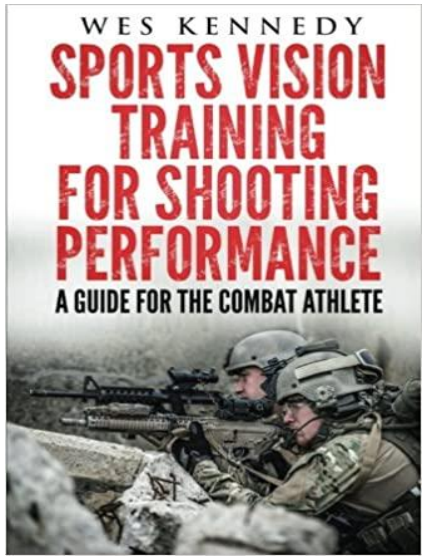
- Internal:
  - Website
  - In-office pamphlets
  - Brochures
  - Practice newsletter articles
  - Sports vision stationary/logo
  - Pics of sports vision screenings and endorsements from athletes we have worked with
- External:
  - Speaking to various community groups schools
  - Little league coaches
  - Health clubs/Sports organizations
  - Parent teacher conferences
  - Radio talk show
  - Newspaper article
  - Volunteer as a coach

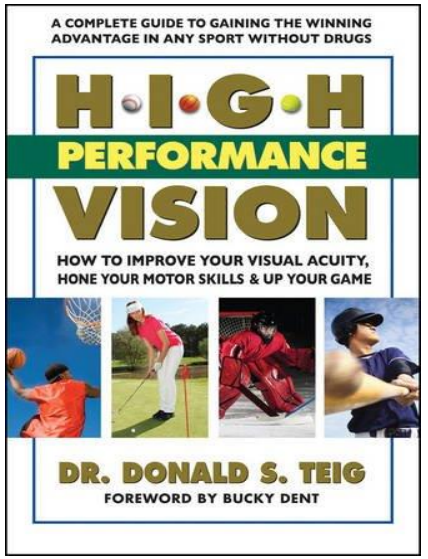
Forever a patient, doctor advocate and student!

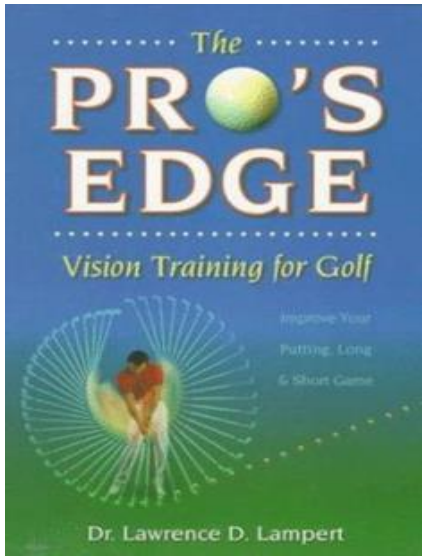
AOA Vision Rehabilitation
AOA Sports and Performance Vision











Special Olympics
Lions Clubs International
Opening Eyes®
SUPPORTED BY

Special Olympics
Program Name

- NJ Summer Games: Volunteered (2022):
  - 19 optometrists
  - 19 optometry students (PCO, SUNY, NECO)
  - 3 opticians
  - 8 optical technicians
  - 9 volunteers not in the eye care field
- Eyewear Provided:
  - Eyeglasses = 154
  - Sports Goggles = 95
  - Swim Goggles = 23
  - Sunglasses = 77
- Special Thanks to Our Sponsors:
  - Safilo
  - Essilor
  - Liberty Optical

Summary

- When vision training is initiated the incidence of concussions decreases compared to those who have no training
- Sports protective eyewear decreases eye injuries dramatically
- Go out and talk to your local coaches, athletic trainers, YMCA, etc and tell them the importance of vision and on field/in classroom success

AMERICAN OPTOMETRIC ASSOCIATION


METLIFE STADIUM
PLAY SMART
PLAY SAFE
NFL
THANK
YOU!!!
Menavitt@gmail.com