Observations and Reflections on Just Look Retinoscopy

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Acknowledgement

- Much of the phraseology in parts of this presentation was inspired from the writings of Arnold Gesell, the time spent during my residency with Dick Apell and John Streff, and the works of Gerry Getman and Robert Kraskin, which all FREELY shared.
- However, the arrangement, thinking, and conclusions are wholly mine and the men listed should not be held accountable for them if there should be any resemblance between parts of this presentation and their works where not directly accredited. The reader or attendee would find a study of their works profitable in better understanding the nature of human development and visual development – and RETINOSCOPY!

Key Points

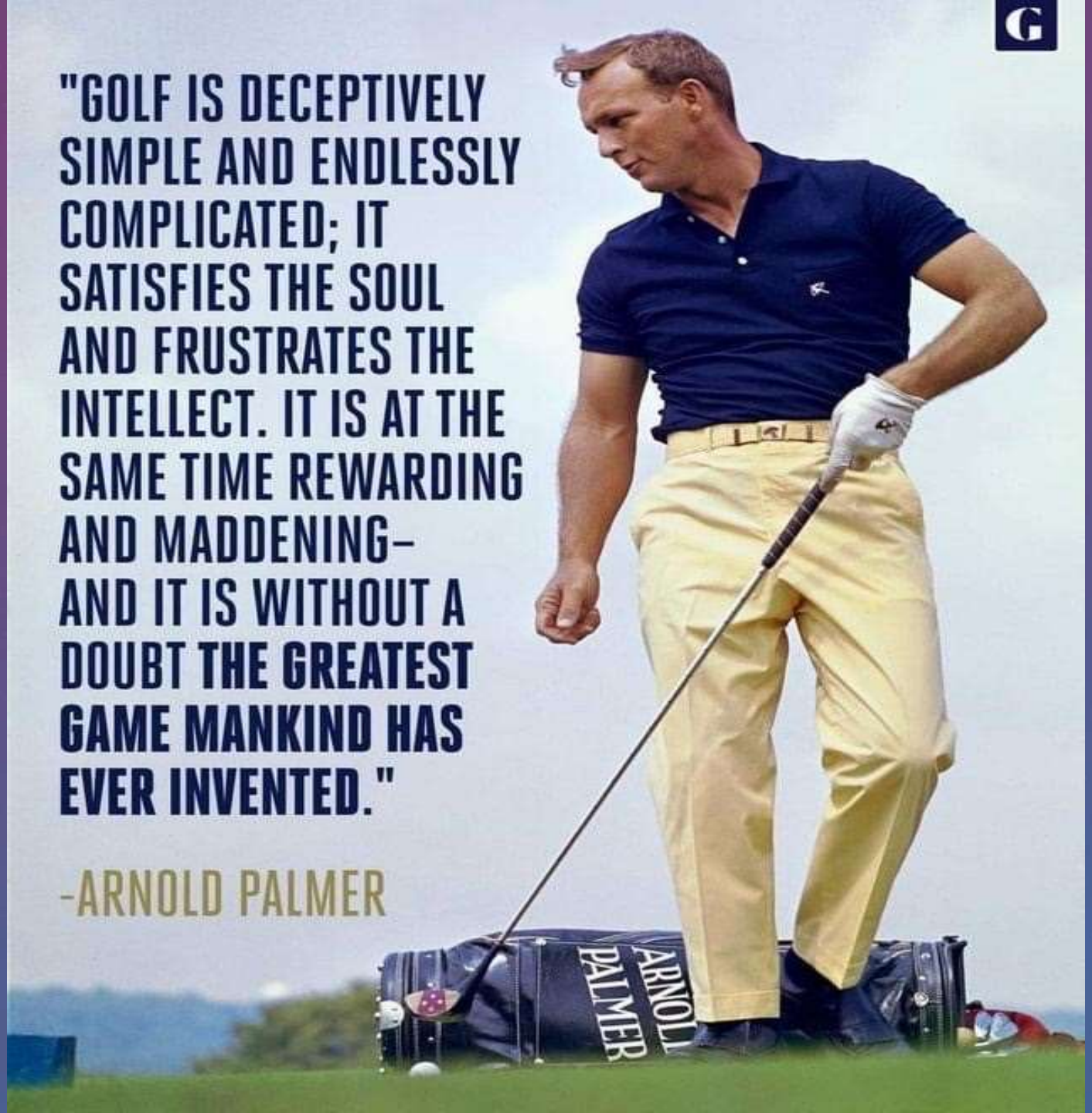
A. Just Look Retinoscopy is a means of observing the patient's pattern(s) of ACTION when engaging in a task or their patterns of **visual manipulation**
B. Observations can be made regardless of the age of the patient or doctor or the lens power
C. This suggests that the changes observed in Just Look Retinoscopy are related to much more than refraction
D. Observations made during Just Look Retinoscopy are related to the patient's INTENTIONAL attempts to engage in the task or target presented

Key Points

E. It is the continuous observation over several seconds that creates a mental video of the changes in the reflexes. This allows one to determine if there are possible times where the reflex moves toward better engagement or away from engagement.
F. Initial assessments with Just Look Retinoscopy should be done with no lenses – JUST LOOK – in order to observe changes with lenses
G. Children who do not develop the foundational abilities to LOOK-ATTEND-FOCUS-IDENTIFY-ENGAGE at the typical level for age are more vulnerable and susceptible to challenges and disruptions
H. Earliest identification and intervention are so very important

Key Points

I. Even though it is a very simple test, it is deceptively simple
J. Just Look Retinoscopy is a test with many complex parts available for observation. It is such a simple procedure, yet the observations can be so very complex.
K. Our attention to the complexity emerges out of the choices we make every day when doing the procedure
L. The more we LOOK, the more we SEE


"GOLF IS DECEPTIVELY SIMPLE AND ENDLESSLY COMPLICATED; IT SATISFIES THE SOUL AND FRUSTRATES THE INTELLECT. IT IS AT THE SAME TIME REWARDING AND MADDENING– AND IT IS WITHOUT A DOUBT THE GREATEST GAME MANKIND HAS EVER INVENTED."
-ARNOLD PALMER
ARNOLD PALMER

The Processes of Vision

- It is my contention that the processes of vision operate in similar fashion to golf – simple, yet with high complexity
- Simple understanding – refraction
- Complex understanding - what is happening as the patient begins LOOKING, ATTENDING, FOCUSING, IDENTIFYING, AND ENGAGING
- This places great importance on the complexity in the observations and utilization of those observations made in Just Look Retinoscopy

What is Just Look Retinoscopy

- In fact, my prescribing is driven by Just Look Retinoscopy, but;
- Refraction is not a significant component in my way of prescribing.
- Just Look Retinoscopy is an assessment of ACTIONS taken by the individual to engage in the task presented

What is Just Look Retinoscopy

- An assessment of HOW the patient is going about the processes of engaging in the task(s) I present
- What is their ability to engage in the task presented
- What is their ability to complete the task presented?
- What is their stability? Modulations while looking?
- What is their variability? Consistency on the task?
- How much currency must be used to complete the task?

Alva Noë from Susan Barry

- As the philosopher Alva Noë has written, “Perception is not something that happens to us, or in us. It is something we do.”
- Sue’s comments:
- “We move our body, head, and eyes to look and listen, to take in information about the world.”
- “Since we direct what we see, developing vision as an adult is an intensely active process.”
- “A new pair of eyes won’t lead to vision unless the owner of those new eyes pays attention to what he is sensing and figures out its meaning.”

The Input-Output Model of Perception and Action Andy Clark

- “Naturally intelligent systems (humans, other animals), are not passively awaiting sensory stimulation.
- Instead, they are constantly active, trying to predict the streams of sensory stimulation before those arrive.”
- Bubba –
- IF we consider humans an “intelligent system,” we should be able to observe those streams of actions.
- Moreover, we should be able to observe changes in actions in order to engage in the task presented through Just Look Retinoscopy.

Gesell Quote

- The retinoscope has revealed an intimate relationship between the functional complex of the visual system and the maturity of the total action system.
- **THE DEVELOPMENTAL ASPECT OF CHILD VISION;** ARNOLD GESELL, M.D. NEW HAVEN, CT; Presented at the Fifty-Ninth Annual meeting of the American Pediatric Society, Atlantic City, N. J., May 5 and 6, 1949.

Gesell – Infant Vision – Scientific Ameerican - 1950

- In the Yale research it was found that the returning light in the young retina varied significantly in relation to identifiable moments of the visual act.
- The variations were manifested in the motion, the direction, the speed, the brightness and sometimes the color of the retinal reflex.
- Characteristically an increase of brightness in the reflex occurs at the moment when the infant identifies an object of interest.

Gesell, A; Infant Development – 1952

- Even in the absence of a refractive examination visual difficulties may come to expression in the preschool years, particularly when the child leaves the familiar confines of the home.
- If he has serious eye-hand ineptitudes he reveals them in his play activities,
- in postural demeanors,
- in his adjustments to a play group,
- in his use of cup and spoon,
- of crayon and paints, and
- in his response to picture books.

Gesell, A; Infant Development – 1952

- He may show forms of caution and withdrawal which are primarily due to visual rather than emotional factors.
- Atypical personal-social relations with his companions may have a visual basis in faulty space manipulation.

- Bubba – If the processes of vision are involved in all of these actions and engagements, we should be able to observe such actions as patterns are developing.

Meltzoff and Brooks

- Now, compare that to Meltzoff article on gaze following at 10.5 months and later testing at 2½ years, and 4½ years:
- Analyses revealed that infants with:
- HIGHER GAZE-FOLLOWING SCORES AT 10.5 MONTHS
- Produced SIGNIFICANTLY MORE MENTAL-STATE WORDS AT 2.5 YEARS and;
- Children with more mental-state words at 2.5 years were more SUCCESSFUL ON THE THEORY-OF-MIND BATTERY AT 4.5 years.

Meltzoff and Brooks

- These predictive longitudinal relationships remained significant after controlling for general language, maternal education, and nonsocial attention.
  - Connecting the dots from infancy to childhood: A longitudinal study connecting gaze following, language, and explicit theory of mind Rechele Brooks, Andrew N. Meltzoff, et.al. – Journal of Experimental Child Psychology 130 (2015) 67-78
- Bubba – Performance at 4.5 years has a foundation in gaze following at 10.5 months – a part of LOOKING that can be observed in Just Look Retinoscopy
- Bubba – the processes of vision play a critical role in the very early stages of all of development and can be observed through Just Look Retinoscopy

What Does This Mean?

- It’s not whether a child can complete a task or not that leads to success or lack of success.
- It is more the effort that must go into the ACTION required to complete the task.
- Where more ACTION is required, less will be completed due to any of the following:

What Does This Mean?

- fatigue
- decreasing curiosity due to the effort required (too hard)
- stress related to effort required to complete the task (my games and videos are much easier)
- mistakes related to effort required to complete the task
- frustration (too much)
- giving up (I'm not smart)
- And finally, failure to initiate the action (not gonna start)
- We can see these stages in the writings of Gesell, Getman, Streff, Kraskin, and others

Curiosity in Just Look Retinoscopy

- In the initial phase of Just Look Retinoscopy, start your observations even before you ask questions. See how they orient to the task that you WILL present. This gives information about what the patient does to set the stage for responding to the task you set before them. Are they looking at your target before you give instructions?
- If you wait until you ask the question(s) about the task, you risk missing very valuable information.
- Observe how a child initiates the look toward your target on Just Look Retinoscopy.
- How are they curious?

Why is This Important

- Curiosity drives Engagement of developing children from the beginning through the processes of reaching at very early ages
- The reaches include looking, listening, feeling, tasting, and smelling
- When their ability to reach through LOOKING is higher at younger ages, their overall abilities will be higher and more successful in later stages of their life.
- When there are challenges, their abilities to achieve may not reach their potential to do so.

How Are Curiosity And ACTION Linked

- You don’t have random action.
- ACTION is purposeful and is directed by the developing child’s curiosity.
- This curiosity leading to action has been simmering throughout their entire life to this point in order to make the specific ACTION.
- Nothing starts at this moment – all actions emerge from practiced patterns throughout the processes of development.

How Are Curiosity And ACTION Linked

- Observe how they orient to the task that you ARE ABOUT TO PRESENT.
- This gives information about what the patient does to set the stage for responding to the task you set before them.
- If you wait until you ask the question(s) about the task, you risk missing very valuable information.
- Observe how a child initiates the action to look toward your target on Just Look Retinoscopy

How Are Curiosity And ACTION Linked

- **You can observe changes and differentiate purposeful actions and actions without intent with Just Look Retinoscopy.**
- But it is important to start LOOKING before giving instructions
- Think of the variations you see in “accommodation” as forms of manipulation.
- When modulations are greater, there is an effort for LOOKING-ATTENDING-FOCUSING-IDENTIFYING-ENGAGING

Bubba on Gesell

- If vision is supposed to be forward-focused and the leader, when does that process begin?
- The beginning is very early
- Note the audio references in the following video at four months of age

Bubba on Gesell

- Eyes are actively controlled, and the child is LOOKING with a purpose
- Movement of the hands is not random
- There is purpose in their hand movements – I want that, but I am not ready yet
- You can see the hands determining size and shape as they move
- Early attempts at identification and engagement – before talking, before being able to manipulate things with hands
- Reaching with eyes long before reaching with hands

Some Are Active

Some Are Passive

Some are Mature

Mature Eye

- During demonstrations and participation at the Wold Behavioral Vision Symposium this year, one attendee had a very interesting observation about Just Look Retinoscopy
- She was surprised she could see the responses within a mature eye – her own and her partner's.
- Now relate to early stages of development and the potential changes that can be seen and how are those linked.
- It's obviously not just a matter of "simple accommodation" or a shift in crystalline lens.
- And the basis is not even in the eye

Mature Eye

- It is an ACTION taking place in the brain that can be observed in through observations in the processes of vision through Just Look Retinoscopy regardless of age.
- With Just Look Retinoscopy, we can assess curiosity through
  - ACTION
  - engagement
  - performance
  - decrease in performance through time
  - increase in effort through time, etc.
  - avoidance

Accommodation

- “Accommodation” more than simple “focus.” It is visual manipulation
- Modulation or “unstable” accommodation is a part of visual manipulation – they are having trouble or cannot engage
- This pattern comes before being able to reach and manipulate with hand
- But hand manipulation has likely already begun

Other Reports

- At the Ohio State meetings
- Jerry Getman commented about the changes seen in the man who was blind (Jim Kibben, 43) were interesting.
- He had been blind from optic atrophy for 12 years.
- Showed against motion when given thinking tasks.

Other Reports

- Also, one of the participants, Ward Halstead, did not believe they could tell what they were seeing as there was no physical means to support such an observation.
- Through several trials, he never showed against motion.
- Went through a very technical book with no observable changes. Might add that he was a brilliant man.
- He asked for another technical book and began to show an occasional against motion.

Other Reports

- He showed the against ONLY when periodically translating into Greek – which was a more difficult language for him.
- The other technical books were too easy for him when reading in English so there was no need to go into a mode of deeper inspection unless he added the Greek translation which he was learning as a new language.
- These changes obviously happen in areas other than “the eye.”

“Emmetropization” from Getman Papers - 1950

- Traditional understanding:
- Emmetropization
- - X 090
- - X 180
- Spherical

“Emmetropization” from Getman Papers - 1950

- Beginning – scissors Motion
- - X 090
- ACTIONS - Cars horizontally ---
- - X 180
- ACTIONS - Building towers - ||
- Spherical – engagement in all activities
- Suggests that observations made in Just Look Retinoscopy closely parallel the action(s) and engagement(s) of the child during development – IF we Just Look

Gesell Papers from 1950

- Quoting Gesell, “Vision is a complex sensory-motor response to a light stimulus mediated by the eyes but involving the entire action system.”
- Does that mean everything we do involves the entire action system?
- I suggest it does and:
- To reach full potential, the processes of vision must become the leader and instigator of ACTION
- The patient who has difficulty engaging in the task is one who’s patterns can be observed in Just Look Retinoscopy

Cases to Demonstrate These Points

- Patient 1 – 5 yo m
- Paul Harris patient – Rx +4.00 with +2.00 add one year ago
- Student was finding more plus on near ret - +7.00 (they look at only one eye at a time
- With Paul's Rx, the patient was showing alignment and with motion
- Used +6.00 and +7.00 in flipper – equal with motion with +6.00 and alignment, however;
- With +7.00, the patient went into a marked exotropia.

Cases to Demonstrate These Points

- What would have happened if the Rx had been changed based on the additional with motion observed monocularly??? –
- Or cycloplegia??
- Does the additional plus take them beyond intention and is not related to intentional action?

Cases to Demonstrate These Points

- Esotropia - +0.25
- No increase in plus on cycloplegia so assumed it was not an accommodative ET and referred for surgery
- Came back two years later. Did not have surgery due to finances
- Distance refraction holding at +0.25
- Just Look showed slight with and ET
- +1.50 – moved to aligned position – Distance VA 20/20 with +1.50
- What if the patient had followed the recommendation for surgery?
- What might be the intention that initiated the change (if there was a change)?
- JUST LOOK!!

Cases to Demonstrate These Points

- ILET – reports diplopia far and near - OD 20/20; OS 20/100
- Current Rx: OD +0.25; OS -2.25 – complains of diplopia
- Refraction – OD +0.25 – 20/20
  OS -2.50 – 20/20
- Still reports diplopia at far and near
- Traditional Near Retinoscopy – one eye at a time
  OD +2.00
  OS – 0.50 –
- Still reports diplopia

Cases to Demonstrate These Points

- Balanced reflex with Just Look - +0.75/-0.75 – 20/20 OU (both eyes together not individually) at distance
- NO DIPLOPIA at distance or near

Reference Press, Sanet, and Vergara presentations at COVD – Best Binocular Balance

Cases to Demonstrate These Points

- “Blurry distance vision” – 9yom - School problems per parent
- Distance VA: 20/25 OD, OS, OU Near VA: 20/25
- Stereo – 70 sec
- Just Look: Shows lots of with to start then shows slight with when looking at target – pushes up to +2.25 – balanced and equal with +0.75
- +0.75 – 20/20 distance and near
- +0.75 - 25 sec on stereo
- Runs up to +3.75 on cycloplegia

Cases to Demonstrate These Points

- Rx +0.75 for school and device
- Streff Syndrome pattern

Summary

- When the processes of vision are working properly, developing children can more easily complete tasks that set the foundation for the next phases of development.
- When they do not or cannot complete the foundational tasks, the next phases do not have a sufficient underpinning for tasks at that stage.
- Each foundation is built upon previous foundations.

Summary

- When a previous foundation is incomplete or insufficient, ensuing actions will be insufficient for the more sophisticated tasks the developing child will face throughout life.
- Both sufficient and insufficient PATTERNS can be observed during Just Look Retinoscopy if we take the time to Just LOOK!
- Take the time to LOOK!

Thank You!!

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