

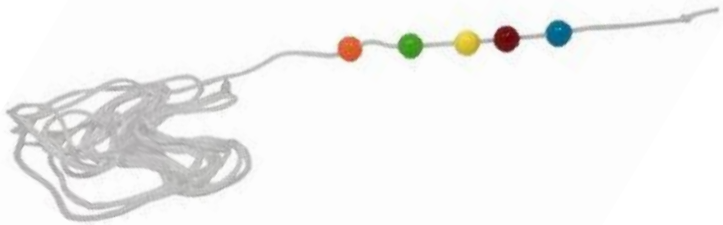
Another Look at The Brock String

KISS 2020

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- I have permission to share their likenesses in this lecture, but that permission only goes so far. These patients do not expect or desire that their likenesses be used beyond this course.
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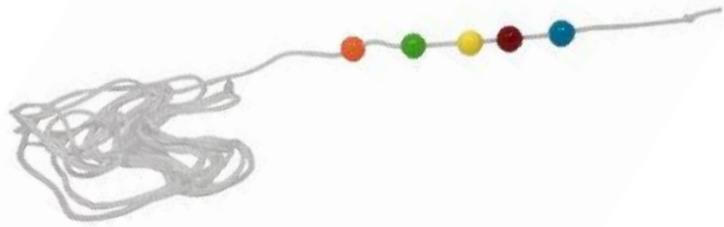
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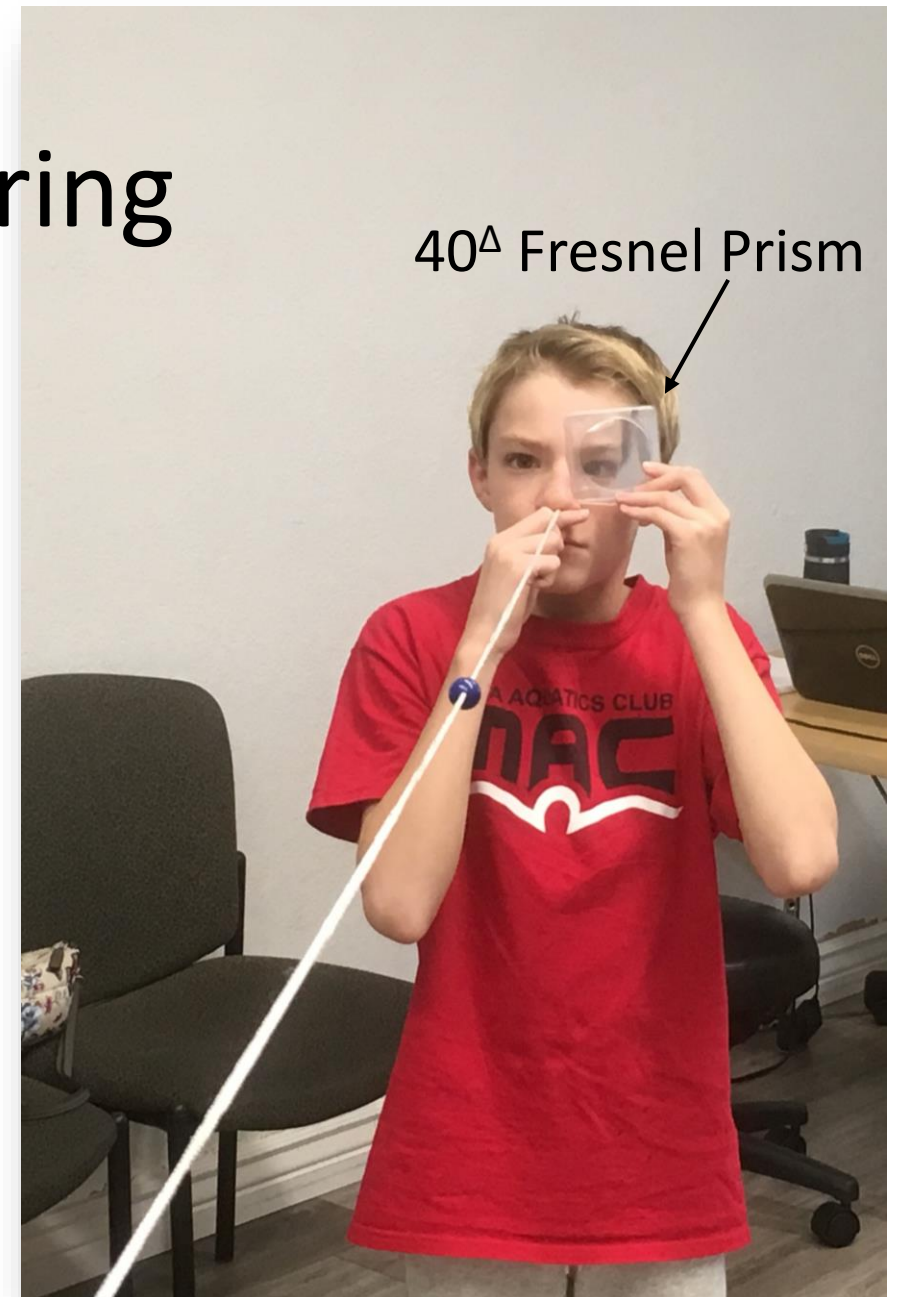
Brock String

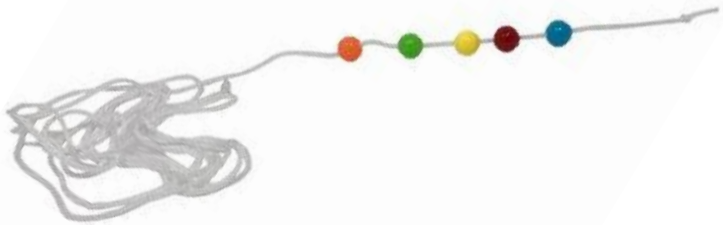
- The Brock String is easy to see how to use—It is harder to learn to use it well.
- The Brock String is an extension of Physiological Diplopia.
- Like ϕ -Dip, the Brock String requires an unusual organization of the visual field.
- If we could organize the string in a typical manner, we would see just what it is; a string extending out from our nose.

Brock String



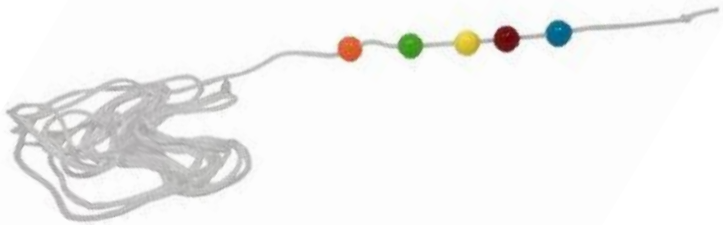
- The lines always cross where the patient is looking.
- Variables include a moving string, jumps on the string, a moving head, and following a bug.
- Lenses and prisms can be used help a patient understand the process.





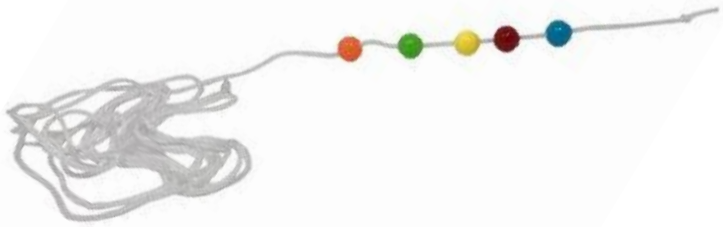
Brock String

- We don't see a single string because we are unable to organize that extent of visual space in that way.
- We go to a second-best option and most people see an X pattern that amounts to the summation of the philological diplopia that would be seen at each point along the string.
- Interestingly, the person knows that he or she is holding the string against their nose, yet they are perfectly willing to accept strings that seem to come from someplace near their ears.



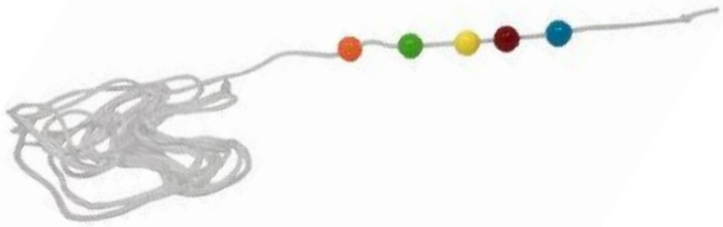
Brock String

- The problems may begin with the instruction set.
- Many times the first instruction is to look at the bead.
- If the patient was good at knowing where and how to look, they probably would not be in VT.
- It is better to take the beads off the string and ask the patient to look at the string. Usually the person will choose a spot someplace near the middle.



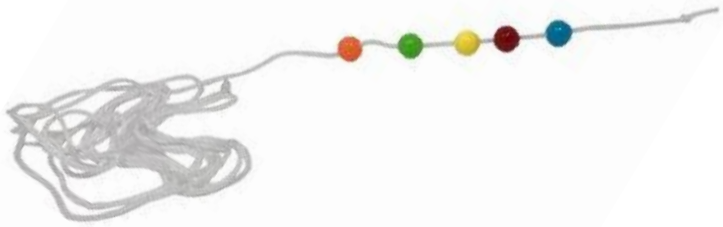
Brock String

- Most will see two strings. There are a series of questions that can be asked:
 - What do you see?
 - Tell me about the strings.
 - Is one brighter than the other?
 - What if you look in by your nose?
 - What if you look near my hand?
 - Can you slide the place they cross closer and farther?



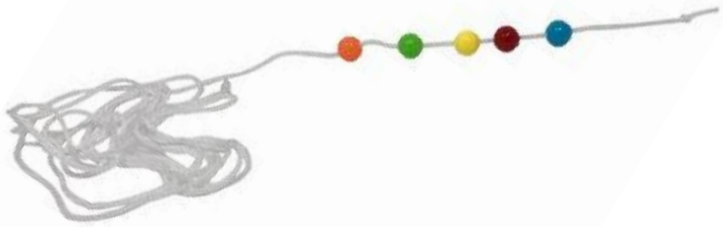
Brock String

- If they don't see two strings...
 - Cover one eye and teach them to smoothly slide their eye along the string from end to end. Practice with each eye until smooth movement is the rule.
 - Have them slide their gaze to a bead placed on the string and then touch the bead with the index finger of their free hand. Then slide the bead to the end of the string and back to the bead. Repeat the touch.
 - Learn to match each hand and each eye to the same place.



Brock String

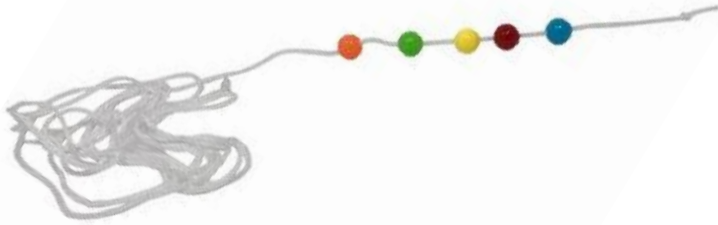
- It is important not to tell them that the strings cross where they are looking until they can slide the crossing point along the string from in by their nose to out by the therapist's hand.
- I like to ask if they can move it easily like a zipper.
- At this time I put a bead on the string and ask them if they can slide the X onto the bead. Given that this is successful, I add two more beads and see if they can slide the X from bead to bead easily and smoothly with both sides of the X arriving together.



Brock String

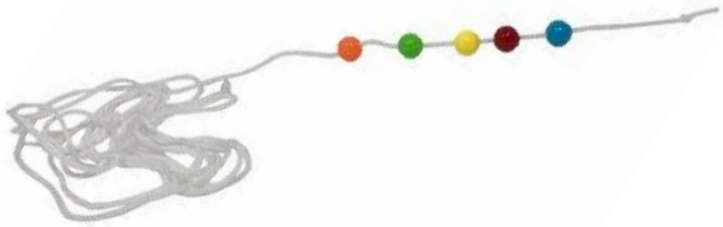
- Once they can slide the beads, we can go to bead jumping. They are asked to jump the X from bead to bead. The goal is to be able to jump from one bead to the next with both halves of the X arriving right on the bead together.
- It is at this point that I tell them that I am going to let them in on a secret—the strings always cross right where you are looking---even if it doesn't seem like it.

Brock String



- The last step is Bug on a String.
- The goal is to imagine a bug crawling along the string and be able to smoothly follow the bug with the X.
- Some bugs get may closer to the nose than others.





Brock String

- String with no bead—Learn to move the X.
 - *Zip and unzip the string.*
- String with bead—Move the X onto the bead.
- String with beads—Jump from bead to bead.
- Bug on a String—Imagine a bug or a worm slowly crawling from bead to bead—keep the X on him.