

SUMMARY OF PAPER BY AL KYTE AND GARY MORAN, Entitled: GOING FOR DISTANCE..GOOD VS. ELITE CASTERS

From: *Fly Fisherman.....May 1993*

(This study compared “GOOD” distance casters with “ELITE” (best) distance casters from a video analysis of the world’s best casters where the video was warped down and comparisons to elite vs good casters were drawn and measured. This based on video analysis by an professor of education and a bio-mechanics professor.)

******Bruce Richard’s comments**

Question: What do the *elite casters* do to achieve greater distance with the overhead cast.?

Answers:-

1. The elite casters straightened the back cast line more completely....and did so with noticeably smaller loops.

****This straighter line is a result of a straighter tip path, which comes from constant acceleration, which is the key thing we measure.

2. They stopped the rod more abruptly on the backcast.

*****We measure the “stop” very accurately, and the best casters have great stops.

3. They bent the rod tip back farther on the backcast.

*****This also comes from a straight line, straight tip path, and constant acceleration.

We also measure this rod bend indirectly by looking at how much the rod rebounds after the stop. Great casters have higher rebound percentages.

4. They moved the rod tip through a more straight path during the loading phase.

5. They achieved maximum rod bend just before the stop on the forward cast.

*****True, but all casts, good or bad, achieve max rod bend just before the stop.

6. Their rod hands moved in a slightly downward path.

*****We don’t measure this but I don’t consider it to be critical to any cast, it is more a matter of style and cast trajectory than anything else.

7. Their most common error was to apply power too soon. (ie. They applied their maximum force too early in the stroke.)

*****I would disagree with this, doubt it is what really happened. In nearly 100% of casts we have analyzed that weren’t quite perfect, the reason was that rod rotation started too soon and too slowly. This “early rotation” raises the rod tip and shortens the arc and

makes it difficult to make a great cast. This early, slow rotation is necessarily followed by much faster rotation, which is almost certainly what they saw when assuming “They applied their maximum force too early in the stroke”. It can appear that power is applied too early, but in reality, this power is always preceded by subtle, slow rotation that is the real cause of the problem.

8. Elite casters “imparted more bend in the rod, and did so with better timing.”

*****More bend for the power applied, very true. Again, benefits of a straight line from straight tip path, and very constant acceleration. We accurately measure both rod arc and “smoothness” of acceleration, these two things together determine tip path. Timing is a natural, instinctive thing that most casters acquire once they are beyond the beginners stage.

9. They had a low release angle averaging only 6 degrees above the horizontal.

****They were making long casts, varying from horizontal very much would drive the backcast into the ground.

10. They moved the rod through a wider angle.

*****More rod bend requires a wider rod arc to maintain a straight tip path tip path. Again, we directly measure both rod arc and rod angular acceleration, and indirectly, rod bend.

11. They did this by allowing the rod to drift back and down “...an additional 10 to 15 degrees after the stop of the backcast.”

*****Classic drift, which we see in all top casters and is directly measured, at least the most important rotational part.

12. Their stroke length was greater. (Stroke length defined as “The distance the casters hand moves the rod butt toward the target.”)

*****The rotational aspect of the cast is much more important than hand translation, but top casters use every motion they have to optimize the cast. In this case, the elite casters added more hand translation to allow a longer “drag”, further straightening the line before the stroke to improve efficiency and improve the following loop.

13. They used the longer casting strokes and wider casting arcs IN THE SAME AMOUNT OF TIME and so achieved greater line speed...and the same level of force and rod tip speed over a greater distance, yielding a total application of force which was greater.

*****With the equipment they used to measure all this it would have been very difficult to make the above statement with scientific accuracy, but it is almost certainly true. We can precisely measure acceleration, peak rod speed, casting arc, etc., but don’t measure the length of the hand motion. Since that is a relatively slow motion compared to rod rotation, it is easy to see, and adds relatively little to the cast.

14. Elite casters made greater use of their body mass and musculature than did the good casters.

*****This comes from training and practice, as with any good athlete.

15. The most effective haulers pulled the line back a greater distance primarily during the final, accelerated stages of loading. Thus they stopped the haul and released the line farther back, as well.”

*****As you know, we’ve also developed a “haul analyzer” and have been able to do some preliminary studies of hauling. We know that the best casters haul longer, and that they stop hauling right at rod straight position when the loop forms. Haul speed directly matches rod speed.

16. They combined styles....”They moved the elbow out to the side of the body during the backcast which opened the way for inward rotation of the shoulder. Then they moved the elbow ahead of the shoulder during the forward cast, which enabled them to use a strong elbow extension as well.

*****The analyzer measures rod motion only and we can’t draw any conclusions about caster style from analyzer charts. But, from examining thousands of casts now we know that regardless of style, top casters move the rod the same. When making the same cast, there is little difference in Lefty’s chart, and Joan’s. Their bodies move quite differently, but the rod doesn’t. There is a significant difference in hand/rod translation, but since the same cast can be made with this difference it is obviously not a critical motion, but more a matter of casting style.

17. They used an “educated wrist motion during the final acceleration of the stroke, “averaging 45 degrees; 10 degrees more fore the elite group.

*****This goes with their observation of a wider casting arc for elite casters.

18 .In most cases, the final 20 to 30 degrees of wrist action quickly tilted the butt of the rod forward, just prior to the stop. (What I’d call a “wrist flip.”)

****Al and Gary weren’t able to measure actual rod angular acceleration so had to base this comment on visual observation. Especially in the early 90’s it was widely believed that rod acceleration was slow at first, fast later, which is what this implies. We now know that, although it may look like acceleration is slow at first, fast later, the best casters accelerate the rod at a very constant rate throughout the stroke.

19. With the best casts, the rod butt stopped ABRUPTLY so the butt of the rod moved hardly 1 degree. The less successful casters couldn’t hold the rod as steady.

***** We see the same thing, the best casters have the quickest stops. We accurately measure both acceleration and deceleration of the rod.