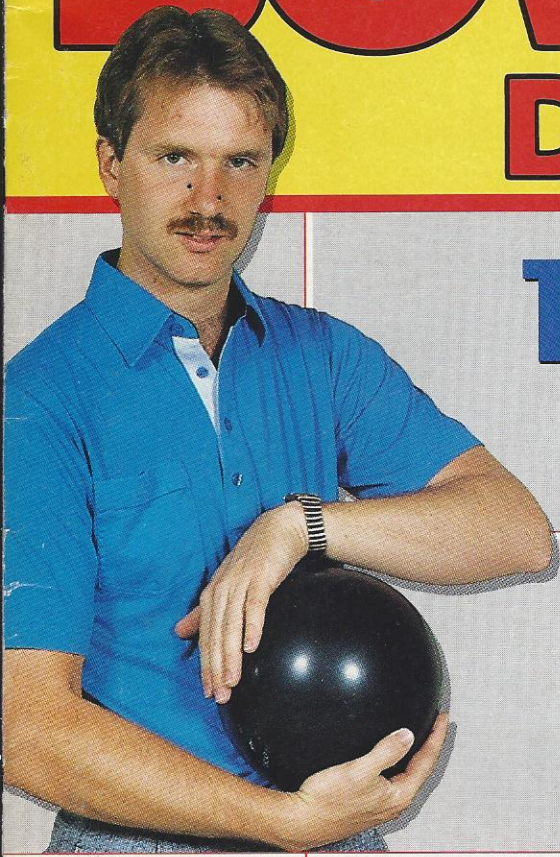


BOWLING

DIGEST

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'The bowler's hand gives the ball an overall and a rotational direction.'

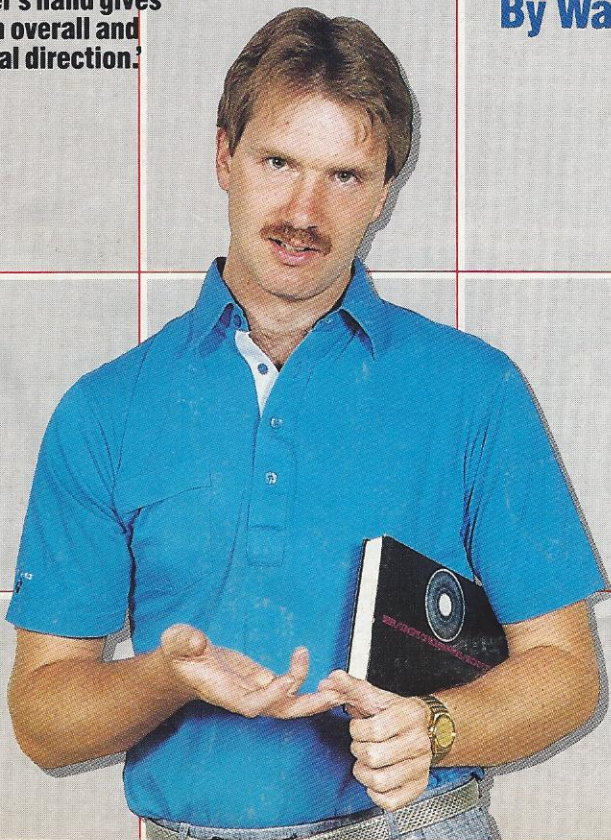
THE PHYSICS OF BOWLING

Sweep aside the myths and see how the laws of science affect bowling—and how you can make them work for you

By Walter Ray Williams Jr.



'If precession were true, the ball would hook, then straighten, then actually back up.'



'Specific data can help, but sometimes we have to throw away the book.'

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Bill Spigner's **Bowling Clinic**

■ **My parents bowl in a mixed league that is sanctioned by the ABC and WIBC. Does a bowler have a time limit in which he has to get the shot off? I know the PBA gives players 25 seconds from the time the ball comes back to the player to the time he releases the ball. What are the rules for the ABC and WIBC, and what are the penalties if the rule is violated?**

Right now there isn't a rule for amateur players on how much time they have to deliver the ball. However, slow bowling is a problem in league play, and there are a couple of reasons for this. First of all, many players aren't ready to take their turn when it comes up, and secondly, bowlers are looking for more courtesy than one lane on each side of them before they make their shot.

Players who take an inordinate amount of time on the approach hurt their chances of making a good, loose shot. Most of the great bowlers do not take a lot of time on the approach; they get set and make the shot. You should visualize and plan your shot *before* you get set, so you don't waste time standing on the approach trying to figure out what you are going to do with the ball.

■ **I saw your chart titled "How Today's Bowling Balls Stack Up" [March/April issue]. Many good players, including myself, use the Thunderbolt, Vector 1, and Vector 2. I've thrown all these balls on excessively slick lanes, and my findings are different from yours. Of the three balls, the Vector 2 hooks much more than either the Vector 2 or the Thunderbolt. The Vector 1 and Thunderbolt have comparable hooking characteristics, but the Vector 1 finishes stronger than the Thunderbolt.**

My ball chart rated balls on a scale of 1 to 10 with 1 being the best for heavy oil and 10 being the best for dry lanes. With the way bowling balls are constructed, the weight balance and hardness can greatly affect the hook pattern of your ball, depending on your ball track and the rotation you use.

The Thunderbolts, as a rule, are softer than the Vectors. When I tested the balls they were fresh out of the box. I played the lanes from the same place with both the Vector 1 and Thunderbolt, while the Vector 2 went longer.

If you compare a new dull urethane ball to one that has been used for a while, the new ball will hook much sooner on its path down the lane than the old ball. The three balls definitely have different breaking patterns. I've had customers who said their Thunderbolts don't hook and others who can't find enough oil for the ball. I've seen bowlers who have not been able to get their Vectors

to hook at all, bowlers who've been able to hook their Vectors plenty, and still others whose Vectors rolled out on them.

You'll find opinions differ from one person to another, and maybe differently from how the manufacturers rate them. I discovered this with the Rhino series as I changed my rating of the Wine and Black Rhino balls from how I rated them last year. I found, along with other bowlers I talked to, that the Black Rhino hooked more than the Wine Rhino.

Since my chart was printed, two more outstanding balls for oil have come out. The solid Blue Hammer is 77 hardness and doesn't soak up oil like the Red and Black Hammers do. The other ball is the Roto Grenade, which is a 78-hardness, two-piece ball. Both balls finish hard.

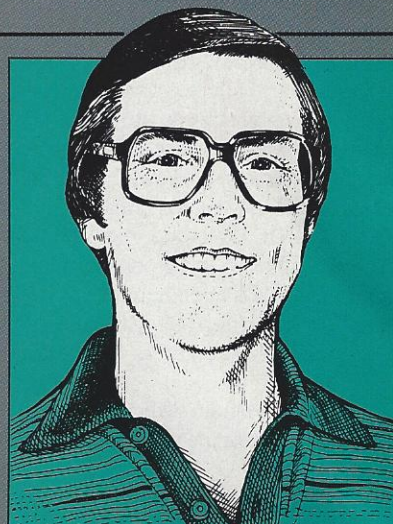
■ **I have bowled with a fingertip grip for more than six years and I tried finger grips for the first time in the new Rhino ball I just bought. With my old balls, my ball track had been about 1/2-inch to 3/4-inch from the thumb hole, but now, with the new Rhino, my track is right on the edge of my thumb hole. I thought maybe it was the ball, so I tried grips in my gray U-Dot, but the same thing happened. I've experimented with different hand positions and have been able to change my track part of the time. What should I do?**

Adding finger grips can cause your fingers to stay in the finger holes longer, which can change the timing of the release of the ball off your fingers. What's happening with you is that you're getting more lift with the grips, but less turn. You need to get more turn, and I recommend that you try to get more extension and less lift.

One way to get more extension is to think of your fingers extending down the lane towards your target instead of lifting them straight upward. This could help allow your fingers to complete the turn on the ball.

■ **I'm a right-handed 15-year-old bowler. I throw a 15-pound fingertip ball and hold a 150-160 average. Most of the time when I get up to the line I throw the ball across my body. The ball ends up on the far left side of the lane, and most of the time I don't even know I'm doing it. Do you have any helpful advice?**

The first thing would be to develop a straight swing, with the ball passing close to your ankle at release. Next, work on your body alignment to your target—your hips and shoulders should face the direction you want your ball to travel, and your follow-through should be towards your target and then upward. Lastly, make sure before you start your approach that you are standing



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correctly on the approach in relationship to your target and the ultimate destination of the ball, the pins.

■ **I am a right-handed bowler who throws a back-up ball. I stand at the left on the approach and throw the ball between the second and third arrow on the left. My average was 119 and 124, then the owner of the lanes said it would be to my advantage to move to the right on the approach and throw over the third arrow on the right side. I tried this for one year; my average has dropped to 102 and 107. I read an article in *BOWLING DIGEST* that said a right-handed back-up ball bowler is at a disadvantage bowling on the right side of the lane, because the ball is moving away from the pocket. Should I return to the left side of the lane?**

It is true that if a right-handed bowler throws a back-up ball from the right side of the lane the ball will be moving away from the pocket. If you are going to continue to roll a back-up ball, it would be to your advantage to play it from the left side of the lane. Try using the first or second arrow as your target for your strike ball, because you will be increasing the angle as the ball enters the pins, which could increase your chances of getting more strikes. ●

Bill Spigner welcomes questions from readers and will answer as many as possible in this column. Mail your questions to: Bill Spigner, Bowling Digest, 990 Grove Street, Evanston, IL 60201.