

To discover elite bowlers, look for athleticism

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U.S. Bowling Congress sports performance specialist Nick Bohanan (foreground) measure the thumb flexibility of Walter Ray Williams, Jr. Credit: USBC

Experts have found that top bowlers possess a remarkable combination of lower-body strength and balance, allowing the athletes to make the necessary adjustments in every roll.

Each throw a bowler launches travels down a completely unique lane surface. Just as every new skier's run leaves behind a track in the snow, each successive throw changes the distribution of oil in the lane, making

minute alterations that affect the all-important interaction between the ball and the lane.

Bowling success, therefore, depends considerably upon touch, feel and experience. Nonetheless, many top bowlers come from athletic backgrounds. In fact, according to Rod Ross, the head coach for Team USA, bowlers who played baseball as kids might have an advantage. Young pitchers who throw curveballs often show tremendous flexibility of the elbow, wrist and forearm. Other sports might provide advantages of their own. But there's more to translating physical ability to success in the lanes.

"Just because someone's really athletic, it's not going to make them a good bowler," said Nick Bohanan, the [sports performance](#) specialist for the United States Bowling Congress. "We want to know what their versatility is and where their strong points and their weak points are."

According to experts, two ingredients for success are the knowledge of where the ball needs to go and the [physical ability](#) to make that happen. But such qualities aren't easy to quantify. It can be difficult to compare the skill sets of different athletes.

Bohanan, who has a master's degree in exercise science, tests athletes' balance, strength and flexibility in order to identify potential top bowlers and also to help top-notch bowlers improve their games. Together with colleagues, he has identified several of the qualities that separate elite bowlers from their recreational counterparts.

The U.S. Olympic Committee has recognized these efforts by naming Bohanan one of three finalists for this year's Doc Counsilman Science Award, which is presented to coaches who use sports science in innovative ways.

Bohanan has developed what the U.S. Bowling Congress calls an elite training assessment, which helps link current abilities to strategies and schedules for improvement to show how bowlers should be expected to get better over time.

"That way we actually have numbers, we have measurements that we can track on players, to say, 'Okay, here's where you're weak, here's where you need to get,'" said Ross, who is also the director of the Bowling Congress' international training and research center, in Arlington, Texas. "We could never do it without someone with [Bohanan's] background."

New tools and techniques enable coaches and staff to look beyond players' scoring averages when assessing their performance. They measure grip strength and the pressure of foot strikes. They track bowlers' eye movements.

Two of the most important tests for bowlers are the standing long jump and the vertical jump. Leg strength is very important to throwing a fast bowling ball -- shots can reach speeds of 25 mph -- and the ability to repeat the delivery motion. Bohanan said that excellent leg strength helps bowlers be consistent and adjust the speed of their shot for the situation.

Coaches and trainers also use a balance test that involves standing on one leg and moving a piece of wood with the other leg in three different directions, which demonstrates lower body strength and balance, said Bohanan.

Bohanan introduced to the bowling congress a series of seven exercises called a functional movement screen, which demonstrates where athletes have strengths and weaknesses in their strength and flexibility. The screen includes a push-up, deep squat, and several other exercises that are scored according to the execution of the exercise and if an athlete can complete it without pain.

"You're looking for limitations that would impede their ability to move properly and also limit their performance," said Bohanan.

The technique has been used with many pro and amateur athletes, said Lee Burton, a co-developer of the screen and an athletic trainer. It is used to highlight any pain or dysfunctions that might get in the way of an athlete's ability to train at a high level. It can help identify problems and direct the need for physical therapy.

The screen might be especially helpful in bowling, a sport of repetition and asymmetry, said Burton. "Because you have the repetitive forces, especially at the highest level where you're constantly training, finding some other areas that may be dysfunctional would be a huge benefit."

Bohanan said that the repetitive action of throwing a 16-pound bowling ball dozens of times a day can lead to problems with the knees, shoulders, and back. He said among other sports, the movements from golf and fast pitch softball most resemble bowling.

Experience is also a crucial factor in a bowler's success. For that reason, it's important to be able to repeat a safe, reliable, high-scoring delivery.

"It takes probably six to ten years on the [pro-bowling] tour before you're actually making a lot of telecasts and in a position to win every week," said Bohanan. "It takes that long for them not necessarily to develop the physical skills, but to learn to win and how to use their skills."

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