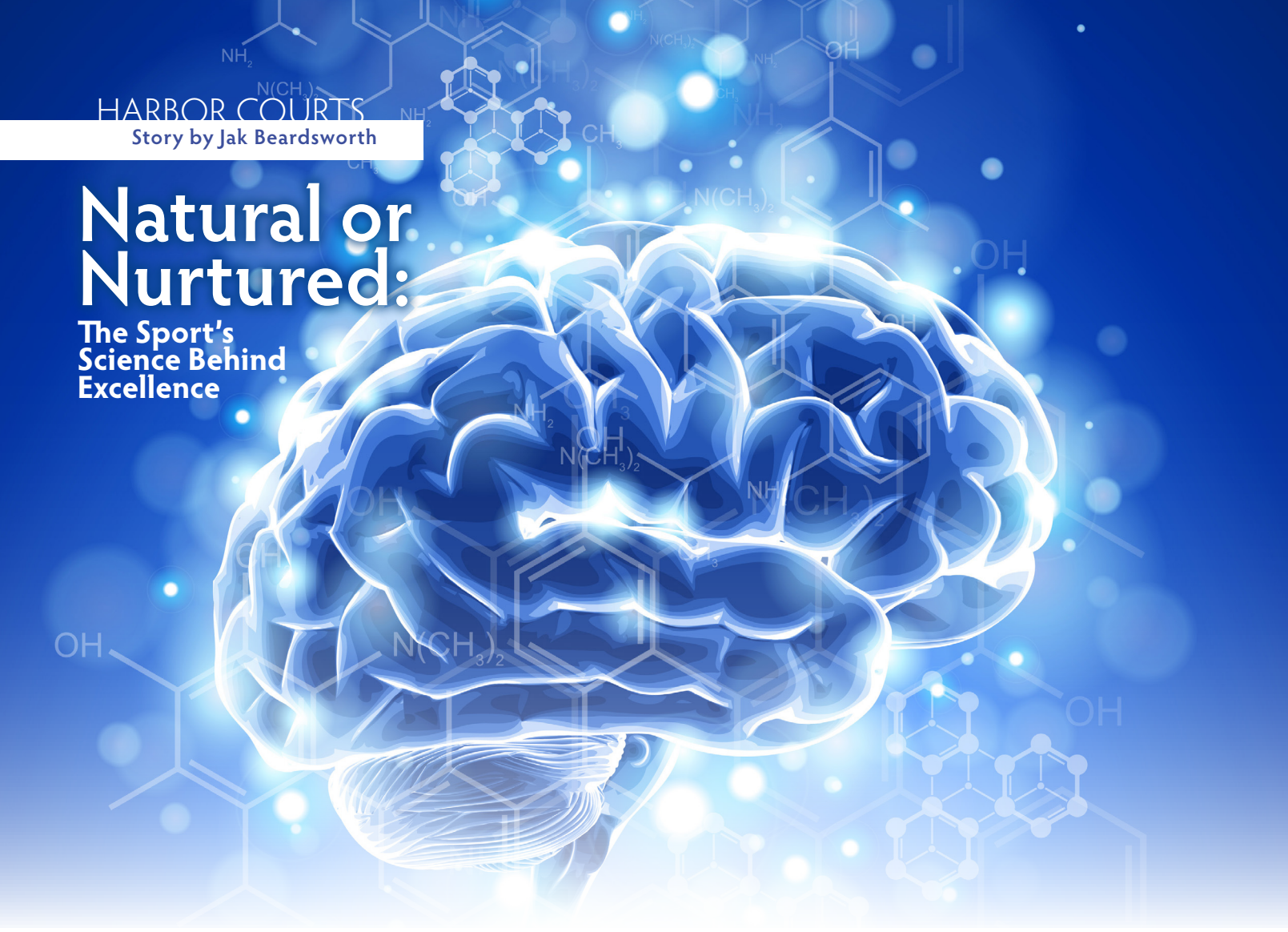
HARBOR COURTS

Story by Jak Beardsworth

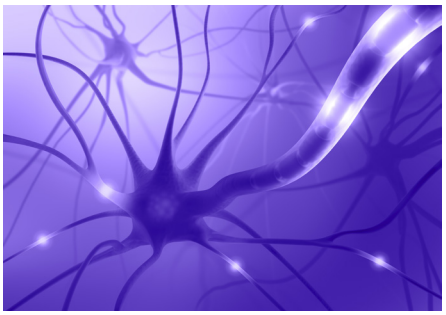
Natural or Nurtured:

The Sport's Science Behind Excellence



What if you could flash forward to the 2016 Summer Olympics in Rio de Janeiro and actually walk in the opening ceremonies among some of the world's most elite athletes? What do you think would you see?

David Epstein, a mediocre athlete, one-time science graduate student and Sports Illustrated contributor, aptly describes the scene in his new book, *The Sports Gene: Inside the Science of Extraordinary Performance*: "The 4'9" gymnast beside the 310 pound shot putter who is looking up at the 6'10" basketball player whose arms are seven and a half feet from fingertip to fingertip. Or the 6'4" swimmer who strides into the stadium beside his countryman, the 5'9" miler, both men wearing the same length pants."



Very convincing evidence for, at the very least, how genetic gifts (varying body types) lend themselves to the potential for superior performance in particular sports.

But physique predisposition is not always so discernible. Take Epstein's high school track team teammate who, because of his "bulging paunch," was the brunt of his fellow runner's jokes. Yet, young Micheno, the son of Jamaican parents — the island nation known for its track stars — was the fastest sprinter on the team and led them to win state championships.

So, things are not always as they outwardly seem.

Long before Stein's very readable review of the science and genetics of sports, others believed that there had to be more than just physical gifts to explain how elite athletes, who could repeat extraordinary performances practically routinely, were just that, elite.

Case in point: Albert Pujols versus Jennie Finch. In the spring of 2004, Pujols was regarded as the best hitter in all of baseball. Jennie Finch was about to pitch the USA Olympic softball team to the gold medal later that summer.

Pujols hit 95 mph fastballs for a living. Finch's pitches maxed out in the upper 60 mph range. But, when adjustments were calculated for the closer mound location in softball, her pitches took about the same time to reach home plate as a 95 mph baseball. Fair match-up. Right? And geez, c'mon, against a "girl" with a bigger ball.

Wrong. Very wrong. He couldn't even foul one off. Strike three. So much for the long standing theory that the gift of lightning quick reflexes, that long standing frame of reference, was *the* primary difference maker to be among the best in a sport. In fact, Pujols,

when measured for simple reaction time among random college students at Washington University in St. Louis, rated no better than the 66th percentile!

So, it follows that there has to be more.

The first hint came in the early 1940s in a study conducted by a Dutch chess master and psychologist, Adriaan de Groot, who flashed still photographs of in-game chessboards to both grandmasters and lesser but still very good players. It turned out that the indisputable advantage of the masters was their superior ability to accurately reconstruct the staged game boards in only a matter of seconds of viewing it.

De Groot concluded, "It is evident that experience is the foundation of the superior achievements of the masters." The theory of "chunking" – unconsciously grouping information into smaller chunks triggered by patterns of play seen previously – had its beginnings.

Thirty years later, Dr. Janet Starkes, a former basketball point guard on the Canadian national team, invented the sports "occlusion" test based on her graduate school research in what became known as "perceptual cognitive skills."

Bruce Abernathy, an inquisitive cricket player at the University of Queensland in Australia, rode the occlusion wave further. He showed a wide variety of batsmen film of cricket bowlers, cutting it off just prior to the throw and then asking where the ball was headed in the batsman's striking zone. The star players far surpassed the lesser players at predicting its resulting path.

Epstein, from his own research information, concluded that "elite athletes need less time and less visual information to predict what will happen in the future, and, *without knowing it,* they zero in on the critical visual information." So, the very best athletes in any sport "chunk" opponent's body information and positions, based on *their* database of experience, in the same way that the chess grandmasters could "see" the board so quickly.

Because Pujols had never seen Finch pitch before, with her completely different underhanded softball delivery compared to the overhand baseball pitch delivery, he was at an insurmountable disadvantage facing her for the first time.

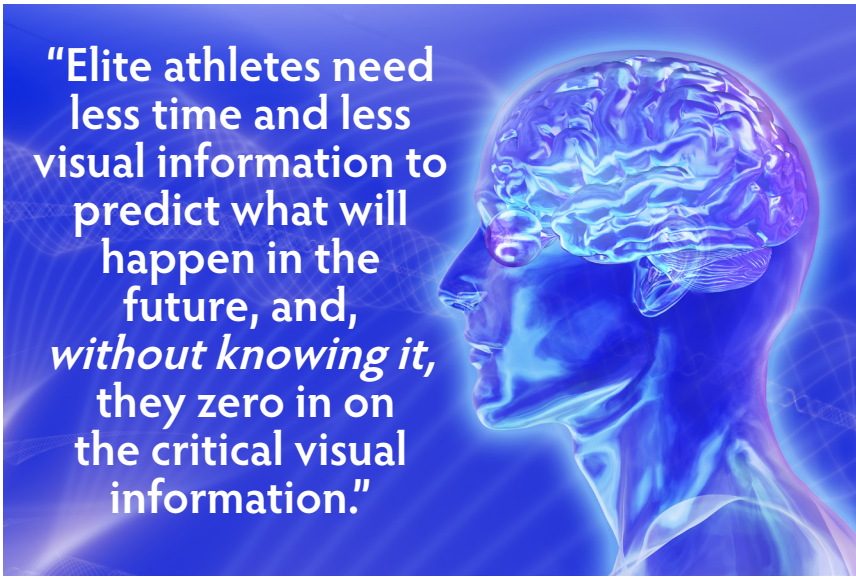
Roger Federer, like Pujols, is among the very best at gleaning subtle information from opponent's physical cues, in his instance regarding their intended shot direction, from years of game experience. This references the conventional wisdom, coined by Florida State University psychologist K. Anders Ericsson, that it takes 10,000 hours of practice to acquire really extraordinary skills. Exactly why, on court, Federer can read the monster groundies of today's players and effortlessly, almost casually, chase them down and do something with them.

In terms of your own game, how can you take your own perceptual cognitive skills to another level, the one you realize every now and then, but cannot deliver on a relatively consistent basis?

First, you have to aspire to not having any holes in your game. Owning rock solid, shot making, *core fundamentals* is essential in enabling a just-do-it auto pilot game, one based upon whatever your innate and developed talent is. This will facilitate a greater consistency and trust.

Making an investment, even a small one, in coaching can pay big dividends. All the new rackets and strings, the ones that always manage to offer the perfect blend of power and control, can only do so much.

It will also be essential to develop "triple vision," a phrase coined by Canadian pro Peter Burwash in the '80s, referring to a technique that fully utilizes your visual dexterity to "see" the game that's in front of you in the blink of an eye – like Fed – and not be undermined by a slow, distracting, overly conscious paint by the numbers approach, a sign of less experienced players.



Triple vision means never focusing primarily on the court or the opponent (some exceptions in doubles). Direct sighting is on the ball, and only the ball, incoming and outgoing. The opponent and the court are "seen" only through your periphery, which is where the "cues" mentioned earlier are ultimately unconsciously recognized through experience, exactly what Pujols found himself without against the unfamiliar Finch. The main focus remains on the flight of the ball, triggering auto responses, the quality of which will be dependent upon both your game nurturing – the time you've put in learning, practicing efficient mechanics – and your predisposed genetic gifts.

Federer once stated that he believed his greatest singular skill to be "seeing" his shot response faster than anyone else.

Start nurturing your inner Fed today.

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