

The NHL drafts the wrong players due to birthday bias

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A hockey player's birthday strongly biases how professional teams assess his talent, according to a new study by Grand Valley State University researchers. The findings were published in the online journal *PLOS ONE*.

The research, led by Robert Deaner, associate professor of psychology at Grand Valley State, shows that, on average, [National Hockey League](#) (NHL) draftees born between July and December are much more likely than those born in the first three months of the year to have successful careers. In particular, 34 percent of draftees were born in the last six months of the year, but these individuals played 42 percent of the games and scored 44 percent of the points accumulated by those in the study. By contrast, those born in the first three months of the year constituted 36 percent of draftees but only played 28 percent of the games and only scored 25 percent of the points.

The study focused on Canadian [players](#) because in Canadian youth ice hockey there is a January 1 cut-off date. This means players born later in the year would have been consistently younger than their age group peers.

"There's no doubt that drafting [professional athletes](#) is an inexact science," said Deaner. "Plenty of sure-fire first-round picks fizzle while some late-round picks unexpectedly become stars. But our results show that, at least since 1980, NHL teams have been consistently fooled by players' birthdays or something associated with them. They greatly

underestimate the promise of players born in the second half of the year, the ones who have always been relatively younger than their peers. For any given draft slot, relatively younger players are about twice as likely to be successful. So if teams really wanted to win, they should have drafted more of the relatively younger players."

Background and significance

Previous studies have demonstrated relative age effects (RAEs), which occur when those who are relatively older for their age group are more likely to succeed. For example, in elite Canadian youth ice hockey, roughly 40 percent of players are born in the first three months of the year while only 15 percent are born in the last three months. Although RAEs are well established in many sports and educational settings, their underlying causes remain unclear. The new study provides the most direct evidence yet that selection bias is a crucial cause of RAEs. Selection bias means that evaluators, such as teachers and coaches, grant fewer opportunities to relatively younger individuals than is warranted by their talent.

"There are many possible causes of RAEs," said Deaner. "For instance, a youth coach may mainly select relatively older players because those players' greater size means they are actually more likely to help the team. Researchers believe, however, that selection bias is also a big cause of RAEs, but there has never been a direct test of selection bias. We could make this test because we had a good measure of perceived talent, the order or slot in which each player was drafted. And we had good measures of realized talent, how long they were able to stay in the NHL and how many points they scored there. Because relatively younger players consistently performed better than would be expected based on their draft slots, we've shown selection bias."

The researchers admit that they don't fully understand the selection bias

they discovered. "We don't know yet why the evaluations of NHL teams are biased, but there are several ways it could work. Because being many months older than one's peers can be a big advantage as a child or early teen, the relatively older players might be more likely to be on the most elite junior teams when they are 17 or 18, and scouts might be swayed by that," said Deaner. "Another possibility, suggested by educational studies, is an 'underdog' effect. This would involve relatively younger individuals developing better work habits so that they improve more in adulthood."

The authors believe their pro hockey results have implications for education. Deaner noted: "We have to be careful about assuming too much because a teacher deciding which children should be tracked into advanced classes is a much different situation than hockey teams assessing which adults are likely to develop into NHL stars. But, for many reasons, one would think that NHL teams should be less biased than educators. First, NHL teams are evaluating adults not children, meaning that relative age differences are proportionally smaller. Second, NHL teams are aware of RAEs, but educators may not be. Third, NHL teams have vast resources to evaluate individuals while educators do not. Fourth, NHL [teams](#) pay a steep price for poor evaluation whereas educators may not. So overall, in many situations, evaluations of ability may be greatly colored by an individual's relative age. This may even happen when the teachers and coaches know about RAEs."

More information: <http://dx.plos.org/10.1371/journal.pone.0057753>

Provided by Grand Valley State University

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