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How NHL scoring rates change with age

By [Eric T.](#) [@BSH_EricT](#) on Mar 13 2014, 3:59p [9](#)



Sadly, nothing lasts forever - Al Bello

In Part 1 of a series on how players age, we look at forward scoring.



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One thing that analytics do well is estimate how a player's performance will change with age.

"Well" is relative, of course. Some players age better than others, and even if you know exactly how a player's talent will change, you still won't know whether the bounces will happen to go his way in any given year.

So I'm not claiming that analytics can provide a perfect projection system, or anything like it. But our memories are even worse at dealing with all of that randomness -- we remember a few players who stand out for playing into their late 30's and forget just how many didn't make it.

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Preparing aging curves to estimate how production will evolve with time is a staple in sports analytics. Hockey is no exception; among other things, people have looked at the evolution of [points per game](#), [power play scoring](#), [ice time](#), and [save percentage](#).

However, there are still holes to fill. There are areas that haven't been studied yet and areas where the existing studies didn't make use of the [best practices](#) developed in baseball analysis. This post is the start of a series that aims to fill some of those gaps.

Forward scoring peak

Hawerchuk's study of points per game is probably the most-cited analysis of hockey aging. Its simple elegance provides compelling evidence that points per game peaks at around age 25. However, some questions were left unanswered.

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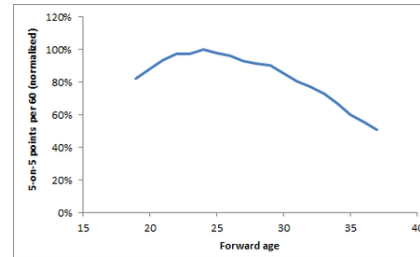
The luck of the shootout

His method elegantly handled selection bias at the start of players' careers, but it was prone to problems as players started dropping out of hockey. As a result, he could estimate the age of peak performance but couldn't reliably tell us how steep the drop-off would be in a player's 30's. Moreover, looking at points per game convolves scoring ability with usage.

Let's see if we can cover some of these bases with an updated study.

I've previously described and explained [the method I recommend](#). I included every year from 2007-08 to 2013-14, the period for which we have easy access to 5-on-5 scoring rates. I looked at every forward who played two years in a row during that period, and noted their year-over-year change (accounting for variance).

For each age, I could then calculate the average change, and can chain those yearly changes together to produce a typical aging curve:

**What does it tell us?**

One thing that stands out to me is that the peak is shifted slightly from the general consensus. Hawerchuk previously found that points-per-game peaked at age 25, but it looks like points-per-minute peaks at age 24, at least for forwards.

That discrepancy isn't hard to explain -- players get less ice time early in their careers, which suppresses their per-game scoring.

There are two conclusions you can draw from that. You could conclude that coaches should trust younger players more and be more willing to give 21- and 22-year-olds as much ice time as they'd give 26- and 27-year-olds.

On average, players retain about 90% of their scoring through age 29, but the drop from there is pretty sharp.

Alternatively, it's possible that coaches are (on average) giving out ice time correctly, and that the defense and other non-scoring facets of a 21-year-old's game aren't as good as that of a 27-year-old. In general, I'm inclined to assume NHL decisions are (on average) correct unless there is compelling evidence to the contrary, so I'll choose the latter for now.

In addition, we now have an estimate of how even strength scoring ability changes through a player's 30's. On average, players retain about 90% of their scoring through age 29, but the drop from there is pretty sharp -- they hit 80% at age 31, 70% at age 32-33, and 60% at age 35.

We don't normally think of scoring in these terms, so let's make this concrete by talking about what it means for Rick Nash. He's 29 years old and averages around 2.2 points per 60 5-on-5 minutes, which puts him at something like the 25th-30th highest scoring forward -- an above-average first-line scorer.



Photo: Adam Hunger-USA TODAY Sports

Over the next two years, our best guess is that he'll slip to something like 2.0 points per 60, which would be more like 60th best -- still first-line caliber, but no longer on the high end. By the end of his contract, a reasonable projection might be 1.7-1.8 points per 60, which drops him into the ~100th-150th range, no longer a primary threat at even strength.

Again, I want to stress that some players age better than others and there's lots of randomness layered on top of that. This is a population average, not a hard-and-fast rule.

But unless you have reason to think a player will age better or worse than average -- and "he's great" is a reason to think he can still contribute as he declines, not to think he won't decline -- it should probably be the starting point for projections of a player's future performance.

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We’re not worried about Year 6 or 7. We know we’re getting a great player (David Clarkson) in Year 1.

That quote is fast becoming Dave Nonis’ “July 1 is our draft”

Cynically Sarcastic

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Maybe players aren’t “peaking” at 24-25, as much as they’re attracting tougher matchups, and not being shifted away from those matchups, once they become more apparently productive and better defensively at that age range? I’d imagine that once teams realize a player is dangerous, they start focusing on said player, making it tougher for them to score.

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I’ll be posting data on how usage shifts over time as part of the series. Let’s revisit this question when we have that data.

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