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## Behind The Net

Rebounds

by **Gabriel Desjardins**


There's no question that rebounds are dangerous, but just how dangerous? Here we have the overall save percentages for 2005-2009 versus the number of seconds since the previous shot:

	Time	Save PCT
1	second	.549
2	seconds	.526
3	seconds	.736
4	seconds	.869
5+	seconds	.907

So clearly rebounds are significantly more likely to go in for the first two seconds after the original save. The advantage decreases over the next two seconds until, after five seconds, there is essentially no memory of the original shot.

However, rebounds are also typically shot from much closer to the net than the average shot. Is the difference in expected save percentage due to the location of the rebound? We can answer this question by dividing the ice into a grid and constructing a matrix of expected save percentages based on past shooting data. We find that we do expect rebounds to go in far more often than regular shots and that rebounds go in even more often than expected:

	Time	Expect	Actual
1	second	.721	.549
2	seconds	.792	.527
3	seconds	.835	.736
4	seconds	.877	.869
5+	seconds	.895	.907

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There are two effects at play here ♦ over the first three seconds, rebounds are both shot from closer than typical shots, and are also more dangerous than typical shots from the same locations. At four seconds, rebounds still come from closer to the net than a typical shot, but are also no more likely to go in than the original shot from the same spot.

We can see the same effect if we split rebound data by man-advantage:

Time	ES Expected	Save PCT		PP Expected	PP Actual
		ES Actual			
1 second	.744	.581		.664	.498
2 seconds	.751	.545		.650	.460
3 seconds	.838	.756		.726	.662
4 seconds	.882	.876		.793	.821
5+ seconds	.908	.919		.847	.861

Interestingly, being on the power-play doesn't appear to have a significant impact on rebounds: 5.3% of shots get a second chance, compared to 4.7% at even-strength. Similarly, the percentage drop in save percentage on rebounds is the same whether the shots are at even-strength or on the power-play.

Ultimately, half of the increase in rebound shooting percentage is due to rebounds being shot from closer to the net on average. The other half is due to the unpredictability of the rebound, which results in three seconds of disorganization as the defense tries to smother the second shot.

*Gabriel Desjardins is a contributor to Puck Prospectus and runs the statistical hockey website [Behindthenet.ca](http://behindthenet.ca). Email him at [info@behindthenet.ca](mailto:info@behindthenet.ca).*



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