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## Everybody is an Injury Risk

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Football is a violent game. No player -- not Eddie George, not Brett Favre, not Cris Carter -- is immune to the injury bug.

But some players are seemingly greater injury risks than others. You'll read in countless places this preseason that you should be somewhat wary of Fred Taylor and Ricky Williams, among others, because they've been injured in the past. Well, they certainly have been injured in the past -- neither of them has ever played a full season -- but does it necessarily follow that they are more likely to be injured this year? Common sense says yes, but common sense isn't always right. Further, there are numerous counterexamples.

- Robert Smith, James Stewart, and Charlie Garner all had giant "Handle With Care" labels stamped on their foreheads last preseason, but all three turned in healthy and productive 2000 campaigns.
- On the flip side, Mike Alstott, Marshall Faulk, and Duce Staley had missed a combined total of 4 games in 13 NFL seasons prior to last year, but they all missed time due to injury in 2000.

Of course, it's not hard to point to examples that confirm the common sense viewpoint, either. The aforementioned Fred Taylor and Ricky Williams would be two. Tim Biakabutuka would be

another. But proof by example isn't very compelling. We need to look at this systematically.

The main idea is this: find all players who played a certain number of games one year, and then see how many games they played the next year. If the common sense is correct, then players who played 16 games one year (like Edge James) will be more likely to stay healthy the next year than players who played only 13 games (a la Fred Taylor).

Let's first consider the RBs. I looked at 422 RB seasons between 1988 and 1998. I'll show you a line of data and then explain what it means:

| G  | no. | AGNY | PFS | PFS% |
|----|-----|------|-----|------|
| 16 | 233 | 13.7 | 111 | 47.6 |

Alright, what is all this? This is a summary of the RBs who played in a full 16 games in a given season (that's what the **G** stands for). There were 233 of them (that's the **no.** column). **AGNY** stands for "average games next year." So these 233 backs averaged 13.7 games the year after playing 16. **PFS** means "played full season" -- this denotes how many of the 233 played a full 16 games the following year. And finally, the 47.6 in the **PFS%** column tells you that 47.6% of all the RBs who played 16 games in one year also played 16 games the next year.

FINE PRINT: the data set consisted of RBs who played at least 8 games and averaged at least 6 fantasy points per game between 1988 and 1998. I threw out any players who retired the next year.

Here is the full set of results:

| G  | no. | AGNY | PFS | PFS% |
|----|-----|------|-----|------|
| 16 | 233 | 13.7 | 111 | 47.6 |
| 15 | 68  | 12.6 | 30  | 44.1 |
| 14 | 39  | 13.4 | 11  | 28.2 |
| 13 | 20  | 14.4 | 11  | 55.0 |
| 12 | 16  | 10.4 | 3   | 18.8 |
| 11 | 11  | 12.6 | 4   | 36.4 |
| 10 | 15  | 12.8 | 7   | 46.7 |
| 9  | 15  | 13.2 | 5   | 33.3 |
| 8  | 5   | 14.4 | 3   | 60.0 |

To smooth out the bumps, let's break that down into groups:

| G     | no. | AGNY | PFS | PFS% |
|-------|-----|------|-----|------|
| 16    | 233 | 13.7 | 111 | 47.6 |
| 13-15 | 127 | 13.1 | 52  | 40.1 |
| 8-12  | 62  | 12.4 | 22  | 35.5 |

The most important piece of information here is the following: of RBs who played a full season one year, less than half of them played a full season the next year. So that's where the title of the article comes from: *Everybody is an injury risk*. At least based on this data, you shouldn't bet on *any* running back to play 16 games this year.

Also note that the expected difference between an iron man (16-game performer) and a injury-prone RB (8-12 games) is just over a game. An iron man has about a 50/50 shot at playing a full season next year, while an injury-prone RB has about a 35% chance. That's certainly a significant

difference, but not as large as I might have guessed.

This is the point where I typically pause and warn readers not to wager their kids' shoe money on this data. There are a lot of reasons why games played isn't a perfect way to measure health. First, it's possible that a player might have been perfectly healthy, but was just benched. I'm not too worried about this one, actually, because I only included players who were fairly productive when they did play (see the fine print above). Another reason for missed games is suspension, and another problem is my inability to distinguish partial games. Eddie George, for example, was credited with 16 games played in 2000, but in one of those, he was injured after one carry and left the game. Morally, he only played 15 games last year, but this study doesn't account for that. So as usual, this is not a perfect study. You can judge for yourself whether it's better than no study at all.

Aha, you say, but Fred Taylor has *repeatedly* shown that he can't stay healthy. It's not just that he was hurt last year, but he was hurt the year before that (and so on). Maybe the trend will become more clear if we look at two years instead of just one. So we'll do just that. Here's the breakdown by games played in a two year period:

| G     | no. | AGNY | PFS | PFS% |
|-------|-----|------|-----|------|
| 32    | 92  | 14.0 | 44  | 47.8 |
| 29-31 | 102 | 13.2 | 48  | 47.1 |
| 25-28 | 61  | 12.7 | 20  | 32.8 |
| 17-24 | 37  | 12.6 | 10  | 27.0 |

FINE PRINT: all pairs of RB seasons from 1988-1989 through 1997-1998 in which the player averaged at least 5 fantasy points per game in both years.

The spread is a little wider, but there's still not a game and a half difference between the expectation of an RB with a spotless health record and one who missed several games. Again, note that fewer than half (47.8%) of the iron men were able to play 16 games the next year. Football is a rough game, and running back is a rough position.

Perhaps not surprisingly, the situation is somewhat different for wide receivers. Here is the one-season breakdown:

| G     | no. | AGNY | PFS | PFS% |
|-------|-----|------|-----|------|
| 16    | 324 | 14.5 | 210 | 64.8 |
| 13-15 | 95  | 14.1 | 49  | 51.6 |
| 8-12  | 42  | 12.6 | 17  | 40.5 |

And the two-season data:

| G     | no. | AGNY | PFS | PFS% |
|-------|-----|------|-----|------|
| 32    | 194 | 14.7 | 131 | 67.5 |
| 29-31 | 119 | 13.7 | 68  | 57.1 |
| 25-28 | 42  | 13.8 | 23  | 54.8 |
| 17-24 | 31  | 13.1 | 13  | 41.9 |

[Same fine print as the RB data]

The difference between a sturdy WR and a fragile WR seems to be roughly equivalent to the difference between a sturdy RB and a fragile RB. But across all levels of injury history, WRs are

more likely to stay healthy than RBs are. Again, no real surprise, but it's nice to be able to attach a numerical estimate to the difference.

Now check out the QBs:

```

=====
1-year
=====
  G   no.   AGNY   PFS   PFS%
-----
  16   96    12.9    36   37.5
13-15  97    12.0    26   26.8
  8-12  71    10.6    17   23.9

```

```

=====
2-year
=====
  G   no.   AGNY   PFS   PFS%
-----
  32   34    12.9    15   44.1
29-31  65    12.4    21   32.3
25-28  60    12.6    13   21.7
17-24  43     9.6    10   23.3

```

[same fine print as the RBs and WRs, but the minimum fantasy point production needed for inclusion was 9 points per game for the 1-year data and 8 points per game for both years for the 2-year data.]

Quarterbacks just flat out shouldn't be expected to play 16 games, except those named Brett Favre. I didn't realize just how grim the situation was. Although from an injury standpoint, it's probably not as grim as it appears here. Since only one QB can play at a time, QBs are probably a lot more likely to lose time due to non-injury reasons than RBs or WRs are. And that is probably skewing these numbers downward a little.

## Conclusions

Here is a brief summary of what we've seen here:

| Player         | Expected Number of Games This Year | Probability of Playing 16 Games This Year |
|----------------|------------------------------------|---|
| Edgerrin James | 14                                 | about 50%                                 |
| Fred Taylor    | 12 or 13                           | 30 - 35%                                  |
| Torry Holt     | 15                                 | 65 - 70%                                  |
| Terry Glenn    | 13 or 14                           | 40 - 50%                                  |
| Peyton Manning | 13 ?                               | 40 - 50% ?                                |
| Chris Chandler | 10 to 12 ?                         | 20 - 30% ?                                |

Now don't take this too literally. When I say "Edgerrin James" I really mean "a RB with no recent history of injury." Likewise, "Terry Glenn" is shorthand for "a WR who has been injured quite a bit in the past." (I've got question marks on all the QB estimates because I'm not convinced this is an appropriate way to study them (although I'm not convinced it's not, either).) And of course, every player has his own unique situation that makes him different from the "typical" player who

is being assessed here. So this shouldn't be taken as anything other than a rough starting point for your assessments of injury risk.

If the numbers above are about what you would have guessed, then you've got confirmation that your intuition was right on. If not, maybe now you've got something to think about.

[Data](#)

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