**Introduction**

Every shot taken contains data on who the closest defender was, how many dribbles were taken before the shot, how long they had possession before the shot and more. Using these, I defined isolation shots as being when the player has possession longer than 2 seconds. This was to eliminate “catch and shoot” plays and focus more on offense the player created themselves. From this information, new metrics were created and revealed some insights into players different isolation skillsets.

**Points Per Possession**

This calculation is straight forward enough. PPP = Total iso points scored / total iso shots taken. The same applies for defended. Here are the top 10 for offense and defense.

Top 10 Offensive PPP

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Top 10 Defensive PPP

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You’ll notice a lot of household names on the offensive list. I should also point out that the average points scored on an iso possession is 0.88. When you compare the offense and defense lists, you’ll notice the top 10 defensive players are all further from the median than every offensive player (other than Steph Curry). Does this mean that these lockdown defenders are more valuable than their offensive counterparts? Let’s explore that.

**Offensive and Defensive Rating**

The more one ponders points per possession, the more salient the flaws become. Perhaps the players with high PPP are getting defended by terrible defenders. While that would make for highly efficient *team* offense, that wouldn’t necessarily be proof of their individual skill. The same argument applies to defenders. Are these defenders allowing low PPP simply guarding the other team’s inefficient scorers? To address this, I used offensive and defensive rating.

* Offensive rating (for a single shot) = PTS scored – PPP Allowed by the defender
* Defensive rating (for a single shot) = PPP Scored by the offensive player – PTS scored

These metrics will use the quality of one’s opponent to weight the value of one’s shot. When averaged over the whole season the value equals the point total above or below your opponent’s average possession. Now let’s check out the top 10.

Top 10 Offensive Rating per Shot Taken

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Top 10 Defensive Rating per Shot Defended

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You’ll notice the top defender doesn’t have a name, as they didn’t’ quality for the 50 minimun shots defended. The defensive list looks similar, but other than Steph Curry, the offensive list is completely new names. So which list is truly adding value to their teams? In order to find out, we need to account for quantity. Kyle Korver is the 7th most valuable iso player on a shot for shot basis, but is he taking enough shots to add large amounts of value? Or are these inflated stats due to extremely limited offensive roles?

**Offensive and Defensive Value Added**

Now that we have every player’s value above their opponent per shot taken/defended, it’s time to account for quantity.

* Offensive Value Added = Offensive Rating \* Number of Iso Shots Taken
* Defensive Value Added = Defensive Rating \* Number of Iso Shots Defended

Top 10 Offensive Value AddedA close up of text on a black background

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Top 10 Defensive Value Added

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Both of these lists highlight interesting things. On the offensive end, this list looks much closer to players with the most points per possession as compared to the best offensive rating. These players maintained relatively high offensive ratings, while taking a high volume of shots. This also was Steph Curry’s first MVP season, which according to these metrics appears to be well earned.

On the defensive side of the ball, you’ll notice that no defender adds as much value as the top 7 offensive players. In addition, only two defenders add as much value as anybody on the top 10 offensive list. The number two place on the defenders list is a player who didn’t appear on either of the previous two lists, Draymond Green. This is due to relatively high (while not top 10) defensive rating, while constantly guarding opposing players with high Points per Possession.

It’s also worth pointing out that this season’s Defensive Player of the Year, Kawhi Leonard, ranked 28th in Isolation Defensive Value Added. While that is a very good rating in its own right, it’s not elite like some of the others. This points out the limitations of this method & dataset. It’s likely that much of Kawhi’s value is generated by forcing steals, blocks, and playing excellent off-ball defense, in addition to his high quality on-ball defense.