

Comparison of Pitcher Velocities in Bullpens with Different Types of Turf Shoes

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Statement of Purpose

With the increasing diversity in baseball footwear, understanding how various shoe designs, including traditional cleats, turf shoes, and hybrid models, influence performance has become essential. The purpose of the study is to compare the throwing velocity of pitchers in bullpens with different types of turf shoes, comparing Sqairz Velo Trainers with Adidas, New Balance, Nike, and Under Armour.

Materials & Methods

54 collegiate players were analyzed and comparison of how throwing velocity changed by switching shoes from traditional footwear to Sqairz Velo Trainers was performed. Pitchers were studied utilizing a radar gun and they completed their standing activation that included their arm and body activation protocols and throwing routines. Each player verbally stated that they were activated and utilized their normal warm up. The players then stepped onto the mound which was indoor and on a standard indoor mound with MLB dimensions. The players followed the following format: 10 step throughs, 10 fastballs, 10 mix, 10 four seam fastballs with normal shoes on, and 10 four seam fastballs with Sqairz Velo Turfs. The pitches were recorded, and the average four seam fastball was documented.

Sqairz vs. New Balance

Average New Balance Velocity	Average Sqairz Velocity
84.06 mph	85.12 mph

Sqairz vs. Adidas

Average Adidas Velocity	Average Sqairz Velocity
84.13 mph	86.50 mph

Sqairz vs. Nike

Average Nike Velocity	Average Sqairz Velocity
81.63 mph	84.75 mph

Sqairz vs. Under Armour

Average Under Armour Velocity	Average Sqairz Velocity
84.92 mph	87.00 mph

Results

41 out of 54 players saw increases in throwing velocity during their sessions, with the highest velocity of increase being 8 mph. 6 players saw decreases in throwing velocity, with the largest decrease being a reduction of 3 mph. The largest variance in velocity was with Nike with an average of 3.12 mph and the smallest variance in velocity of 1.06 mph with New Balance.

New Balance is designed on a pronation platform and tends to shift athletes with a Varus foot profile into a more neutral position. Adidas is built off a supination platform and traditionally is a soft sole; athletes that have a Valgus biomechanical foot profile will perform better in these shoes. Nike had the greatest variance between their data and Sqairz mainly due to the traditionally narrow toe box and supination style chassis of the shoe. Under Armour is also built off a supination platform.

Average Non-Sqairz Velocity	Average Sqairz Velocity
83.55 mph	85.66 mph

Discussion/Conclusion

Sqairz Velo Turfs showed a significant improvement in pitchers' velocity across the fifty-four pitchers that were studied, and they assisted the players in improving their balance, which allowed them to then improve on their direction and consistent timing of their release. In normal shoe gear, players displayed increased medial to lateral translation at the ankle and subtalar joints. When player wore Sqairz, it was visibly more stable at these joints. In addition to the hypermobility at the ankle and subtalar joints, the players that had the largest variance also all possessed a Varus throwing side foot biomechanical foot profile. The average velocity increase was 2.1 mph across the group when players changed from their normal shoes to Sqairz Velo Turfs.