

Physics in cricket essay



**ASSIGN
BUSTER**

Cricket is not a game that most Americans know about, however, it is a popular sport in Australia and in other British parts of the world. This sport is not unlike any other sport in the area that it involves a great deal of physics. However, this paper will focus on the aspect of bowling the ball and the batters reaction to this.

When comparing Cricket to other sports that most Americans know, the closest match that can be found is baseball. For example, a ball is thrown toward someone with a bat, and the person with the bat attempts to hit the ball outside of a set boundary. Also, the scoring system in cricket is based upon runs. Sounds very similar to baseball, right? Well, it is much like baseball, but the terminology used is different. For example, in baseball, the person who throws the ball is called a pitcher, but in cricket, this person is called a bowler.

In contrast, the person who hits the ball with a bat is called a batter, however, a bat in cricket is much different than a bat in baseball. In baseball the bat is round, but in cricket the bat is shaped like a long paddle, meaning it is flat on two sides. First comes the batter when preparing for a game. A controversy that arises in both cricket and baseball alike is the question of “ what size bat should be used? ” The answer to this question is, whatever size allows you to put the most possible velocity while making the ball soar off at around a 45-degree angle. This depends on what bat a person is comfortable with. For example, a person might be able to swing a light bat at 45m/s but a heavier bat at 38m/s, therefore in theory the lighter bat would take a ball further because it has more velocity to transfer to the ball, right? Not quite, a heavier bat packs much more momentum and energy, so the force from that

would make the ball go further, so the trick is actually swinging the heaviest bat that feels comfortable to swing, because when trying to hit the ball out of the field, this power comes in very handy.

The bowler's role is much different from the batter's. The bowler's objective is to get the ball past the batter and hit the wicket, the target that the batter is protecting. One way to approach this feat is to throw the ball as fast as possible without any spin past the batter in hopes that they will miss and the ball will luckily hit the wicket, but this theory does not work all of the time. For this reason we have another approach, using spin.

Since the bowler must bounce the ball, the bowler can make the ball switch directions, increase or even decrease in speed very quickly. While the first technique uses only two dimensions, this technique uses three dimensions. By adding spin to the left, the ball in result will kick to the left when bounced, and the same is true if spin were added to the right, it would kick right very sharply. To cause a ball to kick forward, topspin must be added to the ball, meaning, the ball will be spun in a forward direction.

This causes the ball to dive toward the ground, then when it bounces, dive forward at a more reduced angle than what it entered, therefore the ball comes in closer to the ground. Backspin is added by, as you begin your bowl, spinning the ball backward as it is thrown. This causes a slight “ glide” through the air, because of air resistance, and upon impact with the ground, the ball will bounce up at a lesser angle than without spin. Therefore, in contrast to topspin, if it hit the ground in the same place, a ball with

backspin would get to the batter at a higher height than would a ball with no spin implied.

Next, we have the angle at which the ball hits the ground. With no spin implied, the ball will project itself, or bounce, away from the ground at the same angle it entered. Even though the height at which the ball approaches the batter relies on speed, it also relies heavily on the angle of the bounce. In cricket, all bowlers have, depending upon height of the bowler, around the same place that the ball leaves their hand. Because of this, the angle at which the ball strikes the ground depends on how close or how far away the bowler aims for the ball to hit. If the bowler has measured out how far the place where he plans to bounce the ball, we can calculate the angle at which the ball will strike the ground, and then calculate at what height the ball approaches the batter.

However, adding topspin or backspin to a ball defies this. As said earlier, topspin causes the ball to bounce at a lesser angle than normal, depending upon the rate of spin. And adding backspin causes the ball to bounce at a higher angle, also depending upon the rate of spin. In conclusion, physics is used in all sports, and why would cricket be any different? Even though cricket is a complicated sport with many weird rules and regulations, it still uses the same momentum, forces, gravity, and velocities, among many other physics concepts that the sports we know and love use. Particularly, physics is seen through the aspect of bowling the ball and the batter's reaction to this.

Citations " MATHS AND PHYSICS OF CRICKET, ESPECIALLY SWING BOWLING

". 10 Sep 2008.

edu/org/mcc/newsinfo/physicsofbowling. pdf. > Cross, Rod . " The Physics of Cricket.

" The Physics of Cricket. 10 Sep 2008.

usyd. edu. au/~cross/cricket. html> " Cricket. " Cricket - Wikipedia, the free encyclopedia. 10 Sep 2008 < http://en.

wikipedia. org/wiki/Cricket >.