



The Science of Free Kicks

This presentation will help you to find out the science behind some of the world's best free kicks.
By Monty Morris and Joe Burns



How the ball moves through the air

The player slices their foot across the ball and this creates spin on the ball and then the air around the ball makes it curve (Air resistance). This creates a drag force which causes a pressure imbalance and the ball moves to the side with the most pressure this means it curls just out of the goalkeeper's reach.

The best free kick ever?



Roberto Carlos' famous free kick against France in the 1997 was dubbed the best free kick ever and experts have analysed the hit and said that it was not a fluke and the curl of the ball was just right for it to spin, hit the post and fly into the goal.



The other way to take a free kick

Players such as Ronaldo put as little spin on the ball as possible so that the ball dips and swerves in the air.

Facts

The curve due to air resistance is called The Magnus Effect

The Magnus effect is also present in many sports such as baseball and tennis

The Conclusion

The More power and curve there is on the ball the easier it is to score and also you need to hit it just the right amount into the wind to it doesn't go miles away!