



## Curiosity Guide #507

### Soccer Science

Accompanies Curious Crew, Season 5, Episode 7 (#507)

#### Soccer Juggling

Investigation #2

#### Description

Is there such a thing as a soccer circus?

#### Materials

- Soccer ball

#### Procedure

- 1) Hold the ball with both hands. Rotate the ball toward you by putting a gentle back spin on it.
- 2) Drop the ball down on the top, flat part of your foot.
- 3) Gently tip the ball back up and catch it between each attempt. Your first goal is to have one touch, catch, and repeat.
- 4) Gradually try increasing the number of touches without using your hands.
- 5) Try alternating your feet to practice controlling the ball.
- 6) Dedicate time to consecutive touches using your weak foot.
- 7) Finally, place the ball on the grass. Using the bottom of your foot, try rolling the ball backward onto the top of your foot to get the ball started.

#### My Results

## Explanation

Juggling a soccer ball revolves around a series of small elastic collisions when the ball hits either your foot, knee, or head, and the transfer of energy from your body part back into the ball to keep the ball going. Dropping the ball with a slight backspin prevents the ball from getting away too soon. Keeping your toe up with each touch will help keep the ball's backspin going.

More advanced jugglers don't need to apply backspin because they have better foot and toe control. Using the flat top part of the foot maintains good upward motion on the ball because the ball is being controlled with a larger surface area of the foot. Practicing by using your weak foot more frequently will not only strengthen your weak foot but will also improve reaction time and muscle memory for more consistent touches. Once your weak foot can consecutively do 5 touches, you will notice a difference in how many alternating touches you will be able to do.

To perfect the no-hands start, begin with one foot on top of the ball. Then roll the ball back onto the top of the foot and flip the ball into the air. Applying that initial force to the ball will accelerate it back to you so you can start your juggling. After you have good lower body control, switch to the upper body to involve your head. Then you can work toward juggling tricks.

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