Cricket in full swing

There's a third way to make a cricket ball move in the air.

YOU'RE standing at the stumps and the bowler has just released the ball. You note the seam is oriented straight down the pitch and it looks like the ball will be wide. But in the last moment the ball swings in and hits the stumps.

What happened? It's not conventional swing. It's not even reverse swing. It's contrast swing.

Any Australian kid who has ever shaved half a tennis ball or wrapped half a tennis ball with smooth electrical tape has played with contrast swing. But how does it work?

Those wrapping half a tennis ball with electrical tape often talk about loading one side of the ball to make it heavier. And while this is true, it has nothing to do with making a ball swing to the side as it travels through the air. Loading the ball does not induce swing.

All swing bowling techniques rely on setting up an asymmetry in the way air flows around the ball. And it's the surface texture and seam orientation that play the key roles.

In conventional swing, the seam is oriented about 20 degrees to the side and trips the smooth airflow into turbulence. This enables the air flow to hug the contour of the ball on the seam side.

The smooth airflow on the opposite polished side of the ball does not hug the ball. Rather it separates from the ball about half way around. And because the air flow next to the ball speeds up to follow the longer contour of the ball, this air flow is at low pressure. Thus, in conventional swing, the turbulent air flow hugging the ball suctions the ball to the seam side.

In reverse swing, the ball is delivered at high speeds, setting up turbulent flows on both sides of the ball. This time the seam acts as a ramp on one side, deflecting the air flow away from the ball's surface on the seam side. The low-pressure turbulent air hugs the other side and swings the ball in reverse, away from the seam side.

But in contrast swing the seam of the ball is delivered straight down the pitch. This time one relies completely on a carefully managed wearing of the ball through the overs.

The tradition of keeping one side polished and smooth while allowing the other side of the ball to rough up at every opportunity is absolutely key to creating any swing at all. Determining which way the ball will swing is tricky as it depends on the nature of the surface roughness. At moderate

Bend it like Blewett

- In the contrast swing the seam of the ball is delivered straight down the pitch.

- At moderate pace, a dimpled roughness will trip turbulence and make the ball swing to the rough side.

- A furry sort of roughness will make the ball swing towards the smooth side.

- The little rubber nubs at the leading edge of the smooth side of the Swing King ball are just the thing to help trip the airflow into turbulence on the otherwise smooth side of the ball, suctioning a reverse swing away from the fuzzy side.

pace, a dimpled roughness will trip turbulence and make the ball swing to the rough side, similar to that of conventional swing. On the other hand, a "furry" sort of roughness will deflect the airflow, as in reverse swing. The ball will swing away from the rough side, towards the smooth side.

It is this latter scenario that works for the half-smoothed tennis ball. The furry side acts like the seam in reverse swing, deflecting the air flow away from the ball's surface. On the relatively smooth side, the bumps in the edges of the electrical tape, or any remaining roughness left after shaving is just enough to trip turbulence and keep the low-pressure air flow next to the ball on the smooth side. The ball reverse-swings to the smooth side.

Ask a professional swing bowler like the Redbacks' Sean Tait or Greg Blewett to bowl a half-smoothed tennis ball and you're in for a surprise. The effect is not at all subtle. At moderate pace, the ball swings to the side by 3m or more. Crazy!

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