

Biomechanical research puts spotlight on illegal sporting techniques

March 23 2015, by Jessica Hill

Cricketers sidelined for illegal bowling action can return to the pitch without losing their spin rate according to a new study by biomechanics experts at the University of Sydney.

With the International Cricket Council leading a global campaign to crackdown on suspect bowling actions and ensure a level playing field, any player found to extend the elbow of the bowling arm by more than 15 degrees faces a ban from competition and a 90 day wait to be tested.

Despite the campaign to clean up bowling actions and weed out throwers at all levels of the game, cricket biomechanist Dr René Ferdinands from the Faculty of Health Sciences said there is currently no recognised formal coaching protocol to remediate the techniques of suspect bowlers.

"It's fantastic that biomechanics is being applied to monitor illegal bowling techniques and make the game fairer, but our research also shows that is possible for coaches to remediate some suspect bowling actions without a reduction in spin rate," Dr Ferdinands said.

The new research, being presented at the World Congress of Science and Medicine in Cricket in Sydney this week, documents the training intervention used to successfully remediate a young male finger-spin bowler from South Africa with a fixed elbow flexion angle of 17 degrees and carry angle of 18 degrees.

"Until recently it's been assumed suspect bowlers would generally lose their spin action if they were remediated," Dr Rene Ferdinands said.

"Although this is sometimes the case, our study shows that we can alter the elbow angle kinematics of a suspect bowler by implementing specific coaching interventions that do not cause a significant loss in spin rate.

"The process is not simple and requires a detailed understanding of the mechanics of bowling. Interestingly, it is often some of the traditional coaching notions, particularly in spin bowling, such as driving the rear knee forward, short delivery stride and standing up and "scraping the ear" with a high bowling arm that are first techniques that have to be overhauled and replaced with a more scientific alternative before effective progress can be made on reducing the elbow extension angle."

The researchers used interventions, based on 3D biomechanical assessment and kinematics, to successfully reduce the young cricketer's elbow extension angle by more than 20 degrees without the bowler registering a marked loss in spin rate.

During the coaching process, this bowler also developed four legal variation deliveries, making him a much more effective bowler than prior to the intervention.

"This was a particularly complex case so this research has far-reaching implications for the future of the game and suggests we can may be able to remediate techniques for players displaying some unusual mechanical properties."

Dr Ferdinands said the research offered hope to bowlers sidelined for suspect action that they can continue to bowl spin balls with minor some adjustments.

More bowlers with suspect actions are being recruited to test the validity of this approach.

Australia adopted the International Cricket Council's tough stance on illegal bowling in 2014. Any bowler reported by three umpires officiating in a match for a suspect action must face independent testing and is suspended from bowling in Australian domestic and international competitions, until a remodelled bowling action has been legally validated in the laboratory.

This study will be presented at the World Congress of Science and Medicine in Cricket this week.

Provided by University of Sydney

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