World Congress of Science & Medicine in Cricket, 2023

THE EFFECT OF INTENDED PITCH LENGTH ON KINEMATIC TECHNIQUE PARAMETERS ASSOCIATED WITH BALL RELEASE ANGLE IN CRICKET FAST BOWLING

Kaushal Manawadu[1,3], Mark King[1], Stuart McErlain-Naylor[1], Paul Felton[2], Michael Hiley[1]

[1]School of Sport, Exercise and Health Sciences, Loughborough University, UK
[2]School of Science and Technology, Nottingham Trent University, Nottingham, UK
[3]Department of sports science, University of Sri Jayewardenepura, Sri Lanka
*All Correspondence: K.P.Manawadu@lboro.ac.uk

Aim/Purpose: The aim of this study was to identify the main differences in ball release angle between three common pitch length deliveries; yorker, bouncer, stock and to find out which technique parameters explains these differences.

METHODS: Data were collected from twenty-one county level fast bowlers where each performed forty-eight deliveries (twelve yorkers, twelve bouncers and twenty-four stock,). An eighteen camera (MX13) Vicon motion analysis system (250 Hz) was used to capture a fifty-three-marker model specifically developed for fast bowling analysis plus two ball markers were used. One trial was selected from each of the delivery types from each bowler as the representative trial for the ANOVA and regression analysis which was closest to the mean of the successful trials which landed in the ball pitch length range for that delivery type.

RESULTS AND CONCLUSIONS: The ANOVA revealed significance differences between the three pitch length delivery types and ball release angle (η^2= 0.78) showed the high effect size among other release parameters, the main technique factors associated with changes in these ball-specific parameters were investigated using three different regression analyses for different pitch length types. 86.6% of the variation in ball release angle was explained by wrist angle at ball release and 2D hand orientation at ball release for yorkers. Unexpectedly no technique parameter was correlated with the ball release angle. 31.2% of the variation in ball release angle was explained by 2D hand orientation at ball release for stock balls.

REFERENCES

Manawadu, K., Felton, P., Hiley, M., & King, M. (2022). A comparison of pitch length variations and the ability to control length in cricket fast bowling. *ISBS Proceedings Archive*, *40*(1), 411.