

THE EFFECT OF INCREASED LATERAL SPACING OF BLOCKS ON THE SPRINT START

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INTRODUCTION

Since the sanctioning of the use of start blocks by the IAAF in 1937, only one research paper has dealt with the possibility of sprinters gaining some advantage through the use of wider block spacings (Biancani 1978). The intent of this research is to investigate and extend the results of the Biancani paper. This will involve subjects using standard and wide block width settings during their starts and recording the resultant 5 and 10m interval times. Explanation of the results of using wider block spacings is expected to come from the analysis of parameters not covered by Biancani's research such as block times, reaction forces, post-block foot contact patterns, joint and segment angle velocities and net joint moments.

METHODS

Kinetic data will be collected from recently constructed sprint blocks incorporating four, three dimensional, force transducers per block. High-speed digital cameras will be used to collect kinematic data. The start of both kinetic and kinematic data collection will be initiated by the athlete start signal.

Targeted subjects are male and female athletes at National competition level of competency. It is expected that at least ten subjects of each gender will be used, each subject completing ten starts using both standard (5) and wide (5) block width settings.

RESULTS AND DISCUSSION

The tendency of athletes to move off to one side during a start has been observed and measured during competition and testing by the principal researcher. The gait pattern of the first 4 placegetters of the male and female 100m Australian National championships 2001 were analysed recently as a precursor to this study. The resulting data showed that the widest lateral distance between the first and second contact was produced by six of these athletes during the fastest first 10m interval of their recorded starts for this competition.

Construction of the instrumented sprint blocks has been completed and initial testing is well under way. It is anticipated that by July this year sufficient data will have been collected to allow meaningful interpretation of the effects of lateral spacing on the sprint start.

SUMMARY

This presentation reports on work in progress on the effect of lateral spacing of the blocks on the sprint start by analysing both the kinetics and kinematics of the start. It is expected that an increase in block width will not suit all athletes in much the same way as all athletes do not benefit from specific settings of block inclination or longitudinal separation and line distance. However, it is expected that the research will determine whether an unfair advantage is given to some athletes by limiting lateral block separation to its present setting.

REFERENCES

Biancani, A (1975). (1978). *Track Technique*, **62**: 23-28.