

Why are we behind? Comparison of the Step Behavior of Elite 400 Meters Hurdles in Sri Lanka with Elite Asian athletes

T.G.G.S.T.P. Bandara*, D.S.L Perera and H.A.C.S. Hapuarachchi

*Department of Sports Sciences and Physical Education, Faculty of Applied Sciences,
Sabaragamuwa University of Sri Lanka, Belihuloya, Sri Lanka*

*Supunsanda9443@gmail.com

The 400m hurdle event in Sri Lanka has won medals at Olympic Games and other international competitions. However, since the year 2000 Sri Lankan 400mH athletes were not able to win any international medal above the South Asian level. Therefore, this study aimed to identify and compare the stride pattern in 400mH event of the top 10 Sri Lankan and Asian level athletes referring to 2019 athlete rankings. Following the retrospective research design sample of 20 athletes of 400mH, distributing top 10 athletes from each level were selected under the selective sampling method. Each athlete's best race video in the year 2019 was analyzed. The stride patterns of selected subjects were analyzed by using Kinovea software version 0.8.26 and recorded in Microsoft Excel 2013. The statistical analyzes were done by using Minitab version 19. Oneway Analysis of Variance (ANOVA) and Tukey test were utilized to assess significant differences and Pearson's correlation test performed to identify linear relationship. Accordingly, a significant difference in stride patterns of athletes in each level was identified. Furthermore, according to the Tukey test from the start to the first hurdle and the 6th hurdles to the 10th hurdle significant differences identified in Sri Lankan athletes ($p < 0.05$). From the 1st hurdle to the 6th hurdle all 2 levels were significantly different ($p < 0.05$). From the 10th hurdle to the finish line there was no significantly different between 2 levels. The 400m flat time was significantly different in all 2 levels. The Pearson correlation revealed a significant strong positive correlation between 400m flat time and 400mH. ($p < 0.05$, $r = \pm 0.917$). In conclusion, to improve the level of performance among Sri Lankan 400mH athletes compared to the Asia level, time taken from the start to the first hurdle, the timing between hurdles and timings from the last hurdle to the finish line needs to be reduced. Additionally, athletes in all levels need to reduce their 400m flat time in order to clock better performance in 400mH.

Keywords: *Athletics, Hurdles, Stride pattern, 400m Hurdle, 400m sprint*