

'Lane 1 advantage' for sprinters closest to starter's pistol

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Toronto, June 22 (IANS) Sprinters in lane eight may well be at a disadvantage, says a new study that suggests the reaction time of those close to the source of a loud sound - such as a starter's pistol - is faster.

Researchers at the University of Alberta in Edmonton, who analysed the reaction time of the 100 and 110 metres athletics events at the 2004 Olympics, found that runners closest to the starter reacted much faster than those farther away.

'Whether you're a competitive athlete or just a pedestrian trying to cross a busy street, reaction time can be critical,' Dave Collins, who led the study, was quoted as saying in ScienceDaily.

Past research has shown that loud sounds can result in a quicker reaction and increase the force generated during voluntary contractions, and when those sounds evoke a 'startle response', the reaction can be even faster.

As part of the study, four trained sprinters and 12 untrained participants performed sprint starts from starting blocks modified to measure horizontal force.

Using a recorded gunshot, the researchers randomly presented the signal to test subjects at various decibel levels, from a low of 80 decibels to a high of 120 decibels. The louder the gunshot, the faster the reaction time of the test subjects.

'In sprint events, where hundredths of a second can make the difference between a gold medal and a silver, minimising reaction time can be the key to an athlete's success.

'We suggest that procedures presently used to start the Olympic sprint events give runners closer to the starter the advantage of hearing the 'go' signal louder; consequently, they react sooner than their competitors,' said the study's co-author Alex Brown.

The findings of the study, which have appeared in the latest issue of the journal *Medicine & Science in Sports & Exercise*, could go beyond competitive athletics.

'Our findings might also be helpful for research in Parkinson's disease,' said Collins.

'People suffering from Parkinson's typically experience episodes of 'freezing', where they want to move but cannot because of impaired processing in certain parts of the brain.

'By introducing a loud sound during a freezing episode we might be able to startle patients into moving as we know that faster reaction times induced by a startle response are due in part to bypassing the cortical circuits that are damaged in Parkinson's disease.'

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