



Friday, June 27, 2008

[Nation & World](#) | [Health](#) | [Money & Business](#) | [Education](#) | [Opinion](#) | [Science](#) | [Photo](#) | [Video](#) | [Rankings](#) |

---

**Article**

---

## **Sprinters Closest to Starter's Pistol Have Edge** **Study says startle response sped up reactions**

Posted June 26, 2008

THURSDAY, June 26 (HealthDay News) -- Sprinters in the lanes closest to the starting pistol have an advantage over competitors in lanes farther away, according to a study by researchers at the University of Alberta in Canada.



They analyzed reaction times (RT) for the 100/110-meter events at the 2004 Olympics, and found that runners closest to the starting pistol had significantly faster RT than runners farther away.

The researchers also had four trained sprinters and 12 untrained people do sprint starts from starting blocks modified to measure horizontal force. A recorded gunshot used as the "go" signal was randomly played at various decibel levels, from a low of 80 dB to a high of 120 dB. The louder the gunshot, the faster the RT of the participants.

The findings were published in the June issue of *Medicine & Science in Sports & Exercise*.

"Whether you're a competitive athlete or just a pedestrian trying to cross a busy street, reaction time can be critical," study co-leader Dave Collins, a professor of physical education and recreation, said in a prepared statement. "Past research has shown loud sounds can decrease RT and increase force generated during voluntary contractions, and when those sounds evoke a startle response, RT is decreased even further, which is a good thing."

"In sprint events, where hundredths of a second can make the difference between a gold medal and a silver, minimizing 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," study co-leader Alex Brown, a physical education and recreation student, said in a prepared statement.

The study authors said their findings could have implications beyond competitive athletics.

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

"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."

### **More information**

The American Academy of Family Physicians has more about [Parkinson's disease](#).

**Tags:** [exercise and fitness](#) | [Parkinson's disease](#) | [sports medicine](#) | [health](#) | [biology](#)

Copyright © 2008 U.S. News & World Report, L.P. All rights reserved.