Record time limit

EurekAlert

Running and swimming records are broken again and again at almost every international athletics event. But, can human performance continue to improve indefinitely? Will runners continue to accelerate off the starting blocks and reach the finish line in faster and faster times? Will swimmers always be able to dive into the record books with a quicker kick?

Writing in the *International Journal of Applied Management Science*, researchers from South Korea have analyzed data from sports events over the last one hundred years and have calculated that we could reach the upper limits on elite human performance within a decade.

Yu Sang Chang and Seung Jin Baek of the KDI School of Public Policy and Management in Seoul used non-linear regression models to accurately extrapolate the data from 61 running and swimming events. They have found the "time to limit" to be somewhere between 7.5 and 10.5 years. So, we may still see records being broken at the 2012 Olympics in London and perhaps at Rio 2016, but after that...who knows? The researchers believe their discovery of a "time to limit" has a number of policy implications for the local and national sport associations as well as for the international rule-setting federations.

Of course, US swimmer, Michael Phelps famously proclaimed that, "You can't put a limit on anything. The more you dream, the farther you get." Phelps has set around 40 world records. Sprinter Usain Bolt of Jamaica, similarly shaves split seconds from his 100-metre time almost every time he runs. Countless researchers have previously suggested that humans have a performance limit, Bolt's 9.58 second 100m shattered the previous theoretical running speed limit of 9.60s suggested 40 years ago.

"The limit of speed in sport events has been a popular topic for the public because watching athletes setting new records to win is exciting and stimulating for many sport fans," Chang and Baek suggest. "In addition, setting new world records may even be inspiring to the public because the process of improving and winning the competition reminds them of what they can accomplish in their own life."

Other researchers have criticized the use of linear regression to extrapolate to a limit. However, the present work uses the officially recognized world records on 61 sporting events during the period from 1900 to 2009. (29 running and 32 swimming events all at the Olympic level. "Therefore, this study may be the most comprehensive study undertaken so far," the researchers say. Their statistical analysis suggests that improvements in running and swimming are slowing down and will eventually reach a maximum in the time period they suggest. However, their analysis does not take into account changes in the rules, measurements, and environmental conditions. If the governing federations move the starting blocks as

it were, Phelps' prediction that there are no limits may come true and athletes will continue to make a splash in the record books indefinitely.

SOURCE [1]

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