

1106-H5-1110      **Reza O Abbasian\*** (rabbasian@tlu.edu), Dept. of Math & CS, Texas Lutheran University, 1000 W. Court St., Seguin, TX 78155, and **John T Sieben** (jsieben@tlu.edu). *Statistical Analysis of Track and Field Events of 1988 Seoul Olympics: How Probable Are the Winning Records?* Preliminary report.

The 1988 Olympics produced highly unusual results in track and field. In fact, approximately 50% of track and field winners in Seoul would still have won 20 years later in the Beijing Olympics! The use of performance-enhancing drugs was suspected. In the April 2102 issue of the journal of Significance, Ray Stefani proposed a simple model for predicting the rate of improvements in various events and concluded that the unusual results in 1988 were most likely due to performance enhancing drugs used by a large number of athletes. In this paper we will explore the use of a more comprehensive model that will improve on Stefani's model. Specifically, we intend to use a two parameter (time and event) biased least squares approach to develop exponential regression models in four categories: sprint, mid-distance and long distance events, throwing and jumping events. We will then find the variance of the estimated error to determine the probability of the results. Furthermore, we will show that with a few assumptions, the random variable (repeat winners) can be modeled by a variant of Binomial distribution and use the model to show that the 1988 results were highly improbable. (Received September 10, 2014)