

Abstract

- Title:** Analysis and prognosis of elite male and female triathletes performance at the ITU World Triathlon Championships in 1989-2016 in Olympic triathlon
- Objectives:** To analyse male and female performance in individual parts of the triathlon (swim, bike, run) as well as the whole race performance during the years 1989 - 2016. To determine the performance prediction of racers using the time series analysis for Olympic triathlon in ITU World Triathlon Championship in 2028.
- Methods:** For statistical data processing we will apply the time series analysis using SPSS Statistics 22 software. We will then add the historical content and the actual conditions of the race to the final graphs. On the basis of the processed data, we will create a performance prediction for 2028 using Excel program.
- Results:** In swimming, women are approaching men's performance and they are now on 92.2%. In the future, women will not come closer to men's times. Performance will improve slightly. In cycling, the gap between men and women is 10%. We do not expect any major change in the future. According to the trend of development, we find deterioration in both categories, especially in men. At the moment, the performance of women in running is 88.3% of men. We do not expect any change in the future. However, male and female times will be somewhat better improved. The total race time will only improve slightly. Now the percentage difference between women and men is 9,9%. Compared to the stagnation of the achieved performance, on the contrary, the homogeneity of the field is reduced, as measured by the difference between the first and the thirtieth racer.
- Keywords:** Swimming, cycling, running, analyses, percentage point, endurance abilities, time series analyses, autocorrelation, prediction, variation range