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Skill importance across ages for men's Volleyball

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Volleyball is a competitive team sport whose main objective is to score the most points by grounding the ball to the opponents side of the court. The numbers of points a team scores is primarily based on the efficiency of the skills of the game. Due to the hierarchical structure of the game events follow consistent patterns: serve outcome, pass-set-attack (complex1) outcome, Serve-block-dig-set-counter attack (complex 2) outcome. The outcome consists of four possibilities: To win or to lose a point, continuation of the game with the ball on the teams side or with the ball on the opponents side. In this work we implement a method to calculate the importance of every skill on the outcome of the Volleyball game for youth, juniors and men teams. We base our analysis on Fellingham's model for importance scores. We use data from the performance analysis of the winning team from the most recent world championships in all ages for male volleyball. In order to arrive at posterior distributions we use a Markov chain transition matrix. To estimate the Markovian transition matrix, we assume a multinomial likelihood with a Dirichlet prior on the transition probabilities. The prior distribution of skills is formed by expert coaches opinion. Our main purpose is to examine if key skills are consistent across ages in male volleyball.

✓ On the expected duration of a tennis set

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In this paper we present a simple generalization of previously considered Markovian models for the tennis game and compute the winning probabilities and the expected duration of a game and a set. Since the assumption that the points played form an independent, identically distributed sequence of random variables has been criticized by some authors, we postulate that in any game there are two different situations: the first 6 points and the, possible, additional points after the first deuce, with different winning probabilities. We then test our results considering 22 matches between Novak Djokovic and Rafael Nadal and see how our model is close to the estimated winning probabilities and durations of the games and the sets.