

Hierarchical Models for Coaches Decision Making: Applications to Volleyball and Basketball

The primary purpose of this study is to determine the most important skills in volleyball and basketball. We base our analysis on possession level data. Assessment of skill importance, coaching strategy, and optimal practice allocation are made based on a Bayesian Hierarchical model formulation.

In volleyball, the data consist of every touch made by every player in international pool play leading to the World Championships. In basketball, we base the analysis on every possession made by a given team to evaluate the importance of various skills. These methods have also been extended to women's soccer, American football, baseball, and golf. We particularly focus on the bridging power of hierarchical models and the opportunities of other modeling efforts in sports.