

The Extreme Value Birnbaum-Saunders Model in Athletics

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The Birnbaum-Saunders (BS) model is a life distribution that has been largely studied and applied in recent decades. A random variable following the BS distribution can be stochastically represented by another random variable, a standard normal, used as a basis. Consequently, the BS model can be generalized by switching the standard normal distribution of the basis random variable, allowing the construction of more general classes of models. Among those models, we mention the extreme value Birnbaum-Saunders (EVBS) models, recently introduced in the literature, and based on results from extreme value theory. A real application to athletics data will be used to illustrate the performance of the EVBS distribution and to provide the way this model and related models can link with traditional extreme value analysis methods.

Key Words: Athletics, extreme value Birnbaum-Saunders models, parametric estimation, statistics of extremes