Abstract

As a special form of probabilistic reasoning, the fuzzy logic concept allows the effective realization of approximate, vague, uncertain, dynamic, continuous and, at the same time, more realistic conditions, which are closer to the actual physical world and human thinking. This many-valued idea involves the definition of fuzzy sets and rules as well membership functions. These techniques allow the mapping of classes of objects not only – according to the binary logic – to false (0) and true (1) but also to intermediate values in between. Based on this theorem, the particular purpose of this paper was to propose a fuzzy logic approach for the evaluation of strength training exercises. The motivation for the present study arose from previous research done in the area of artificial intelligence (AI) in sports, the effective number of multidisciplinary solutions integrating fuzzy logic methodologies and the lack of applications in the fields of sport and especially strength training. The conception takes into account gathered data from sensor-equipped machines as well as recommended suggestions and criteria regarding a proper execution. The final aim is to integrate the designed procedures into a computer-based coaching framework, returning automated feedback on the performed technique.
Fuzzy Logic in Sports: A Review and an Illustrative Case Study in the Field of Strength Training

References

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