順天堂大学大学院スポーツ健康科学研究科 和文抄録
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平均台におけるジャンプ系技群の承認度向上に関する一考察
～「脚交差した前後開脚からの輪とび」に着目して～

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【目的】
本研究では、女子体操競技において必要不可欠なダンス系技群のジャンプ系技群から、難度の承認が難しいとされる「交差輪とび」に着目し、（株）富士通の「AI体操採点支援システム」及び審判員が評価した結果の相違点にも着目しながら、ジャンプ系技群の承認度を向上させる技術的特性を明らかにすることを目的とした。

【方法】
研究対象者全員に、計5日間「交差輪とび」を実施させ、実施した全映像から「承認」・「未承認」の判断が曖昧な実施だと判断した映像をピックアップし、審判員による承認判断とアンケート調査を行い、審判員の回答からAIと審判員での承認判断における共通点及び相違点を比較・考察する。

【結果】
（株）富士通の「AI体操採点支援システム」が撮影した110試技より筆者が抽出した46試技中、AIと審判員らがともに「承認」と判断した実施は5試技、AIと審判員らがともに「未承認」と判断した実施は9試技、加えて審判員らは「承認」と判断したがAIが「未承認」と判断した実施は1試技、審判員ら5名が「未承認」と判断したが、AIが「承認」と判断した実施は、3試技であった。

【結論】
AIは、承認条件をほぼ満たす角度であれば「承認」とし、一方で審判員は後脚部分への注目度が高いことが明らかとなった。また審判員からの注目度は低かったが「開脚度」が大きい実施であるほど「承認」と判断している傾向にあった。これらのAIと審判員の差異から、それぞれの条件に関してただ角度や高さを満たすだけでは審判員に「承認」と判断されない可能性が高く、審判員が着目している後脚部分の「後脚頂点」の位置と「後脚頂点」に加え、全体的な印象付けとして「開脚度」を満たす実施であれば「承認」と判断されたことから、選手は各承認条件を満たすこと、後脚部分と「開脚度」に注意し実施することが求められているといえる。

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A study on the jump Technique Group on the Balance Beam -From the perspective of a Swich Ring Leap-

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[Purpose]
This research focused on the jump technique group in the dance technique group, specifically the "switch ring leap" which is considered challenging in terms of difficulty, an essential part of women's gymnastics. The purpose is to clarify the technical characteristics and improve the approval of the jump technique group utilizing Fujitsu Limited's "AI Gymnastics Scoring Support System" paying attention to discrepancies between the results obtained using the system and those evaluated by judges.

[Methods]
All participants in the study were required to perform "switch ring leap" for a total of 5 days. From all the recorded videos (110 attempts), 46 trials were picked up and judged to be implemented in an ambiguous manner in terms of "approved" or "unapproved". Subsequently, an approval assessment by judges and questionnaire survey were conducted. Furthermore, by analyzing judges' responses, the similarities and differences between AI and judges in their approval decisions were compared and discussed.

[Results]
The AI tended to make an "approved" judgment for executions that almost met the approval conditions. On the other hand, judges tended to focus on the position of the "rear leg knee angle" and the "apex of the rear leg" in particular when making "approved" decisions. In addition, the judges tended to judge as "approved" if executed with a large "angle of split".

[Conclusion]
In the case of AI, there was a tendency to judge an angle as "approved" if it almost met the approval conditions while judges tended to focus not only on the "rear leg knee angle" but also on the position of the "apex of the rear leg" when making "approved" judgments. This highlights a high level of attention to the rear leg portion by judges. In addition, there was a tendency for the implementation to be judged as "approved" if it met the criteria for "angle of split". From these differences between AI and judges, it is clear that merely meeting angles or heights for each condition may not lead to an "approved" judgment from judges who rely on visual assessment. Therefore, it can be said that athletes are not only required to fulfill each approval condition but also need to pay attention and implement the "angle of split" as part of the overall positive