28th ECSS Anniversary Congress, Paris/France, 4-7 July 2023

Effects of immediate feedback on tackle technique in rugby using 3-dimensional motion analysis: A case study

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INTRODUCTION:
Rugby is a collision sport in which players incur many more injuries of the head, neck, and shoulders than in other sports. The majority (>50%) of injuries in rugby union occur during the tackle. Proficient tackling ability can play a role in injury prevention. Player and coach education on correct tackle techniques have been used as a preventative measure for reducing tackle injuries. It's suggested that feedback tools (post-hoc video analysis and real time verbal coaching feedback) during tackle practice be implemented to ensure correct body positioning. Therefore, the aim of this study was to investigate effect of immediate feedback and clarifying focus points with coach on tackle technique while presenting a video by 3-demensional motion analysis system in each trial.
METHODS:
The participants were 2 rugby union players, Participant A (PA); BKs, Age:19, Hight 178cm, weight 83kg, Participant B (PB); Position: BKs, Age:21, 177cm, 80kg. Participants were instructed to perform their usual tackles to tackle-bag at full contact speed. Ten trials were performed each participant. PA was shown the video of the trials after each trial for feedback by himself, and a coach also gave him feedback of each trial. Then a focus point in the next trial was decided by PA and the coach. PB, on the other hand, was shown the video of the trial for feedback by just himself, and no feedback and instruction or focus points of the next trial were given by the coach. Trials were recorded by the tackling motions using an infrared motion-capture system. Eleven synchronized infrared cameras were placed around a 10 × 10−m2 field to provide an unobstructed 360° view of the subject. Forty-one reflective markers were placed onto the subjects body surface. Kinematic variables were analyzed the trunk lean angle (TLA), neck joint extension angle (NJEA), the shoulder rotation angle (SRA) and knee joint flexion angle (KJFA).
RESULTS:
Kinematic variables for PA were 86.3 ° for TLA, -26.4 NJEA, 58.8 ° for SRA and 109.4 ° for KJFA in the first trial, then the kinematic variables were changed in the 10th trial such as, 85.3 ° for TLA, -4.9 ° for NJEA, 81.8 ° for SRA and109.4 ° for KJFA. Some focus points were improved in the last trial. Feedback from coach made PA clarify the focus points, (1) lower shoulder hit area by bending knee in front foot, (2) head up, and (3) reaching arms for binding. Kinematic variables for PB were 71.2 ° for TLA, -35.7 ° for NJEA, 97.4 ° for SRA and 79.5 ° for KJFA in the first trial. The kinematic variables were change in the 10th trial such as, 65.7 ° for TLA, -26.8 ° for NJEA, 90.6 ° for SRA and123.0 ° for KJFA. The tackle technique for PB was changed inconsistently.
CONCLUSION:
Immediate feedback using video footage can be useful for players to recognize own performance. In addition, feedback or instruction from coach intend to make players more focus on the target clearly. It is sometimes hard to identify the problem or points to work on by only players.

Topic: Coaching

Presentation Poster