Facemask Removal of Commonly Worn Lacrosse Helmets

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Context: In the event of a head or neck injury in equipment-laden sports, it has been recommended to remove the facemask rather than the entire helmet for access to the airway. Research surrounding facemask removal, however, has focused primarily on football helmets, which are structurally different than lacrosse helmets. To date, there has not been any published research regarding men’s lacrosse helmets and facemask removal technique. Objective: To determine the effect of lacrosse helmet type on facemask removal time and rate of perceived exertion (RPE). Design: A single factor repeated measure design. Setting: Controlled laboratory setting. Participants: Eight certified athletic trainers (male = 4, female = 4; age = 24.13 ± 2.167, experience = 1.75 ± .707). No exclusionary criteria existed. Intervention: Each subject participated in a familiarization session and testing session for each helmet. The familiarization session consisted of watching a video demonstrating the removal technique followed by two successful facemask removals for each helmet. Within a week, each subject returned for a testing session in which they participated in a timed facemask removal and reported the RPE afterwards. All facemasks were required to be removed within a four-minute time limit to be considered successful. The independent variable was helmet type (Warrior Venom (WV), Cascade CPX-R (CC), Cascade Pro7 (CP), and Riddell Revolution (RR)). Main Outcome Measures: The dependent variables were facemask removal time (seconds) and RPE (Borg Scale 0-10). Two one-way (1x4) repeated measures analyses of variance and paired samples t-tests were used to analyze significant differences (p < .05) in removal time and RPE between helmet types. Results: The CP (63.3 sec) facemask took 61%, 93%, and 108% longer to remove than the WV (39.3 sec), CC (32.7 sec), and RR (30.5 sec), respectively. The WV facemask took 29% longer to remove compared with the RR. The participants found the CP (3.4) to be 59%, 100%, and 199% more difficult than the WV (2.1), RR (1.7), and CC (1.1), respectively. There were no other statistically significant differences identified. Conclusion: The CP facemask was the most time consuming and difficult to remove likely due to having five removal sites versus three removal sites on the remaining three helmets. All of the facemasks, however, were successfully removed well within the four-minute time limit for removal. These data suggest that lacrosse facemask removal for these helmets is a viable option for lacrosse athlete airway access. Word Count: 395