

INJURIES IN AVALANCHE SEARCH AND RESCUE DOGS: A SURVEY BASED STUDY

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ABSTRACT: The Canadian Avalanche Rescue Dog Association (CARDA) is the civilian organization entrusted with the responsibility of using handler-dog teams for avalanche search and rescue in Canada. CARDA was founded in 1978 with a mission to train and maintain a network of highly efficient avalanche search and rescue teams across Canada.

CARDA members are concerned about the health and safety of their dogs. As an organization, CARDA requires teams to maintain a state of operational readiness for rapid deployment to avalanche accidents. Teams must pass yearly certification and take courses every 2 years to maintain their operational status. Injuries to CARDA dogs may result in lost training time and an inability to respond when tasked.

Consequently, CARDA has set out to develop a research study strategy to look at the types of avalanche search dog injury occurrences as well as where and when injuries occur. An improved understanding of avalanche dog injuries may set the stage for an injury reduction program.

As a first step we developed this study, a retrospective electronic survey study to gather information about avalanche dog injuries. We plan to use the information to develop future high-quality research study questions around notable "lost time" injuries.

KEYWORDS: CARDA, dog injuries, Canada, training, survey.

1. INTRODUCTION

CARDA dogs are trained to locate buried human scent under the snow and alert their handler to the location by digging to the source of the odor. CARDA teams frequently train and deploy in rugged mountainous regions with extensive avalanche terrain. CARDA handlers generally work in a professional capacity in the avalanche industry. The most common jobs include ski patrol, avalanche forecasting and ski guiding.

At any given time, there are approximately 35 teams throughout western Canada in the CARDA program. A CARDA team is made up of one dog and one handler. The dog remains with the same handler for their working lifespan and into retirement. Handlers may begin training a younger dog during an older dog's working lifespan, however only one dog can be operational at a time.

The team's CARDA status is indicated in the

study according to their level of training and their certification status. "Pre-assessed" teams are handlers with new puppies awaiting initial assessment to enter the program. "Team assessed" means that the puppy has been assessed and that the team is preparing for their first winter course. "Team in training" indicates successful completion of their first winter course. This begins a one-year period of training leading to the first annual certification. "Operational team" indicates a fully certified, mission ready team.

2. METHODS

The survey sample was made up of past and present CARDA dog handlers who were willing to fill out an electronic survey. Surveys were completed anonymously after being provided with study information. By submitting the survey, respondents consented to the collection of their results. Respondents were able to complete the survey online, independently, at their own leisure over a 2-month time period. Respondents could access the survey link multiple times to record injury information about more than one dog, or a single dog with multiple injuries.

Handlers were asked to answer questions about themselves, their dogs and each injury that a dog experienced. Both quantitative and qualita-

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tive information was collected. Two authors collaborated to record the survey results. The two authors assessed qualitative information and prominent themes were recorded.

Injury definitions:

Acute injury is an injury that occurs suddenly and is usually the result of a single occurrence. Acute injuries usually result in more than 2 days of lost training or operational readiness.

Chronic injury is an injury that develops over the course of days, weeks, months or years resulting in limitations in a team's training or operational preparedness. May be the result of multiple or cumulative occurrences.

3. RESULTS

Surveys were sent to 49 current or former CARDA handlers and 38 handlers submitted a response for a response rate of 77.5%.

Handlers reported their main occupation in the avalanche industry as ski patrol (30), search and rescue technician (3), avalanche forecaster (1), ski guide (1) and other occupation (3).

Of the 57 dogs reported in the study, 39 sustained injuries (68.4%). Eighteen dogs were reported as uninjured. Of the 39 dogs with injuries, some were injured more than once. 69 injuries were reported among the 39 dogs. Of the 69 injuries 63 were acute (91.3%), 4 were chronic and 2 were unknown. Among the 39 dogs that were reported as injured, there were 63 acute injuries indicating that some dogs sustained more than one injury. Of the 63 acute injuries, 41 were lacerations (67% of all acute injuries were lacerations). Handlers reported these 41 lacerations as occurring over a study period from 1991 to 2018 (27 year time span). There were 35 simple lacerations and 6 complex (involving structures deep to the skin) lacerations. Operation or training time lost due to lacerations ranged from 0-75 days. Average was 13.9 days lost per laceration. The median time lost per laceration was 7 days.

4. DISCUSSION

We found that ski laceration injuries are over represented in our dogs as compared to other working dogs (Gordon 2015), likely due to the fact that AvSAR dog handlers work on skis in an operational environment.

We suspect that the high exposure times while skiing account for the elevated number of lacerations. CARDA dogs are required to ski in close proximity and under control with their handlers at busy ski resorts. This is meant to reduce the risk

of collisions resulting in injuries to the dog and/or the skiing public.

It is concerning that ski edge lacerations were the most common lost time injury reported by CARDA handlers. Each laceration reported resulted in an average of almost 14 days lost to team training and/or operational readiness.

Although there were 41 lacerations in the 39 dogs that were reported as injured, it is important to remember that these were reported over a 27-year study period from 1991- 2018.

Most lacerations were reported to have been caused by the handler's own ski edges rather than those of other individuals. Handlers volunteered that the snowplow position was a frequent occurrence factor. This is interesting because the snowplow position offers protection from other skiers and provides control over the dog on the slopes but puts the dog's extremities in close proximity to the handler's ski edges. Although required at times, reducing exposure to the snowplow position, when possible may have a benefit. We plan to investigate this further.

When we look at injuries reported according to the team's level of training, we are concerned that teams in the learning phase (in-training) may be over represented, given that the in-training stage only lasts one year, while the operational stage lasts many years. This may be an opportunity for education and rules-based training progressions, during the in-training stage, as an organized approach to injury reduction.

The results of this study will enable us to build a database that helps us to gather more detailed injury specific information prospectively. Possible factors for further study might include ski travel techniques, training progressions, and hazard exposure times.

5. CONCLUSIONS

Handlers reported that lower limb lacerations were the most common injury type and that lacerations resulted in substantial time lost for training an operational readiness. We plan to further study laceration injury occurrence factors and exposure times with a view to reducing AvSAR dog injuries.

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