Alberta Rodeo Athletes Do Not Develop the Chronic Whiplash Syndrome

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ABSTRACT. ***Objective.*** To determine if an unselected group of rodeo athletes would report a more benign outcome to their motor vehicle whiplash injuries than a group of spectators at rodeo events.

Methods. This survey compares the self-reported outcome of motor vehicle collision whiplash injuries (neck and/or back sprain) in rodeo athletes and spectators attending rodeo events. Subjects were asked to recall motor vehicle collision experiences, the type of vehicle they were in, the presence of symptoms as a result, and outcomes for those symptoms.

Results. Forty-seven percent of rodeo athletes and 59% of spectators recalled being in a motor vehicle collision. A total of 33% of rodeo athletes who had collisions recalled acute symptoms they associated with the collision compared to a recall of symptoms in 61% of spectators who had collisions. Vehicle types during collisions and occupation type at time of the survey were the same for both groups. Duration of symptoms, however, was 30 days (± 14 days) in rodeo athletes and 73 days (± 61 days) in spectators. None of the rodeo athletes recalled symptoms lasting for more than 60 days compared to 15% of spectators who had symptoms more than 60 days. Rodeo athletes took no more than 3 weeks off work, whereas among spectators, it was common to take more than 6 weeks off.

Conclusion. Rodeo athletes appear to be in at least as many motor vehicle collisions as rodeo spectators, and 33% suffered the acute whiplash syndrome. Rodeo athletes appear, however, to be more resistant than spectators to developing prolonged pain and disability. (J Rheumatol 2006;33:975–7)

Key Indexing Terms:
WHIPLASH INJURIES NECK SPRAIN TRAFFIC ACCIDENTS ATHLETES OUTCOME

We previously reported on the outcome of whiplash-type injuries in physicians and non-physicians working at a university hospital[1]. Whiplash outcome differences between physicians and non-physicians were striking. Physicians were more frequently involved in a motor vehicle collision, yet non-physicians were more likely to complain of acute symptoms, about 5 times as many having taken time off work. For physicians, whiplash tended to be a short-lived syndrome, with the majority recovering in less than a month, while non-physicians took anywhere from a few days to over a year off.

Simotas, *et al* recently showed that car crash derby drivers sustain less chronic neck pain after multiple car collision events than might otherwise be expected[2]. Anecdotally, clinical experience in Alberta suggests that athletes often recover more quickly from either neck or back sprain following sports injury or from whiplash injury following motor vehicle collisions, yet there have been no data regarding self-reported recovery rates for whiplash injury in athletes. The recovery rate in Alberta following grade 1 or 2 (Quebec Task Force classification[3]) whiplash injury is on the order of 25% at 3 months[4]. Other studies in Canada have reported 50% recovery at 6 months[5].

The purpose of our study was to make a first approximation of recovery from whiplash in athletes by assessing self-reported recovery from previous whiplash injury in a convenience sample of rodeo participants versus a cohort of spectators at rodeo events as a comparison group. This is the first of a series of studies examining the recovery from injury in athletes and the factors that affect their recovery.

MATERIALS AND METHODS

Our study was conducted at local rodeo events in Alberta. Rodeo athletes and spectators were randomly approached at the events and asked to fill out an anonymous questionnaire composed of 2 categories: sociodemographic characteristics: age and occupation; and whiplash questions: (1) Have you ever been involved in a motor vehicle accident (as an occupant of a car, truck or van)? (2) Do you recall whether you were driving a car, truck, sports-utility vehicle, or van at the time of the accident? (3) Did you suffer neck or back sprain, neck or back injury, or whiplash as a result of the accident? (4) For what period of time after the accident did you experience the symptoms you associated with your injury, be they neck pain, headache, back pain, or other? and (5) Did you lose any time from work as a result of your injury? If yes, specify duration.

Four spectators and 1 rodeo athlete declined to participate. Data were analyzed using statistical software package SPSS for MacIntosh (11.0). Descriptive statistics were calculated for each group for age, vehicle type, and occupation type. Proportions between groups were compared with the chi-squared test. Differences between means were calculated with the t test, with alpha at 0.05.

Our study was approved by the University of Alberta Health Research Ethics Board.

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RESULTS

All study participants were male and currently employed. Our sample consisted of 163 rodeo athletes and 83 spectators. The age, vehicle type at time of collision, current occupation type, proportion of subjects recalling whiplash injury symptoms, and duration of symptoms/lost time from work are shown in Table 1. There were no differences between groups in age, vehicle type, or occupation type.

A total of 76 of 163 (47%) rodeo athletes recalled being in collision, compared to 49 of 83 (59%) rodeo spectators. Only 33% of rodeo athletes recalled acute symptoms after the collision, compared to 63% of spectators ($p < 0.01$).

Rodeo athletes who recalled symptoms after the collision had them on average for 30 ± 14 days (range 5-60), with 2 ± 5 days of time loss from work (range 0-21). Rodeo spectators reported symptom duration of 73 ± 61 days (range 7-210), with 21 ± 24 days of lost work (range 0-90). Symptom duration and disability were statistically different between these groups ($p < 0.01$).

DISCUSSION

We found a difference in self-reported outcomes for whiplash injury between male rodeo athletes versus a group of men sharing similar occupations and involved in collisions with similar vehicles. Rodeo athletes had symptoms for shorter duration and much shorter periods of disability. In both groups, the majority of subjects worked in occupations requiring medium or heavy labor, and most were ranchers or farmers. Trucks were the most common vehicle reported to be involved in subjects' collisions, and this may mitigate against whiplash injury risk or severity, but there were no differences between groups in vehicle type.

We assumed that each group (rodeo athletes and spectators) had an equal chance of having one of the 4 Quebec Task Force grades of whiplash-associated disorders[2]. We have no reason to believe that the distribution of such injuries should be strikingly different in these 2 groups. Studies suggest that low back pain is present in up to 60% of whiplash patients, and thus it was appropriately included in our study questionnaire[6]. We did not gather other data on collision types or general health for either group. Nevertheless, a recent study in Alberta and a large population study in Saskatchewan showed that outcome is not determined by whether collision impact was from the rear, front, or side; nor by use of a seat belt or head restraint, position of head restraint, general health before the collision, previous whiplash injury, or symptoms before collision[4,5]. We also have no reason to believe rodeo athletes are involved in less severe collisions, as vehicle types were not different between groups. From our results, it is apparent that when rodeo athletes are injured they remain relatively resistant to chronic whiplash syndrome.

Table 1. Characteristics and whiplash outcomes of Rodeo athletes (n = 163) and spectators (n = 83). There were no significant differences between the 2 groups.

	Rodeo Athletes	Spectators
Mean age, yrs (± SD)	34.1 (9.9)	36.8 (12.8)
Involved in a collision, %	47	59
Vehicle at time of collision causing injury, %		
Car	20	27
Truck	66	63
Sports utility vehicle	6	4
Van	8	6
Current occupation, %		
Sedentary	11	13
Light	7	14
Medium	19	23
Heavy	63	51

Study limitations flow mainly from the retrospective design; however, recall bias should not be different between groups except that there is the possibility of a higher incidence of concussion and subsequent memory problems in rodeo athletes. This problem could be partly overcome in a prospective study, which we are currently planning. Rodeo athletes may be generally more physically fit, and this may mitigate injury to some extent or affect recovery. It has never been shown that body mass index, or some other measure of fitness, is a predictor of outcome from whiplash injury. In addition to physical factors, one must consider psychosocial factors that may differ between groups. Athletes may wish to present themselves as having greater invincibility than non-athletes, and thus may have understated duration of symptoms and disability. Athletes as a group may also have different symptom expectations and coping styles than non-athletes. It has been suggested that low rates of expectation for chronic pain and disability following whiplash injury may be etiologic[7]. The rodeo participant's experience of frequent neck and back sprains without longterm sequelae may reduce fear of or expectation for disability. They may be more inclined to literally "get back on the horse" and resume their usual activities, an approach that has been shown to be associated with a better outcome following whiplash injury[8].

Another factor that may explain the difference in symptom duration may be coping style. Passive coping is generally found to be associated with increased severity of depression[9–12], higher levels of activity limitation[13], and helplessness[10,14]. Active coping has been found to be associated with less severe depression[10,15], increased activity level[12], and less functional impairment[10], but to be unrelated to pain severity[11]. In a general population random sample of adults reporting neck or low back pain, disabling pain was highly associated with passive coping independent of strategies of active coping[12]. Buitenhuis, *et al*[16] conducted a prospective study to examine the association between coping styles used and development of late whiplash syndrome and found that pain duration was associated with coping style.

Which factors are involved in the outcomes observed in our study cannot be determined without a more detailed and

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prospective analysis. We believe our data support the idea that factors other than the initial injury are the prime determinants of an adverse outcome, and it is worthwhile studying injury outcomes in athletes, as well as their coping styles, expectations, and other psychosocial factors that may affect injury recovery.

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