

# Short-Term Management of Biceps-Tendon Rupture During Competition in Bull Riders

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**T**HE CANADIAN Pro Rodeo sport-medicine team has been attending professional rodeos and bull ridings throughout Western Canada since 1983. During this time three epidemiologic studies have been completed that reported on muscle-tendon ruptures in the following muscles: pectoralis major, latissimus dorsi, and distal biceps tendon.<sup>1-4</sup> For this column, we were particularly interested in proximal biceps-tendon ruptures in bull riders, an unusual injury in young, otherwise healthy athletes.

Despite seeing occasional ruptures of the long head of the biceps in bareback riders, we could find no reports of such ruptures in the rodeo epidemiological literature.<sup>1-9</sup> During the Canadian Finals Rodeo in November 2005, two bull riders sustained complete ruptures of the long head of the biceps in their riding shoulders (the hand a bull rider uses to grip his bull rope and try to stay on his bull is called his riding hand).<sup>10</sup> We have not previously seen this injury in bull riders. The diagnosis was based on a visual and functional assessment (Figure 1).

## Short-Term Management

After examining the first patient, we discussed the surgical management and potential timelines for return to bull riding. Surgical repair of the ruptured tendon was planned for the following week. Although the athlete wanted to ride, he asked whether it would increase the risk of a distal biceps-tendon rupture, a more prevalent injury in bull riders. In other words, would it be



**Figure 1** Visual evidence of rupture of long head of biceps.

possible to reduce the risk of further damage to the biceps muscle-tendon unit and shoulder joint while he was bull riding with an acute rupture of the long head of the biceps?

The athlete was treated with ice, compression, and rest that night and the following morning. The orthopedic surgeon reevaluated the athlete the following afternoon. He had minimal pain and demonstrated good ability to resist elbow extension. It was decided to allow him to try to ride, with additional support for the biceps and reevaluation after each performance. We thought that there would be minimal risk of distal biceps damage because the forces that the biceps could generate were reduced as a result of the injury. We were more concerned with increased risk of a shoulder-joint injury such as dislocation.

We present here the method of athletic taping that we used for the first athlete. The same taping technique was used when, surprisingly, a second bull rider suffered a similar injury. Results of both athletes' attempts at riding during their remaining performances in the Canadian Finals Rodeo competition are presented in Table 1.

## Athletic-Taping Technique to Mitigate Risk

This taping procedure was designed to provide the athlete with dynamic support to the elbow joint, prevent elbow hyperextension, and reduce the tensile load on the biceps brachii and brachialis. Required supplies included tape adherent, 1.5-in. white athletic tape, and "super heavy resistance" Theraband®, color gray (Hygenic Corp, Akron, Ohio).

Two groups of anchors were required. The first group was applied superior to the elbow joint. Using 1.5-in. white athletic tape, we placed these anchor strips starting at the distal biceps brachii muscle-tendon junction and ending at the deltoid tuberosity. The second group of anchors was applied inferior to the elbow joint, where consecutive strips were placed between the muscle belly of the wrist flexors and a position 1 in. superior to the radial styloid process. We

instructed the athlete to maintain muscle contraction and elbow-joint position throughout the tape application in order to avoid compromising circulation or restricting muscle contraction.

Two layers of Theraband were applied. To establish appropriate mechanical support, in consultation with the athlete we determined the optimal Theraband tension and elbow range of motion. The first layer of Theraband was secured to one group of anchors, stretched, and subsequently secured to the second group of anchors while the athlete maintained muscle tension (Figure 2). The subsequent layer of Theraband was secured in the same fashion (Figure 3).

After the taping was complete (Figure 4), we performed functional testing to ensure that elbow extension was limited. Additional options with this procedure might include adding support to the glenohumeral joint

**TABLE 1. RIDING SUCCESS USING AN ELBOW-TAPING INTERVENTION FOR BULL RIDERS WITH RUPTURES OF THE LONG HEAD OF THE BICEPS IN THE RIDING ARM**

Bull Rider	Rides Attempted Postinjury	Outcome (Score × 100)	Place/ Standing (× 12) <sup>a</sup>
Rider 1	#1	BO	—
	#2	87	3rd
	#3	86	2nd
	#4	75	> 6th
	#5	BO	—
Rider 2	#1	86	1st
	#2	BO	—
	2	BO	—
			1/2

Note. BO = bucked off. Rider did not complete ride; score = 0.

<sup>a</sup>Place/Standing: Only the top six riders win money each day.



**Figure 2** Staging of anchors. The first proximal and distal anchors are in place, and the second layer of anchors is being attached to the tubing.



**Figure 3** Staging of anchors. Three layers of anchors are complete on the distal aspect of the tape job. The final layer of anchors will be applied to the proximal aspect of the tape job, while the tubing is under tension.



**Figure 4** Completed taping.

and applying heel and lace pads with skin lubricant to the cubital fossa.

## Practical Applications

These cases are reported with significant caveats. The first is that an orthopedic surgeon with specific expertise in shoulder repairs, including to the long head of the biceps, made the diagnosis and was arranging for an acute repair within a few days. The second caveat is that this athletic-taping intervention is only a short-term management technique, short-term being defined as a few days. This athletic taping is *not* recommended as a management option over a long period of time. Third, there must be a compelling reason for considering such an intervention. High-stakes competitions such as national or world finals or Olympic competitions can be considered unique and rare events, whereas everyday practices and league or typical competitions would not warrant the use of such an intervention. Finally, the impact of these interventions on the athletes was examined daily by the same group of athletic therapists and the same orthopedic surgeon. This allowed for daily review of patient progress and

an opportunity to discontinue or revise the treatment strategy as required. ■

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