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# Selections From Recent Portuguese Language Journals

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## ANATOMICAL AND FUNCTIONAL EVALUATION OF THE ROTATOR CUFF FOLLOWING ARTHROSCOPIC REPAIR USING ULTRASOUND IMAGES AND THE CONSTANT AND MURLEY SCORE

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**Background:** An arthroscopic rotator cuff repair is a good surgical technique to restore the function of the shoulder, but in some cases the clinical results are better than the anatomical reconstruction of the tendon itself.

**Purpose:** To compare the anatomical and functional results using the ultrasound examination and the Constant and Murley functional index.

**Study Design:** Cross-sectional study.

**Methods:** A total of 100 patients (110 shoulders) were studied, with a mean follow-up period of 49 months (range, 12-141). The age of the patients varied from 36 to 81 years (mean, 60). At the time of the surgical procedure, isolated rupture of the supraspinatus tendon occurred in 85 cases (77% of the cases), associated with infraspinatus tendon rupture in 20 cases (18%) and subscapularis tendon rupture in 4 shoulders (4%). The authors used the DeOrio and Cofield score for the classification of rotator cuff injury. Small or medium tears were present in 85 shoulders (77%) and large or massive tears in 25 (23%). The clinical results were assessed according to the Constant and Murley score (0 to 100).

**Results:** The average Constant and Murley score was  $85.3 \pm 10.06$  in the normal shoulders and  $83.96 \pm 8.67$  in the arthroscopically repaired shoulders, with no statistically significant difference between the groups ( $P = .224$ ). Excellent and good results were found in 74 shoulders (67%), satisfactory and adequate results in 32 (29%), and poor results in 4

(4%). The ultrasound evaluation showed 38 shoulders with rerupture (35%) and intact repair in 71 (65%). Of the 74 shoulders with excellent and good functional results, 22 (30%) were noted to have a rupture by ultrasound. Within the group of patients with poor functional results (4 shoulders), 2 (50%) had an intact tendon at the ultrasound examination.

**Conclusions:** There was no statistically valid correlation between the clinical results in patients who underwent arthroscopic rotator cuff repair and the ultrasound outcome regarding integrity of the repaired tendon. The postoperative ultrasound examination demonstrated a high percentage of rerupture, whereas the functional clinical evaluation showed comparable results between the operated shoulder and the opposite control shoulder.

**Importance of This study:** This study demonstrated that no correlation can be made between functional clinical results and the integrity of the rotator cuff tendon after surgical repair of a rotator cuff tear. In the majority of the cases, even when a new rupture is found on US examination, it is difficult to establish that this anatomical failure of the repair tendon is the cause of a new problem.

**Clinical Relevance:** After arthroscopic rotator cuff repair, clinicians have to be cognizant of these results when interpreting postoperative imaging of the repair. A bad ultrasound result does not necessarily correlate with a bad clinical result. A patient may have good quality of life and function despite rerupture of the rotator cuff tendon, which may be identified during postoperative evaluation.

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## INTEGRITY OF THE SUBSCAPULARIS TENDON AFTER OPEN SURGERY FOR THE TREATMENT OF ANTERIOR SHOULDER INSTABILITY: CLINICAL AND RADIOLOGICAL EVALUATION

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**Background:** Surgical management of recurrent anterior shoulder dislocation can be performed by open or arthroscopic techniques. The literature shows that the open procedure may lead to joint imbalance and weakness, mainly in the subscapularis and anterior muscles of the shoulder.

**Purpose:** To evaluate the integrity of the subscapularis tendon by testing the strength, function, and integrity via magnetic resonance imaging (MRI) after deltopectoral access for anterior shoulder instability.

**Study Design:** Case series.

**Methods:** A total of 20 patients who underwent open surgery for the treatment of anterior shoulder instability were selected for the study. Minimum follow-up was 12 months, with a mean of 40 months. The patients were all men, with a mean age of 29 years (range, 20-42). They underwent physical examination of mobility, muscular force, belly-press test, and Gerber test. Both shoulders were measured with a dynamometer to test isokinetic strength in internal and external rotation (at 60 and 180 deg/s). MRI of the shoulders was performed to evaluate the thickness, cross-sectional area, and presence of atrophy of the subscapularis muscle.

**Results:** Based on clinical assessment tools, Rowe and UCLA (University of California, Los Angeles) scores demonstrated excellent and good results in the majority of patients, with a mean of 88 and 31.6 points, respectively. There was a significant difference between the peak torque at 60 deg/s for internal ( $P = .036$ ) and external ( $P = .008$ ) rotation for the operated shoulder and that for the nonoperated shoulder. The deficit for internal rotation (20.97%) was higher than the deficit for external rotation (15.28%). However, at the speed of 180 deg/s, the deficits were not significantly different (both sides showed a 16% deficit). The results of MRI examination demonstrated that the thickness and area of subscapularis muscle were significantly less than those of the contralateral subscapularis, with a deficit of 19% and 23%, respectively. Patients who were operated on the nondominant shoulder had worse clinical results.

**Conclusions:** Open surgery to treat anterior shoulder instability can result in significant changes in the subscapularis muscle, as demonstrated by reduced strength as well as diminished thickness and cross-sectional area. The better results were found in patients who had reconstruction of the dominant shoulder.

**Importance of This Study:** This study demonstrates that persistent muscle weakness of the shoulder internal rotators can occur after open surgery for the treatment of anterior instability. Care must be taken to focus on rehabilitation of the internal rotators of the shoulder after open stabilization of the shoulder, particularly when the surgery is performed on the nondominant side.

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#### EFFECT OF ADDITIONAL SENSORY INFORMATION IN THE PROPRIOCEPTION AND POSTURAL CONTROL OF INDIVIDUALS WITH ACL LESIONS

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**Background:** After anterior cruciate ligament (ACL) rupture, loss of sensorial control and proprioception are factors that occur and delay the time of recovery for the athlete. Additional sensorial information by taping and/or bracing the joint may enhance proprioceptive control.

**Purpose:** To study the effect of additional sensorial information on proprioception and postural balance of patients who sustained an ACL rupture.

**Study Design:** Descriptive laboratory study.

**Methods:** A group of 28 patients with unilateral ACL tears were compared with 28 individuals with normal knees. Proprioception was evaluated through the threshold to detect passive knee motion from 15° and 45° for flexion and extension movements. Postural balance was evaluated with the patient in single-leg stance, while blindfolded, on a force platform and investigated through the mean sway amplitude and mean sway velocity of the center of pressure. The conditions of sensory information used were normal, with infrapatellar adhesive tape and an infrapatellar strap.

**Results:** When compared with individuals with healthy knees, individuals with ACL rupture showed a deficit in proprioception and postural balance ( $P < .05$ ). However, with the use of additional sensory information (taping or bracing), proprioception and postural control performance in individuals with ACL lesions showed improvement in the control of movements ( $P < .05$ ). In the group of healthy knees, enhanced proprioception and postural balance were not seen with the addition of taping or bracing.

**Conclusions:** Additional sensorial information helps ACL rupture patients restore the proprioception of the joint.

**Importance of This Study:** Braces and taping are useful in helping athletes with knee problems. This study showed that in ACL-deficient knees, even small additional sensorial information (taping at the anterior aspect of the knee joint) is helpful for motor control of the joint.

**Clinical Relevance:** Taping and bracing of the knee joint can enhance sensorial control and proprioception in ACL-deficient knees and may help the rehabilitation of patients.

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#### INCIDENCE OF INJURIES IN BRAZILIAN SAILORS OF DIFFERENT TECHNICAL LEVELS

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**Background:** Normative data and epidemiological studies in sailing athletes are sparse in the literature, and the prevalence of injuries is difficult to estimate. This is the first study to report on competitive sailing injuries in Brazil.

**Purpose:** To study the prevalence and characteristics of injuries in different groups of competitive sailing athletes.

**Study Design:** Descriptive epidemiologic study.

**Methods:** A questionnaire was completed by 172 competitive sailing athletes from 3 levels—89 (51.7%) optimist class level (beginners), 29 (16.8%) junior athletes (intermediate), and 54 (34.5%) elite athletes—who participated in a qualifier competition for Olympic Games (professional). The authors evaluated 45 (26.2%) female athletes and 127 (73.8%) male sailors. The questionnaire comprised 26 questions composing a standard questionnaire established by the Brazilian Olympic Committee for the initial evaluation of injuries in competitive players.

**Results:** A total of 25 athletes (14.5% of the total) reported an injury because of sailing: 5 from the beginner group (5.6%), 5 from the intermediate group (17.2%), and 15 from the professional group (27.8%). The highest incidence of injury was observed in the back region (6 athletes—5 of them in the professional group) and at the knee joint (6 athletes—2 in each group). The most frequently reported diagnosis was

muscular injury, followed by injuries with damage of the skin, sprains, and tendinitis. The group that reported the majority of the injuries was the professional athletes, who were competing for selection for the Beijing Olympic Games.

**Conclusions:** Professional sailors reported a higher prevalence of injuries in this study. Because of the high incidence of back problems in this group, preventive strategies are needed to avoid chronic problems in this special population.

**Importance of This Study:** This is the first study assessing the prevalence of injuries in sailors of different levels in Brazil. Back injuries and knee problems were the most frequent—knee injuries were not more prevalent in any particular group, but the back was almost exclusively injured in the professional athletes.

**Clinical Relevance:** It is important to establish injury prevention programs for Brazilian sailors and to initiate these programs early in their careers to avoid chronic problems, primarily in the back. These programs may focus on muscle balance and core training to reduce the high incidence of back injuries in professional sailors.

***Revista Brasileira Medicina do Esporte. 2009;15(4):268-271.***