Eccentric training (ET) has been shown to be an effective conservative treatment option for chronic patellar and Achilles tendinopathies. As part of the four-muscle-tendon-complex of the rotator cuff, the supraspinatus is involved most commonly in shoulder disorders. Histopathologic alterations of the supraspinatus tendon are comparable to findings in lower extremity tendinopathies. Hence, the question arises whether the concept of eccentric training can be successfully transferred to the upper extremity. Yet, no randomised controlled trials have been published to support this theory. This problem emerges from the fact that the supraspinatus is part of a complex functional unit. Consequently, surrounding soft tissues are frequently concomitantly affected. The inherent etiology and genesis of pathologic alterations in the supraspinatus tendon and its influence on shoulder disorders is not clear to date. However, the apparent success of ET in managing tendinopathies of the lower extremity urges further scientific work for developing evidence-based guidelines for the conservative treatment of tendinopathies in the shoulder region. Taking into account this lack of data as well as the anatomical and functional constraints, the aim of this work is to review the current state of the literature.