

# Review of Literature on Effectiveness of Rocabado Exercise to Reduce Pain and Increase Range of Motion for Musculoskeletal Disorders

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## ABSTRACT:

**OBJECTIVE:** The aim of this review of literature was to find out the effectiveness of Rocabado exercise on reducing pain and increasing range of motion.

**METHOD:** The articles were selected from various platforms like Google scholar, PubMed and ScienceDirect. The articles were selected from the year 2015-2022. Total number of articles were selected around 15 and only 7 articles were included in the study.

**RESULTS:** It has been determined that Rocabado's method works well and that individuals with TMJ problems have been shown to be successful. In conclusion, Rocabado's technique was found to have a statistically and clinically significant effect. It also demonstrated a higher percentage of improvements in reducing pain, jaw functional limitation, and symptoms of TMJ dysfunction, as well as in increasing TMJ range of motion.

**CONCLUSION:** This study concluded that Rocabado exercises for pain reduction and increased range of motion are useful in treating symptoms associated with temporomandibular disorders. They have been demonstrated to greatly lower pain thresholds and enhance range of motion in the cervical spine and temporomandibular joint (TMJ). Most of the patients are satisfied and comply with Rocabado workouts. To fully comprehend their long-term advantages, ideal dosage, and comparative effectiveness with other therapies. All things considered, Rocabado exercises seem to be a promising part of all-encompassing treatment regimens for those with TMD and associated disorders.

**KEYWORDS:** Temporomandibular joint Disorders, Rocabado Exercises, TMJ

## INTRODUCTION:

The Rocabado exercise, also known as the Rocabado 6x6 exercise, is a set of physical therapy and rehabilitation techniques designed to address various musculoskeletal issues, particularly those related to the temporomandibular joint and the cervical spine.

Dr. Mariano Rocabado created a series of exercises, which refers to a system of movements that help to treat temporomandibular joint dysfunction. The exercises deal with the relationship of your head, neck to shoulders and lower jaw to upper jaw.

The Rocabado exercise is just one approach within the field of craniofacial and TMJ rehabilitation. Research and clinical experience have shown that it can be an effective component of a broader treatment

plan for individuals dealing with TMJ-related problems. He advises the patient to finish each task six times per day.

The Rocabado exercise technique consists of tiny gliding movements that take place in the joint during manipulation. These movements improve nutrient exchange, loosen adhesions to improve mobility of hypomobile joints, preserve the extensibility and tensile strength of articular tissues, and induce soft tissue relaxation. The Rocabado 6x6 training regimen has been demonstrated to reduce discomfort and enhance masticator muscle function. It changes the pattern of jaw closure, increases TMJ range of motion, and relaxes tight muscles and strengthens them. The Rocabado exercise technique is a useful method for treating TMD by lowering pain and restoring joint function.<sup>[1]</sup>

The temporomandibular joint connects the jaw to the skull and plays a crucial role in functions such as chewing, speaking, and facial expressions. Dysfunction in this joint can lead to a range of issues, including jaw pain, headaches, facial discomfort, and even neck pain. The Rocabado exercise is aimed at addressing these problems by focusing on the relationship between the cervical spine, the head, and the temporomandibular joint.<sup>[2]</sup>

The exercises typically involve a combination of movements, stretches, and postural corrections. The goal is to promote proper alignment and function of the cervical spine and temporomandibular joint, ultimately reducing pain and improving overall quality of life for individuals with TMJ-related issues. The Rocabado exercise is often used as part of a comprehensive treatment plan for individuals suffering from temporomandibular joint dysfunction.

These six exercises focus on the postural relationships between the head, neck, and shoulders as well as the lower and upper jaws. These involve the tongue at rest position, shoulder posture correction, stabilization of head flexion, axial extension of the neck, controlled TMJ rotation, and rhythmic stabilization technique.<sup>[3]</sup>

### **Methodology:**

#### **Materials and methods:**

Online search engine that are used to collect journals are Google scholars, PubMed and ScienceDirect. The authors identified articles based on keywords. The articles were collected in full text. A total number of 15 articles were collected and only 7 articles were used in this study.

### **Study Selection:**

#### **Inclusion criteria:**

- Articles were included from the year 2015 to 2022.
- Articles include the effectiveness of Rocabado Exercises to reduce pain and increase range of motion.

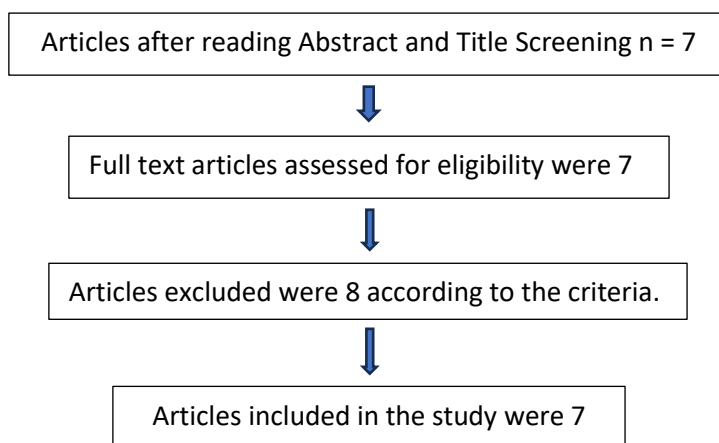
#### **Exclusion criteria:**

- Articles before the year 2010 were not included.
- No pathological disorders, fractures, Infective, inflammatory and degenerative of TMJ were included.

### **FLOW CHART:**

Articles identified through databases searching Google Scholar, PubMed and ScienceDirect were n = 15 articles





## REVIEW OF LITERATURE:

1, Dr Swarali kamerkar et al (2022) did study on an example of idiopathic scleroderma of the mouth is oral submucosa fibrosis. Between the ages of 11 and 60, the prevalence of OSMF in India is estimated to be between 0.2 and 2.3 percent in boys and 1.2–4.6 percent in females. This food has symptoms that are like those of "temporomandibular dysfunction," affecting the temporomandibular joint, which is crucial for good mouth function and does play a part in chewing, swallowing, speech, oral hygiene, and nutrition. Although Rocabado's exercise has been shown to aid with TMD symptoms, there is little data regarding how well it works for OSMF. This fact led to the execution of this case study. Physiotherapy management, which is essentially physical medicine, is a third-dimensional approach to OSMF considering the facts surrounding medical and surgical management. Conventional physiotherapy techniques like stretching, ultrasonography (US), and soft tissue manipulation have been employed as concurrent therapy. Apart from that, it has been shown that the Rocabado's jaw movement significantly improves TMJ dysfunction.

2. Ucar et al (2022) conducted this study aimed to assess how Rocabado's 6 & 6 exercises affected the bruxism patients' masseter muscle thickness, muscle suppleness, and pain levels. Two groups—the exercise group (EG) and the control group (CG)—consisting of fifty-eight bruxism individuals in total. A self-care regimen was implemented for the CG participants. For a total of eight weeks, the EG participants underwent an exercise treatment six days a week in addition to the self-care program. The thickness and flexibility of the bilateral masseter muscles were measured using ultrasonography both before and after therapy. Using a visual analog scale, pain was assessed. Using mixed 2-way repeated measures analysis of variance, changes across time within the groups and group-time interactions for continuous variables were evaluated. According to this study, bruxism patients' pain and muscular flexibility can be effectively treated using Rocabado's 6 & 6 exercises.

3. Utkarsha R. Mangulkar et al (2022) did study on this report describes the case of a 67-year-old man who had significant trismus and jaw pain, dysarthria, and trouble drinking water after undergoing a mandibulectomy for lip Squamous cell carcinoma. After receiving physiotherapy, the patient's trismus and symptoms considerably improved. Speech therapy, static shoulder exercises, static gluteus exercises, static hamstring exercises, static quadriceps exercises, shoulder shrugs, neck isometrics, and shoulder-scapular sets, including goldfish exercises and Rocabado exercises, may be helpful for managing symptoms such as trismus and other associative problems such as maintaining circulation and avoiding compensatory posture, pulmonary complications, and secondary complications. Six weeks of physiotherapy with various interventions, such as mouth opening and closing exercises along with tongue protrusion, lower limb and upper limb passive movements, breathing exercises, lower limb mobility exercises, and speech therapy.

As a result, a course of physiotherapy that included Rocabado exercises, the patient made substantial progress and restored jaw-opening ability.

4. Sushma Pundkar et al (2021) conducted a study on temporomandibular dysfunction to compare the efficacy of TENS and Rocabado exercise on 60 subjects. The subjects were randomly assigned to two groups, group A and group B, with 30 individuals in each group who were between the ages of 20 and 50 and had mild to moderate TMJ dysfunction. For one week, both groups will receive treatment. According to this study, it supports our result that Rocabado's approach is effective and should be applied in TMD patients.<sup>[3]</sup>

5. B Reynolds et al (2020) did study on Temporomandibular disorder which often leads to chronic pain and disability. Current evidence supporting potentially effective physical therapy intervention in TMD is limited, however, some support exists for manual therapy, education, and exercise. The purpose of this case series was to describe outcomes in participants with TMD treated with cervical spine manual therapy, education, and exercise. The entire group received written and spoken instruction on behavioral change, how to prevent parafunctional behaviors, and how to use the Rocabado 6x6 home exercise program (HEP).<sup>21,22</sup> Participants were instructed to use a standardized form to track HEP compliance. The Rocabado 6x6 consists of the jaw's resting position, controlled mouth opening, isometric jaw movement, scapular retraction, and cervical retraction, as well as self-mobilization for C0/1 distraction.

6. Y Vijila Jebamalar et al (2016) conducted research to evaluate the efficacy of Rocabado exercise and muscle energy approach against therapeutic jaw exercise for temporomandibular joint dysfunction. Thirty volunteers were selected and split into two groups of fifteen each. Group B received therapeutic jaw exercises while Group A received MET along with Rocabado exercise. According to the study's findings, each group's individuals demonstrated a considerable level of effectiveness for their respective method of approach, however Group A's combination of the Rocabado exercise and the Muscle Energy technique demonstrated a higher reaction in terms of pain reduction.<sup>[1]</sup>

7. Niha Siraj Mulla et al (2015) conducted research to find out how well the Rocabado procedures worked for TMJ dysfunction symptoms, including pain, limited range of motion, and difficulty opening the mouth. This experimental study design is pre-to-post, with 30 subjects in total, with 15 subjects randomly assigned to each group. While the control group only received conventional TMJ exercises, the research group received the Rocabado technique, which consists of Rocabado non thrust TMJ manipulation and Rocabado exercises in addition to traditional TMJ activities. For two weeks, these exercises were done six times a day, six times a session. In comparison to only conventional TMJ exercises, the Rocabado technique demonstrated a higher percentage of improvement in reducing pain and jaw functional limitation as well as increasing range of motion in subjects with temporomandibular dysfunction. This study concluded that the technique had a statistically and clinically significant effect with conventional TMJ exercises.<sup>[2]</sup>

## DISCUSSION:

This study aimed to evaluate the effectiveness of Rocabado exercises in reducing pain and increase range of motion. Dr Swarali kamerkar (2022) states in their study that Recurrent trismus is unavoidable if patients disregard the physical therapy routine. Following surgical intervention, physical therapy is necessary for the long-term healing of trismus or lock jaw. Patients who do not adhere to their physical treatment regimen will inevitably experience resurgence trismus. Therefore, it is recommended to use additional thermal effects during treatment in cases with OSMF. Rocabado claims that his 6 x 6 exercise program has been shown to reduce pain, maximize masticator muscle activation, and correct the forward

head posture. These exercises are designed to increase muscle strength, facilitate TMJ ROM, loosen up tense muscles, and change the way the jaw closes.

Ilyas Ucar (2022) states that there were 29 participants in the EG and 29 in the CG after the trial was finished. The individuals' initial characteristics are shown. The fundamental characteristics of the two groups were comparable. In comparison to the CG, the EG showed a higher improvement in pain values ( $P = .049$ ;  $P = .040$ ) and muscular elasticity ( $P = .004$ ;  $P = .015$ ). There was no discernible variation in masseter muscle thickness between the two groups. As far as we are aware, this is the first study to look into how well the Rocabado 6 & 6 exercises work for treating bruxism. Our assessments' findings show that the 6 & 6 activities were successful in enhancing masseter. Since no comparable research has been done on the impact of Rocabado's 6 & 6 exercises on the thickness and flexibility of the mandible,

Niha Siraj Mulla (2015) stated in their study according to the analysis, subjects with Temporo-mandibular joint dysfunction who received two weeks of Rocabado's technique in addition to conventional TMJ exercises and those who received only conventional TMJ exercises demonstrated a statistically and clinically significant improvement in TMD symptoms, pain, TMJ ROM, and jaw function. But compared to just conventional TMJ exercises, the trial group who got Rocabado's approach along with conventional TMJ exercises showed a higher percentage of improvement. The improvement in the research group's TMD symptoms, pain, TMJ ROM, and jaw function may have resulted from Rocabado's non-thrust TMJ manipulation, his exercises, and the combination of his and traditional TMJ activities. Normalization of range of motion, pain relief, and release of soft tissue tension across the jaw, neck, and head are the goals of the Rocabado TMJ manipulation. It has been discovered that biomechanical and neurophysiological mechanisms make TMJ manipulation efficient. Mechanoreceptors are stimulated by joint manipulation to lessen pain through descending pathway inhibition and pain gate hypothesis. Six The afferent nerve impulses enhance awareness of joint position and motion.

### Conclusion:

This study states that Patients with TMJ dysfunction should be treated with Rocabado's method, which has been proven to be successful. According to our research, patients with bruxism who had a masseter elasticity deficiency responded well to the Rocabado 6 & 6 workouts. While Rocabado's exercise has been demonstrated to help with TMD symptoms, there is also an effectiveness of Rocabado's exercise on Oral submucous fibrosis (OSMF). Although several workouts have been studied, the Rocabado 6x6 is the exercise intervention that is most frequently reported. While there isn't enough data to say that one activity is better than another, there is support for postural, cervical, and jaw workouts among those with TMD. The jaw's resting position, controlled mouth opening, isometric jaw movement, self-mobilization for C0/1 distraction, scapular retraction, and cervical retraction are all included in the Rocabado 6x6

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