

## INDIAN RAGAS AS AN ADD-ON THERAPY WITH YOGA SESSION FOR RHEUMATOID ARTHRITIS (RA)

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**Abstract:** Rheumatoid Arthritis (RA) is an autoimmune disease linked to emotional stress of fear and anxiety with derangement of Vata Dosha according to Ayurveda. Music therapy, focusing on Ragas like Kaafi, Peelu, Asaveri, and Todi, aims to evoke positive emotions like courage, counteracting fear and anxiety. In a case study of a 26-year-old with RA induced by stress, a 4-week regimen of daily one-on-one music therapy sessions alongside yoga improved symptoms. The Warwick Edinburgh Mental Well-Being Scale (WEMWBS) showed a significant increase in mental well-being from a pre-test mean of 2.57 to 3.5 post-test, with a two-tailed p-value of 0.01. Physical pain, assessed by Visual Analogue Scale (VAS), decreased from 8/10 pre-test to 6/10 post-test, indicating a 25% reduction. This holistic approach targeted emotional healing and physical well-being, showing promising results in managing RA symptoms.

**Keywords:** Rheumatic Arthritis, Music Therapy, Ayurveda, Time theory of Ragas

### INTRODUCTION

Asymmetrical, inflammatory, chronic autoimmune disease, RA first affects tiny joints before moving on to larger joints and eventually the skin, eyes, heart, kidneys, and lungs.<sup>[1]</sup> Although the specific cause of RA are unknown, a number of factors can raise the risk of getting illness includes sex, age, smoking etc.<sup>[2]</sup> The worldwide prevalence of RA has been estimated as 0.24 percent based upon the Global Burden of Disease 2010 study.<sup>[3]</sup>

According to *Ayurveda*, there are *Tridoshas* (Biologicalhumours)- *Vata* (movement), *Pitta* (transformation) and *Kapha* (structure), which represent the principles of life. These *Doshas* vary in individuals, resulting in a unique blend called *Prakruti* and disease occurs when there is an imbalance in the *Doshas*, known as *Vikruthi*. Treatment aims to restore the balance and return to *Prakruthi*.<sup>[4]</sup> Modern medicine also is turning to Bio-psycho-social approach which includes *Yoga*, *Ayurveda*, Music etc., *Yoga* is a methodical approach for mental relaxation which incorporates organized breathing techniques (*Pranayama*), body postures (*Asanas*), and meditation (*Dhyana*) in addition to lifestyle modifications. The goal of focusing on the *Trigunas* (*Sattva*, *Rajas* and *Tamas*) is to nudge the mind in the direction of *Sattva Guna* and free oneself from excessive *Tamas* and *Rajas Gunas*.<sup>[5]</sup> Music therapy is an interpersonal process that cures the patient emotionally through the removal of negative emotions by creating a healthy internal environment.<sup>[6]</sup> Music therapy employs the following elements *Nada*(primordial sound), *Shruthi* (pitch), *Svara* (tone), *Raga* (melodic scale), *Tala* (rhythm), *Thaat* (scale), and *Rasa* (emotion) for restoring harmony in the physical and mental faculties and remove the imbalances that cause diseases. *Ayurveda* also recommends music which has an impact on *Trigunas* and *Tridoshas*. Music therapy primarily employs time-specific *Raga* with a specific tonal quality.<sup>[7]</sup>

### MODERN CAUSE OF RA

While the exact origins of the disease are still unknown, several modifiable lifestyle factors such as obesity and smoking as well as non-modifiable ones such as genetics, female gender, and age have

been linked to the disease.<sup>[8]</sup> To halt RA progression and prevent it, key measures include minimizing exposure to silica, dust and occupational hazards.<sup>[9]</sup>

## RHEUMATOID ARTHRITIS-AYURVEDA CONCEPT

In *Ayurveda*, significant *Vata or Kapha Prakriti* imbalances often lead to reduced *Agni*, impairing digestion and causing the production of toxic *Ama*, resulting in inflammation. *Pitta* Constitution generally has higher *Agni*, but some may face challenges with volatile *Agni*.<sup>[10]</sup> As per *Ayurveda* physical component of RA is *Vata Dosha* imbalance and psychological component is Fear and Anxiety which is the result of *Rajasic Guna*.<sup>[7]</sup>

## EMOTIONAL CAUSE OF RA

In addition to physical symptoms, people with RA deal with emotions of powerlessness, dependency, threats to their self-respect, interruptions in their social lives, strained family relationships, and challenges in maintaining their employment, among other everyday stresses.<sup>[11]</sup> The emotional response induced by music employing a particular tonal quality may be aesthetic mood of joy, compassion, Self-Assurance and peacefulness or tranquility. This will aid in positive mood change.

## MUSIC DEFINITION

Music according to *Sangita Ratnakara* is " *Gitam Vadyam tatha Nrtyam trayam Sangitamucyate*" which means, the three arts music, instrument and dance are collectively known as Music.<sup>[12]</sup> The science and skill of creating a harmonious and consistent composition out of tones or sounds by arranging them in a certain order, combination or relationship is known as music.<sup>[13]</sup>

## MUSIC THERAPY AND ITS ELEMENT

Music therapy uses music and musical elements in a process that facilitates and promotes learning, relationships, mobilization, expression, and other pertinent therapeutic objectives which also address physical, emotional, mental, social, and cognitive requirements.<sup>[13]</sup>

Indian Music therapy elements are *Nada* (primordial sound), *Shruthi*(pitch), *Svara* (tone), *Raga* (melodic scale), *Tala* (rhythm), *Thaat* (scale), and *Rasa* (aesthetic mood). The development of *Rasa* is the most crucial element in the process of emotional healing. Nine main *Rasas* are recognized by Indian aesthetics, four of these *Rasas* which are *Shrngara*, *Shaata*, *Veera* and *Karuna* have been found to be appropriate for use in therapeutic applications. Specific combination of *Svaras* are known to induce particular *Rasa* and *Thaat* is the name of septuplet melodic arrangement of *Svaras*, from which *Ragas* can be formed. The *Svaras Ri and Dha Shuddha* produce *Shrngara Rasa*, *Karuna* and *Ga and Ni Komal* produce *Veera Rasa*, and *Ri and Dha Komal* produce *Shanta and Karuna Rasa*.<sup>[7]</sup> Since each *Dosha* has a psychological correlate, balancing them with the opposite feeling would create equilibrium. Fear and anxiety correlate with deranged *Vata*; this can be addressed with Self- assurance or *Vira Rasa* with the proper application of *Ragas* which uses specific *Svaras or tonal pattern*. *Pitta Dosha* leads to anger and is dealt with *Ragas* producing *Shanta or Karuna Rasa*.

Similarly, *Ragas* producing *Shrngara Rasa* can be used to alleviate the feelings of sadness and disgust which is the psychological imbalance of *Kapha Dosha*. The *Ragas* are based on time theory correlating to the circadian cycle of *Vata*, *Pitta* and *Kapha*. *Vata* is predominate between 2 a.m. to 6 a.m.; 2 p.m. to 6 p.m. *Pitta* predominates between 10 a.m. to 2 a.m.; 10 p.m. to 2 p.m. *Kapha* time between 6 a.m. to 10 a.m.; 6 p.m. to 10 p.m. [14]

## EFFECT OF MUSIC ON RA

A study titled “*The Effect of Music and Music Vibrations using the MVT™ On the Relief of Rheumatoid Arthritis Pain*” was conducted in Denton Texas. The study investigated the pain-relieving efficacy of music listening combined with vibrotactile cutaneous stimulation for RA. Music with mechanical vibration was applied, and results showed significant improvements in pain relief scores and pain perception. However, musical one showed a significant change in the affective dimension of the MPQ. Further evaluation and development of treatment protocols are recommended. [15] Another study titled “*Music and Pattern Change in Chronic Pain*” This study examined the use of music as a unitary-transformative intervention to alter chronic pain perception among women with RA. 30 women responded to the McGill Pain Questionnaire before, during and after the intervention, and the results supported the use of music a unitary-trans formative intervention. [16]

## CASE STUDY

A short case study of a twenty-six-year-old woman who was diagnosed with Rheumatoid Arthritis, symptoms aggravated from past one year due to prolonged stress for four years. The diagnosis was made based on the symptoms and her reports. She was into *Yogic* practices earlier. Along with that She was taking oral medication like T.HCQS300mg HS, Fol5mg & TMedrol4mg as prescribed by her doctor.

## MATERIAL & METHODS

The participant was recommended a one-on-one *Yoga* session between 7 am to 8 am every day for eight weeks. *Yoga* intervention with specific *Yogic* practices for RA during the first four weeks was administered and the next four weeks *Yoga* session with specific *Ragas* based on time theory correlating the circadian cycle of *Vata*, *Pitta* and *Kapha* which infused the aesthetic mood of Self-assurance was administered. We used Warwick Edinburgh Mental Well-Being Scale (WEMWBS) for assessing the mental state. The WEMBS is a mental health well-being scale that only considers positive elements of mental health. As a short and psycho metrically, robust scale with no ceiling effect in a population sample, it offers promise as a tool for monitoring mental well-being at a population level. [17] The questionnaire contains four scales (None of time-1 (point), Rarely-2, Some of the time-3, Often-4, All of the time-5. Visual Analogue Scale (VAS) for assessing the intensity of pain between 1 to 10 shown in *Fig. 3*. The VAS is a straightforward and widely applied method for the assessment of variations in intensity of pain. In clinical practice, the VAS measured percentage of pain reduction is frequently used as a proxy for therapy effectiveness. [18] The assessment was done before the beginning of the fifth week and after the eighth week.

## INTERVENTION

As shown in *Table.1*, one on one *Yoga* session for one hour comprised of *Sukshma Vyayama*, *Asanas* for improving mobility, *under Pranayama* we added *Nadishuddhi* and *Bhramari* known for parasympathetic activation and stress reduction. <sup>[19]</sup>

We used four *Ragas*, *Peelu Raga* from *Kaafi thaat* during *sukshmayayama*<sup>[20]</sup>; *Asaveri Raga* from *Asaveri thaat* during *asana*<sup>[21]</sup>; *Kaafi Raga* from *Kaafi thaat* during relaxation time<sup>[22]</sup>; *Todi Raga* from *Todi that* during *Pranayama*<sup>[23]</sup>, fifteen minutes each for one hour. *Table1* below shows Music intervention and *Yoga* intervention. In above used *Ragas*, *Peelu* and *Kaafi Ragas* are any time *Ragas* and *Asaveri* and *Todi* are *Ragās* played between 7 to 10 a.m. <sup>[14]</sup>

**Table1 ONE HOUR YOGA AND MUSIC INTERVENTION FOR RA PATIENT**

SN	Raga Used	Practice to be done		Duration
1.		Session preparation instructions		
		Starting Prayer		
	<i>Peelu</i>	<i>Sukshmayayama</i>	Finger loosening, Wrist loosening, Elbow loosening, Shoulder loosening, Toe bending, Ankle bending, Kneecap tightening, patella movement, Knee bending & Hip rotation, Ankle stretch breathing exercise, Hands in & Out breathing. Side stretch, Forward-backward stretch, <i>Chakki chalanasana</i> , Head rolling	15min
	<i>Asaveri</i>	<i>Asanas</i>	Standin g <i>Ardhaktachakrasana Katichakrasana, Tadasana, Ardachakrasna, Padahasthasana</i>	15min
			Sitting <i>Gomukhasana, Shasankasana, Vakrasana</i>	
			Prone <i>Ekipadashalabhasana, Salabhasana Bhujangasana, Makarasana</i>	
			Supine <i>Ardhahalasana, Setubandhasana, Pawanmukatasana, Matsyasana</i>	
2.	<i>Kaafi</i>	Relaxation	DRT with <i>Kaafi raga</i> music playing	15min
3.	<i>Todi</i>	<i>Pranayama</i>	Left nostrils breathing, <i>Nadishudhi &amp; Brahmari</i>	15min
4.	<i>Shanti Mantra</i> (Closing Prayer)			
	<b>Total</b>			60min

## STATISTICAL METHOD

The Statistical method used is Paired Sample t-test.

## RESULTS

The mean value of pre-test core is 2.57 and the post test score is 3.5. *Table.2 Fig.1* indicates the mean value of pre-test and post-test score of WEMWBS and its graphical representation. At the end of four weeks session with music there was an improvement in her mental well-being. The t-statistic is -3.24222, which is calculated based on the difference in the paired scores. The negative value indicates that the pre-test scores were, on average, lower than the post-test scores. The two-tailed p-value of 1% (or 0.01) suggests that the difference in means is statistically significant. Visual Analogue Scale (VAS) for assessing the intensity of pain between 1 to 10 shown in *Fig.3*. The pre-test score is 8/10 and post-test score is 6/10, the mean difference between pre and post scores is -2 and the reduction in pain is 25%. The pre & post test score of VAS and its graphical representation is shown in *Table 3 and Fig 2*. We also noticed an improvement in her mobility.

**Table.2 THE WARWICK EDINBURGH MENTAL WELL-BEING SCALE (WEMWBS)**

	N	Mean Value
Pre-Test Score	36	2.57
Post-Test Score	49	3.5

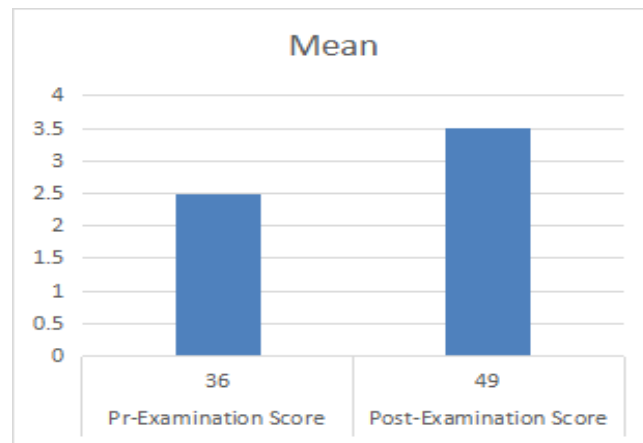


Fig. 1: Pre & Post Score of WEMWBS

**TABLE- 3 PRE AND POST TEST SCORE OF VISUAL ANALOGUE SCALE (VAS)**

Pre-Test Score	Post-Test Score	Mean
8	6	2.94

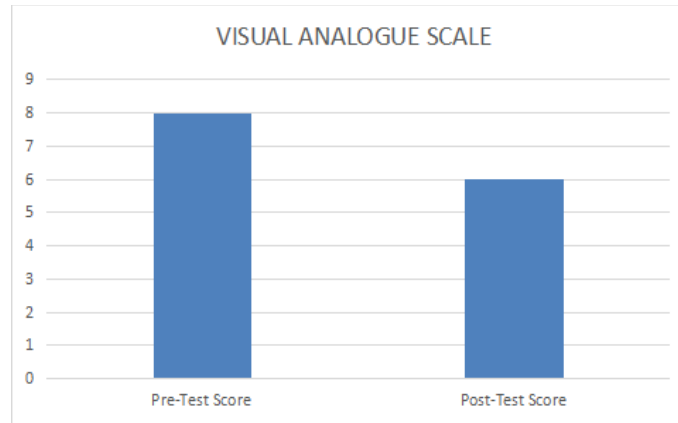


Fig 2 Pre And Post-Scores of VAS

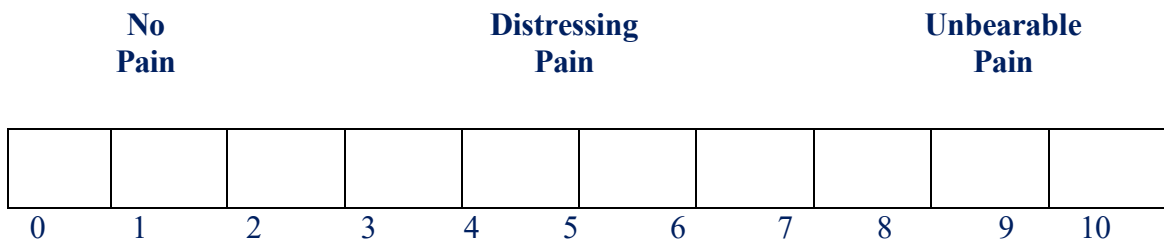


Fig 3 Visual Analog Scale (VAS)

## DISCUSSIONS

The fear and anxiety in *Vata* imbalance can be reduced by *Samanya Vishesha Siddanta* through *Ragas* which brings the aesthetic mood or *Rasa* of courage and Self-assurance. *Ragas* that employ *Ga, Ni Komal* bring *Veera Rasa*.<sup>[24]</sup> As per the theory of *Samanya Vishesha Sidhanta* (Ch. Su.1/44.), similar properties will lead to Augmentation and dissimilar properties lead to the reduction of the factor. [14]

*Sage Patanjali in his Yoga Sutra (2.33)*, also states “*Vitarkabadhanepratipakshabhavanam*” which means whenever we are in conflict state we should adapt the opposite attitude which would ease us.<sup>[25]</sup> We played composition of *Raga Pilu on Flute*’ by Pt Hari Prasad Chaurasia during *Sukshma Vyayama* from *Kaafi Thaat*, played composition of *Raga Asaveri* by Pt Hariprasad Chaurasiaduring *Asanas* from *Asaveri Thaat*, played composition of *Raga Kaafi on Sitar* by Ustad Shahid Parvez khan during relaxation from *Kaafi Thaat* and played composition of *Raga Todi* on flute instrumental music by Hariprasad Chaurasi from *Todi Thaat*. Each piece of music was reduced to fifteen minutes and converted into 396hz which is pleasing for human ears.<sup>[26]</sup>

Based on the results, the conclusion would be that there is a statistically significant increase in the mean score from pre-test to post-test. The implication is that the Music intervention with *Ragas* based on time theory correlating with circadian cycle, between the pre-test and post-test had a significant effect on the scores.

## CONCLUSION

The willful submission to the piece of music with *Ga & Ni Komal* from *Kaafi, Asaveri & Todi Thaat* (Ragas includes *Peelu, Kaafi, Asaveri & Todi*) depicting *Veera Rasa* may help in emotional healing by instilling self-assurance. Yoga helps in relaxing the body, slowing down the breath and calming down the mind with necessary lifestyle changes like diet, proper daily and seasonal regimen.

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