

Joint Ventures: Helping Those With Rheumatoid Arthritis Live Well

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Essence: Viniyoga Therapy for Health and Well-Being

Abstract

Objectives: Rheumatoid arthritis (RA) is an autoimmune, chronic inflammatory disorder that causes pain, swelling, stiffness, loss of joint function, and reduced quality of life. Yoga therapy may help individuals with RA manage stress and increase well-being. This study focused on the identification of therapeutic objectives and a methodology to achieve symptom relief, regain function, and enhance quality of life for individuals with RA. **Methods:** Four women with RA participated in private yoga therapy sessions for 2.5 months. Assessment-based, tailored home practices were developed and modified to address participant-identified goals. **Results:** Participants reported decreased pain, fatigue, swelling, and flares; increased energy; pain-free range of motion and strength around affected joints; and a heightened sense of well-being. **Conclusions:** Tailored yoga therapy that emphasizes stress reduction may be beneficial for individuals with RA.

Key Words: yoga, yoga therapy, yoga snack, rheumatoid arthritis, fatigue management, pain management, stress reduction, meditation, structured writing

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Rheumatoid arthritis (RA) is an autoimmune, chronic inflammatory disorder that causes pain, swelling, stiffness, and loss of joint function (Aletaha et al., 2010). Approximately 1.3 million people of all races and ethnic groups in the United States live with RA, and women develop the disease two to three times more often than men do. Symptoms of RA typically begin in middle age and occur more commonly in the elderly; however, children and young adults may also be affected (Sacks et al., 2010). RA leads to progressive deterioration of joints that can disable an individual at every level—physical, physiological, psychoemotional, and spiritual—and considerably alter the quality and course of life. For many, the condition becomes debilitating. This article describes how yoga therapy may alleviate symptoms, reduce stress, and increase quality of life for individuals with RA.

RA affects the synovium, or the lining of the membranes that surround the joints. The immune system mistakenly perceives the synovium as a foreign substance and attacks it; in turn, the joint fills with fluid, which leads to painful swelling (Rheumatoid Arthritis, 2012, 2013). The resulting inflammation thickens the synovium and may invade and destroy the

cartilage and bone within the joint. When the tendons and ligaments that hold the joint together weaken and stretch, the joint gradually loses its shape, alignment, and ability to function. As this happens, muscles that support the joint weaken (Rheumatoid Arthritis, 2009).

RA typically starts in the small joints in the hands, wrists, and feet, and occurs bilaterally. Other joints can also become affected as RA progresses. Fever, fatigue, loss of appetite, anxiety, and depression often accompany joint symptoms (Rheumatoid Arthritis, 2012, 2013). RA symptoms can vary in severity and duration. Periods of increased RA activity or “flares” can alternate with periods of relative remission. Flares are characterized by heat in and around the joint, swelling, pain, stiffness, and other painful symptoms (Rheumatoid Arthritis, 2012, 2013).

There is no cure for RA. Allopathic treatment usually consists of drug therapy to manage symptoms and to slow disease progression. Nonsteroidal anti-inflammatory drugs are used to reduce mild joint pain, stiffness, and swelling. Corticosteroids are often prescribed during flares to relieve or prevent symptoms, particularly swelling and pain. A variety of disease-modifying antirheumatic drugs (DMARDs) and biologic response modifiers may also be used to slow disease progression and inhibit inflammation and joint damage (Singh et al., 2012). Although drug treatment can mitigate symptoms and slow disease progression, its side effects may lead to fatigue, depression, and other undesirable outcomes.

Yoga Therapy Research

Studies of yoga therapy for adults with RA have shown encouraging results. Yoga practice is associated with increased muscle strength and flexibility, increased range of motion (ROM), and reduced pain (Badsha, Chhabra, Leibman, Mofti, & Kong, 2009; Bosch, Traustadottir, Howard, & Matt, 2009; Dash & Telles, 2001; Evans et al., 2010; Haslock, Monro, Nagarathna, Nagendra, & Raghuram, 1994; Singh & Bhandari, 2011; Telles, Naveen, Gaur, & Balkrishna, 2011). Yoga practices that include the use of props for support have been shown to provide musculoskeletal and joint benefits, including increased strength, flexibility, and increased ROM (Evans et al., 2010; Haslock et al., 1994). Other benefits include lower levels of anxiety and depression and increased energy and self-efficacy (Badsha et al., 2009; Evans et al., 2010), decreased inflammation, and reduced number and duration of flares and degree and length of morning stiffness (Badsha et al., 2009; Bosch et al. 2009, Singh & Bhandari, 2011; Telles et al., 2011).

Although these findings are promising, research regarding yoga therapy's benefits for those with RA is limited (Haas & Bartlett, 2011). Published studies are small in scope and sample size and inconsistent in terms of yoga tools used (e.g., *asana*, *pranayama*, chanting, meditation). The majority of studies emphasized asana (postures) and provided little or no rationale for the postures selected, the sequences in which they are performed, or the progression of sequences. Some studies noted that postures were adapted in form and/or with the use of props to accommodate participants' strength, flexibility, and ROM. This approach accounts for individual differences with respect to postures but does not account for the selection of postures or the design of sequences.

Studies that included pranayama (breathing exercises) did not provide a rationale for the techniques selected (Badsha et al., 2009; Bosch et al., 2009; Dash & Telles, 2001; Haslock et al., 1994; Singh & Bhandari, 2011; Telles et al., 2011). Breath-oriented *kriyas* (e.g., *kapalabhati*, *bastrika*) were grouped with pranayama, blurring the purpose and function of each technique (Badsha, 2009; Singh, 2011; Telles, 2011). No rationale was offered for their inclusion. When meditation was used, no focal point or purpose was identified (Dash & Telles, 2001; Haslock et al., 1994; Singh & Bhandari, 2011). There was also considerable variation in class length and frequency, with no justification provided for either. With the exception of one intervention that included home practice (Haslock et al., 1994), all the studies used a group format.

It is clear from the extant yoga therapy literature that stress reduction has not been considered a primary strategy for mitigating RA symptoms and improving function and well-being. Yet a growing body of research describes the connection between stress and a wide variety of chronic illnesses, including heart disease and diabetes (Sapolsky, 2004), autoimmune conditions (Sapolsky, 2004), and inflammatory rheumatic conditions, such as RA (De Brouwer et al., 2010; Hassett & Clauw, 2010; Malysheva & Baerwald, 2012; Malysheva, Pierer, Wagner, & Baerwald, 2010; Muscatell & Eisenberger, 2012; Straub & Cutolo, 2006a, 2006b; Walker, Littlejohn, McMurray, & Cutolo, 1999). Systemic inflammation appears to be a causal factor in many chronic diseases, including RA. Chronic stress, particularly psychosocial stress, plays a critical role in triggering inflammation (Johnson, Abbasi, & Master, 2013).

A Case Study Approach

The extant yoga therapy research offers no guiding methodology for working with individuals with RA in either group or individual sessions. This study examined how Viniyoga therapy with a stress-reduction emphasis might help those with RA reduce pain and stress, regain function, and recover an enhanced sense of control and well-being. The focus involved developing and testing a set of therapeutic objectives and organizing principles to guide work with those of varying ages and manifestations of RA, with the goal of formulating a targeted therapeutic methodology for RA management.

Viniyoga Therapy

Viniyoga is a Sanskrit term that refers to differentiation, adaptation, and appropriate application (Desikachar, Desikachar,

& Moor, 2001; Kraftsow, 2008). It is a comprehensive and authentic transmission of yoga tradition originally taught by T. Krishnamacharya. In terms of yoga practice, each person is considered unique, the individual is differentiated from the condition, and methods and tools of yoga are adapted to meet the practitioner's needs, interests, and life circumstances. Principle tools include breath-centric asana, breath adaptation in asana, pranayama, chanting, mudra, gesture, meditation, personal ritual, and the study of sacred texts. A basic teaching is that asana is used to prepare for pranayama, and pranayama is used to prepare the mind for meditation (Kraftsow, 2008).

Breath is a focal point of Viniyoga practice. Breath-centric asana and breath adaptation in asana are used to affect the practitioner's musculoskeletal structure, increase the circulation of fluids, alter energy, and prepare for pranayama. Intention-based sequencing follows well-defined principles for ordering postures and other yoga tools within a practice to ensure safety, avoid cumulative stress, and achieve particular effects, such as transforming structure, energy, mood, cognition, or behavior. Although it can be practiced effectively in a group setting, individual practice is emphasized as the path to personal transformation (Desikachar, 1995; Kraftsow, 2002).

Yoga therapy in this tradition is informed by Ayurveda and is a subset of yoga. It applies the tools and techniques of yoga to manage, mitigate, and, when possible, eliminate symptoms and shift an individual's perspective. It seeks to separate an individual from habits that interfere with health, healing, and well-being and to connect the person with habits that optimize wellness (Kraftsow, 1999). Ayurvedic principles encompass lifestyle (e.g., diet, sleep, daily routines) and an individual's constitution, as well as the constitution of any condition that an individual manages. The tradition's emphasis on differentiation, adaptation, and appropriate application facilitates a highly individualized, holistic approach to living well with chronic conditions such as RA.

Using Yoga, Ayurvedic, and Western Perspectives on RA to Identify Therapeutic Objectives

RA can be viewed as a disturbance of both the *vyana vayu* and *prana vayu* (Frawley, 1999; Lad, 2001). The *vyana vayu* governs circulation and the delivery of nutrients to the cells. An imbalance in this *vayu* can manifest as swelling and decreased circulation. The *prana vayu* governs thoughts, feelings, emotions, perceptions, and movements of the mind. An imbalance in this *vayu* can manifest as anxiety, depression, and fatigue (Lad, 2001).

RA is a *pitta* condition because of the excess heat generated in and around an affected joint and the irritation to joint tissue, including bone. It also presents as a *kapha* condition because of the congestion in the joint related to both inflammation and the thickening of the synovium (Lad, 2001).

The autoimmune nature of RA suggests confusion in the immune system that causes a heightened and mistaken immune response to healthy synovial tissue and fluid. This confusion and exacerbated immune response to healthy tissue and fluid has been linked to chronic stress, both in RA onset and flares (De Brouwer et al., 2010; Hassett & Clauw, 2010; Malysheva &

Baerwald, 2012; Malysheva et al., 2010; Muscatell & Eisenberger, 2012; Sapolosky, 2004; Straub & Cutolo, 2006a, 2006b; Walker et al., 1999).

In light of these considerations, in this study the following general therapeutic objectives were identified, with the intention of developing a tailored therapeutic practice for each participant: (a) reduce stress/increase relaxation and well-being; (b) increase circulation, ROM, and strength without creating excess heat; (c) reduce pain and inflammation, including systemic inflammation; and (d) increase energy without increasing stress or inducing downstream fatigue. Targeting stress reduction as a means of meeting all the objectives was a primary strategy. Each participant's constitution, needs, interests, and stated goals shaped how these objectives were met. It was hypothesized that study participants would report reduced levels of stress, fewer RA-related symptoms, and increased well-being following the intervention.

Methods

Participants

Participants were recruited via email through a yoga studio in northern Rhode Island. Candidates were required to be age 18 years or older and have a confirmed diagnosis of RA from a rheumatologist. Four female participants between ages 48 and

83 who met these criteria and were willing to receive one-on-one, home-based yoga therapy sessions and participate in home practices were selected.

Participants' diagnoses spanned 2 months to several decades. Three lived with at least one other autoimmune condition and other chronic conditions, such as congestive heart failure and hypertension. Three took prescription medications to manage their RA and medication-related side effects. Each had had at least one steroid treatment to manage a flare, and each had some experience with yoga but not yoga therapy. Table 1 provides a summary profile of each participant, including the individual's goals for treatment, medication management, and number of sessions received.

Measures

Each session included assessment in the areas delineated in Table 2. Observations were made about the participant's ease, comfort, stability, and ROM in the movement part of her practice and in functional movement.

Intervention

The intervention occurred during a 2.5-month period. The first session included an explanation of the project's purpose, participant's role, and how therapeutic work would proceed. This introduction was followed by structural and mobility assessments

Table 1.
Participants Summaries

Participant description	Client-identified treatment goals	Medications	YT sessions
1: 53-year-old female with RA, fibromyalgia Reported permanent joint damage, limited ROM in RA-affected joints, extreme fatigue, stiffness, chronic pain, chronic stress	1. Learn new yoga tools for stress, fatigue, and pain management; cope with chronic sensory overstimulation 2. Increase and maintain muscular strength and ROM around joints 3. Increase physical conditioning & stamina 4. Improve systemic balance & flexibility	Prescription & OTC pain medications DMARD	5
2: 83-year-old female with RA, Hashimoto's thyroiditis, congestive heart failure, chronic obstructive pulmonary disease Reported permanent joint damage, limited ROM in RA-affected joints, fatigue, stiffness, chronic pain, occasional flares	1. Decrease pain, inflammation, and stiffness in shoulders, wrists, hands while increasing pain-free ROM in these areas 2. Increase pain-free ROM in neck 3. Increase muscular strength in neck, upper back, shoulders, wrists, hands 4. Increase core strength to support improved breathing & bladder control, decrease sleep interruptions 5. Cultivate longer, deeper breath to help decrease fatigue and even out energy throughout the day and from one day to the next	OTC pain medications	6
3: 48-year-old female with RA, Hashimoto's thyroiditis, plantar fasciitis in left foot Reported limited ROM in RA-affected joints, fatigue, stiffness, chronic pain, mild-to moderate depression & anxiety	1. Heal the plantar fasciitis 2. Resume physical activity, cultivating regular, moderate exercise, particularly swimming & stretching 3. Increase relaxation, quiet the mind, improve sleep 4. Decrease fatigue	OTC pain medications DMARD Prescription medication to manage DMARD side effects	4
4: 57-year-old female with RA, osteopenia Reported fatigue, weakness, stiffness, pain, insomnia, chronic stress	1. Decreased tenderness and swelling in RA-affected joints 2. Increase muscle support around the shoulders, hips, knees, wrists, hands 3. Increase overall strength and appropriate flexibility, physical function, mental well-being 4. Reduce stress 5. Improve sleep 6. Reduce pain	DMARD Corticosteroid	4

Table 2.
Assessment Criteria for Each Therapy Session

Assessment criteria	How assessed
Pain	Location, duration, intensity: 5-point scale from 1 (<i>little or no pain</i>) to 5 (<i>extreme pain</i>)
Pain medication taken	Amount, type, frequency
Flares	Location, number, duration
Swelling	Location, severity, duration
Stiffness	Time of day/circumstances, duration
Energy/fatigue	Increased, decreased, no change
Sleep	Number of hours, quality
Mood	Depression, anxiety, new or changed (increased, decreased)
Stress	Physical/mental/emotional, frequency, duration

and an interview about the participant's RA experience, current approach to management, prescription and/or over-the-counter (OTC) medications, other therapies, and lifestyle modifications. Information about physiological functioning, medications, sleep, diet, exercise and other physical activity, family, friends, work, hobbies and other activities, and stress was also obtained. Participants identified short- and long-term goals and their understanding of how a yoga practice might help with goal realization. Goals typically related to reclaiming some part of life that gave meaning and purpose to living. Participants provided verbal agreement to participate.

Participants were asked to discuss RA's impact on their life, their self-concept, and their relationships. Chronic stress emerged as a recurring theme that often had its roots in childhood. RA symptoms and their unpredictable nature added another source of severe, chronic stress. Condition-related anxiety and depression were also prevalent.

An individualized practice was designed based on all the information obtained during the initial session and on identified therapeutic and personal goals. Participants were active agents in designing their practices, setting the intention, and deciding the parameters, which included time of day, practice length, number of times per day and week, and practice elements (e.g., asana, pranayama, other yogic tools and techniques).

Participants received information regarding each element of practice to help them make informed choices. They were encouraged to conceptualize "practice" more broadly than what occurred on the mat. It could include self-awareness of habits that irritated or triggered symptoms or that mitigated symptoms and were nourishing and restorative. Practice became associated with a range of self-care activities and attitudes. An individualized practice was taught during the second session. To encourage compliance, practices were written and audiorecorded; the participant received both media. All assessments and sessions were documented using the SOAP notes format: subjective, objective, and assessment information was collected and planning goals and objectives were identified and made part of the participant's record. Participants received a minimum of 4, maximum of 6, and a mean of 4.75 sessions.

Participants were scheduled either weekly or biweekly, depending on their needs and schedule. Sessions included discussion of the participant's experience of their practice since the last session and targeted specific therapeutic objectives and teaching goals. Practice revisions were made as needed. Lifestyle issues, with an emphasis on stress management and diet, were also addressed.

Components of individual practice. Individual practices had several components. They are described in the following paragraphs.

Yoga practices. Yoga practices included (a) a mat or chair practice consisting of individualized/adapted breath-centric asana or movement, with or without breath adaptation and supported by props as needed; (b) pranayama with an exhale focus, either a ratio practice in which exhale becomes progressively longer than inhale or a technique practice, such as *anuloma ujjayi* (ujjayi inhale, alternate-nostril exhale); (c) guided relaxation; (d) meditation with a focus related to an individual's needs and/or interests; and (e) other components, such as chanting, visualization, or other yogic tools, determined by the participant's needs and interests.

Yoga snacks. Yoga "snacks," or short practices of 1 to 10 minutes, were also offered. These involved a selection of yoga tools, such as breath and movement, pranayama, chanting, or visualizations, designed to interrupt patterns of cumulative stress during a day and provide an activity that brought awareness and energy inward to nourish and revitalize. For example, Participant 2 was given short breath-centric movement exercises with a pursed-lip exhale breathing technique and visualization. This brief practice was designed to increase energy and relieve cumulative mental stress and physical stress in her neck, shoulders, elbows, wrists, and hands from long reading and writing sessions at her desk and computer or from several hours of sitting during classes at the nearby university.

Self-directed awareness. Self-directed awareness was used to draw attention to how a participant related to or managed her RA (e.g., habits that irritated or triggered symptoms or those that mitigated symptoms and were nourishing and restorative).

Structured writing exercises. Structured writing exercises were used to support self-study and self-reflection. The exercises followed the methodology developed by research psychologist James W. Pennebaker, PhD (Pennebaker, 1997; Pennebaker & Chung, in press). Three progressive prompts were used (see Table 3). Following each prompt, the participant was asked to write as continuously as possible for 15–20 minutes.

Other life skills. Other life skills were taught on an as-needed basis. For example, Participant 1 was taught how to prop herself in bed to take weight off her joints, to reduce joint pain, and improve her sleep quality.

Stress management. It was critical to teach participants to pace activity to avoid cumulative physical, mental, and emotional stress. Pacing was linked to conserving energy, mitigating fatigue, and not triggering pain and inflammation. The broadened definition of *practice* included becoming aware of the

Table 3.
Structured Writing Exercises

The following writing prompts were used to elicit self-reflection and self-understanding:	
Structured writing exercise	Content
Exercise 1	How do you believe yoga therapy can help you optimize the way you manage your rheumatoid arthritis? What would you like to see happen over the period of time in which we work together?
Exercise 2	Reflect on your practice this past week. What gave you the most benefit and why? What gave you the least benefit and why? Include any “ah-ha” moments that you may have had.
Exercise 3	If you were to sit down with the RA discomfort you feel today and have a conversation with it, what would you say? How would the discomfort respond?

effect of activity and physical, mental, and emotional stress. It also encompassed recognizing and acting on the need for a yoga snack and identifying a snack type and length.

Diet. Information and education regarding the value of following an anti-inflammation diet, including a focus on foods and supplements that decrease inflammation, such as oily fish, green leafy vegetables, and turmeric, and avoiding foods that tend to increase inflammation, such as wheat and dairy, were provided. Discussions addressed how sugar, carbohydrates, and stimulants such as caffeine or depressants such as alcohol affect energy and stress.

Each practice was highly unique and person centered. Practices and individual components of the intervention were highly variable and fluid and continuously evolved over the course of the intervention. Table 4 provides a detailed summary of Participant 1’s practice as it evolved over time.

Results

Self-report data obtained during the systematic assessments conducted at each session revealed decreased pain, fatigue, and inflammation, increased energy and pain-free ROM and strength around affected joints, and a heightened and sustained sense of empowerment, well-being, and optimism across the 2.5-month study period (see Table 5). The average self-reported pain score was 3.5 at baseline and 1.25 at posttest. Participants indicated that they used less prescription and OTC pain medication. Participant 2, the only individual to experience flares during the study, reported a decrease in the number of flares she experienced from 3 to 0 during a 2-week period.

Discussion

There was a high degree of variability in symptom presentation across participants. Each experienced diverse levels of symptom

severity and associated comorbidities, and each had selected various medical management strategies. Common RA symptoms were consistent across participants, as were high levels of chronic stress that exacerbated their symptoms despite the use of prescription and OTC medications to manage pain, swelling, and stiffness and to slow disease progression.

Results suggest that an individually tailored yoga therapy intervention was associated with decreases in pain, inflammation, flares, and stiffness and increases in strength, ROM, energy, mood, and well-being. These findings are consistent with those of published studies (Badsha et al., 2009; Dash & Telles, 2001; Evans et al., 2010; Haslock et al., 1994; Singh & Bhandari, 2011; Telles et al., 2011). Despite the high levels of symptom variability, each participant reported improvements across symptoms by the end of the intervention, as well as less stress and greater well-being. Among the most potent results were positive changes in self-perception and participants’ relationship to RA. Redefining their relationship with themselves and RA and reclaiming a sense of empowerment and control enabled them to function with greater confidence, strength, and hope.

Principles for Working With Individuals With RA

The following principles guided intervention development during this study. Findings from each case study suggest that when combined with well-defined therapeutic objectives, these principles may be effective for managing RA. They may be beneficial in individual sessions as well as in groups.

Activate the para sympathetic nervous system (PNS) to promote relaxation and stress reduction. Relaxation and stress management strategies were essential components of the intervention. Participants reported high levels of stress at intervention onset, suggesting that their sympathetic nervous system (SNS) was highly active. Breath work that promoted relaxation and PNS activation was a central component to stress relief, symptom management, and autonomic nervous system balance.

Like anyone, people with RA can become habituated to the way they handle pain, discomfort, and limitation. Dysfunctional habits for coping with chronic pain and RA-related life changes can lead to chronic hypervigilance and overstimulation of the SNS. These circumstances can set up a cascade of maladaptive neuroendocrine responses (Sapolski, 2004). PNS stimulation via movement and breath work that emphasizes prolonged exhalation can promote the flow of prana, which increases circulation and reduces inflammation and pain and allows tense muscles to relax (Kraftsow & Collins 2010). This practice can lead to a restful state, particularly when facilitated by props that support the joints.

Traditional yoga tools, including visualization, guided relaxation, and meditation with a targeted focal point, such as the breath, are also useful stress management strategies (Kraftsow & Collins, 2010; see Table 6 for more information).

Make breath work primary. Appropriate movement, while vitally important to yoga therapy, is secondary to breath work. Two participants in this study were unable to perform a traditional asana practice, because of structural and physiological factors. Nonetheless, movement was essential for these individuals. Simple, functional movement that facilitated a long, deep breath that was smooth and relaxed was most beneficial for all

Table 4.
Summary of Individualized Yoga Therapy Intervention for Participant 1

The following practice evolved during the course of five sessions:	
Practice	
Time	Description
Morning	Movement before getting out of bed; working all joints with gentle movements; e.g., pointing/flexing feet, rotating ankles, flexing/extending knees & hips
Throughout the day	<ol style="list-style-type: none"> 1. Yoga “snacks,” as needed <ol style="list-style-type: none"> a. Seated conscious breathing, using belly breathing rather than chest breathing Emphasis: lengthening inhalation/exhalation, starting with exhalation b. Mindful tea breaks: hot steaming tea is held in hands, allowing warmth to sooth and comfort hands and tea steam/aroma to sooth sinuses and bathe face c. Silent sitting in a darkened room to relax and decrease sensory stimulation d. Interrupting long work periods with art project materials by engaging in compensatory movements e. Recognizing when she was holding her breath during the day; stopping what she was doing to breathe with a longer, deeper, more flowing breath before resuming activity 2. Pacing daily activity that involved “chunking” her day differently by interrupting long, intense work periods into smaller intervals and interspersing physically or mentally demanding activities with less demanding activities
Late afternoon/early evening	<p>A 30- to 45-min supine restorative breath & movement practice in joint-supported, propped position</p> <p><i>Movement focus:</i></p> <p>Increase circulation & relieve cumulative stress, stiffness, soreness in hands/fingers, wrists, shoulders, neck, ankles, feet/toes, knees, hips. Breath emphasis: Lengthen exhale, with belly breathing focus. To strengthen core muscles, participant contracted pelvic floor, low abdominals, then upper abdominals on each exhalation and released them in reverse order on inhalation; she engaged and released them gently with each breath throughout the practice</p> <p><i>Order of the practice components and time per component:</i></p> <ol style="list-style-type: none"> 1. Centering/breath awareness/breath lengthening: 5–10 mins 2. Breath-centric movement: 15 mins 3. Exhale lengthening pranayama: 5–10 mins 4. Savasana: 5–10 mins
Sleeping	Lying supine in joint-supported, propped position
Weekly	Structured writing exercises
Selected participant comments and yoga therapist observations	
Participant comments	Yoga therapist observations
<p><i>“I don’t crash and burn anymore.”</i></p> <p><i>“My upper back, neck, and shoulders are more relaxed. I noticed this when I was able to go to an art opening at night . . . and not feel pain or discomfort standing. I’m usually such a turtleneck in the evening because I’m so tired, but it seemed like my shoulders were more dropped down, like I’m not carrying as much stress as I was there. So I thought that was an improvement. And, I could be more present [at this art opening] and enjoy the social dynamic—I didn’t have to miss it.”</i></p>	<p>In the last week of our work together, the participant was also able to attend an evening art opening, which involved standing and mingling for several hours. She was very clear that her path back to greater energy was through her breath, rest, and relaxation. By learning how to pace herself through her days differently, the participant made a sea change in how she goes about her life and work.</p>
<p><i>She set a new intention for herself of going about her “daily activities and work more like breath—that is, flowing, not getting stuck or lingering too long on one thing, but flowing from one thing to the next.”</i></p>	<p>She related to the movements in her practice as healing movement, because she felt how they helped increase circulation. Breathing created a level of security, opened up her chest so she could breathe better.</p>

participants. Movement must be suspended during periods in which joints or tissues are red, swollen, or hot until the inflammation is no longer acute. Findings from this study suggest that modification and adaptation using props are essential for creating a safe and relaxing asana experience.

Conscious attention to the breath heightens body–mind awareness. The breath is what initiates and guides each movement during a practice. Movement must be progressed gradually to avoid stressing RA-affected joints, particularly those that have been or are becoming deformed. Special care must be taken to avoid overstretching, especially around RA-affected joints (Kraftsow & Collins, 2010). Work to increase pain-free ROM often comes first and is followed by specific strengthening work. Use of breath-adapted repetition of a posture, during which the pace of breathing is increasingly slowed over the course of several repetitions, is more effective than holding a fixed posture, which creates greater strain and risk to the joints.

Balance breath work with progressively stronger, energizing movement. Bigger movements involving larger muscles increase circulation and contribute to decreasing inflammation (Kraftsow & Collins 2010). Standing postures such as *virabhadrasana* (warrior pose), *trikonasana* (triangle pose), and *utkatasana* (chair pose) use muscles in the legs, hips, and buttocks, along with core muscles in the trunk. These can be done with or without arm movement and can be modified or adapted with or without props, as needed. Begin with movements that maintain or increase pain-free ROM around affected joints and build muscle support for the joint without increasing inflammation. Breath-centric repetition, moving into and out of a posture on specific parts of the breath, helps develop muscle tone more quickly and safely than do static postures, and alleviates weight-bearing stress around the joint. This approach may also alleviate pain, mitigate fatigue, and build energy reserves (Kraftsow & Collins, 2010).

Lifestyle management. RA is often associated with chronic pain and severe physical, physiological, and psychological changes that interfere with quality of life. The disease requires considerable lifestyle management to accommodate symptoms. This was the case for each participant in this study. The traditions of yoga and Ayurveda are particularly beneficial for addressing issues of lifestyle management (Frawley, 2000; Lad, 2001). Results from this study suggest that it is important to pace activities to reduce cumulative stress, conserve energy, mitigate fatigue, manage pain and inflammation, and cultivate a sustainable quality of life. Pacing involves considering how daily activities are approached and developing strategies to ensure that the timing, order, and execution of particular tasks account for an individual's unique needs. Yoga therapy interventions for individuals with RA must take into consideration myriad factors, including diet, exercise, rest, pain and stress management, sleep, hygiene, and emotional health. Attending to each of these aspects can lead to improved quality of life for those with RA.

Addressing the self and one's relationship to RA. RA is life altering and debilitating. It typically takes a significant toll on an individual's self-concept and psychological health (Rheumatoid Arthritis, 2012). The Viniyoga tradition empha-

sizes a person's relationship to his or her condition, which often operates at an unconscious level, as an important target of intervention. The practice of *svadhyaya*, or self-study, can facilitate the cultivation of insight into the psychosocial stressors that contribute to an individual's symptoms. Acknowledgment of the realities of this disease and its impact arms the individual with tools to cope with the breadth of physical, emotional, and relational challenges they face.

This study explored structured writing as a tool to cultivate *svadyaya*. Individuals were able to explore their experience through writing and bringing to conscious awareness thoughts and patterns that may be latent or unrecognized. This approach includes creating a written "dialogue" with RA, in which a person is able to address their thoughts and feelings about their experience. This practice marked a positive turning point for all participants in this study. Their reflections about how they perceived their condition and their relationship to it, as well as their relationship with themselves, allowed them to begin deidentifying with their illness. This process of deidentification is a vital step in tapping into strength and acceptance. It reduced their fear and helplessness and shifted their attitude toward what could be done versus what had been lost, and increased their patience and sense of empowerment and control. These shifts coincided with their experience of less pain and fatigue, increased energy, greater ability and willingness to strengthen gradually and progressively, and to be an active participant in their lives again.

Limitations

A number of limitations to this study bear noting. The intervention was delivered to adult women and cannot be generalized to the greater population of individuals with RA. There was a great deal of variability in the presentation of symptoms, which made it impossible to isolate which particular practices were most beneficial for each symptom. While measurement was intentional, these findings would have benefited from the use of standardized, quantitative protocols that are designed to systematically assess the dimensions specifically unique to RA. There was also no way to disentangle the effects of medication from those of the intervention.

The generally limited time frame in which this study was conducted attenuates the ability to make inferences regarding the potential long-term benefits of yoga therapy for individuals with RA. There was also no measurement of yoga dosage, which prohibited the examination of how much and which types of practices are optimal for those with this condition.

While many of these questions would be answered by a longitudinal randomized, controlled trial that is carefully constructed, this study offers a unique perspective into the benefits of a tailored, self-directed practice done at home. This approach may be of particular benefit to individuals with RA and other chronic conditions with considerable variability in symptoms and presentation. Future, longitudinal investigations would benefit from careful measurement of which types of yoga strategies were used in the intervention, their dosage, participant adherence, and the use of advanced statistical techniques for tailored treatment.

Table 5.
Summary of Results by Participant

Participant	Pain	Pain Med	Flares	Swelling	Stiffness	Energy	Fatigue	Sleep	Mood	Stress	Other
1	↓ B: 3 P: 2	↓	0 N/C	↓	↓	↑ <i>and stamina</i>	↓	↑ <i>amount and quality</i>	↑	↓	Increased core strength (reported feeling ready for stronger, more traditional asana to begin overall strengthening) Increased ROM in affected joints Shifted from a “tough it out” attitude about pain & discomfort to being self-nurturing and nourishing herself during the course of the day. She “warred” with herself less Shifted her relationship to her condition and how she deals with it; she could access & trust, even seek out what would be comforting and nourishing to her body Decreased feeling of disconnection from her body, because of decreased pain Began discovering how to reembody herself & experience decreased pain Came to see yoga as a positive way to inhabit herself again
2	↓ B: 5 P: 1	↓	↓ B: 3 P: 0	↓	↓	↑	↓	N/C	↑	↓	Improved grip strength Increased ROM in affected joints Increased evenness in energy, fewer “peaks & valleys” Improved breath capacity when walking (“my wind is good”)
3	↓ B: 2 P: 1	N/C	0 N/C	↓	↓	↑	↓	N/C	↑	↓	Increased ROM in affected joints Came to see how her relationship with herself & her condition had narrowed her life; enabled her to shift her perspective to be more open, positive Increased emphasis on/action toward nourishing & restoring herself
4	↓ B: 4 P: 1	N/C	0 N/C	↓	↓	↑	↓	↑	↑	↓	Improved core and leg strength Increased optimism about becoming medication free (DMARD)

Note. B = Baseline, P = Posttreatment, N/C = No change.

Table 6.
Strategies to Support Relaxation and Manage/Mitigate Stress and Pain

Following are examples of strategies to promote relaxation, support stress management/mitigation, improve pain management:	
Stress management/mitigation	Pain management/mitigation
Saunas & warm-water baths for full body or isolated body parts, such as hands & feet, with or without calming herbs or Epsom salts *	Wear tiplss gloves to improve circulation around small joints of hand & wrists
Full-body massages to relax tense muscles & increase circulation*	Apply topicals, such as arnica or mahanarayan oil, as part of gentle self-massage
Meditative walks	Use pillows, other props so joints are supported and “weight less” when sleeping or resting
Create a relaxing home space, other respite spaces	Do gentle movements in bed before getting up in the morning or after naps to increase circulation, relieve stiffness & pain before placing full weight on joints
Quieting activities that nourish & restore (e.g., reading, artwork)	
<i>Note.</i> *Only when not experiencing a flare or a more active RA period	

Dosage

Studies on the benefits of yoga for psychological conditions have shown that frequency of practice is an important consideration, and that the benefits of a yoga practice can be immediate or can occur over time. There appears to be a dose–response relationship, suggesting that yoga may require a daily dose to be most beneficial (McGonigal, 2011). This may also be true for physiological and musculoskeletal conditions, such as RA. Internist and yoga researcher Timothy McCall, MD, and senior Viniyoga teacher and therapist Gary Kraftsow emphasize the critical role of personal home practice in transforming unhealthy patterns (Kraftsow, 1999; McCall, 2007). Further research is needed to assess the optimal dosage of yoga for individuals with RA.

Conclusion

A personal practice that follows the therapeutic objectives and methodology outlined in this article may be effective for helping individuals with RA manage their condition. Practices that target stress reduction and cultivate relaxation may be of particular benefit for addressing the myriad symptoms associated with RA. Findings from this study suggest that an individualized, holistic approach that emphasizes differentiation, adaptation, and appropriate application may be particularly useful. Personal practice is central to this approach. It represents an integral part of self-care that empowers individuals to become fully invested in their well-being. Home-based yoga therapy also makes these practices available to the broader RA population, regardless of their ability to attend a group class. Yoga therapists and researchers will play an important role in helping individuals with RA achieve sustainable well-being and improved quality of life.

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