

Yoga Can Help You Practice and Teach Cardiothoracic Surgery

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INTRODUCTION



Those who practice, and teach, thoracic and cardiovascular surgery and those who are training in this realm, as well as in many other disciplines, often endure debilitating physical stress and strain as a result of their practices. [Bishop, 2023] Despite the attention paid to issues such as proper adjustments for loupe magnification, optimal footwear, attention to 'micro-breaks', and paying attention to the ergonomics of performing long and intense operations, many surgeons still suffer discomfort and debility, and, even, disability. [Dalagher, 2019, Epstein, 2018, Alleblas, 2017, Giagio, 2019, Norasi, 2021] Dealing with those challenges should include what those practitioners can do outside of the operating room to increase their comfort and resilience, as well as what can be done in the operating room. One approach to dealing with these issues is to utilize the lessons and benefits of yoga. [Tribble, 2016]

In this treatise, we will explore adding yoga routines to the armamentarium of surgeons and surgical trainees who are trying to maintain comfort, health, and resilience in their chosen profession. Let's get started.....

A RELUCTANT RECRUIT TO YOGA

Like many active members of my generation, I grew up playing the three main American sports of football, basketball, and baseball. I had the great fortune of having five younger brothers and a neighborhood full of other very active and athletically inclined young people.



We played our three sports, each in its appropriate season, and we played them with great earnestness, though with varying degrees of skill and aptitude. Many of us played one or more of those sports in high school, and some played them in college. I myself have continued to play basketball at least once a week ever since my younger days.

Later in life, I became a somewhat reluctant recruit to the world of yoga. Yoga had initially struck me as being some form of Eastern mysticism, and I had enough things to do with the fairly limited amount of time I could allocate to my various workout routines as a busy thoracic and cardiovascular surgery resident and faculty surgeon, which included playing basketball, biking, trail running, swimming, weight lifting, and an occasional game of Ultimate Frisbee. Furthermore, I did not believe that yoga would add to my overall fitness.

However, I had several friends who were not only yoga practitioners, but some who were also yoga instructors. Eventually these friends convinced my wife and me to at least give yoga a try. So, we did, on one condition: we wanted to do it privately, at least initially. Thus, I decided to give yoga a try, with a good faith attempt to keep an open mind about it. Our friends were correct: we enjoyed that lesson. And, like many others before me, I eventually found it much more engaging and useful to my overall fitness goals than I had imagined.

MAKING YOGA AN INTEGRAL PART OF MY FITNESS ROUTINE



Our family had, around that time, joined one of our local fitness clubs, thinking that we (my wife, our 3 boys, who were little guys at the time, and I) could take advantage of the weights, stationary bikes, the basketball court, the lap pool, and the warm water pool for kids. It

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turned out that this gym had a staunch commitment to providing yoga classes. So, one thing led to another, and my wife and I gradually became regular participants in those yoga classes. In fact, we made the Saturday morning classes part of our regular routine for years, which included having a babysitter arrive at our house early on Saturday mornings, while the boys were still asleep, allowing the two of us to head to that gym for the Saturday morning yoga classes, after which we'd shower and then grab lunch on the Charlottesville Downtown Mall. I would generally get in another workout in the afternoon, usually road biking in the warmer weather, trail running in the mountains around our house south of Charlottesville in cooler weather, and cross country skiing on The Blue Ridge Parkway when there was snow on the ground (unless I was tied up doing an emergency operation or a heart transplant!).

However, I gradually realized that I was learning a lot and benefiting from my increasing immersion in yoga. And, yoga eventually became a part, one way or another, of my weekly fitness regimen for the nearly 30 years since this inauspicious start to my yoga practice. In addition to the fitness and flexibility afforded by incorporating yoga into my fitness regimen, I learned many valuable lessons that were applicable to life and to my work as a cardiovascular surgeon and as a teacher of medical students and cardiothoracic & vascular surgery residents.

LESSONS LEARNED FROM YOGA



One of the earliest, and best, lessons I learned from practicing yoga was an assertion made by a fairly well-known yoga teacher and author named David Swenson, an American who was first introduced to yoga by his older brother and who then traveled to India to learn from the devotees who practiced and taught there. [Swenson, 1999] He eventually came to be recognized as one of the world's foremost practitioners and teachers of the style of yoga that he had adopted, which is known as Ashtanga Yoga. One of Swenson's favorite admonitions is that yoga is the only physical activity that one can get better at throughout one's life. That idea did, and has continued to, resonate with me, especially as I myself got older, accumulated a series of acute and chronic injuries, and gradually became less able to keep up with my younger pals on the basketball court or in Ultimate Frisbee Games. The way Swenson illustrated that point was to note that, if you could gain the additional flexibility equivalent to the thickness of one page of a telephone book a day, or even a week, at the end of a year you would have gained a centimeter or two of flexibility in a particular movement or pose.

SOME BASIC ATTRIBUTES OF YOGA

It is worth noting that yoga has been practiced in some parts of the world for over 3,000 years. Other than running, it may well be one



of the most ancient forms of exercise. Other laudable aspects of yoga include the facts that:

- It can be done almost anywhere, with minimal 'gear.' (All the gear you need is a mat or even a towel.)
- It will improve your flexibility and lessen your chance of injury in other sports.
- Your balance will be improved, as will your 'core strength,' worthy benefits for sure, especially as one ages.
- Exercise can keep your brain healthy.
- The likelihood of injury is minimal, in contrast to many other sports or activities (as my own scars and x-rays reveal).
- It's affordable, at least mostly, especially as you develop 'your own practice' and can become less dependent on finding classes to join.
- It is 'mind clearing' which is actually one of yoga's primary attributes.
- It is a surprisingly good workout.
- Your ability to focus, especially on movements, will be sharpened.
- You will find that tension, which can 'build up' in us all (and, especially, surgeons) can be lessened.
- It emphasizes control of the breath, which has many benefits, both in other sports or activities, as well as in day to day life.
- Yoga is an activity that you can do with anyone else, regardless of their skill. (For instance, to run, play tennis, ride bikes, or play basketball, you need participants who are at or near the same level as you, to really enjoy those activities.)
- Or, you can do it all by yourself!
- It can be a time saver. You don't necessarily have to drive to a gym, find a parking spot, and change clothes. You can likely do your regular yoga routine at home in less time that you'd spend getting to a gym or a pool and back home.
- You will likely be able to do yoga all your life, probably long after many other workouts or activities are no longer practical for you.
- And, those of you who perform long, arduous operations will likely be more comfortable day to day and, maybe, be able to continue to operate later in your lives.

Can you think of any other activity that has all these benefits and few, if any, downsides? I doubt it.

YOGIC BREATHING OR PRANAYAMA

Breathing is the most potent way to control your autonomic nervous system. —Dean Pohlman, 2018

Now, let's talk about breath control, which is sometimes called 'yogic breathing' or pranayama. Managing one's breath in yoga is a core or central element of yoga practice. Some yoga teachers like to

emphasize that the breath is 'the life force,' which is called 'prana.' The controlled yogic breath is always drawn in and exhaled through the nose and not through the mouth.



There is also an emphasis on correlating the pattern of breathing with the rhythm of the yoga poses or postures, with a pause at the 'top' of each inhaled breath. This emphasis on a pattern of breathing will be familiar to those who lift weights, when one exhales as a weight is lifted and inhales as the weight is lowered. A similar emphasis may be familiar to serious bike riders who will know about 'cross sided breathing' which is when a rider alternates focusing their exhalations between the downward power stroke on one pedal or the other.

Yoga teachers emphasize breathing with the chest more than with the abdomen. This emphasis is important because the core abdominal muscles must often be engaged in a movement or pose. The maintenance of tone in these muscles provides stability while doing yoga poses. Yoga instructors call this maintenance of muscle tone 'bhandas' or 'energy locks.' While most of us may not have thought of the abdominal muscles as including those of the pelvic floor, these muscles are also emphasized by yoga teachers and practitioners. Once you think about that concept, it does, however, make plenty of sense.

As noted, yogic breathing is also always done through the nose and not the mouth, which is not necessarily instinctive to those of us who run, swim, or bike, when we will ordinarily be breathing primarily through our mouths. There is also an emphasis in yogic breathing on how the breath is exhaled, which is done with a slight restriction of the back of the throat that creates a low sound that some equate to the sound of waves in the ocean or wind in the trees. The sensation of this type of exhalation is felt by many to be calming. I myself practice this type of breathing regularly, such as when I am walking around the hospital or working at my desk, and I remind myself to do it when I am concerned or 'uptight' about something. It is truly a calming sensation. I have even found myself focusing on this type of breathing, and the rhythm of it, when doing cardiac surgical operations, correlating this somewhat restricted exhalation with, for example, the placement of each stitch of a coronary anastomosis.

SOME ADDITIONAL CONCEPTS WORTH NOTING ABOUT YOGA:



- You will come to understand the concept of 'the edge' which is the place you are able 'to go' with any given movement or pose. (And this concept of 'the edge' can be applied much more broadly than just to a yoga pose.)
- You will learn that there is a 'memory of movement' which you can feel the next time you engage in a yoga session when you will likely be able to sense or feel that your flexibility, strength, or ability to do a certain movement has been retained.
- You may recognize that yoga could be the only exercise you need to do in order to maintain fitness throughout your life.
- And, most who engage in yoga will find that it can be fun to do in a group, when the opportunity is available. There is always energy to be gained 'in a crowd.'

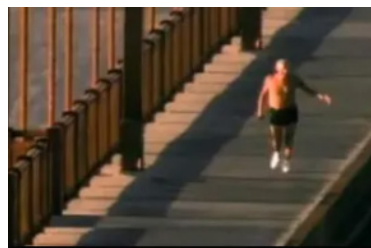
UNDERSTANDING THE EDGE



Start where you are. Use what you've got. Do what you can.
—Arthur Ashe, The #1 Tennis Player in the World in 1975

When practicing yoga, you must understand your own limitations. You need to learn to ease into poses. You should get to your 'edge' and try to stay at that point for a bit, always maintaining your breathing pattern. You should not compare your movements or poses to those of anyone else. To emphasize this point, one of my favorite yoga instructors would note that "you shouldn't even notice if the person beside you in a class has on a white shirt or an orange shirt."

CONCENTRATING ON THE MOVEMENTS



Start slow, then taper off. —Walt Stack, icon of the San Francisco running community, 1908-1995

It is essential to gently ease into and out of yoga poses. Bouncing to attain a position should be avoided at all times. Yoga requires both the stretching of some muscles while activating other stabilizing muscles, in what yoga teachers call 'integrated movements,' which is, after all, what most movements should be.

SAVASANA



The traditional end of a yoga workout is the final resting pose, which can be a sort of meditative or restorative pose, called savasana. Some yoga instructors note that this pose helps one's body 'remember' what has been done during a yoga workout. This resting pose allows the practitioner to completely relax with the body in repose and with the mind clear. I have emulated this feeling when preparing to fall asleep at night (or for a nap), with an emphasis on yogic breathing and a conscious focus on relaxing my whole body, sometimes one part of my body at a time, in sequence.

NAMASTE



Finally, I found that almost all of my yoga instructors would say the word 'namaste' (pronounced 'nom-a-stay') at the end of the savasana pose, as a sort of conclusion to the session. I learned that 'namaste' is a Sanskrit word for something like 'from my heart to yours.' I grew to love that concept, as well as the word itself. Though I would not use that word in talking to patients, I have always liked the concept of my conveying this idea or feeling to them: from my heart to yours. Virtually anyone and everyone will sense and appreciate gestures of friendship and concern.

WHY YOGA CAN BE WORTHWHILE FOR CARDIAC SURGEONS AND TRAINEES



Surgery of all kinds is said to be 'a contact sport,' a phrase some use to describe the procedures done on and for our patients. However, those of us who practice cardiothoracic surgery and those who are training in this discipline, soon realize that much of the 'contact' in our day to day work is actually between us and the ground! We can all benefit from the lessons of yoga that include breathing patterns, posture, and focus. In my own experience, almost anyone in this realm who has tried developing their own yoga practice will recognize the value of maintaining this practice.

It is also worth noting that 'muscles in motion' can improve cognition and brain health, as well as, potentially, guarding against neurocognitive decline later in life. There is an increasing body of evidence that exercise can increase the brain's capacity to regenerate neurons, reduce inflammation, and potentiate 'neuron to neuron communication.' [Chang, 2022]

YOGA CAN BE APPROPRIATE FOR PATIENTS, BEFORE AND AFTER SURGERY



While many of our older cardiac surgical patients will not be familiar with yoga, we can recommend some poses and practices to them, including those that focus on breathing, posture, body awareness, and mental relaxation. You might recommend poses as simple as sitting cross legged on the floor, with a focus on sitting up straight and on taking slow, deep, rhythmical breaths. Some might find that lying on a mat and putting their legs up against a wall to be relaxing, as this pose can be done by almost anyone both before and after many, if not most, operations. [Chen, 2017; Hochstein, 2023]

ADVICE TO MY RESIDENTS AND STUDENTS



I spend quite a bit of time with surgical residents, ranging from those fresh out of medical school to those who are in their 7th or 8th year of surgical training. I also work extensively with our medical

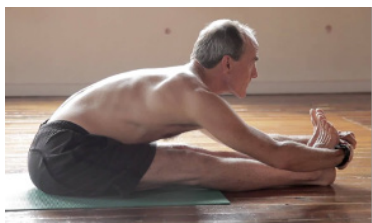
students. I try to impress upon all of my protégés the importance of having a fitness routine that works for them and of focusing on their breathing when stressed, both in and outside of the operating room. Obviously, I believe that adhering to the sorts of routines that I have developed and maintained throughout my busy career is both feasible and important for well-being in a demanding career in thoracic and cardiovascular surgery.

MY CURRENT YOGA PRACTICE



In addition to the three primary workouts that I have done my best to get to every week in recent years (biking, swimming, and basketball), I have a routine that I try to adhere to each morning. This routine includes four body weight exercises, including pullups, dips, pushups, and abdominal crunches, as well as a regimen incorporating dumbbells and a kettlebell, which results in about 8 tons of ‘weight moved’ (amazingly to me). And, I finish up with at least 5 yoga poses. I can get through this regimen in 30 minutes or less. In addition to this practice, I walk up the six flights of stairs to my office at least two or three times each day. I regularly take short breaks to work on yogic breathing while in the operating room or in my office. When I am traveling, I have a light weight yoga mat that I can carry in my suitcase, so that I can get in my yoga even when away from home. This overall regimen has allowed me to stay relatively injury free in recent years and to maintain my weight at approximately what I weighed as a senior in high school.

SO, WHAT MIGHT BE A LOGICAL WAY TO ‘START INTO’ YOGA?

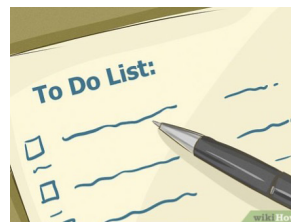


I would suggest that those who want to give yoga a try should find a yoga teacher to give you, and, perhaps, a spouse or a friend, a private lesson or two. You can begin to figure out some of the basics, such

as what might be the best yoga ‘outfit’ for you and what kind of mat might be optimal. Once you have gotten started, you can ask around to find a place that might suit you to take some group classes.

At some point, it is quite possible that you will want to develop your own practice to supplement or replace the group classes, either for convenience or to save money. You can consider accessing on-line guides to poses for beginners. [Pizer, 2022] There are also DVD’s available that are easy to follow, with those produced by David Swenson being particularly good, in my opinion. [Swenson, 2015] I obviously believe that many will find that practicing yoga can, and should, be a part of an overall fitness regimen and that this practice can be continued for most of the rest of one’s life.

FINAL ADVICE



I believe that it is worthwhile to identify your reasons for and expectations of any workout that you plan to engage in. I think you should set a schedule and stick to it, as best you can. And, I think there is value in keeping a record of your workouts. On the one hand, you can ‘congratulate yourself’ when you see what you have actually been able to get done. And, on the other hand, a few blank pages in your workout log can sometimes provide the impetus to accomplish at least some of your routines on any given day. [Gawande, 2011]

SUMMARY



I have come to think of yoga, in a broad sense, as a form of ‘basic life support.’ As I’ve mentioned, many years ago yoga became an integral part of my own weekly exercise routine, which still includes, when time permits, basketball, swimming, biking, and weight lifting. However, I virtually never allow a day to go by without doing at least some yoga poses, while most of those other activities are ones that I engage in about once a week. I will soon enter the eighth decade of

my life, and I am well aware that some of my workouts may gradually become less practical or accessible. I am confident that I will, however, be able to do yoga in some form for virtually the rest of my life, and I am certain that is a good thing. Namaste!



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AUTHOR NOTES

