

How Yoga Supports Health & Physiology

Lesson



Lesson Overview

In this lesson, we specify the general and specific ways that yoga techniques support health, including its impact on various bodily systems.

Objective

Become competent in specifying the ways that yoga supports health from various perspectives.

Description

Describe four perspectives from which yoga can be described as supporting health. Explain ways that yoga can serve a preventative role and examples of providing symptomatic relief. Understand how yoga techniques can be used along with western medical treatment and how they can help to address imbalances related to health conditions. Specify multiple categories of bodily systems that are supported by yoga practices and the ways in which yoga supports health of those systems.

How Yoga Supports Health



There is an understanding in many healthcare settings that, when all else fails, yoga works. – *Joseph LePage*

There are different perspectives for discussing how yoga supports health. Here we examine yoga's impact from the following perspectives:

1. Prevention and symptom relief
2. Support along with other treatments
3. Balancing stability and ease
4. Impacting bodily systems and processes

See Timothy McCall MD's list of 38 benefits [here](#).

Prevention & Symptom Relief



Prevention

Baxter Bell MD explains [here](#) that yoga serves a preventative role in two ways:

- **Overall healthcare** – Because yoga is a powerful antidote to [stress](#) and has a positive impact on strength, flexibility, balance and agility, it naturally serves a preventative role in conditions caused by a sedentary lifestyle and/or stress — conditions such as heart disease, cancer, diabetes, osteoporosis, balance issues, and so on.
- **Particular conditions** – Yoga is [adaptable](#) to all sorts of needs. A person at risk for osteoporosis, for example, can emphasize practices to build bone and muscle strength.

In addition, yoga affects mental state and attitude, which may lead to pain prevention, pain relief and/or the placebo effect.

Symptomatic Relief

Yoga is very effective at relieving symptoms. Dr. Bell observes that:

- Sometimes yoga promotes symptomatic relief without impacting the underlying cause, such as [low back pain](#) caused by a ruptured disc, for example.
- Other times, yoga addresses the symptoms and also leads to a cure of the condition, such as stress-related headaches or [digestive problems](#), for example.

Based on an extensive and ever-growing library of [research](#), we know that:

- Yoga has a very long list of symptoms it addresses, such as [low back pain](#), [depression](#), [headaches](#), [chronic pain](#) and much more.
- Yoga provides relief for a wide range of conditions that underlie chronic pain e.g. migraines, [osteoarthritis](#), fibromyalgia, cancer, etc.

Examples of How Flexibility & Strength Can Prevent Conditions & Relieve Symptoms

During your first class, you probably won't be able to touch your toes, never mind do a backbend. But if you stick with it, you'll notice a gradual loosening, and eventually, seemingly impossible poses will become possible. You'll also probably notice that aches and pains start to disappear. That's no coincidence. Tight hips can strain the knee joint due to improper alignment of the thigh and shinbones. Tight hamstrings can lead to a flattening of the lumbar spine, which can cause back pain... Each time you practice yoga, you take your joints through their full range of motion. This can help prevent degenerative arthritis or mitigate disability... Strong muscles do more than look good. They also protect us from conditions like arthritis and back pain, and help prevent falls in elderly people. And when you build strength through yoga, you balance it with flexibility. If you just went to the gym and lifted weights, you might build strength at the expense of flexibility. – **Timothy McCall MD**

Attitude, Appreciation & The Placebo Effect

A regular yoga practice changes the lens through which we see the world by creating a more nonjudgmental appreciation for what's within and around us. It allows us moments to sit in the middle and watch the waves of our lives around us, which is a big part of its use in stress reduction. It's fascinating... how we look at placebo as a negative outcome rather than the power of the mind. The importance of our perspective, our mindset, our purpose, setting an intention with practice, all these really simple things are also a big part of what's shaping the effects of our practice. We're learning so much more about the brain and how powerful it is in regulating so many things, including pain and our experience in the world. – **Tiffany Cruikshank (Yogapedia)**

See Also

See the following lessons regarding yoga's impact on specific areas such as brain health, low back or neck pain, depression, trauma and so on:

- [Chronic Pain](#)
- [Safety & Adaptations Hub](#)
- [Research on the Impact of Yoga](#)

Support Along with Other Treatments



Baxter Bell MD describes [here](#) how yoga can be used along with other treatments:

1. Medical condition prevention
2. Symptom improvement
3. Rehabilitation support
4. Stress management
5. Relief of symptoms related to chronic conditions, life-threatening illness and hospice care

Balancing Stability & Ease

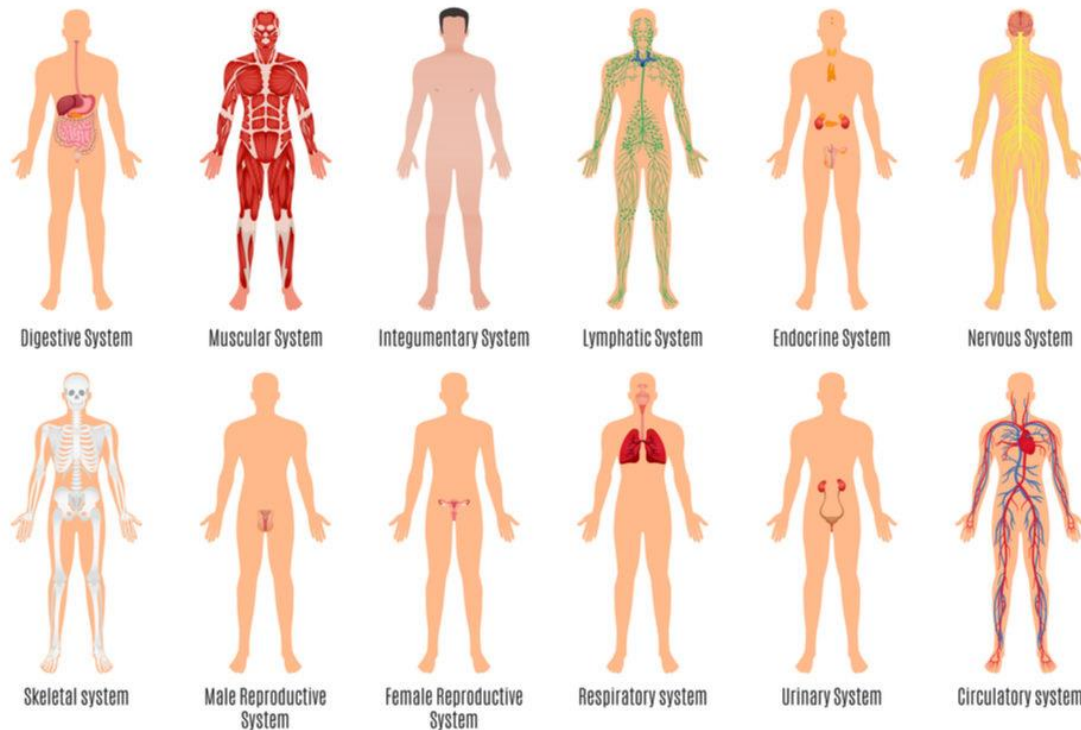


As Olga Kabel notes [here](#), yoga can be adapted to address imbalance on any level — physical, mental or emotional — and can support imbalances on any end of the spectrum, from “too tight” to “too loose.”

Too Tight or Too Loose?

On the physical level, being too tight manifests as muscle tension, restricted movement and the whole body being “stuck” in a posture that you assume for most of your day. Being too loose leads to overall structural instability, overworked muscles that have to both move the body and hold it together, sacroiliac joint pain, dislocations and so on... The cool thing about yoga is that unlike other disciplines (like physical therapy, psychology, philosophy and so on), it offers us tools to work toward balance between stability and ease... And the choice of appropriate yogic tools will depend on which level of your system needs more tuning. Not all of those tools are asana-related. – *Olga Kabel*

Bodily Systems & Processes



Another way to look at how yoga supports health is how it impacts the body and its physiology. In this view, we consider the impact on various systems of the body:

1. Nervous System
2. Skeletal System
3. Muscular System
4. Mental Health
5. Emotional Well-Being
6. Respiratory System
7. Digestive System
8. Cardiovascular System
9. Immune & Lymphatic Systems
10. Endocrine System

Nervous System



Here we're focused specifically on how yoga impacts stress levels. But in real life, there's no clear dividing line between how yoga impacts conditions such as chronic pain, and how it impacts stress. That is, if we suffer from PTSD, anxiety, MS or fibromyalgia, we will also be suffering from some degree of stress that may be an outcome of the condition, but also an exacerbating factor. Attempts to separate yoga's impact on one or the other is simply researchers' efforts to pull things apart for greater understanding about how yoga impacts people, and what leads to healing. But let's not lose sight of the fact that the body is a holistic system that defies such rigid lines of delineation. The entire collection of research can help us to get a grasp on just how powerful yoga can be. The stunning results from the following research speak to this in a profound way:

Reducing Stress Changes Genetic Expression: Epigenetics in Action

Skeptics have long believed that meditation and other stress reduction techniques are nice but ineffectual practices that do little for you. Nothing could be further from the truth — and now we have the science to prove it. Intriguing new research suggests that regularly eliciting the relaxation response — a natural counterbalance to the stress response — can act on our genes in ways that may evoke multiple health benefits and help reduce the harmful effects of stress... Exciting new research from the Benson-Henry Institute for Mind Body Medicine at Massachusetts General Hospital suggests that the simple act of eliciting the relaxation response (and thereby dialing back the stress response) temporarily changes the activity of certain genes... For starters, it switches off genes associated with chronic inflammatory responses. Many experts believe these inflammatory responses stress the body, possibly contributing to a host of chronic ailments, such as heart disease, inflammatory bowel disease, and diabetes. At the same time, it switches on genes linked with a variety of functions: the use of energy in the body, the release of insulin (which helps regulate blood sugar), the maintenance of telomeres (protective end-caps on our chromosomes that erode with age until a cell dies), and the functions of tiny cellular powerhouses called mitochondria... This information was prepared by the editors of the Harvard Health Publications division of Harvard Medical School. It is excerpted from our Special Health Report: Stress Management. – **Harvard Medical School**

Chronic stress is known to both cause and exacerbate disease, and can lead to other problems such as anxiety or depression. A balanced nervous system is the key to positively managing stress. In the lesson, Why Yoga Works – Yoga's Impact on the Nervous System & Stress, you'll find related facts and research.

Yoga's effect on the nervous system is a key factor related to many other impacts on health and wellness.

1. Yoga reduces chronic stress, helping to prevent and/or manage stress-related diseases (e.g. heart disease, digestive disorders, etc.).
2. Yoga is also an aid for other conditions that are caused or exacerbated by stress (e.g. anxiety and depression).
3. Stress management helps reduce inflammation which may address inflammation-related problems (e.g. most forms of arthritis and gastrointestinal conditions).

Build Methodically & Mindfully

The main routines in yoga's repertoire for stress management are breathing exercises, guided imagery, and relaxation exercises. For persons with elevated blood pressure or hypertension controlled by medication, breathing exercises should be done in a reclining position until a degree of breath control is gained. When you can willfully diminish your normal respiratory rate by one-third for two minutes, you can begin normal yoga *pranayama* exercises in a seated position. In other words, if your normal breath is 15 cycles per minute, you must reduce it to 10 cycles per minute for two minutes before seated practice is recommended. – **Mukunda Stiles**

See Also

- Nervous System & Stress
- Using Stress Management Techniques for Medical Conditions (by Yoga for Times of Change)
- Safety & Adaptations Hub

Skeletal & Muscular Health



Baxter Bell MD has summarized the general effects of *asana* practice into these categories:

1. Strength
2. Flexibility
3. Balance
4. Agility
5. Posture

Here are examples of how these general benefits affect specific health conditions:

1. Improving muscle strength can help with any condition that causes weakness (e.g. sarcopenia, chronic fatigue syndrome, recovery from broken bones or other lack of use such as having been bedridden as a result of illness or surgery).
2. Improving bone strength can help with osteoporosis and osteopenia.
3. Improving flexibility can help with any condition that causes stiffness (e.g. osteoarthritis or parkinson's disease).
4. Improving balance can help with any condition that impacts balance (e.g. frailty from aging and inactivity, multiple sclerosis, parkinson's disease, peripheral neuropathy from diabetes, and poor eyesight.)
5. Improving agility can help with any condition that affects nimbleness and response time, including any condition that affects balance and slowing of brain-body nerve conduction.)
6. Improving posture helps with problems caused by poor physical alignment (e.g. carpal tunnel syndrome and back pain).

The First 20 Minutes

The first 20 minutes of moving around, if someone has been really sedentary, provide most of the health benefits. You get prolonged life, reduced disease risk — all of those things come in the first 20 minutes of being active. – **Gretchen Reynolds**

See Also

- [Musculoskeletal System](#)
- [Safety & Adaptations Hub](#)
- [Applying Muscular/Skeletal Health Techniques to Medical Conditions \(by Yoga for Times of Change\)](#)

Mental Health



The very purpose of yoga practice according to the Yoga Sutras (to bring about “the cessation of fluctuations of the mind”) is clearly intended to affect mental health. These are some of the specific ways it does that:

1. **Yoga balances the nervous system** – Yoga is beneficial in part because of its proven ability to impact the nervous system and bring stress relief.
2. **Yoga affects brain chemistry** – Dharma Singh Khalsa MD explains that “yoga and meditation can alter the very biochemistry of the brain more directly and efficiently than regular exercise.” Not only does yoga stimulate the Relaxation Response, it also invokes a balance of stimulation and relaxation via glandular secretions of endorphins and adrenaline. (Amy Weintraub)
3. **Yoga brings attention to the present moment** – Present moment awareness is a key element of relieving symptoms related to many mental health concerns, including anxiety.
4. **Yoga cultivates self-awareness without judgment** – Meditation and mindfulness teachings help the practitioner to invoke the observational distance necessary to release identification with emotional patterns. This brings the student vital knowledge, increased acceptance and peace, and a pathway for change. “If you are willing to take a step back and observe your mood, you are practicing self-awareness. From here, you can better manage and even overcome your depression by developing a practice that suits your feelings.” (Amy Weintraub)

5. Yoga leads to an embodied experience – The experience of embodiment is one of the reasons yoga tends to have a positive impact on the practitioner's sense of well-being. Clinical psychologist Bo Forbes has found with her patients that the insights a student gains from becoming present and embodied tend to have a lasting effect on emotional balance and mental health.

Bo Forbes summarizes these five benefits of yoga, calling them the “building blocks for lasting healing.”

1. Balancing the nervous system
2. Regulating the breath
3. Cultivating direct experience
4. Quieting the mind
5. Changing our personal narrative

See Also

- [Mental Health & Yoga](#)
- [Anxiety & Yoga](#)
- [Depression & Yoga](#)
- [Safety & Adaptations Hub](#)

Emotional Well-Being



To achieve emotional well-being requires the recognition that emotions are healthy and normal, and the willingness to allow emotional energy to move through without excessive resistance. To feel feelings, we must focus on the body. This is in contrast to being caught up in thought, whether judgment, fix-it mode, or layering on additional feelings of frustration or shame in response to simply having emotions.

Yoga teachers often use phrases such as “come back to your body,” “feel where your body is in contact with the floor,” and “feel your torso expanding with the inhalation.” These are invitations to:

- Bring the mind back (from an external focus or from scattered or obsessive thinking), and
- Turn attention to the inner state of being.

This essential practice is to be grounded, embodied or “in the body” which means to be aware of bodily sensations and the inner experience.

Another name for inner sensing is interoception. Breathing, mindfulness and grounding practices encourage students to practice inner sensing and to experience the state of being “in the body.” In this way, yoga supports emotional well-being. For much more specificity, see [Emotional Well-Being & Yoga](#).

See Also

- [Emotional Well-Being & Yoga](#)
- [Safety & Adaptations Hub](#)

Respiratory Health



Yoga’s consistent focus on the breath leads to many benefits that are cascading effects related to overall healthy functioning, and yoga can also support students with specific respiratory issues.

- Yoga [asanas](#), [breath awareness](#), and [pranayama](#) can help improve lung function to foster general health and can help with respiratory diseases (e.g. mild asthma and COPD).

See Also

- [Respiratory Anatomy](#)
- [Safety & Adaptations Hub](#)

Digestive Health



Yoga practices support digestive health in general, as well as specific conditions.

Digestive Health in General

1. Digestive health is supported by overall well-being, of course. Mindful yoga practices support nervous system balance, stress reduction, pain management and more. Learn more: [Why Yoga Works](#).
2. The digestive system works best when the nervous system is in a balanced state, which for most people means spending more time in rest and digest mode (as opposed to flight or fight mode). Yoga has a positive effect on the nervous system, thereby promoting proper digestive system functioning. By reducing stress and calming the nervous system, yoga helps to calm an irritated digestive system.
3. Yoga can also teach students to listen to their body, helping them to gain the skills to more easily identify which foods or other factors aggravate their digestion.

More Specific Effects

1. **Healthy Gut Bacteria** – Stress management may also play a role in maintaining healthy gut bacteria, which influences the metabolism of certain nutrients in food, regulation of the immune system, and experiences of hunger, satiety and sleep.
2. **Organ Health** – *Asanas* can benefit the digestive system by supporting good circulation to the digestive organs, strengthening the muscular support around the organs and stimulating good elimination. “Increased blood flow to the small (and large) intestine

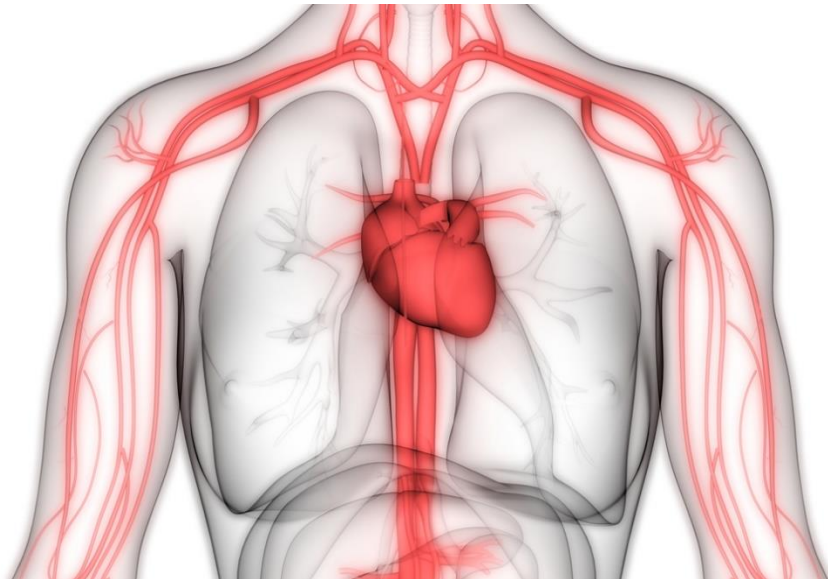
means stronger intestinal contractions, more digestive enzymes, and chyme moving along with a bit more vigor.” (Olga Kabel)

3. **Effective Esophagus Functioning** – “Restorative poses where your head and chest are higher than your belly and standing yoga postures can improve the functioning of your esophagus, and stress management practices will help both you and your esophagus relax.” (Yoga for Times of Change)
4. **Symptom Relief & Prevention** – For conditions such as irritable bowel syndrome, a yoga practice can help to bring the digestive system back into balance during an acute flare up and can extend symptom-free periods. (Yoga for Times of Change)
5. **Shortened Recovery Time** – Restorative practices, relaxation techniques and *pranayama* can help to shorten recovery times from flare ups and from surgery. (Yoga for Times of Change)

See Also

- [Digestion & Yoga](#)
- [Safety & Adaptations Hub](#)

Cardiovascular Health



- Research shows that yogic techniques have a beneficial effect on cardiovascular health in general, as well as high blood pressure specifically.
- One key way that yoga supports cardiovascular health is through stress relief and balancing of the nervous system.
- For students with heart disease, **yoga therapy** is likely called for as opposed to **generalized yoga**. Yoga teachers are advised to refer students with heart disease to a yoga therapist for an individualized plan.

Doctors Routinely Recommend Yoga to Heart Patients

When it comes to cardiovascular disorders, Yoga is no longer considered an “alternative” treatment. Doctors now routinely recommend it to heart patients, along with other gentle mind-body practices such as Tai Chi and biofeedback. The physical practice of Yoga and the lifestyle changes inherent in the Yoga philosophy work together to calm your heart and mind, bring your circulatory system back into balance, and help you avoid the number-one killer of Americans today: heart disease. — **Larry Payne, PhD & Richard Usatine MD**

Research

See [Heart Health & Yoga](#) for details on the research that has shown these effects of yoga:

- Review of 37 randomized control trials: Effective for cardiovascular health, reduced BMI, reduced cholesterol (2014)
- Improved balance, regulated blood pressure & improved cardiovascular health (2014)
- Reduced need for healthcare services by 43% (2015)
- Reduced risk in those with mild to moderate hypertension (2002)

See Also

- [Heart Health & Yoga](#)
- [Safety & Adaptations Hub](#)

Immune & Lymphatic System Effects

The immune system prevents illness and promotes healing.

There are so many great ways to support the immune system with yoga including simple stress reduction, *pranayama* and gentle flow for lymphatic circulation, or more specific movements to target the lymph nodes. The lymph nodes intelligently congregate around the joints and rely on changes in pressure to pump lymphatic fluid through them. Movements targeted to these areas help to pump fluids through the lymph nodes and the lymph flow through the nodes is an important part of our immune function. I love seeing how new research supports these things and the implications of how important the flow of the lymphatic fluid is to supporting the immune system. – **Tiffany Cruikshank (Yogapedia)**

The lymphatic system defends against pathogens and other foreign material. As with other systems of the body, yoga can support immunity in general as well as support people experiencing particular conditions.

- Yoga can boost immune system functioning, supporting those with immune system disorders (e.g. HIV/AIDS and adrenal insufficiency).
- Yoga can help foster healing from a wide range of illnesses (e.g. flu, auto-immune conditions such as [rheumatoid arthritis](#), and cancer).

Research

See [Immunity & Yoga](#) for details on the research that has shown these effects of yoga:

- Impacts immune system at molecular level (2013)
- Stress and autoimmune disease linked (2018)

- Decreased cortisol (stress hormone) in people new to yoga (2007)
- Randomized controlled trial: Improved physical capabilities and quality of life measures in healthy seniors (2006)
- Interoceptive awareness linked to stress resilience (2017)
- Compilation of various studies showing improvements in well-being (2017)
- Immediately, yoga reduced anxiety; Over time, inflammation-causing proteins lowered (2010)
- Decreased inflammation & cardiovascular risk (2016)
- Randomized control trial: Improvements in mood, fatigue and inflammation among breast cancer survivors (2014)
- Randomized control trial: Decreased pro-inflammatory proteins & increased anti-inflammatory proteins (2017)

See Also

- [Immunity & Yoga](#)
- [About Arthritis](#)
- [Safety & Adaptations Hub](#)

Endocrine System Health



Endocrine system health is associated with overall good health and healthy lifestyle practices around food, sleep and exercise. (source: Yoga Therapy: Foundations, Methods, and Practices for Common Ailments)

Yoga practices that support endocrine health include breath, *asana*, sound and meditation.

A research summary in the Journal of Yoga & Physical Therapy suggests that yoga has a positive impact on the endocrine system via hormone regulation. As YogaUOnline describes [here](#), the research showed:

- A decrease in cortisol (related to feelings of well-being and pain management)
- Elevated serotonin

- The release of oxytocin during visualization, and
- Higher levels of melatonin (related to sleep quality and immunity)

Lifestyle, Breath, Movement, Sound & Meditation

The Yoga theory for working with any condition involving hypo-functioning is to first consider appropriate lifestyle changes, including taking time for relaxation, modifying diet, and reducing stress... In addition, we can use the Yoga techniques of breath, movement, sound and meditation. – *Gary Kraftsow*

Poses Affect Glands of the Endocrine System & Are Associated with Chakra Balancing

Yoga is extremely helpful with hormonal imbalances because of its design. In fact, every time you're doing a yoga pose, you are working on at least one of the glands in the endocrine system, and usually more than one. Part of the reason is because yoga is designed to work on the chakra system, and when you look at the chakra system next to the endocrine system, they are exactly lined up. – *Lynn Jensen*

See Also

- [The Endocrine System](#)
- [Safety & Adaptations Hub](#)

Online Resources

Please see [online version](#) for links to more resources.