

Pranayama – Lion’s Breath

Breathing Techniques

There are many different breathing techniques. Some are very simple and others are quite complicated. The more we start with the simple actions and begin to practice them routinely, the better prepared we are to use the more complicated breathing techniques. It will take a long time of practice to master any of the techniques so we need not be in a hurry. Taking things slow and easy is the best strategy.

- Part 1
 - *The Belly Breath – breathing with the diaphragm muscle*
 - *The 4 Part Breath – breathing with all the respiratory muscles (a complete breath)*
- Part 2
 - The Pausing Breath (Viloma Pranayama)
 - Ujjayi Breathing (sound breath)
- Part 3
 - Alternate Nostril Breathing (Nadi Shodhan Pranayama)
- Part 4
 - Anuloma Pranayama – Prolonged Exhale
 - Pratiloma Pranayama - Prolonged Inhale
- **Part 5 (today’s practice)**
 - **Lion’s Breath**
- Part 6
 - Bhasrika Pranayama (Bellows breath)
- Part 7
 - Sitali Breath

Creating the Right Posture

The correct posture is necessary for getting the most out of pranayama. As a beginning measure, it is often best to use a posture lying on the back with the neck, rib cage, lower back, pelvis, arms and legs in an optimal and neutral position. This is especially true if you are prone to neck or shoulder tension. When reclined, the head and shoulders may be elevated on cushions if this is more comfortable.

A seated position can be also be used, but care must be taken to create an aligned posture and maintain an uplifted rib cage and elongated spine. The position of the head may be tipped forward to reduce neck strain. A bolster, chair, or bench may be helpful to reduce discomfort. Be sure that your legs are not uncomfortable or subject to reduced circulation. It is important that the body feel no strain or discomfort while practicing pranayama. Those who wish to sit on the floor may use a wall to help support the body.



Basic Breathing Practices

Both of the following breathing practices use pausing as a means of focusing and controlling the breathing rate.

Resonance Breathing

This breathing practice will create a rate of 5 breaths per minute

- **Create a comfortable posture.**
- **Exhale completely.**
- **Inhale for 5 seconds.**
- **Pause for 2 seconds.**
- **Exhale for 5 seconds.**

Continue breathing in this pattern for two to five minutes.

4 – 2 – 6 – 2 Breath

This breathing practice creates a slightly longer exhale.

- **In a comfortable posture, breathe out fully.**
- **Now breathe in for 4 seconds.**
- **Pause 2 seconds.**
- **Breathe out for 6 seconds.**
- **Pause 2 seconds.**

Keep your breathing even and smooth. Continue breathing in this pattern for 4 to 5 breaths. Notice how you feel.

Anatomy of Breathing Blood Pressure

The term blood pressure usually refers to the arterial pressure of our blood circulation. During each heart beat, our blood pressure will vary between a maximum pressure (systolic) and a minimum pressure (diastolic). The primary factor effecting our blood pressure is the pumping action of our heart.

As the blood travels away from our heart, the pressure in the blood vessels will decrease and most of this drop occurs along our small arteries and arterioles. Gravity will also affect our blood pressure when we stand and we can increase our blood pressure through straining or muscular effort.

We typically will measure blood pressure at the upper arm and it is expressed in terms of systolic over diastolic pressure and is measured in millimeters of mercury (mm Hg). Blood pressure varies in healthy people but we typically consider certain levels to be signs of health. Blood pressure that is typically lower than normal is called hypotension and if typically higher than normal it is called hypertension. Given that our blood pressure can vary from moment to moment and person to person, blood pressure values are assigned a range.

| Category | Systolic | Diastolic |
|-----------------------------|----------|-----------|
| Hypotension | Below 90 | Below 60 |
| Normal blood pressure range | 90 – 119 | 60 - 79 |
| Pre-hypertension | 120–139 | 80–89 |
| Stage 1 hypertension | 140–159 | 90–99 |
| Stage 2 hypertension | 160–179 | 100–109 |
| Hypertensive emergency | ≥ 180 | ≥ 110 |

Our highest blood pressure readings tend to occur in the afternoon and the lowest at night. The above values are specific to adults over the age of 18. Children will typically have a lower blood pressure dependent on their age and their height.

Clinical trials have found that people who maintain blood pressure at the lower normal pressure ranges have much better long term cardiovascular health.

Physical factors affecting blood pressure

There are several physical factors that affect blood pressure.

- Volume of fluid in circulation. The more fluid present in the body, the higher the rate of return to the heart and the higher the cardiac output. There is some relationship between salt intake and increased fluid volume which can potentially result in an increased blood pressure.
- Resistance of the blood vessels. Blood vessels have a specific radius and they can also expand and contract. This can vary the resistance to the blood leaving the heart.

The larger the radius of the blood vessel, the less resistance there will be to blood flow. The longer the blood vessel, the greater the resistance to blood flow. Another factor is the smoothness of the vessel. Those blood vessels with buildup of fatty deposits on the arterial walls will resist blood flow more. Blood vessels that have deposits of calcium within the muscular walls will resist expansion (hardening of the arteries) and this will increase resistance to blood flow. The use of vasoconstrictors will reduce the size of blood vessels and vasodilators will increase the size of blood vessels which will increase or decrease blood pressure respectively.

- Viscosity or thickness of circulation fluid. If the fluid is thicker, there will be an increased resistance to blood flow and an increased blood pressure. Certain conditions can change the viscosity of blood. Anemia results in low red blood cell concentration and this can lower blood pressure. An overproduction of red blood cells will increase viscosity and blood pressure. Some drugs act as blood thinners and thus decrease the viscosity of the blood by reducing the blood's tendency to clot.

Regulation of blood pressure

There are several factors that naturally regulate or blood pressure.

- Baroreceptor reflex – special receptors detect changes in arterial blood pressure. These baroreceptors send signals to the medulla portion of the brain stem through the autonomic nervous system. The result is an adjustment to the arterial pressure by a change in the force and speed of the heart's contractions as well as a change in arterial resistance. There are several baroreceptors and the most important are in the left and right carotid sinuses and the aortic arch.
- Renin-angiotensin system – a long term adjustment for arterial pressure. The kidney will compensate for loss in blood volume or a drop in arterial pressure by releasing a vasoconstrictor known as angiotensin II.
- Aldosterone release – a steroid hormone from the adrenal cortex. In response to the release of angiotensin II or high serum potassium levels, aldosterone will be released. It stimulates sodium retention and excretion of potassium by the kidneys. The increased sodium will cause increased fluid retention and the decreased potassium will keep arterial muscles more constricted resulting in increased arterial resistance.
- Baroreceptors in low pressure receptor zones result in feedback by regulating the secretion of anti-diuretic hormone, renin and aldosterone. This increases blood volume and cardiac output which increases arterial pressure.

All of these different mechanisms can act independently or together. Typically treatments of hypertension focus on the angiotensin II and aldosterone systems as well as diuretics to lower blood volume.

Heart rate

Our heart rate is the number of beats our heart makes per minute. The average heart rate is 50 – 90 bpm for a human at total rest. Bradycardia is a slow heart rate defined as below 60 bpm, however sometimes athletes will have a resting heart rate this low and it is not considered abnormal. Tachycardia is a fast heart rate above 100 bpm at rest. If the heart rate is not beating in a regular patten this is called an arrhythmia. Sometimes these types of abnormalities can indicate disease.

Resting heart rate is used as an indication of cardiovascular risk and the higher the resting rate, the greater the risk. It used to be believed that people had an 'allotment' of heartbeats for their life and thus those with a faster heart rate would run out of their allotment and die sooner. This is a bit of folklore, but it is true that an increased heart rate does increase the risk to the cardiovascular system due to greater potential fatigue of the heart and reduced heart ejection capacity.

The maximum desired heart rate is the highest rate an individual can achieve safely during exercise and is dependent on age. The standard formula for determining maximum heart rate is :

$$HR_{\max} = 220 - \text{age}$$

Record your HR_{\max} here: _____

Heart rate recovery is the reduction of heart rate from peak exercise and is measured after a cool-down period of a fixed duration. The quicker the heart rate returns to normal after exercise the higher the level of cardiac fitness. After even short periods of hard exercise it can take a long time (30 minutes) for the heart rate to drop to resting levels.

Pranayama – Lion’s Breath



Lion’s breath is an energizing yoga breathing practice that is said to relieve tension in your chest and face. It is also called Lion’s pose or simhasana.

- Find a comfortable seated position. You can sit on your heels (traditional), sit in a chair or sit with your legs crossed. You can even do this pose from a kneeling tabletop or standing position.
- Press your palms against your knees and spread your fingers wide (or spread your fingers wide beside your head).
- Inhale deeply through your nose and open your eyes wide, looking upward (or toward the tip of your nose).
- Open your mouth wide and stick out your tongue, reaching the tip toward your chin.
- Exhale strongly through your mouth making a long ‘haaa’ sound.
- Repeat this breath two or three times.

Yoga to Enhance the Breath

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| <p>Contract – Relax</p> | <p>Recline in a comfortable position adjusting your body so that your arms are beside you and your legs stretched out. Breathe slowly and deeply.</p> <ul style="list-style-type: none"> • Make a soft fist in your right hand. Gradually tighten your wrist, forearm, upper arm and shoulder. <ul style="list-style-type: none"> ◦ Gently lift your arm away from the floor and inhale deeply, holding the contraction. • Exhale and relax your right arm completely. • Now make a soft fist in your left hand. Gradually tighten your wrist, forearm, upper arm and shoulder. <ul style="list-style-type: none"> ◦ Gently lift your arm away from the floor and inhale deeply, holding the contraction. • Exhale and relax your left arm completely. • Now begin to tighten your right toes and bring the contraction into your foot, calf, knee and thigh. <ul style="list-style-type: none"> ◦ Firmly contract your right leg as you inhale deeply. • Exhale and relax your right leg completely. • Now begin to tighten your left toes and bring the contraction into your foot, calf, knee and thigh. <ul style="list-style-type: none"> ◦ Firmly contract your left leg as you inhale deeply. • Exhale and relax your left leg completely. • Now begin a contraction in both fist and bring the contraction into both arms. Contract both feet and bring the contraction into both legs. <ul style="list-style-type: none"> ◦ Tighten everywhere you can in your body as you inhale deeply. • Relax and go soft and limp. <p>Continue to breathe deeply and remain limp and relaxed.</p> |
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