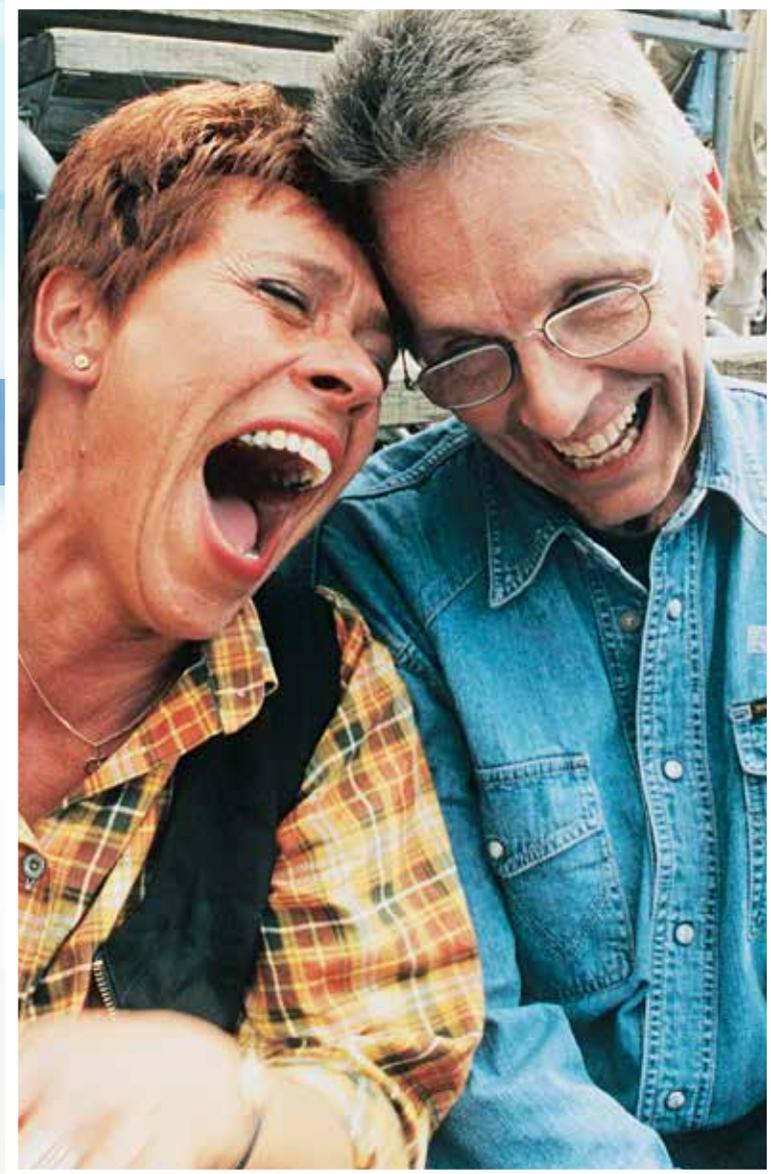
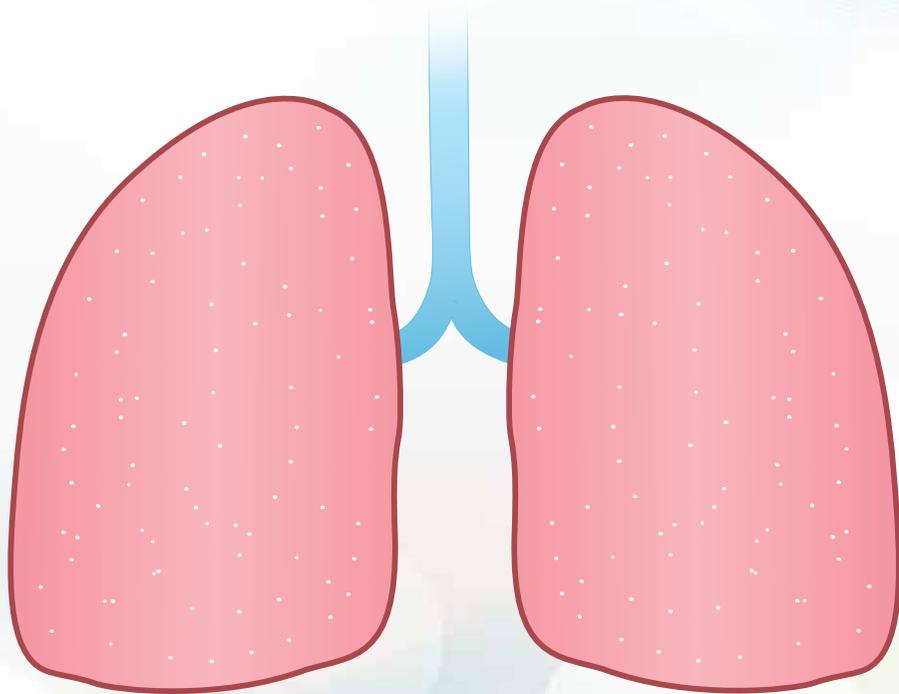


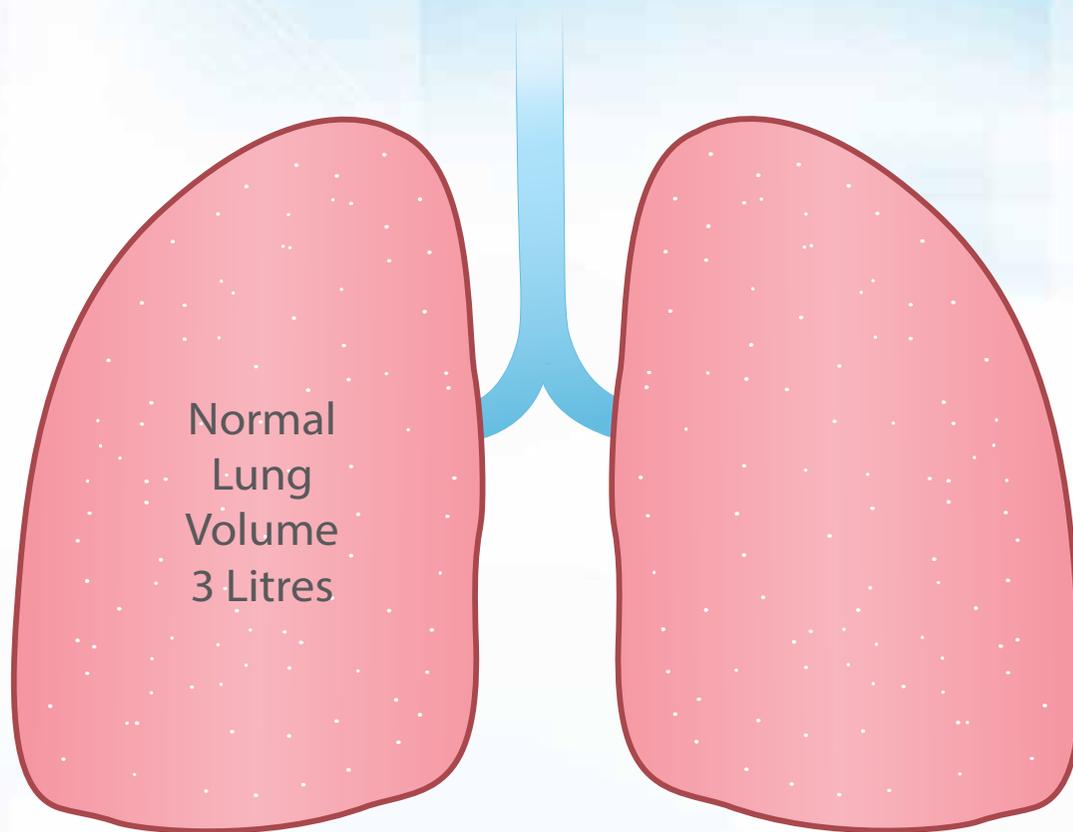


LAUGHTER YOGA

THE SCIENCE OF BREATHING



Laughter Yoga – The Science of Breathing

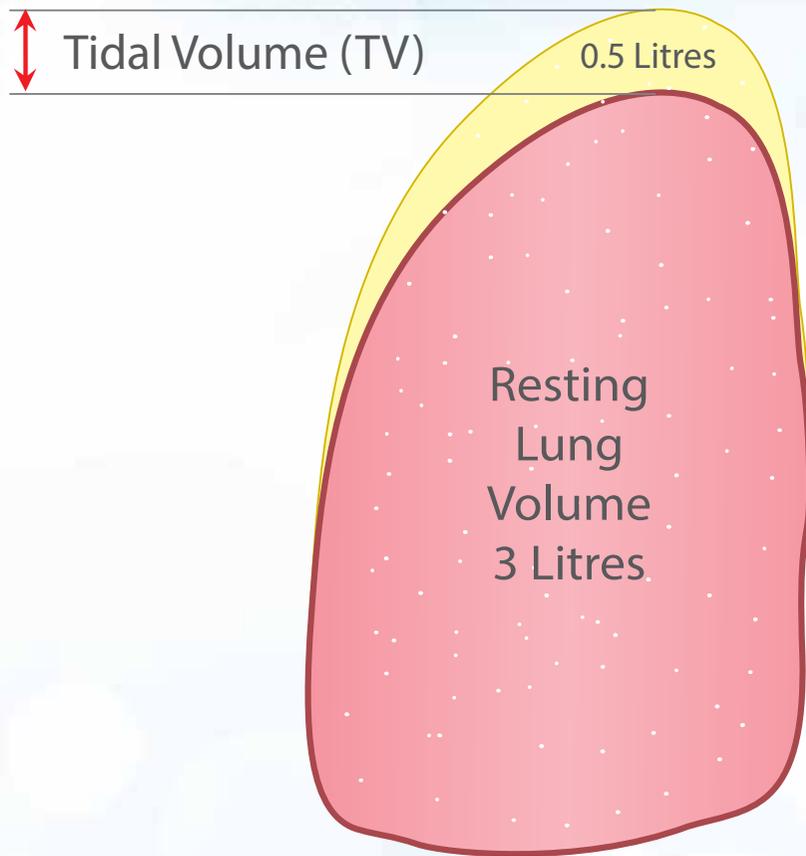


Laughter Yoga is a combination of laughter exercises interspersed with deep breathing techniques from yoga which improve oxygenation of the body and brain.

Let us understand what the normal lung capacities are and how Laughter Yoga exercises can force exhale stale air from the lungs, which is replaced by fresh air that has more oxygen.

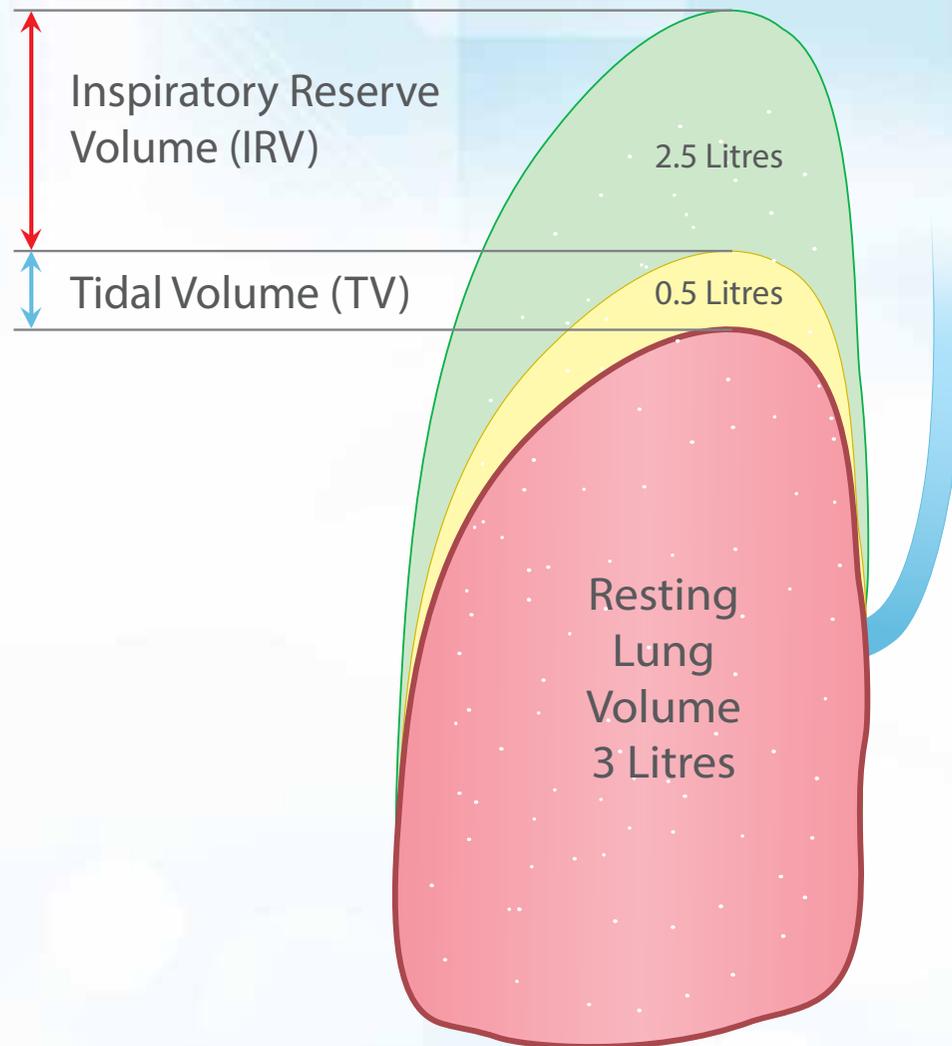
Both our lungs hold about 3 litres of air in a normal resting position

Tidal Volume 0.5 Litre (500ml)



The amount of air inhaled and exhaled during normal quiet breathing when there is no physical activity is called tidal volume. An average adult male's tidal volume is 0.5 litre (500ml)

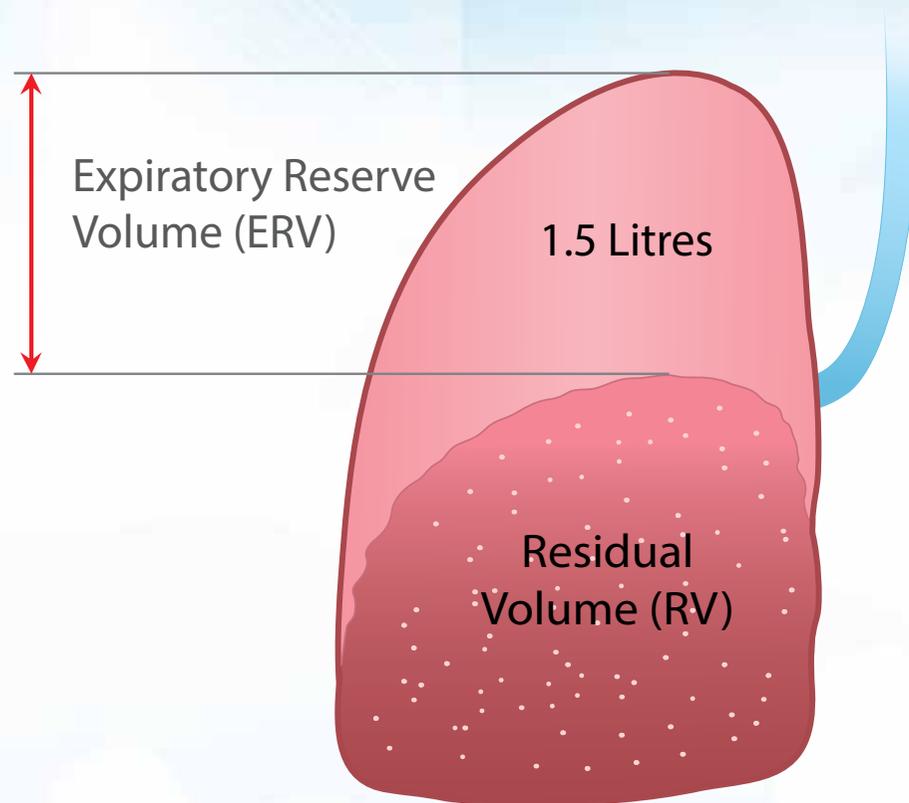
Inspiratory Reserve Volume (IRV)



The amount of air that can be inhaled with deliberate voluntary effort to inflate both the lungs to the maximum is called inspiratory reserve volume. For an adult male it is 2.5 litres.

The major muscles involved in inhalation are the diaphragm and the external intercostal muscles which help in the expansion of the rib cage thus increasing the volume of the lungs.

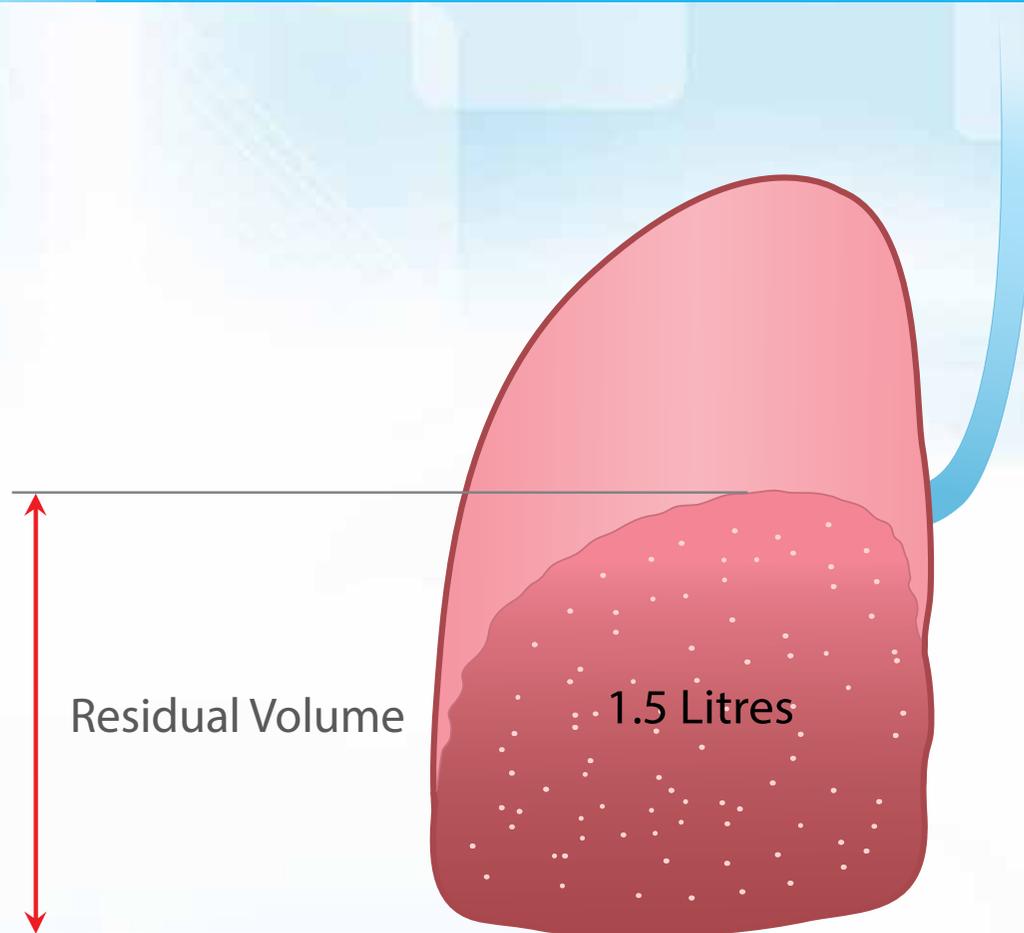
Expiratory Reserve Volume (ERV)



The maximum amount of air that can be expelled with deliberate voluntary effort until one runs out of breath is called expiratory reserve volume. For every adult it varies from 1.2 -1.5 litres.

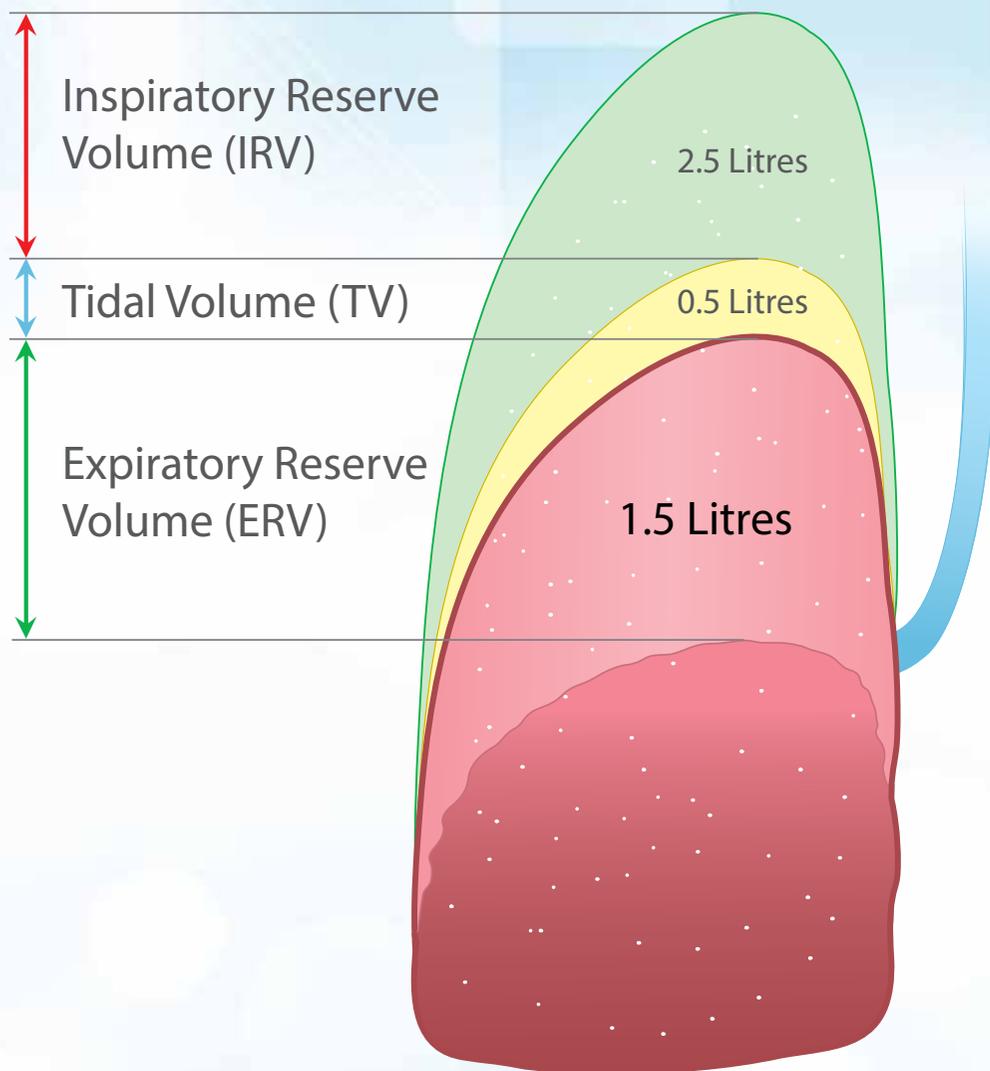
From Laughter Yoga point of view, the expiratory reserve volume is the most important as laughter is like an exhalation, which helps to expel stale air easily, thereby improving oxygenation.

Residual Volume



After we force exhale the maximum amount of air, until we run out of breath, there is still some air that cannot be removed from our lungs ever. This is called residual volume and this amount of air is necessary to prevent the lungs from complete collapse.

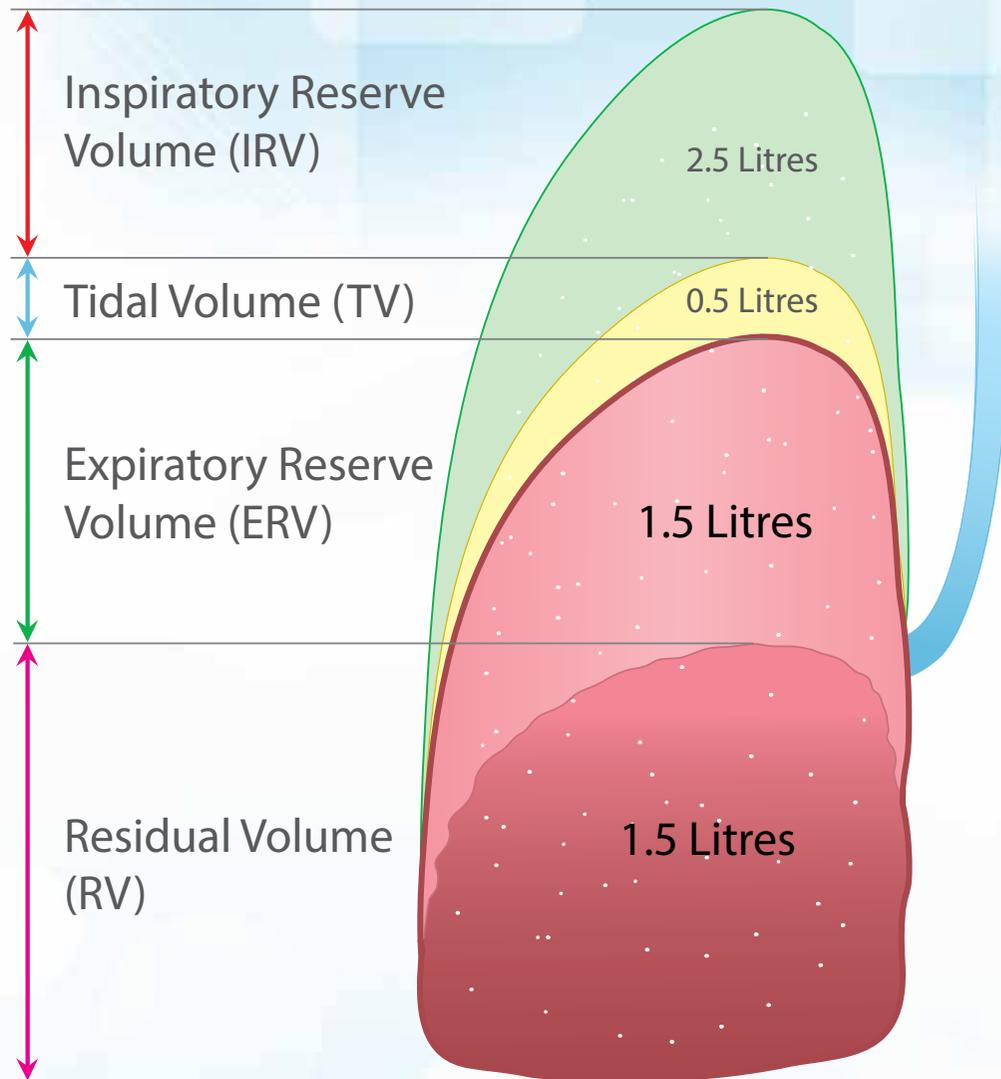
Vital Capacity of The Lungs



This is the most important breathing capacity of the lungs. It is the maximum amount of air that can be inhaled forcefully followed by forceful complete exhalation until one runs out of breath. This includes tidal volume (0.5 litre + inspiratory reserve volume – 2.5 litres + expiratory reserve volume -1.5 litres) For an average adult it is about 4.5 litres.

Whenever there is more physical activity our body needs more oxygen for metabolic activities. This is where we use inspiratory and expiratory reserve volumes to help us inhale and exhale longer and meet the oxygen demand.

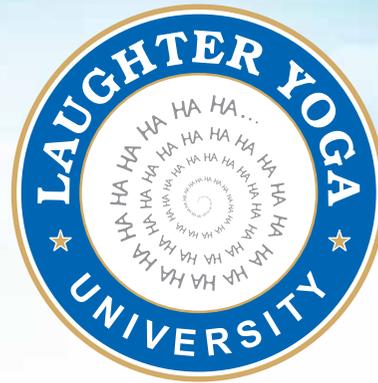
Total Lung Capacity



This is the maximum amount of air that both lungs can accommodate including the residual volume. For an average adult male it is about 6 litres.

Summary

- Laughter Yoga helps to bring in more oxygen by using our complete breathing capacity (vital capacities) which include both inspiratory and expiratory reserve volumes. Normally, people who live a very sedentary life keep breathing within the tidal volume (0.5 litres) and do not use much of their **Inspiratory Reserve Volume and Expiratory Reserve Volume**. With Laughter Yoga exercises, we can use the complete breathing capacity without doing any strenuous physical workout / activity.
- Nature has provided us with muscles of inhalation (diaphragm & intercostal muscles), but there **no muscles of exhalation**, which is passive. Our lungs are elastic organs and they expand with deep inhalation. Exhalation on the other hand takes place by the elastic recoil of the lungs, which brings them to the normal resting position. Therefore, in order to force exhale the respiratory reserve we need to use the abdominal muscles to squeeze out the residual air from the lungs.
- Yoga encourages people to exhale double the amount of air than they inhale. This is where laughter exercises really help, as it is a great way of expelling the expiratory reserve air from the lungs. Prolonged laughter is like forced exhalation. Therefore, we ask people to laugh as long as possible.



Dr. Madan Kataria

Founder Laughter Yoga Movement

Mob: +91 9819822226

<http://www.laughteryoga.org>

<http://www.youtube.com/laughteryoga>

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