

# DID YOU KNOW?



## TIME CONSTANT

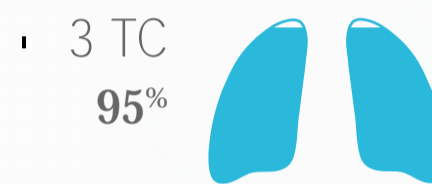
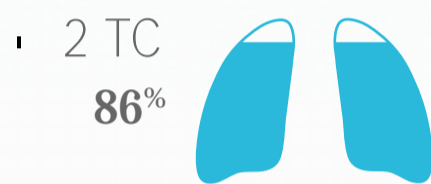
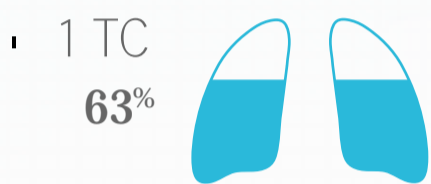
### What is it?

The time constant (TC) is the time used by the lung to be filled during inhalation (inspiratory TC) or to be emptied during exhalation (expiratory TC) at a stable pressure<sup>1,2</sup>.

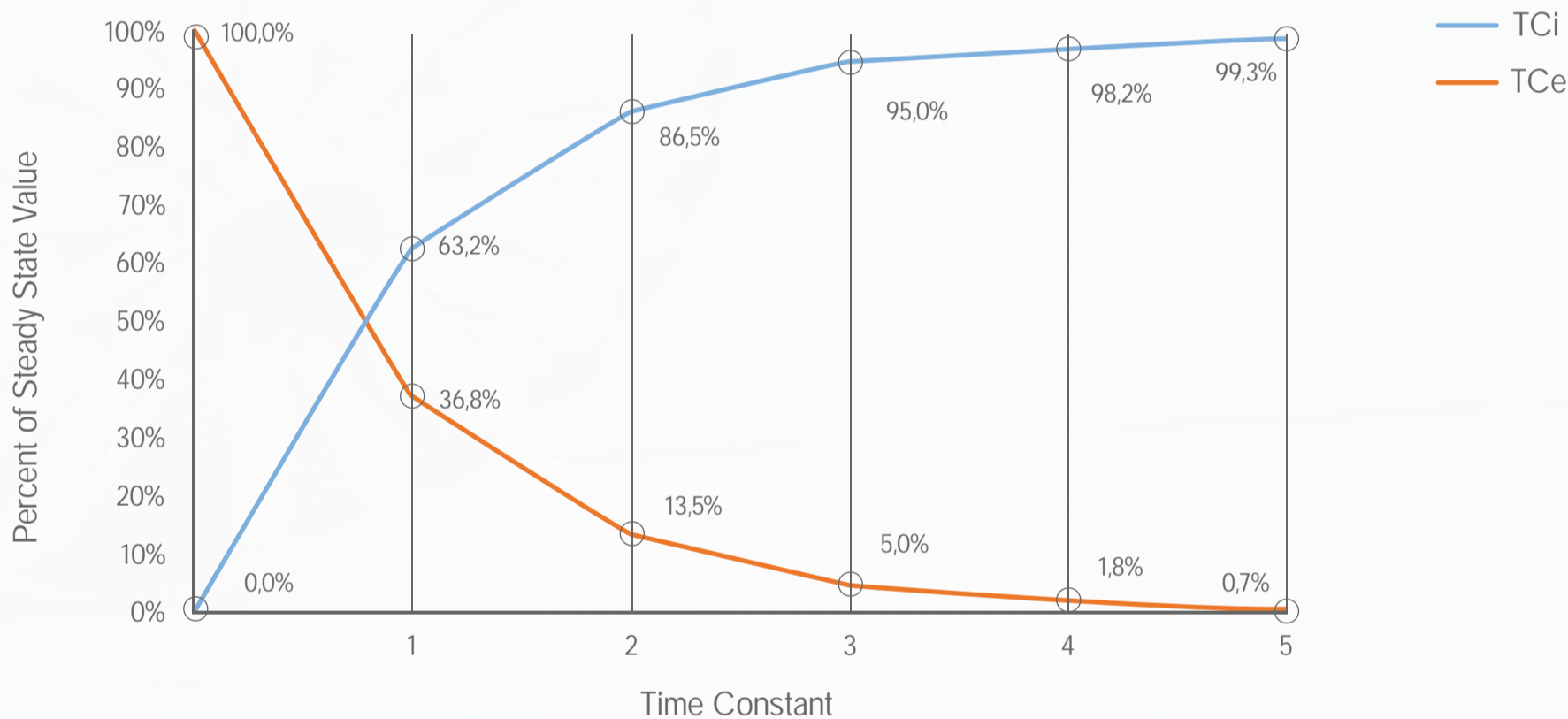
### How is it calculated?

TC is measured in seconds and is the product of compliance and resistance.

$$TC = C_L \times R_{aw}$$



This is valid when the lung is free from any diseases.



### Why is it relevant?

The Expiratory Time Constant (TCe) provides information on respiratory mechanics. It can be used whenever expiration is assumed to be passive.

- TCe can be used to assess respiratory mechanics and to optimize settings to protect the lungs.
- TCe directly helps to individually adjust optimal expiratory time.

### Why is it helpful to improve outcome?

An accurate setting of the ventilator parameters can prevent **VILI** (Ventilator Induced Lung Injury) and **VALI** (Ventilator Associated Lung Injury), decreasing the different types of trauma (barotrauma, volutrauma, atelectrauma).

Short TCe can lead to



VILI



Monitor Tidal Volume, driving and plateau pressure

Long TCe can lead to



hyperinflation



Monitor Intrinsic PEEP