

# Spirometer Use over Heart Surgery

Alberto Mariono\*

Department of Cardiac Surgery, Institute Cardiovascular, Argentina

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## Introduction

Actually the basic uses and the study of this spirometer is most of the heart surgeries requires heart lung machine it is because the heartbeat is stopped and cooled when the treatment is started. Spirometer helps to record the pulmonary volume and capacities. This spirometer contains turbine air flow meter, mouth piece, USB cable, and computer. This spirometer mainly measures the lung functions specifically the measurement of the volume amount and speed of the air that can be inhaled and exhaled by the human body, spirometer is an important tool and it is used for measuring conditions such as asthma, pulmonary problems and cystic fibrosis. These spirometers are in different varieties of types this spirometer displays graphs as out puts those are called Spiro grams. the graphs shows volume time curves where volume on x axis and time on y axis and a flow volume loop which gradually tell about the rate of air flow which is on y axis and total volume inspired and expired along the X axis.

## Lung Parameters

Tidal volume it is the volume gas inspired or expired during each quiet respiration cycle. The next one is inspiratory reserve volume which means extra volumes of a gas that a person can inhale with maximum effort beyond end expiratory level reached at end of normal expiration. The next one is respiratory reserve volume which defines the extra volume of the gas that can be exhaled with maximum effort beyond end expiratory level reached by the end of expiration. Residual volumes tell about the maximum amount of gas that can be expelled from the lungs by a forceful effort after a normal inspiration the vital capacity can be calculated by the adding the tidal volume and inspiratory reserve volume and expiratory reserve volume. Total lung capacity is defined as total amount of gas that can be contained in the lungs after the total maximum inspiration. coming to the forced vital capacity

it tells about the total amount of gas that can forcibly exhaled as quickly as possible after taking deepest possible breathe. Lungs are the elastic bags in the body which are located at a closed cavity called thoracic cavity and right lung consists of 3 lobes left lung consists of two lobes. By using spirometer all the lung capacities and volumes can be calculated under certain conditions.

Turbine transducers are the part of spirometers which are used to convert from one form to another flow here these turbine transducers convert flow of air inhaled by the patient through a frictionless vain to electrical signal this signal is used to produce relevant plots to measure this the patient should sit on the edge of the chair or should sit up as far as possible on a bed now hold the spirometer in a upright position now lace the mouth piece around your mouth and seal the mouth piece with your lips tightly take deep breathes and practice coughing so that your lungs get clean and clear now perform forced vital capacity test and slow vital capacity test and draw the graph using the output to know the patient's condition or you can see by clicking on the MVV graph on the window.

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## Conflict of Interest

Author declares there is no conflict of interest.

## \*Correspondence to

Alberto Mariono

Department of Cardiac Surgery

Institute Cardiovascular

Argentina

E-mail: tomokisuziki@gmail.com

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