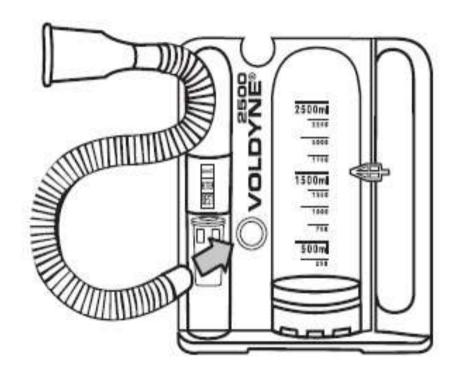


Set date:2013.02.03 Revised date:2020.06.04. Review date:2024.01.30.



Health education Number: CS-109



To deliver intelligent and holistic medicine and to provide the best healthcare Compassion Quality Innovation Accountability

> All information above has been reviewed by CS specialists Edited and published by the Department of Nursing, Taichung Veterans General Hospital



I. The purpose of using an incentive spirometer?

Muscles and bones at the surgical site will be injured, causing pain at the surgical site, and resulting in decreased lung capacity after surgery. Many complications, such as pneumonia, increased sputum volume, reduced air capacity in the lungs, and the inability of the remaining healthy lungs to maintain regular operations. To improve the above situation, it is necessary to perform proper breathing training.

Incentive spirometer can help you stimulate maximum inspiratory volume, increase lung capacity, help to expand lungs, make sputum easier to cough up, prevent lung collapse, and allow for faster recovery after surgery.

II. Instruction

- Step 1. Try to sit upright if possible and remain ensure a comfortable position.
- **Step 2.** Hold the incentive spirometer in the palm of your hand and keep it perpendicular to the front.
- Step 3. Slide the volume indicator to the prescribed level. For example: 1500ml (When inhaling, the top of the piston rises to 1500ml, which indicates the amount of inhalation)
- **Step 4.** Place the mouthpiece of the incentive spirometer in the mouth and exhale slowly until the lungs are emptied of air.
- **Step 5.** At the end of exhalation, tightly wrap the mouthpiece of the incentive spirometer with your lips, and do not leak air.
- Step 6. Inhale as slowly and deeply as possible. When the slow inhalation is in progress, keep the flow rate indicator at the "Best" position. The upward movement of the piston represents the total amount of inhalation, and the flow rate indicator represents the degree of effort during inhalation.
- *Step 7.* Continue inhaling while the piston rises upwards.
- Step 8. Inhale as long as possible, at least 3-5 seconds before allowing the piston to

drop.

- **Step 9.** Lift the mouthpiece away from your lips and exhale slowly, allowing the piston to return to the bottom.
- Step 10. After a few seconds of rest, repeat steps 3-10 above.
- Step 11. Depending on the individual situation, adjust the volume index.

III.Precautions

- 1. When you return to the ward after surgery, you will start practicing the incentive spirometer the next day.
- 2. Use the incentive spirometer to practice deep breathing after surgery, and adjust the volume index according to individual conditions.
- 3. If the flow rate index is still unable to reach the "Best" position after practicing many times after surgery, at least try to achieve the set volume index (eg 1500ml).
- 4. If your physical condition permits, please take out the incentive spirometer for practice at any time when you are awake, and you can do it 10-20 times an hour.
- 5. If there is moisture in the induced lung meter after use, please place it in a ventilated place and use it after drying, so as not to affect the piston.
- 6. After each use, please clean and dry the mouthpiece, and keep it properly for the next use.

IV. Conclusions

Practicing the use of the "induced lung meter" before the operation, so that you can become more familiar with the operation method. Daily breathing training after the operation can help the function of the lungs recover as soon as possible, making the lungs more and more healthy.

V. Reference

- 石冀嬴、楊輝宏(2022)·使用不同類型的誘發性肺活量計的臨床療效: 系統性回顧·*物理治療*,47(2),130-131。 https://doi.org/10.6215/FJPT.202206.P08
- 盧余青、劉映彤、蔡輝樟、郭姿子、黃春梅(2019),以問卷分析誘發性 肺量計與術後肺炎發生率和住院天數相關性,呼吸治療,18(1), 94-94。https://doi.org/10.6269/JRT.201907_18(1).0020
- Sum,S.K.,Peng,Y.C.,Yin,S.Y.,Huang,P.F.,Wang,Y.C.,Chen,T.P.,Tung,H.H.,Yeh, C.H.,(2019). Using an incentive spirometer reduces pulmonary complications in patients with traumatic rib fractures: Arandomized controlled trial. *Journal List*, 20(1), 797-798. https://doi.org/10.1186/s13063-019-3943-x.

Let's take the quiz to make sure you understand
Inducible spirometry can stimulate the maximum inhalation volume, increase
lung capacity, help the lungs expand, make it easier to cough up sputum,
and prevent lung collapse.
○Yes ○No ○Don't know
When you return to the ward after surgery, practice on the Inducement
Pulmonometer begins the next day.
○Yes ○No ○Don't know
When using the induced charge meter, exhale as slowly as possible. The
upward movement of the piston represents the total amount of exhalation.
○Yes ○No ○Don't know
If your physical condition permits, please take out the induced pulmonometer
and practice at any time when you are awake. You can do it 10-20 times an
hour.
○Yes ○No ○Don't know
After using the induced pulmonary meter, the mouthpiece needs to be cleaned
and dried, and kept properly for next use.
○Yes ○No ○Don't know