



Breath stacking with and without a lung volume recruitment bag

This leaflet explains the breathing technique of ‘breath stacking’ to help with breathing and coughing for people with neuromuscular conditions and chest deformities.

What is breath stacking?

Breath stacking is an exercise used to improve the size of breath that you can take. This technique is useful when muscles are weak and taking a deep breath can be difficult. It can help to improve the strength of your cough and potentially improve the quality of your voice. Lung recruitment bags are a simple piece of equipment which can help you to take a deeper breath. This consists of a flexible plastic bag, a one way valve, a filter and either a mask, mouthpiece or tracheostomy connector.

What is breath stacking used for?

There are many different reasons why breath stacking may be beneficial, including:

1. Muscle weakness that make breathing and coughing difficult, e.g. neuromuscular disease, Multiple Sclerosis.
2. Bone deformities that make the chest small with difficulty coughing.

What are the benefits of breath stacking?

- Helps to reduce the risk of lung collapse.
- Helps to improve lung volumes.
- May help you clear mucus and secretions from your chest and prevent further chest infections.
- Aids to keep your rib cage mobile.
- Muscles that help you breathe and cough will benefit from a stretch.

Will I be seen by a doctor, nurse or physiotherapist?

This technique of breathing is usually taught by a respiratory physiotherapist. You may be taught the technique either while in hospital or as an outpatient. You will be reviewed as an outpatient or at a routine appointment with the respiratory physiotherapists.

When is breath stacking used?

Your physiotherapist will advise you on how to use the technique correctly. It is recommended that you do breath stacking every day. This is to ensure that you are practicing and completing

the technique correctly. Try to complete this when you are most productive (when you are producing most phlegm), e.g. in the morning when you wake up or before you go to bed. You can complete the technique between 1-4 times a day, but you may feel that you need to do it more frequently to find it beneficial.

When not to use it?

You should not do the exercises within one hour of food / drink. If you are fed through a tube directly into your stomach or nose, you should stop the feed one hour before doing the exercises. You should not do your exercises if you feel any acute chest pain or see any blood in your phlegm. If this occurs, please seek medical attention.

Do not use the lung volume recruitment bag if you are allergic to latex, have had a pneumothorax (hole in lung) or severe chronic obstructive pulmonary disease (COPD).

Are there any risks?

There are very few risks with the breath stacking technique.

Lung volume recruitment bags can cause a pneumothorax if used incorrectly or against medical advice, so it is very important that you closely follow the advice of the physiotherapist.

How to do breath stacking without the lung volume recruitment bag:

It is best to do this technique in an upright position. This technique is without the lung volume recruitment bag so you will not need any equipment.

The following steps are an example of how to perform breath stacking but your physiotherapist may make individual modifications for you.

- 1. Breathe out fully.**
- 2. Take a full breath in.**
- 3. Try to hold your breath for a few seconds, then try to take another breath on top of the previous one.**
- 4. Repeat step 3 until you feel you have taken as deep a breath as you are able too. This may take between 2 and 5 repetitions**
- 5. Try to hold your breath for 3-5 seconds then slowly breathe out.**
- 6. Rest between each breath stacking attempt for at least 30 seconds. Then repeat steps 1-5 up to 5 times in a session.**
- 7. If you feel you have secretions or mucus, try to give a strong cough to bring this out.**
- 8. Rest between cycles, as you may feel tired or slightly light-headed. You can space these out if required.**

Individual modifications:

How to do breath stacking with the lung volume recruitment bag:

This is best to do in an upright position.

The following steps are an example of how to perform breath stacking with a lung volume recruitment bag but your physiotherapist may make individual modifications for you. This technique may be assisted by a carer, if you have one.

1. **Breathe out fully.**
2. **Place the mask over your mouth and nose (or the mouthpiece in your mouth using a nose clip if needed).**
3. **Take a full breath in while gently squeezing the bag.**
4. **Try to hold your breath for a short moment, then try to take another breath, again timed with squeezing the bag. This breath should be on top of the previous one.**
5. **Repeat step 4 until you feel you have taken as deep a breath as you are able. This may take between 2 and 5 repetitions.**
6. **Once your lungs are full, take the mouthpiece out of the mouth, or remove the mask, then try to hold the breath for 3-5 seconds, then breathe out gently.**
7. **Rest between each breath stacking attempt for at least 30 seconds. Then repeat steps 1-6 up to 5 times in a session.**
8. **If you feel you have secretions or mucus, try to give a strong cough instead of gently letting the air out.**
9. **Rest between cycles, as you may feel tired or slightly light-headed. You can spread these out if required.**

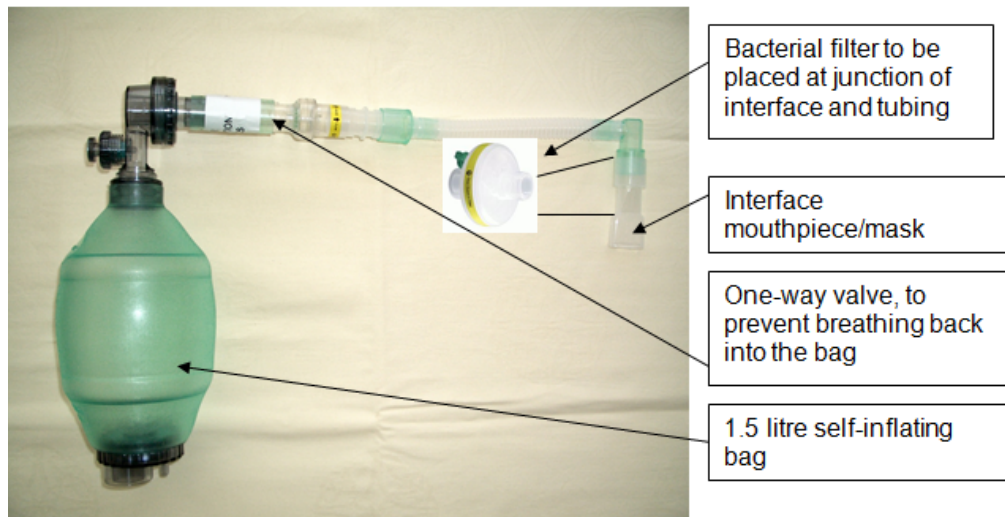
Individual modifications:

I am confident using the lung volume recruitment bags. I know to follow the individual advice given to me by my physiotherapist and would stop treatment immediately if I / the patient feel(s) sudden pain that does not go away or if I / the patient become unwell.

Signed _____ Patient / Carer / Family member

Name _____

Date _____



Lung volume recruitment bag

What equipment will I be given (for breath stacking using bag)?

- Lung volume recruitment bag
- Mouthpiece and nose clip OR face mask
- Filters

Bag: Check the bag before each use to ensure there is no damage to the bag or any parts are missing. If you have concerns about the bag, do not use it and contact your physiotherapist for a replacement. The bag should be replaced if damaged, or worn or at three monthly intervals.

Masks: A standard mask is provided that should fit around your mouth and nose. If your arms are weak, you may need help to hold the mask in place as you use the bag. It is also possible to use the equipment with a mouthpiece – however, you need to be able to make a tight seal around the mouth piece. It is important to take care of your mask or mouth piece, It is best to wash after every use in warm soapy water.

Filters: The filters provided need changing if they become visibly soiled or contain trapped moisture. We recommend changing the filter weekly.

Contact numbers

For any queries or if you require advice regarding the use of the equipment you have been given, please contact the department on the numbers below:

Respiratory Medicine,

Respiratory Physiotherapists: Frankie Knight, Amol Gaikwad

Tel: 0118 322 6676

Email: pulmonary.rehabilitation@royalberkshire.nhs.uk

To find out more about our Trust visit www.royalberkshire.nhs.uk

Please ask if you need this information in another language or format.

RBFT Department of Respiratory Medicine. Reviewed: March 2024. Next review due: March 2026

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