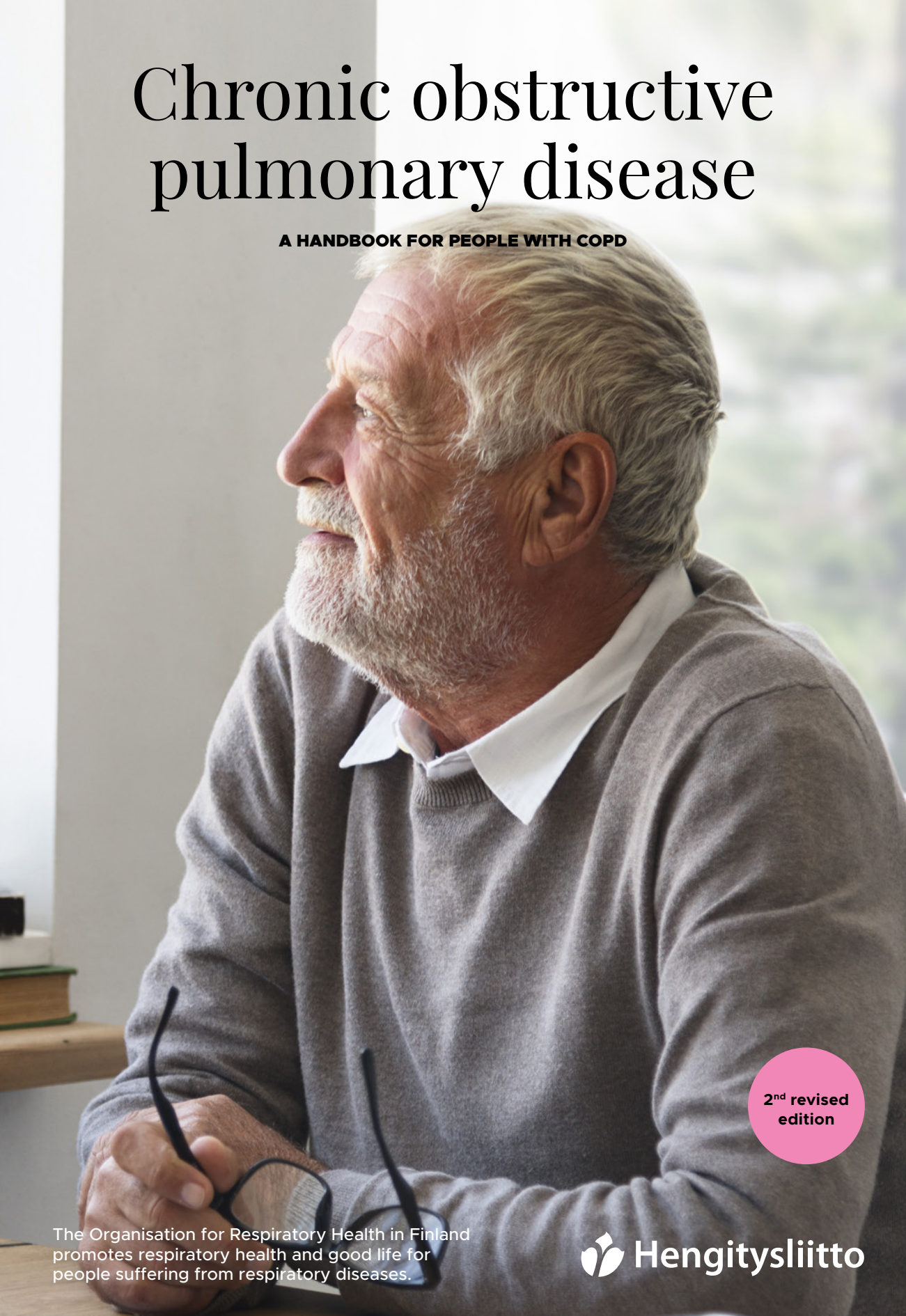
Chronic obstructive pulmonary disease

A HANDBOOK FOR PEOPLE WITH COPD



2nd revised edition

The Organisation for Respiratory Health in Finland promotes respiratory health and good life for people suffering from respiratory diseases.

Hengitysliitto

People who have COPD must learn to live with the disease for the rest of their lives. It is important to remember that although the changes to your lungs cannot be reversed, the symptoms can be controlled. Comprehensive treatment significantly improves the quality of life and life expectancy of people with COPD.

Current Care Guidelines highlight the importance of self-care. The guidelines recognise the active and responsible role of the person with COPD in the management of the disease and in slowing down its progression. Key treatment methods include stopping smoking and leading a smoke-free lifestyle, exercise and a proper diet, vaccinations and medicines that reduce the symptoms and prevent flare-ups of the disease.

Support from the family and possible spouse is important in addition to peer support, since empathy and encouragement from people close to the person with COPD helps in engaging in proper self-care and maintaining a healthy lifestyle.

Approximately one in two smokers will develop COPD at some point in their lives, but it can also be contracted without a history of smoking. In Finland, 5–10% of the adult population have COPD.

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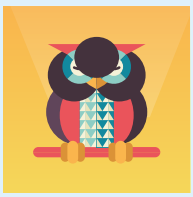
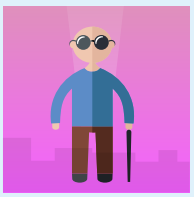


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Hengitysliitto

1. What is COPD?

Chronic Obstructive Pulmonary Disease (COPD) is a slow-progressing lung disease characterized by the permanent obstruction of small airways, destruction of lung tissue and slowed exhalation. It is often related to smoking.

Even though the obstruction cannot be reversed, persons with COPD can influence the progression of the disease as well as their prognosis and ability to function to a significant degree. Constant exposure to tobacco smoke causes a chronic inflammation of the pulmonary tissue and mucous membranes in the bronchial tubes. Inflammation gradually damages the walls of the airways and the pulmonary alveoli and slowly and permanently causes bronchial obstruction and emphysema. The lungs lose their normal elasticity, and lung tissue no longer supports the smaller airways as it should.

Air flow in the contracted bronchi and damaged alveoli becomes more difficult and slows down permanently. Air is trapped in the lungs even after a strong exhalation. This is the primary cause of the shortness of breath experienced by those with COPD.

Symptoms and characteristics of COPD

- Shortness of breath and wheezing while breathing
- Shortness of breath or reduced performance under exertion
- Prolonged coughing, especially in the mornings
- Excess mucus, especially in the mornings
- Susceptibility to respiratory infections
- Repeated flare-ups, during which symptoms increase
- As the disease progresses, reduced oxygen saturation of blood and a tendency to accumulate carbon dioxide
- Weight loss and, as the disease progresses, muscle loss (frailty syndrome)
- Associated diseases

COPD progresses slowly

COPD is often diagnosed only years after it has started, at a stage where the patient's breathing capacity and functional capacity have already been significantly reduced. In the early stages of the disease, there are no symptoms or they are minor. A person with COPD may consider the coughing and excess mucus to be a smoking-related nuisance and not realise that the symptoms are a sign of permanent inflammation and obstruction of the airways. Therefore, treatment is rarely sought in time.

As the illness progresses, the patient's breathing starts to wheeze and they experience an shortness of breath, initially when walking uphill or ascending stairs. In late stages of the disease, even the slightest effort makes the symptoms worse. Often the patient avoids situations where symptoms occur and exertion that triggers them.

The patient's susceptibility for flare-ups and the yearly number of flare-ups also affect the patient's quality of life as well as the severity of their COPD and their prognosis.

A person with a severe form of COPD experiences shortness of breath also at rest. In such a case, the symptoms also impair the functional and working capacity of the person. COPD is the most common disease leading to long-term and continuous home oxygen therapy. Oxygen therapy is used to correct the body's lack of oxygen. Oxygen therapy prevents excessive strain on the heart and other harmful effects caused by the lack of oxygen.

The severity of the disease varies

COPD can be moderate, severe or very severe. The severity of COPD varies individually and is affected by the associated diseases and number of flare-ups. The speed at which the disease progresses also varies.

Moderate COPD only slightly limits normal life, flare-ups occur once per year at most and symptoms are primarily mild. However, an advanced moderate COPD limits the person's normal life significantly. In **severe** COPD, the functional capacity of lungs has been significantly impaired. Symptoms of advanced severe COPD include shortness of breath even during minimal exertion, coughing, weight loss and fatigue. People with severe COPD often have other medical conditions as well and they may experience regular dangerous flare-ups.

In very severe COPD, the person experiences shortness of breath in rest as well (increased respiratory rate and use of accessory muscles of respiration) and there is a loss of muscle mass and right-side heart failure. People with very severe COPR experience several dangerous flare-ups per year that require hospitalisation.

Read more: The Organisation for Respiratory Health in Finland's handbook on home oxygen therapy.

2. Prevalence of COPD

The exact number of people with COPD is unknown and is it clearly an underdiagnosed endemic disease. It is estimated that approximately 5–10% of the adult population of Finland is affected and the number of patients increases after the age of 65. The figure can be doubly as high if people with the first symptoms of COPD, i.e. chronic bronchitis, are counted.

By far the single biggest cause of COPD is smoking. It is estimated that more than 50% of smokers develop COPD. The more a person smokes and the longer they smoke, the greater the risk of developing the disease. This risk can be described in pack-years: even 10 pack-years predispose a person to COPD. Smoking started early in life can lead to the person contracting the disease before they are middle-aged. Passive smoking, i.e. environmental exposure to tobacco smoke, also increases the risk of developing COPD. Quitting smoking always slows down the progression of the disease.

Pack-year = the number of packs of cigarettes (20 cigarettes) smoked daily multiplied by the duration of the smoking habit in years.

According to the Current Care Guidelines, approximately 14% of COPD cases are caused by work-related causes. People who are exposed to particles (organic and inorganic), gases, fumes and air pollution in their work have an increased risk of developing COPD, particularly if they smoke. The lungs of people working under such conditions should be examined (spirometry) by occupational healthcare every 1–3 years.

In young people, COPD can be caused by alpha-1 antitrypsin deficiency, which is a rare genetic disorder.

3. Diagnosis

Diagnosis of COPD is not only based on symptoms. Diagnosis is based on spirometry, which reveals bronchial obstruction. The result of the test indicates lung capacity and the strength of airflow during exhalation and how severely these are limited. This means the test provides information on how badly the bronchi are obstructed.

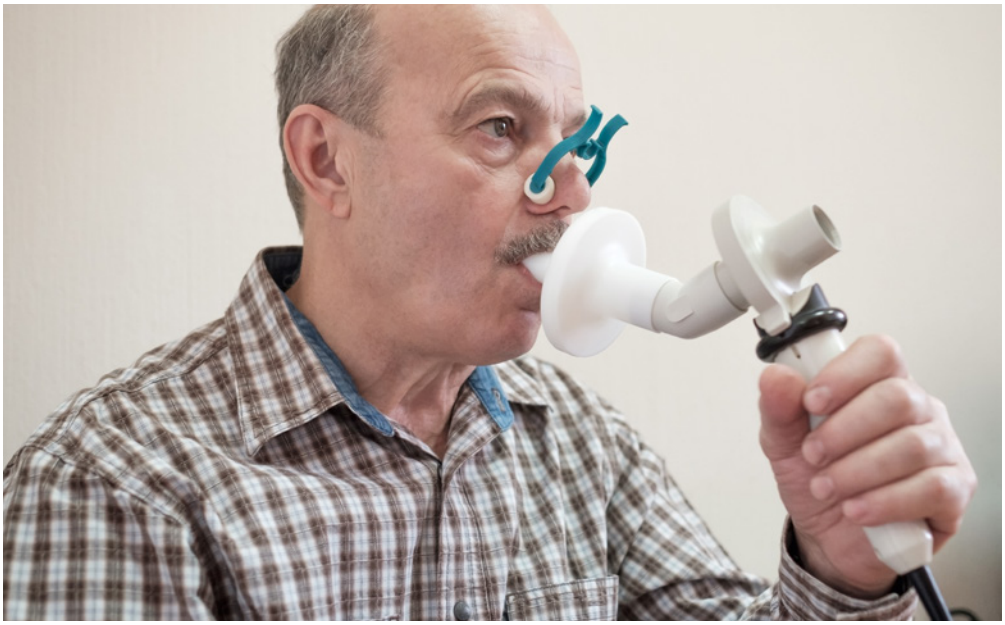
In connection with spirometry, a medicine that quickly opens the bronchi should always be administered. In COPD, bronchial obstruction persists even after the such medicine is administered. Spirometry results may indicate asthma if medicine opens the bronchi and eliminates the bronchial obstruction entirely or partially.

For people with symptoms, spirometry is sufficient to diagnose the disease in principle, but sometimes the diagnosis includes other lung volume and X-ray examinations to detect or exclude any other diseases or conditions.

The occurrence of symptoms and their impact on the daily life and well-being of person with COPD can be assessed, for example, by using the CAT (COPD Assesment Test). The CAT provides the physician or nurse a quick overview of the patient's everyday life with 8 questions related to the patient's functional capacity and symptoms, such as coughing, amount of mucus, shortness of breath on exertion, as well as alertness and sleep quality.

In public and occupational healthcare units, a micro spirometer is often used to quickly assesses whether a patient might have COPD. If the results of the test show abnormalities, the physician can refer the patient to a full spirometry and to a pulmonologist of a specialised healthcare unit, if necessary.

Read more about out the CAT online at www.hengitys.fi.



Spirometry underway

4. Various phenotypes of COPD

COPD has four different forms, i.e. phenotypes. Factors affecting the phenotype of the disease include the severity of symptoms and the obstruction of the respiratory tract, the risk of flare-ups and whether the patient also has asthma.

The phenotype of the disease affects its progression and the medication prescribed. The phenotype can also change as the disease progresses.

Prolonged airway inflammation (chronic bronchitis)

Chronic bronchitis causes persistent, long-lasting coughing that brings up mucus. Although chronic bronchitis often precedes COPD, not everyone with chronic bronchitis develop COPD.

Obstruction of airways

Permanent obstruction begins in the smaller airways and the rate of its progression depends on the person. Quitting smoking slows down the progression of the obstruction.

Emphysema

Smoking can also cause lung hyperinflation, or emphysema. In people with emphysema, the walls of pulmonary alveoli are weakened and rupture creating larger air spaces. Blood vessels and small airways are also destroyed. The transfer of oxygen to the body and the removal of carbon dioxide have been disrupted.

Mixed COPD-asthma phenotype

Differentiating between COPD and asthma can be challenging, as the symptoms are similar: coughing, excess mucus, shortness of breath, recurring infections and flare-ups. In COPD, symptoms gradually worsen, while with asthma it is normal that the symptoms come and go.

In Finland, between 16 and 27% of people with asthma or COPD are estimated to have the mixed COPD-asthma phenotype of the disease.

Associated diseases

COPD also has a number of associated diseases that are suspected to be caused by the low-grade inflammation in the body. These chronic diseases include cardiovascular diseases, atherosclerosis, cerebrovascular diseases, issues with blood pressure, diabetes, metabolic syndrome, osteoporosis, depression and lung cancer.

Also check out the Organisation for Respiratory Health in Finland's handbook for people with asthma.

5. COPD flare-ups

A flare-up refers to a sudden worsening of the usual symptoms of the disease that requires a temporary increase of medication. A flare-up is usually triggered by a respiratory tract infection caused by a virus or bacteria. In addition to prevention, effective and timely treatment of the flu and rhinitis is very important. Flare-ups may also be caused by air pollution or discontinuation of medical treatment.

The susceptibility to experience flare-ups varies from person to person. Not all people with COPD have flare-ups while others have them repeatedly. When examined at the population level, poor lung function increases the risk flare-ups.

Flare-ups are very harmful to the progression of the disease and therefore special attention is paid to preventing them. Repeated and severe flare-ups impair the functional capacity and quality of life of the person with COPD. They also reduce lung capacity and increase the risk of experiencing more flare-ups. If the flare-up is so severe that the person must be hospitalised, the risk of death also increases. Recovering from a flare-up to the level preceding it may take weeks.

Flare-ups are divided into 3 categories according to their severity: mild, moderate and severe. Mild flare-ups are treated at an outpatient clinic with inhaled medication. Moderate flare-ups are treated at an outpatient clinic with inhaled medication and cortisone oral tablets and antibiotics. Severe flare-ups are treated with more advanced methods in the hospital.

People with COPD must immediately seek treatment in situations where they suspect or know that their symptoms are increasing and worsening.

Signs and consequences of a flare-up:

the main characteristics are:	the consequences are:
increased shortness of breath	everyday chores become more difficult to complete, the person feels tired and has difficulty moving
cough	increased need to use short-acting bronchodilators
amount of coughed up mucus and its colour change	waking up to difficulty in breathing during the night

Treatment of flare-ups

Most flare-ups can be treated at home according to your physician's instructions. Basic pharmaceutical therapy includes inhaled bronchodilators and oral glucocorticoids and antibiotics. In the hospital, treatment includes the same basic medications and, if necessary, supplementary oxygen and ventilation machines.

If a patient with COPD has flare-ups repeatedly, their physician may in some cases instruct the patient to start the medication for flare-ups independently (see Instructed self-care in chapter 6.5). In this case, your physician will give you a prescription for glucocorticoids or antibiotics and written instructions on how to use the medication.

In addition to COPD, other causes and diseases may cause your health to deteriorate. This is why it is a good idea for people with COPD to immediately seek medical help to assess the situation.

6. Comprehensive treatment of COPD

As with other chronic medical conditions, the person's activity and responsibility in and commitment to self-care is important. The aim of comprehensive treatment is to relieve the symptoms, improve quality of life and functional capacity, maintain lung function, prolong life and to reduce flare-ups, hospitalisation days and the costs arising from the disease.

6.1 Quitting smoking

The most important thing for a person with COPD is to stop smoking. So far, it is the only known way to significantly slow down the bronchial obstruction. Quitting smoking is good for your health and it improves the prognosis of the disease, i.e. adds more years to your life and increases the quality of your life. Help and support for quitting can be sought from healthcare providers, pharmacies and the *Stumppi* help service of the Organisation for Respiratory Health in Finland.

Quitting smoking requires changing your lifestyle, and should be done in steps. The most important thing is that you want to stop smoking. In addition to that you need information, support and the ability to learn from possible earlier failed attempts. You can be physically, mentally or socially addicted to tobacco. Withdrawal symptoms can be alleviated with nicotine replacement therapies and prescription medicines meant to help with nicotine withdrawal.

Read more at www.stumppi.fi.

NICOTINE DEPENDENCE TEST (Fagerstrom test)

1. How soon after you wake up do you smoke your first cigarette?

- ☐ Within less than 6 minutes (3 pts)
- ☐ Within 6–30 minutes (2 pts)
- ☐ Within 31–60 minutes (1 pt)
- ☐ After 60 minutes (0 pts)

2. How many cigarettes per day do you smoke?

- ☐ 10 or less (0 pts)
- ☐ 11–20 (1 pt)
- ☐ 21–30 (2 pts)
- ☐ 31 or more (3 pts)

Total points (0–6 points)

0–1 = low level of dependence
2 = moderate level of dependence
3 = strong dependence
4–6 = severe dependence

Tips for quitting smoking

- Decide the date you will quit on in advance and tell it to your friends and family.
- Having a support person – a friend, a spouse or a peer online, for example – will help you. Think in advance about what kind of support you need from the person and let them know in advance too.
- Prepare for possible withdrawal symptoms and get a suitable replacement product in advance.
- Dispose of all smoking equipment.
- Go through all the reasons you have for quitting.
- Think in advance about ways to survive and overcome tobacco cravings.
- Thank and reward yourself for making a good decision.

6.2 Exercise is like medicine

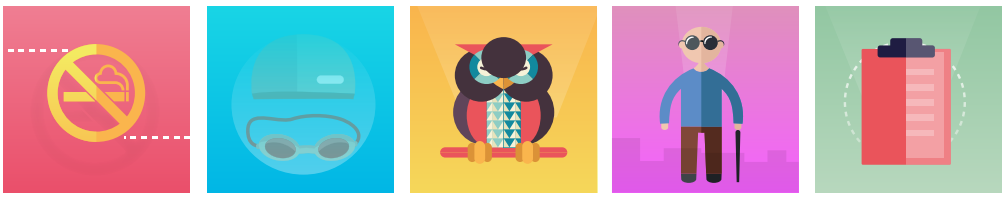
People with COPD often start to exercise less due to the shortness of breath on exercise caused by the condition. This leads to a deterioration in overall fitness, which makes the person get out of breath even easier. However, physical exercise is a key part of the treatment of COPD. Regular exercise reduces the risk of hospitalisation during flare-ups and increases quality of life and improves the prognosis.

It is good for a person with COPD to exercise until they are out of breath. This improves their remaining lung capacity and physical fitness. For these reasons, it is important to learn to distinguish between normal shortness of breath and abnormal shortness of breath. If you are breathless due to exercise, your breathing will return to normal when you stop exercising. If the shortness of breath is not due to exercise, it does not stop at rest but continues for longer instead.

Your physician may prescribe medicines to relieve shortness of breath that you can take before exercise, if your airways respond to the medicine and open after taking it.

People with COPD benefit from exercise because it:

- reduces shortness of breath by reducing air trapping, inflammation and tendency to contraction
- improves the removal of mucus from the airways
- prevents flare-ups and speeds up recovery from them
- prevents the risk of re-hospitalisation after a flare-up, the length of the hospitalisation period required to treat a flare up and the use of healthcare services after flare-ups
- reduces physical weakness and exhaustion
- increases coping with everyday life and physical performance – i.e. endurance – and the strength of exhalation
- improves the distance the person can walk
- improves mood and quality of life
- increases the person's lifespan.



Exercise and associated diseases

People with COPD may feel that their associated disease (e.g. high blood pressure, cardiovascular disease, diabetes) prevents them from engaging in physical activities. However, studies have shown that despite associated diseases, almost 50% of people with COPD are able to increase their endurance and reduce their breathing symptoms with regular training.

Osteoporosis, diseases of weight-bearing joints and muscle weakness are the only associated diseases that may limit the person's ability to exercise and their body's response to the exercise.

It is advisable to stay active despite the diseases, since even staying still for 30 minutes starts to weaken our blood circulation and metabolism. Immobility affects the size of muscle cells and shortens muscles. Slow metabolism increases the risk of diabetes and abdominal obesity, among other things, and sitting for 2 hours increases the risk of cardiovascular diseases.

Exercise is safe

Exercising is safe and beneficial at all stages of the disease for people with COPD. Incidental exercise is exercise too. After a flare-up, people with COPD must start exercising as soon as possible. Endurance training is the most efficient way to improve your remaining functional capacity. Even mild- and moderate-intensity exercise improves your fitness. Keep monitoring your improvement. Increasing your result by just 50 metres in a 6 minute walking endurance test is already a sing of a significant increase in your endurance.

1,000
less steps per day
= a 20%
higher risk of flare-ups

People with severe COPD can improve their endurance too, since regular and daily exercise is the most important thing. Walking about 6,400 steps a day (even in small instalments) can reduce the risk of a flare-up requiring hospitalisation significantly when compared to walking only 3,200 steps a day.

In addition, people with COPD need to engage in strength training since it reduces low-grade inflammation. As the disease progresses, the person needs more and more energy to maintain their breathing and they lose muscle strength in their lower limbs particularly. Those who are underweight particularly benefit from strength training.

You can still exercise even if moderate-intensity exercise causes you to get out of breath or experience shortness of breath. It will not make the situation worse.

It is a sign that you are increasing your endurance. When calming your breathing, relax and focus on thinking about something other than the shortness of breath. Take breaks, and calm your breathing with a calm exhale (pursed lip breathing) rather than taking quick superficial breaths. If the shortness of breath does not pass, use an inhaled medication for opening your airways.

Read more in the Organisation for Respiratory Health in Finland's handbook 'Breathe and be out of breath'.

Table Exercise instructions for people with COPD

Shortness of breath on exertion	Stay active, train safely
I only experience shortness of breath during intense exercise	Exercise regularly for a total of 2.5 hours per week on several days, so that your heart rate increases. Do strength training (large muscle groups) and body control exercises 2 times a week. Rest properly after training.
I only experience shortness of breath when I'm moving fast in a hurry or going uphill	Continue your regular training. Incidental exercise is part of the training. Be sure to engage in it. Being too busy and feeling a need to perform well make shortness of breath worse. If you have inhaled medicines that relieve shortness of breath, use them when necessary.
I have to walk slower than my peers and occasionally stop while walking on flat ground due to shortness of breath	You can still exercise even if moderate-intensity exercise causes you to get out of breath or experience shortness of breath. It will not make the situation worse. It is a sign that you are increasing your endurance. Take breaks, and calm your breathing with a calm exhale (pursed lip breathing) rather than taking quick superficial breaths. If the shortness of breath does not pass, use an inhaled medicine for opening your airways.
I can only walk on flat ground for about 100 meters or a few minutes before I have to stop due to shortness of breath	Shortness of breath still does not stop you from exercising. Take multiple breaks while exercising. Set goals that you can achieve at your own pace. Focus on strength training for the lower and upper limbs. Ask an expert for instructions on how to increase your fitness.
I cannot leave my apartment due to shortness of breath and I get breathless while putting on or taking off clothes.	Stay active and do as many of your daily tasks as possible. Take as much time as you need and complete tasks at your own pace. Shortness of breath is not dangerous. It should pass with a few minutes at rest. When calming your breathing, relax and focus on thinking about something other than the shortness of breath.

Exercise tip: downhill walk

People with COPD must take care of their ability to walk even if they require continuous home oxygen therapy. As long as you can walk, you can live in your home. You can increase your endurance by walking downhill.

Downhill walking requires less energy compared to walking on flat ground. Downhill walking is eccentric training which particularly exercises the large muscles in your thighs. This is seen as an increase in muscle mass and in strength. Exercising is both safe and easy.

The practical implementation of downhill walking requires creativity. To be able to walk downhill, you inevitably have to walk uphill at some point. Walking uphill can cause shortness of breath for people with respiratory diseases. A good solution is to take advantage of public spaces where you can ascend by using an elevator or escalator and then descend by taking the stairs. Those who are just getting into downhill walking can start by walking down one floor at a time. If you live in an apartment building with elevators, you can use this method in your building as well.

6.3 Coping with everyday chores

As the disease progresses, it is advisable to re-arrange your home so that everything you need in your day to day life is accessible with as little effort as possible. In addition, it is a good idea for people with COPD to adopt practices that enable them to have the strength for all chores as well as for physical training.

Tips for everyday life:

- Plan your day so that you alternate taking care of smaller chores and those requiring more physical strength at a pace suited to you.
- Remember to take enough brakes while completing chores and between them.
- If you are already tired, take care of the chores another time.
- Remember to focus on your breathing while doing chores as well. A physiotherapist can teach you to breath more efficiently: Exhale when you bend over (for example, when pulling on a sock). Exhalation should be at least half as long as inhalation.
- Sit rather than stand in the shower or while cooking or ironing, for example.
- Pull heavy things rather than carry them.
  When carrying or lifting things, distribute the load to both arms.
- When working with your upper limbs, take support if necessary. Supporting the upper limbs can increase shortness of breath. Sit when you brush your teeth, shave or wash your hair and lean your forearms to the edge of the sink.
- Install or get all necessary aids and support you need at home to cope with everyday chores.

6.4. Pharmacotherapy

The more our medical understanding of COPD increases, the more personalised and accurate treatment we are able to provide. People with COPD may need to take medication regularly due to the symptoms, for the prevention of flare-ups or for both reasons. Asymptomatic people can cope with short-acting bronchodilators taken when needed (e.g. during exercise).

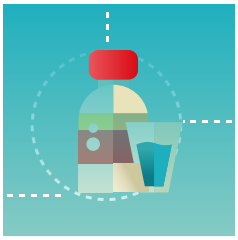
Pharmacotherapy for COPD is based on the individual clinical presentation of the disease, the number of symptoms and the risk flare-ups. A physician assesses the patient's situation and prescribes medication depending on whether the patient has asthma in addition to COPD.

The effect of the medication is monitored. Even if the symptoms are not relieved, medication can significantly reduce the risk and number of flare-ups.

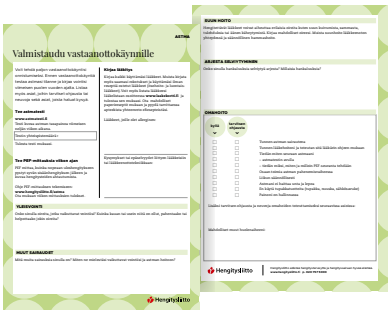
Since the clinical presentation of COPD may change as the disease progresses, the disease and the related pharmacotherapy must be reassessed during each healthcare appointment. Everyone with COPD needs to have a written list of medications from which to check their own medications. It is advisable to bring the list of medications to each appointment. This helps in ensuring the medication is up-to-date.

List of medications:

- You can influence the efficiency of your treatment by creating a list of the medications you take and medications you are hypersensitive to.
- You should also include vaccinations, such as flu vaccines, and medications that do not require a prescription, i.e. over-the-counter medication and natural remedies.
- Always bring an up-to-date list of medication when you see a physician or have a follow-up appointment.
- You can list your medication on a blank sheet of paper, ask for a list from your health centre or maintain a list at www.laakekortti.fi.



You can use the **Prepare for an Appointment** form prepared by the Organisation for Respiratory Health in Finland. The form is available in Finnish at www.hengitysliitto.fi.



Medication options

Pharmacotherapy for COPD is based on inhaled medications that include:

- long-acting bronchodilators (adrenergic β_2 receptor agonists or anticholinergics)
- dual long-acting bronchodilators (adrenergic β_2 receptor agonists + anticholinergic agent)
- a fixed combination of an inhaled glucocorticoid and a long-acting
- adrenergic β_2 receptor agonist
- triple therapy, i.e. a combination of an inhaled glucocorticoid and a long-acting adrenergic β_2 receptor agonist and an anticholinergic agent, administered either from two different inhalers or as a fixed combination from a single inhaler.

In case of sudden symptoms, people with COPD should also have a short-acting bronchodilator easily available.

The long-term use of inhaled glucocorticoids as the only medication is not recommended for the treatment of COPD, because using a combination of glucocorticoid and an adrenergic β_2 receptor agonist is more effective in preventing flare-ups. In addition, the combination can even reduce mortality and improve lung function and quality of life. Before starting the use of glucocorticoid medication and in addition to bronchodilators, a physician can order a blood test to determine the amount of eosinophils in the blood to support treatment decisions.

The medications most commonly used for the treatment of COPD are powders or aerosols that are inhaled into the lungs. In addition, various oral tablets may be used: antibiotics and mucus removal medication, as well as medication that may reduce the inflammatory reaction associated with COPD.

Most people with COPD being treated with a long-acting bronchodilator or a combination of medications need a short-acting bronchodilator that they can take when necessary.

For most people, it makes sense to have a short-acting bronchodilator taken when necessary for sudden symptoms, even if they also have a long-acting bronchodilator in regular use.

Consistent pharmacotherapy helps reduce symptoms ,such as shortness of breath, and supports physical activity. Pharmacotherapy prevents and reduces flare-ups and the need for hospitalisation and improves the quality of life.

Oxygen therapy (home oxygen concentrator and liquid oxygen therapy)

If COPD has progressed to a stage where the shortness of breath in continuous, the person can start oxygen therapy under certain conditions administered either with an oxygen concentrator or as liquid oxygen therapy. The patient and everyone living with them must have been smoke-free for six consecutive months before home oxygen therapy can be started. If oxygen concentrator is not used or the patient smokes during oxygen therapy, home oxygen therapy is discontinued.

Home oxygen therapy or liquid oxygen therapy is started at a specialised healthcare unit and the patient is provid-

ed with an oxygen concentrator that they can take home. Another, more expensive option is liquid oxygen (home tank and portable tank for resupply). In this case, the patient orders the oxygen from a gas supplier and later requests a compensation for the oxygen and equipment rent from their health insurance provider.

Kela reimbursements for medicine expenses

Medicines used to treat COPD belong to the category with a lower rate of special reimbursement. Reimbursement can be applied for from Kela with a Medical Statement B.

Kela will send you a new Kela card that includes the number 203 that indicates that you are entitled to be reimbursed for medication used to treat respiratory diseases (asthma and chronic obstructive pulmonary diseases closely resembling it). The pharmacy receives up-to-date information on the customer's compensation rights from Kela.

Kela monitors medication purchases. Compensation is paid only when the customer's initial deductible has been fulfilled. The amount of compensation may vary – in 2020 the initial deductible was EUR 50 per calendar year. When the annual self-paid deductible for the medications to be reimbursed is met, only EUR 2.50 per purchase for each medication needs to be paid. The information on the fulfilment of the annual initial deductible for medicines is immediately transferred from Kela to pharmacies.

Further information on the annual reimbursement levels and other instructions can be obtained from pharmacies, Kela, the local social welfare office, rehabilitation therapists and by visiting the address www.sosiaaliturvaopas.fi.

Inhalers

Inhalers are either dry powder inhalers or pressurised metered dose inhalers. When inhaled medication is prescribed, a suitable inhaler must also be selected to administer the medicine. While selecting an inhaler, the inhalation force and speed, inhalation technique and correct operation of the device must be taken into account.

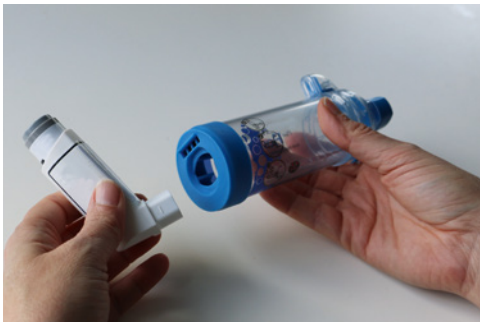
It is important that a physician or a nurse makes sure that the patient knows the correct administration technique. It is advisable to check the administration technique at each appointment. Persons requiring inhaled medication can also ask for instructions on technique at pharmacies.

When using a dry powder inhaler, the inhalation should be strong and breath should be held for 5–10 seconds after inhalation.
It does not require simultaneous release of medicine and inhalation.

The use of meter dose inhalers requires simultaneous use of hands and inhalation because the dose must be released at the same time as inhalation begins. However, it does not require a high speed of inhalation. The medication is inhaled with a long, deep and calm breath, and breath should be held for around 10 seconds after the inhalation.

If there are issues with the administration technique (coordination of timing of the inhalation with the release of the medication and weak arm muscles), it may be necessary to use a mask and have some assist you. Newer meter dose inhalers can also be used without a spacer.

Watch the videos on dosages on Association of Finnish Pharmacies website at www.apteekki.fi.



People with COPD must immediately seek treatment in situations where they suspect or known that the symptoms are increasing and worsening.

These medications may be more suitable for the elderly and those with multiple medical conditions.

Your physician may instruct you to use a spacer or a nebulizer to support taking medicines. A spacer makes it possible to breath the medicine in calmly with 5–10 inhalations. The use of a spacer makes it easier to take the medicine. It also reduces the amount of medication that stays in the mouth and throat. If necessary, a mask may also be used with a spacer and nebulizer.

The use of nebulizers requires medication obtained with a separate prescription, which are in liquid form.
A nebulizer may be necessary if taking the medication becomes too difficult during flare-ups or as the disease progresses.

6.5 Instructed self-care

Instructed self-care means that the person with COPD participates in their own treatment (i.e. in the planning and implementation of treatment) with support from healthcare professionals.

Self-care includes monitoring your own health and identifying symptoms, taking medications regularly and according to your physician's instructions in case of infections and flare-ups.

The personalised treatment plan drawn up with your physician includes pre-written prescriptions for glucocorticoids and antibiotics, as well as clear written instructions on what to do if you need them. Instructed self-care for flare-ups improves the capacity of a COPD patient to manage their disease.

6.6 Vaccines

A person with COPD benefits from taking the seasonal influenza vaccination. Influenza can bring about a flare-up or result in pneumonia. People with COPD are in the risk group for influenza and they can get their vaccination free of charge from their local healthcare centre.

It is also recommended to take a pneumococcal vaccine at your own cost as it reduces pneumonia caused by pneumococcal bacteria and flare-ups.

6.7 Oral care

Inhaled medications can cause various symptoms such as dry mouth, oral candidiasis, infection or voice hoarseness. The medication also make the mouth dry. Chewing gum and lozenges with xylitol and increase saliva. To prevent tooth decay, it is important to brush your teeth regularly with fluorine toothpaste and to use xylitol.

Oral health in connection to taking medicines should be paid attention to particularly if inhaled cortisone medicines are used. Brush your teeth before taking the medication. Rinse your mouth after taking medication and spit out the water. Finally, finish rinsing by drinking some water.

People with respiratory diseases should have regular dental care. A dentist can give recommendations on how often a person with COPD must undergo a dental examination. If you wish to use private dental care, Kela will reimburse part of the costs.

6.8 Surgical treatment

The aim of surgical treatment is to increase the life expectancy of the patient and to improve their quality of life. Surgical treatment (lung volume reduction surgery or lung transplantation) may be considered for a small proportion of people with COPD.

If the disease progresses exceptionally quickly and the symptoms increase despite trying all pharmaceutical and non-pharmaceutical (e.g. physical rehabilitation) therapies, a physician may make a referral to a specialised healthcare unit for conducting an assessment on the suitability of surgical treatment.

6.9 Palliative care

Palliative care refers to the active comprehensive treatment of people with advanced COPD and their loved ones when curative is no longer an option.

The objectives of palliative care are to maintain a good quality of life and to prevent and alleviate suffering. If a person with advanced COPD continues to experience severe symptoms (shortness of breath, pain, cough) despite optimal treatment, the attending physician may consult a palliative healthcare unit.

The patient's wishes and the objectives and limits are discussed in advance care planning as is the treatment plan for end of life care.

7. Mucus removal

People with COPD are often bothered by excess mucus, which irritates the airways, makes breathing difficult, increases the need to cough and causes the person to feel short of breath. In addition, excess mucus increases the risk of infection in the airways.

Normally, mucus is removed from the bronchi with the movement of the cilia on their surface. Exercise that gets you out of breath increases the functioning of the cilia and facilitates the transfer of mucus to higher parts in the airways, from where it can be coughed out. There are several useful methods for removing excess mucus as well.

Bottle blowing removes mucus

In addition to exercise, bottle blowing (or PEP therapy) has been proven to be an effective mucus removal method. When you blow through a tube into water in a bottle, the pressure in your airways increases. As a result, the ducts between the smaller airways open, which allows air to flow behind the mucus in the airways. The air then pushes the mucus into the larger airways, from where it is easier to cough out. You decide the resistance of the exercise. The pressure in the airways can be increased with having more water in the bottle or by using a thinner tube.

In addition to mucus removal, bottle blowing strengthens muscles of respiration. Before bottle blowing, it is advisable to take medication prescribed by your physician meant for opening your bronchi. Breathing steam and drinking plenty of fluids reduce the thickness of the mucus, which allows it to rise up easier.

Patients with severe COPD or heart disease should consult their physician before trying bottle blowing.

BLOWING INTO A BOTTLE TO REMOVE EXCESS MUCUS

The bottle blowing technique helps with effectively removing excess mucus from the airways.

The bottle blowing technique is an effective and easy mucus removal method. When you blow through the tube into the water in the bottle, the pressure in your airways increases. This opens up the airways between bronchioles, allowing air to flow behind the mucus and push it into the larger airways. From the larger airways, excess mucus is easier to remove by coughing or huffing.

Preparation

» If you are taking medication for keeping your bronchi open, you can take the medicine about 15 minutes before this exercise.
» Fill the bottle with water up to the mark (10 centimetres). Push the tube through the mouth of the bottle and all the way to the bottom of the bottle.
» Perform the bottle blowing exercise while sitting at a table with good posture. If necessary, support your elbows on the table.
» Hold the bottle with one hand and the tube with the other. Remember to keep your shoulders relaxed!
» Before the blow bottle exercise, take 3–4 calm breaths:
  • Breathe in through your nose and calmly exhale. Breathe in with the upper parts of your lungs. Your upper abdomen should rise when inhaling and relax when exhaling.

Remember that excess mucus may not start moving until 15–30 minutes after exercise.

How to blow into the bottle

a) Breathe in through your nose.
b) Put the tube in your mouth, lips firmly around the tube.
c) Blow out through the tube slightly more intensely and for longer than normal so that the water in the bottle bubbles. Be sure to breathe calmly, even if the exhalation is a little heavier and longer than normal.

» Repeat steps a) to c) for a total of 10–15 times, after which take a break.
» During the break, calm and relax your breathing as you did before the bottle blowing exercise.
» If necessary, remove excess mucus by coughing or huffing.
» Repeat in sets of 10 to 15 blows at least 2–3 times.
» You can also do more sets if you feel that there is still excess mucus is in your airways and you have the strength to do more.
» You can do the bottle blowing exercise 3–4 times a day.

Cleaning the equipment

» After the bottle blowing exercise, wash the bottle and the tube with dishwashing detergent.
» If necessary and particularly if you have an active infection, place the bottle and tube in boiling water for 2–3 minutes (make sure the tube can be cleaned in boiling water).

Talk to your physician about the bottle blowing exercise if:

» you have a severe respiratory or heart disease
» you feel nauseated or dizzy during the exercise
» you get heart symptoms
» there is blood on the mucus.

Methods and techniques that enhance the removal of mucus (huffing, bottle blowing) are safe if done calmly. If you have a contagious respiratory infection, do the mucus removal exercises in a space where there are no other people. This reduces the risk of infecting others.

You can also learn the bottle blowing technique with a video: http://www.hengitysliitto.fi/puhalla-pulloon

Huff cough mucus up from the airways

If coughing requires too much strength, increases shortness of breath or prevents the removal of mucus, you can use the huff couching or huffing technique. Huffing is gentler for the bronchi and requires less strength. It also brings the mucus up easier.

While huffing, the larynx stays open. When you cough, it closes and opens as you cough. With huffing, the mucus can be effectively brought up into the bronchi and the larynx, from where it is easier to remove with a light cough.

How to huff cough

- Sit down and calmly fill your lungs with air through the nose.
- Make sure to fill the lower parts of your lungs as well by placing your hand on your upper abdomen and ensuring that it rises during inhalation.
- Blow the air out through your mouth with a calm and long exhalation.
- Fill your lungs with air again, and when you exhale, huff the air away from the bottom of you lungs. This brings the mucus up into your bronchi and larynx. Lightly cough to remove the mucus.

8. Monitoring COPD

People with COPD must immediately seek treatment in situations where they suspect or know that the symptoms are increasing and worsening. It is advisable to talk to your physician and agree on a schedule for follow-up appointments. You should also ask what you should do if your symptoms increase and become more severe.

The treatment and monitoring of COPD is mainly carried out at your local healthcare centre. Specialised healthcare units (central and university hospitals) treat people with severe COPD, young COPD patients and cases where occupational COPD is suspected or the disease otherwise requires special examinations.

People with COPD are often treated by several different units and specialists if the disease involves multiple associated or chronic diseases, recurrent flare-ups, a lot of symptoms and difficulties with daily life.

Compiling information on all diseases, their treatments and medications into a written treatment plan and list of medicines will help the patient to commit to pharmacotherapy, maintain their functional capacity and well-being, and seek follow-up treatment in the right unit at the right time.

9. Nutrition

People with COPD are typically either overweight or underweight, which is why nutrition is an essential part of treating the disease. A proper diet allows people with COPD to better maintain muscle strength, improve their immune system and prevent malnutrition.

As the disease progresses, unintentional weight loss may become an issue. The energy consumption of people with COPD is increased because of the shortness of breath associated with the disease. In addition, emphysema developing in the lungs presses the diaphragm against the stomach, which can lead to a loss of appetite.

The person might not notice that the size of their meals and the amount of food eaten have decreased. A person is underweight if they weigh 10% less than their ideal weight. Nutrition-related issues can be discussed with a nutritionist.

Basics of a good diet

A person with COPD needs protein in their nutrition to prevent muscle loss, which is why they should favour dairy products, cheese, eggs, meat and fish. In addition, adequate energy from meals must be ensured.

A suitable meal schedule is to have breakfast and two hot meals, as well as snacks, at least in the afternoon and evening. Hot meals should not be replaced with snacks.

Diet for overweight people

If a person with COPD is significantly overweight in the abdominal region, they should lose weight. Losing the excess weight increases well-being, because the fat accumulated in the abdominal area hinders breathing. Being overweight also increases the risk of contracting other diseases.

The most important thing in managing your weight is perseverance. Only permanent changes in diet matter. The more moderate the change, the more likely it is to be permanent. The appropriate amount of weight loss is no more than 0.5 kilograms per week. This ensures that muscle mass does not decrease at the same time, which is very important. A sudden decrease in muscle mass is harmful because it increases the strain on the lungs as well as causes fatigue. It also reduces activity and accelerates the progression of the disease.

Diet for underweight people

If a person is malnourished, the most important thing is to ensure that they get enough energy from food. Therefore, nutritional recommendations are different from the recommendations for normal-weight people. It is a good idea to increase the amount of energy with fat and protein rather than with carbohydrates, since their high proportion in food may be harmful.

Underweight people can favour foods that they really like. Salt and sugar supplements can be used moderately to add flavour. The amount of energy can be increased by adding oil, milk powder or margarine to oatmeal, mashed potatoes or yogurt, for example. You can use full-fat products. Egg is a good source of protein, and nuts are good source of energy as well.

It is a good idea to keep your meal schedule regular and busy, i.e. eat small meals frequently. Many also benefit from only drinking between meals, because then the drink does not fill the stomach and take up space from food.

If normal food products are not sufficient to ensure adequate nutrition, it is advisable to use clinical supplements from pharmacies containing protein, energy, minerals and vitamins. However, it should be borne in mind that supplements are intended to treat malnutrition. As your weight normalises, it is important to start following recommendations meant for normal-weight people.

10. Travelling

When planning trips, you should contact your physician. The severity of COPD, functional capacity of lungs and oxygen saturation of blood are what determine whether a person with COPD can travel on an airplane. Under certain conditions, it is possible to fly with moderate or severe COPD. Air travel is never recommended for a person requiring home oxygen therapy, and it is not possible without a separate examinations.

Travel insurance and its coverage should always be clarified before trave

If you are travelling to an EU or EEA country or Switzerland, please carry th European Health Insurance Card (EHIC with you.

Holders of the European Health Insura Card have the right to receive necessar medical care in public healthcare in th above-mentioned areas on the same grounds as locals. The card covers eme gency treatment for chronic diseases s as COPD flare-ups.

Additional information: Kela's customer service tel. +358 20 692 204 (illness and cards) and tel. +358 20 634 200 (international situations).

You can also order a European Health Insurance card from Kela's e-service: https://www.kela.fi/eurooppalainen-sairaanhoitokortti

11. Rehabilitation

It is advisable to seek rehabilitation if the person with COPD needs help with coping with the disease or has questions about the disease, its treatment or managing the symptoms.

The purpose of rehabilitation is to maintain a good ability to work and function. In the early stages of the disease, it is important to be informed about the disease and the available social security services, but above all rehabilitation will provide you with tools to live with the disease.

It is advisable to bring up rehabilitation with your attending physician and the rehabilitation therapist, since rehabilitation requires a referral from a physician. Kela rehabilitation does not cost anything to the rehabilitee. In the case of an occupational disease, rehabilitation is sought through a pension insurance company.

It is worth checking whether sports-oriented, group-based outpatient rehabilitation is provided by your healthcare provider. You should always apply for local sports groups.

More information: Kela's rehabilitation customer service tel. +358 20 692 205

and online: www.kela.fi/kuntoutuskurssihaku.

Peer support from the Organisation for Respiratory Health in Finland

One of the key activities of the Organisation for Respiratory Health in Finland and its local organisations around Finland is to offer peer support.

Peer support offers individuals suffering from a certain condition the chance to share their experiences. Together, they can reflect on how their lives, resources and conditions differ from each other and what they have in common. Even more serious topics can be brought up. At its best, peer support is a source of empowerment for both the person receiving support as well as the one offering it.

The illness also affects family members and other loved ones. Many people feel that it is a relief to discuss the condition with other people in the same situations, as you do not have to add to the concerns of family and friends.

Go the website of the Organisation for Respiratory Health in Finland at www.hengitysliitto.fi, and find out which local association is active in your region. Come and join the activities!

Hengitysliitto

REMEMBER!

Other handbooks published by the Organisation for Respiratory Health in Finland. For people affected by sleep apnoea, we recommend the handbook "Breathe and be out of breath" providing inspiration for exercise and the handbook on asthma for better breathing.

Hengitysliitto

AstraZeneca

The contents of this handbook were designed by Mervi Puolanne, Hanna Salminen and Katri Nokela. Expert examination was carried out by a specialist in lung diseases and allergology, Docent Witold Mazur. The content is based on the Current Care Guidelines.

Photos: Mauri Ratilainen, Annika Suvivuo, Stremia, Shutterstock. Illustrations: Mikko Sallinen.

Publishing this handbook was made possible by the support from AstraZeneca Oy.

www.astrazeneca.fi

JOIN YOUR LOCAL ASSOCIATION

The Organisation for Respiratory Health in Finland and its local associations promote respiratory health and good life for people suffering from respiratory diseases.

You can also fill out a form online at www.hengitysliitto.fi/liity jaseneksi.

☐ **Become a member**

☐ **I want to become a secondary member of the local organisation of, I am a member of the local organisation.** (paying the member fee of both associations)

SURNAME AND GIVEN NAMES (underline the name by which you wish to be referred) ›	ADDRESS ›
DATE OF BIRTH ›	
PROFESSION ›	POSTCODE AND CITY/TOWN ›
TELEPHONE ›	PLACE OF DOMICILE ›
FIRST LANGUAGE ›	EMAIL ›

☐ You can send me information about events and activities by text message and e-mail

☐ I am a guardian of the child who is under 15 ☐ I am under 15 years old

☐ I do not have a respiratory disease

I am interested in respiratory diseases (please indicate which):

There is a member of a local respiratory association in our family:

☐ No ☐ Yes NAME ›

Your membership fee is depends on your local respiratory organisation. We will send your membership application to the respiratory association of your home municipality. The privacy statement of the membership register is available at: www.hengitysliitto.fi/liity-jaseneksi.

☐ **I hereby accept that the information above will be saved in the register of membersof which the local association is the data controller and Hengitysliitto ry (The Organisation for Respiratory Health in Finland) is the data processor.**

DATE ›	SIGNATURE ›	GUARDIAN'S SIGNATURE IF YOU ARE UNDER 15 ›

The website and YouTube channel of The Organisation for Respiratory Health in Finland feature a lot of up-to-date information on respiratory health and respiratory diseases, including asthma. Stay updated on our activities and latest news by following us at:

www.hengitysliitto.fi
@Hengitysliitto

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LOCAL ASSOCIATIONS FOR RESPIRATORY HEALTH OFFER MANY BENEFITS FOR THEIR MEMBERS:

- You can download the mobile membership card from your app store. It helps you keep track of the news, activities and events of your local respiratory association and The Organisation for Respiratory Health in Finland, as well as find peer activities and edit your personal information.
- Local respiratory associations regularly organise peer groups and sports activities, events, lectures and other types of recreational activities.
- Come and join the activities as a volunteer peer instructor, sports instructor, expert by experience or an elected representative in the organisation. The Organisation for Respiratory Health in Finland offers training for its volunteers.
- The member magazine, *Hengitys*, comes out four times a year.
- Your can check the member benefits of your local respiratory organisation and national organisation on their respective websites.

Fill in the form, cut it out and fold it as along the reverse line to form a letter. Fasten the edges with tape. The postage is paid by The Organisation for Respiratory Health in Finland, so you can drop the letter in a mailbox without a stamp.

Hengitysliitto ry
5005132
00003 Vastauslähetys

Postage paid by
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