



Fresubin®

Manage your symptoms

Help yourself in cancer treatment-related mucositis
and stay in a good nutritional status

 **FRESENIUS
KABI**
caring for life

Dear reader,

one of the unfortunate consequences of cancer therapies is the development of mouth sores, known as oral mucositis. These ulcers may become very painful and may make it difficult for you to eat, drink or talk. Thus, it may make you feel sick and may impact your daily life and social activities. If you can't eat comfortably it can cause weight loss and may weaken your body. Severe oral mucositis may also lead to dose limitations or unplanned breaks of your cancer therapy up to hospital admissions.

This guide will help you understand the causes and signs of oral mucositis, and give you helpful hints how you can manage your symptoms. There are many practical things you can do that may relieve pain and discomfort in your mouth and support adequate oral intake. To be active before or respond early when symptoms occur may help you to better cope with the journey you need to go through.



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Please note!

This guide does not replace advice from your health care team.

Oral mucositis – what you need to know

Oral mucositis is a condition characterised by swelling, ulceration (sores) and inflammation of the mucous membrane in the mouth and throat. The mucosa is the soft layer of tissue lining the inside of the mouth. The mucous cells are very sensitive to damage; for example from cancer treatments.

Mucositis typically develops 5 to 14 days after chemotherapy and lasts for two or three weeks. In patients receiving radiotherapy (e.g. of the head and neck region) symptoms of mucositis arise about 14 days after starting radiotherapy and may persist throughout the course of therapy.



Cancer therapies, like chemotherapy and radiotherapy work by killing cancer cells or stopping them from growing, but they may also damage healthy cells like those of the mucous membrane lining the mouth.

Oral mucositis is a common side effect of cancer therapies:

- 20% to 40% of patients receiving conventional chemotherapy,
- 80% of patients receiving high-dose chemotherapy as conditioning for hematopoietic stem cell transplantation,
- nearly all patients receiving head and neck radiation therapy.



Oral mucositis is one of the most common and debilitating side effects of cancer therapies.

Mucositis has four basic stages



1

is often asymptomatic or you may experience very mild inflammation.



2

is when you begin to notice symptoms of mucositis. The mouth, gums and insides of the cheeks may be red and inflamed (ulcers). You may also experience some pain while chewing and swallowing. A modified diet including soft, moist, smooth foods mostly provides relief.



3

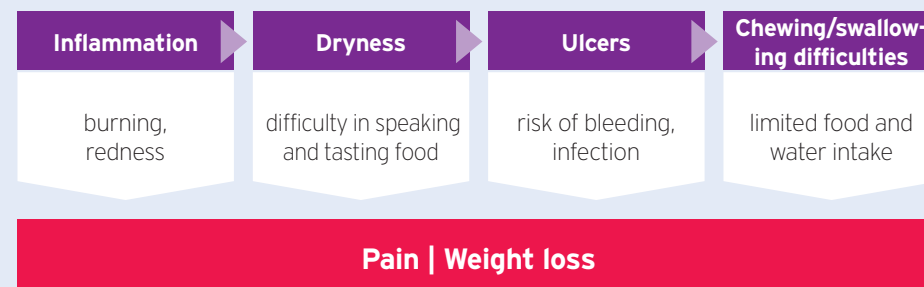
is accompanied by advanced inflammation, more severe pain and ulcers. You may find it difficult to eat certain foods and to eat enough food at all. High caloric liquid food and supplements may help to feed you adequately.



4

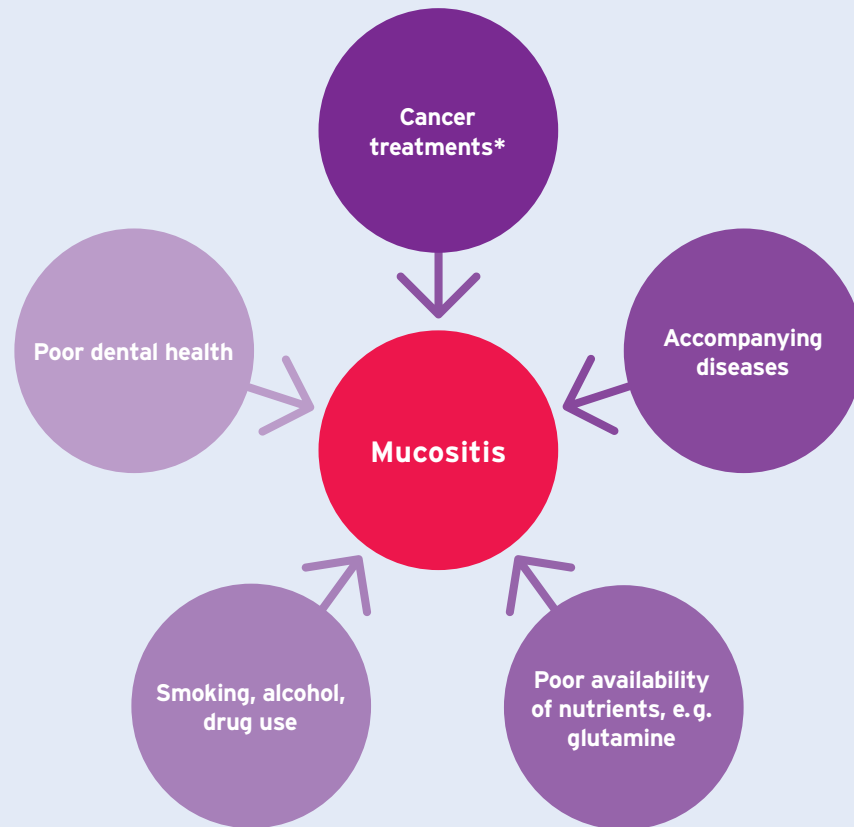
is characterised by open sores called ulcers on the mucosa. It may become very painful to swallow, and some patients may require a feeding tube or parenteral nutrition due to severe pain in the mouth to provide sufficient nutrition.

Symptoms & consequences



Causes of oral mucositis

Factors influencing the development of mucositis



It is important to find and treat the causes that may be making your mouth problems worse. Any small step can help to ease your symptoms and to feel more comfortable.

*Examples for treatments, that might affect oral mucositis: combinations/dose; chemotherapy, radiotherapy, stem cell transplantation, biological therapy

Prevention of oral mucositis

Good news: You can do a lot to prevent mucositis

Oral and dental care

Inform your dentist about the forthcoming cancer therapy. If possible existing dental problems should be treated before cancer therapy starts. Make sure that dentures fit properly if you wear those.

Cryotherapy

Sucking on ice chips or ice pops prior to, during and after infusion of chemotherapy may be helpful in some treatment protocols (e.g. in patients with bone marrow transplantation). Please ask your doctor for more information.



Dietary management can also have positive effects:

Nutritional modifications

Keep up your energy level with a balanced diet, high in energy with the full range of nutrients to strengthen your body and avoid weight loss.

Oral Glutamine supplementation

Recent studies suggest that taking glutamine supplement before treatment starts, can help delay the onset of mucositis as well as reducing its severity and duration.



Help yourself in cancer treatment-related mucositis and stay in a good nutritional status

You have already learned that mucositis can have a very severe impact on a patient's ability to eat and drink and thus may have a devastating effect on a person's nutritional status. Another important aspect is the effect of nutritional status on treatment toxicity: While mucositis induces poor nutrition, good nutrition on the other hand, might improve the symptoms of mucositis and reduce the toxicity of treatment.

Therefore, one of the most important things you can do is to pay attention to your diet and a stable weight optimally from the beginning of the disease. Early nutrition support in case your oral intake is compromised may help to stabilise your weight and provide sufficient energy and nutrients for your body to cope with cancer effectively and support treatment on the road to recovery.



Good nutritional status



Better treatment tolerance



Reduced weight- and performance losses

How you can find out the need for nutrition support

Questions you may ask yourself

Do I have pain when eating foods?	<input type="checkbox"/> no/mild	<input type="checkbox"/> moderate	<input type="checkbox"/> severe	<input type="checkbox"/> very severe
Do I have chewing or swallowing difficulties?	<input type="checkbox"/> no/mild	<input type="checkbox"/> moderate	<input type="checkbox"/> severe	<input type="checkbox"/> very severe
Do I avoid certain foods or mainly eat texture modified food (e.g. soft/smooth foods, pureed food, liquids)?	<input type="checkbox"/> no/omission of foods which are difficult to chew like meat, fruits, vegetables, whole grain products	<input type="checkbox"/> minor food modifications (e.g. mainly soft, moist, smooth foods)	<input type="checkbox"/> major food modifications (e.g. only pureed food, liquids etc.)	<input type="checkbox"/> nearly no food at all
Do I eat less since the mouth problems occurred?	<input type="checkbox"/> no - 100 % of what I ate before	<input type="checkbox"/> 75% of what I ate before	<input type="checkbox"/> 50% of what I ate before	<input type="checkbox"/> 25 % or less of what I ate before
Have I lost weight in the last 4 weeks?	<input type="checkbox"/> no - weight is stable	<input type="checkbox"/> up to 2 %	<input type="checkbox"/> up to 5 %	<input type="checkbox"/> up to 10 %
Do I experience weakness, lower performance?	<input type="checkbox"/> no/little	<input type="checkbox"/> moderate	<input type="checkbox"/> severe	<input type="checkbox"/> very severe

Your answers may be indicators for the severity of your mouth problems.



You should talk to your doctor about the results of this questionnaire. It is important for him to know if side effects of treatment occur and impairments of food intake are present.



Tips for coping with treatment-related oral mucositis

You will find many helpful tips on the following pages to alleviate your complaints and to be adequately supplied with nutrients during cancer treatment.

1. Nutritional modifications

When symptoms of oral mucositis arise at stage 1 or 2



- Avoid foods that irritate the mouth or throat like
 - rough or coarse foods: raw fruits & vegetables, pretzels, popcorn, chips, crackers & nuts.
 - spicy, salty or acidic foods: tomatoes, oranges, grapefruit, lemon, chili, tacos, pickles, vinegar.
 - very hot or very cold foods and drinks.
 - carbonated beverages, caffeine, alcohol and tobacco.



- Prefer eating soft, moist, smooth foods:
 - soft fruits such as banana, berries and watermelon can be eaten raw. Stone fruits, apples and other fruits can be stewed.
 - cook vegetables and other food until soft and tender.
 - prepare smoothies from vegetables and fruits in a blender.
 - cut the crusts off bread for a softer snack.
 - coarse food, for example meat, can be cut into very small pieces or can be minced.
 - moisten food by adding oils, sauce, broth, sour cream, gravy or cream soup.
 - other foods suitable in mouth problems are: custard, pudding, mashed vegetables and potatoes, pasta, cooked cereal such as oats, soups and scrambled eggs.



- Choose foods high in calories and protein with high quality oils (e.g. rapeseed oil, linseed oil, walnut oil, olive oil), nut butters, avocados, olives, creamy yoghurt.
- Prefer 6-8 small meals/snacks daily instead of 3 bigger meals for your own comfort, especially when eating is painful and you can't manage big portions.
- Use a smaller spoon without sharp edges.
- Drink water and other fluids frequently throughout the day. Chew sugarless gum to moisten the mouth.

Oral glutamine supplementation



- A supporting therapy option for reducing severity and duration of mucositis in chemotherapy or radiotherapy.
- Glutamine plays an important role for the integrity of mucous membranes of the GI tract.
- Many cancer patients experience a deficiency of glutamine.
- As already mentioned earlier, glutamine might also be beneficial for your oral mucosa before you enter in stage 1 or 2 of mucositis. Recent studies suggest that taking glutamine supplement before treatment starts, can help delay the onset of mucositis as well as reducing its severity and duration.



Early nutrition intervention

Especially if you have a therapy form fostering oral mucositis like e.g. chemotherapy or radiotherapy starting as early as possible with the described measures could mitigate the course of oral mucositis.



Tips to maintain a healthy weight

When food intake and composition is impaired

For many people with treatment-related mucositis, adequate nutrition is not possible despite a modified diet or enrichment of usual meals. In this case energy and protein-rich sip feeds (oral nutritional supplements) offer the body good nutrition support. With these, even large gaps in nutrient supply can be closed in a targeted way.



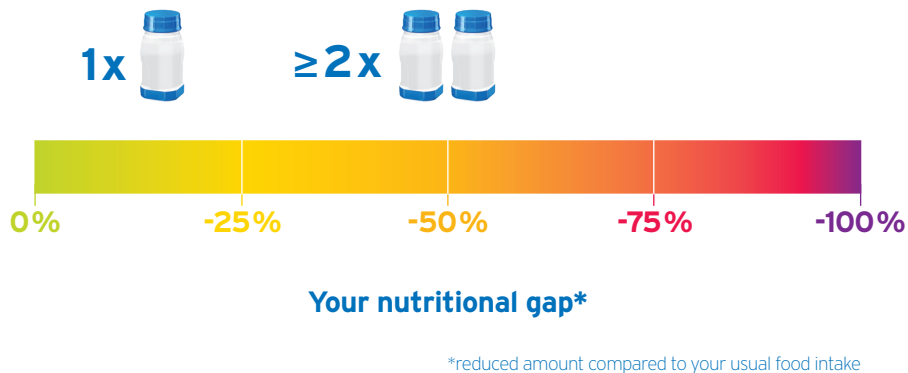
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Being well nourished strengthens your overall health status. It has a supportive function for your future therapy: to increase treatment tolerance and your ability to cope with the side effects.

Nutritional support through sip feeds and spoonable supplements

Sip feeds come usually as a liquid with a rounded flavour. Moreover, semi-solid spoonable oral nutritional supplements are available. Both contain all the nutrients such as carbohydrates, fats, proteins, minerals, vitamins and trace elements. Sip feed preparations are balanced, i.e. they contain all the nutrients the body needs, in the right quantity. Therefore, they can be consumed in addition to normal food but are also suitable as the patient's sole nutrition.

Supplements needed to fill the gap



Oral nutritional supplements may be beneficial

Oral nutritional supplements are proven to have beneficial effects for cancer patients, including:

- augmenting the nutritional intake which may help
- retaining and improving your appetite
- therefore increasing quality of life



Good to know!

Tube-feeding - in severe cases of oral mucositis (stage 4)

In severe cases of oral mucositis adequate intake of nutrients via the normal route is impossible or insufficient, e.g. if swallowing is severely affected due to painful ulceration in the mouth and throat area. In such a situation supply of nutrients via a feeding tube may help, if appropriate. If swallowing of a tube is not too painful it provides sufficient nutrients for the body for as long as eating and drinking is impaired.



Tips for coping with treatment-related oral mucositis

2. Oral and dental care



- Make sure that your mouth is healthy before you start cancer treatments as described earlier as preventive measure.



- Think of proper daily oral care.
 - Brush your teeth with a soft-bristle toothbrush after eating and before bed.
 - Rinse your mouth 5 or 6 times daily for 1 to 2 minutes each time using a nonmedicated salt water rinse (1 teaspoon salt, 1 teaspoon baking soda in 4 cups of water).
 - Do not use rinses that have alcohol in them.

3. Pain Control



- Please consult your doctor or pharmacist regarding the option of taking painkillers before eating. They may help to chew and swallow your food with greater ease.



Control of pain is important because oral pain may prevent you from eating solid food, from swallowing, and even from thorough tooth brushing.




Good to know!

Oral cryotherapy - to relief symptoms

- Swishing ice chips in the mouth for 30 minutes around the time of chemotherapy, sometimes referred to as "oral cryotherapy," may prevent or minimise mucositis.
- Swishing ice chips in the mouth can provide pain relief.


Products for nutrition support in oral mucositis

This range of products is designed to support you through times when eating normal food is impaired due to mouth problems and to give the body what it needs to fight mucositis.

Product	Product features	Indication	Recommended dose
Kabi Glutamine 	<ul style="list-style-type: none"> • Oral glutamine supplement (instant powder) • Neutral flavour • Flexible for use with various foods and drinks 	<ul style="list-style-type: none"> • For the dietary management of patients in need of high glutamine due to chemo- or radiation therapy induced mucositis 	<ul style="list-style-type: none"> • 3 x 10 g/d starting 0–7 days before each chemotherapy cycle and/or radiation at a maximum dose of 30 g/d

Fresenius Kabi offers a range of products for nutrition support in mucositis.

Oral Nutritional Supplements (ONS) are an effective source of nutrients in a balanced formulation and concentrated form. They are high in energy and protein and contain all the necessary micronutrients in a concentrated format. They are available in various forms including flavoured drinkable (sip feeds) or spoonable food.

Product	Product features	Indication	Recommended dose
Supportan DRINK 	<ul style="list-style-type: none"> • ONS high in EPA from fish oil: 1 g EPA per 200 ml bottle with 300 kcal and 20 g of protein • Adapted to the special needs of oncologic patients • Flavours: Cappuccino, Tropical Fruits, Chocolate, Pineapple-Coconut 	<ul style="list-style-type: none"> • For patients with or at risk of malnutrition with swallowing difficulties due to mucositis and/or pain; need for liquid diet 	<ul style="list-style-type: none"> • 1–2 bottles per day in patients eating 75–100% of usual intake

Product	Product features	Indication	Recommended dose
Fresubin 3.2 kcal DRINK 	<ul style="list-style-type: none"> • Low volume high-caloric, high-protein ONS: 125 ml bottle contains 400 kcal and 20 g protein • For good compliance due to reduced volume • Flavours: Vanilla-Caramel, Hazelnut 	<ul style="list-style-type: none"> • For patients with or at risk of malnutrition with swallowing difficulties due to mucositis and/or pain; need for liquid diet 	<ul style="list-style-type: none"> • 1 bottle per day in patients eating 75–100% of usual intake • 2 bottles in patients eating 50–75% of usual intake
Fresubin 2 kcal DRINK Fresubin 2 kcal Fibre DRINK 	<ul style="list-style-type: none"> • High-caloric, high-protein ONS • With prebiotic fibre/without fibre • Flavours: Vanilla, Chocolate, Cappuccino, Apricot-Peach, Toffee, Fruits of the Forest, Lemon, Neutral 	<ul style="list-style-type: none"> • For patients with or at risk of malnutrition with swallowing difficulties due to mucositis and/or pain; need for liquid diet 	<ul style="list-style-type: none"> • 1–2 bottles per day in patients eating 75–100% of usual intake • 2–3 bottles in patients eating 50–75% of usual intake
Fresubin 2 kcal Crème 	<ul style="list-style-type: none"> • Semi-solid spoonable ONS with a creamy consistency • High in calories and protein: 250 kcal and 12.5 g protein per 125 g cup • Flavours: Chocolate, Vanilla, Wild Strawberry, Cappuccino, Praliné 	<ul style="list-style-type: none"> • For patients with or at risk of malnutrition with swallowing difficulties due to mucositis; need for texture modified diet 	<ul style="list-style-type: none"> • 2 cups per day in patients eating 75–100% of usual intake • 3–4 cups in patients eating 50–75% of usual intake



**FRESENIUS
KABI**

caring for life

Fresenius Kabi Deutschland GmbH
61346 Bad Homburg
Germany

Phone: +49 (0) 61 72 / 686-0
Enteral.nutrition@fresenius-kabi.com
www.fresenius-kabi.com

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