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Colloidal Oat: a natural ingredient for improving skin health and function

Kenvue Medical Affairs SSA – Dr Aamina Peer

Oats have long been recognised for their nutritional benefits, but recent research has uncovered their potential to benefit the skin in multiple ways.¹ Oats are not only rich in vitamins, minerals, and antioxidants, but they also contain unique compounds that can strengthen the skin's moisture barrier,² act as an anti-inflammatory³, and support the skin microbiome.⁴

One of the most significant benefits of oats for the skin is their ability to strengthen the moisture barrier.² The outermost layer of the skin, the stratum corneum, is responsible for maintaining the skin's hydration levels. Oats can help to hold moisture within the stratum corneum through the formation of an occlusive and water-binding film.⁵ Oats also induce the formation of ceramides, which are critical components of the skin's moisture barrier.⁶ By replenishing the number and diversity of ceramides in the stratum corneum, oats can help to restore the skin's natural hydration levels. Additionally, oats can serve as a skin buffer, helping to normalise pH levels that are critical for maintaining healthy skin.⁷

Oats also possess anti-inflammatory properties that can benefit the skin.⁸ Oat extracts contain avenanthramides, which have been shown to inhibit the release of pro-inflammatory cytokines (IL-6, IL-8 and TNF - alpha) from keratinocytes.⁹ These cytokines are responsible for triggering inflammation in the skin, which can lead to redness, irritation, and other skin problems.¹⁰ Oats have also been shown to suppress contact hypersensitivity, neurogenic inflammation, and itch responses.¹¹ In human keratinocytes challenged with histamine, oat extract reduced histamine-induced ROS,¹² reversed the inflammatory response, and induced gene expression that is critical for healthy skin.

Finally, oats act as a prebiotic, providing food for beneficial bacteria that live on the skin.¹³ Oat flour can support the growth of

commensal microorganisms, such as *Staphylococcus epidermidis*, which are essential for maintaining a healthy skin microbiome.¹³ In vitro studies have shown that oat flour can increase the production of lactic acid and decrease pH levels,⁴ which are critical for supporting a healthy skin microbiome. Clinical studies have also shown that a colloidal oatmeal-containing lotion can improve the skin's moisture barrier and microbiome diversity in individuals with dry, itchy skin and eczema prone skin.

Overall, oats are a natural and effective way to improve the health and appearance of the skin. Their ability to strengthen the skin's moisture barrier, act as an anti-inflammatory, and support the skin microbiome makes them a valuable ingredient in skincare products. As research continues to uncover the numerous benefits of oats for the skin, we can expect to see more skincare products incorporating this powerful ingredient.

References

1. Bjarnadottir A. Oats 101: Nutrition Facts and Health Benefits [Internet]. Healthline. 2015
2. Ilnytska O, et al. J Drugs Dermatol. 2016;15(6):684–690.
3. Reynertson KA, et al. J Drugs Dermatol. 2015;14(1):43–48
4. Liu-Walsh F, et al. Clin Cosmet Investig Dermatol. 2021;14:73-82.
5. Cork M. The importance of skin barrier function. Journal of Dermatological Treatment [Internet]. 1997 Jan;8(sup1):S7–13
6. Chon SH, et al. Exp Dermatol. 2015;24(4):290–295.
7. Grais M. AMA Arch Derm Syphilol. 1953;68(4):402–407
8. Reynertson KA, et al. J Drugs Dermatol. 2015;14(1):43–48
9. Guo W, et al. Free Radic Biol Med. 2008;44:415–429.
10. Cleveland Clinic. What are Cytokines? Types and Function [Internet]. Cleveland Clinic. 2023
11. Elene Karberg. A Study of avenanthramides in oats for future applications. 2010
12. J. Thomas et al [Oat Components Provide Holistic Skin Protection Against Both Internal and External Exposomal Stressors-Induced Damages, Increase Ceramide Production and Balance Skin's pH In Vitro] In: American Academy of Dermatology Annual Meeting.; March 17-21, 2023; New Orleans, LA. USA
13. Liu-Walsh F, et al. Clin Cosmet Investig Dermatol. 2021;14:73-82.





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Pharmacy Assistants: key players in the successful implementation of the NHI Act

Natalie Schellack

The implementation of the National Health Insurance (NHI) Act in South Africa presents both challenges and opportunities for pharmacy assistants as they navigate the evolving healthcare landscape.

The NHI's focus on integrated and coordinated care necessitates the development of new collaborative practice models, which will likely involve pharmacy assistants working more closely with pharmacists and other healthcare providers. Pharmacy assistants will play a crucial role in the successful rollout of the NHI by assisting pharmacists in dispensing medications, stock management, and ensuring the appropriate use of medicines by NHI beneficiaries.

The South African Pharmacy Council (SAPC) has published amendments to the Mid-Level Worker Regulations, which establish a clear career path for pharmacy support personnel. The Pharmacist's Assistant (Basic) and Pharmacist's Assistant (Post-Basic) qualifications have been registered on the Occupational Qualifications Sub-

Framework (OQSF), allowing progression from Basic to Post-Basic level and potentially to the Pharmacy Technician qualification. These changes provide new opportunities for pharmacy assistants to advance their careers and take on more responsibilities within the pharmacy setting.

With the expanded roles and responsibilities of pharmacy assistants under the NHI, there may be a need for enhanced training and skill development to ensure they are equipped to handle the increased workload and complexity of tasks. The NHI may also provide funding or resources for training programs to upskill pharmacy assistants and prepare them for their new roles within the healthcare system.

As the healthcare system transitions towards universal coverage, pharmacy assistants may be called upon to take on expanded responsibilities and work more closely with pharmacists and other healthcare providers in delivering integrated, patient-centred care.



Soothing a sore throat

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Abstract

Sore throat (pharyngitis) is a common condition, and although most cases can be managed at home and resolve over a period of five to seven days, some cases can be an indication of more serious conditions that need referral to a doctor for further investigation. This article will discuss the causes of a sore throat, the management of less serious cases at home and will identify those symptoms that require referral or urgent referral to a doctor. Some products are available over-the-counter (OTC) in South Africa to alleviate symptoms of a sore throat and will also be discussed in this article.

Introduction

Sore throat, also called pharyngitis, is a painful, dry, scratchiness or irritation of the throat that worsens upon swallowing or talking.^{1,2} The most common cause of a sore throat is a viral infection but it can also be caused by a bacterial infection and other causes.¹ Although a sore throat is a common problem, most sore throats are not serious and resolve over a period of five to seven days.^{1,3,4} However, a sore throat can also indicate a serious condition, and it is important to know when to refer patients to a doctor.^{2,3}

What does a sore throat feel like?

A sore throat may start with a raspy feeling in the throat, as if the throat is dry. The throat may also burn and feel raw, tender, and irritated.⁵ If a sore throat gets worse, it can cause a sharp pain when talking or swallowing and can also result in pain in the ears or down the side of the neck.²

What can cause a sore throat?

Most sore throats occur due to a viral infection. However, there are several possible causes for a sore throat and can include:¹

- Viral infections such as the common cold, influenza, coronavirus, Epstein Barr virus (mononucleosis), HIV infection (often with secondary fungal infections), measles, chickenpox, and croup
- Bacterial infections such as group A Streptococcal infections
- Dryness or mouth breathing
- Allergies (due to a postnasal drip)
- Irritants such as smoking, chemicals, alcohol, or spicy foods
- Overuse such as yelling or talking for extended periods without rest
- Gastro-oesophageal reflux disease (GORD)
- Tonsillitis
- Tumours

How to relieve symptoms of a sore throat

Getting enough rest, including resting the voice and throat, can relieve symptoms of a sore throat. Humidifying the air and increasing fluid intake can help for a sore throat due to dryness. Warm caffeine-free liquids such as broth, tea or warm water with lemon and honey can soothe the throat.² Honey coats and soothes the throat whilst lemon helps reduce mucus.⁶

Note: Do not give honey to children younger than one year of age as it can result in a botulism infection in these patients.¹

Children six years of age and older can gargle with a solution of a quarter to half a teaspoon of salt in a cup of warm water to alleviate a sore throat. Eating cold desserts such as ice pops, ice cream or cold beverages, or sucking on hard candy can also relieve a sore throat. To avoid a choking risk, do not give hard candies (sweets) to children younger than four years of age.^{1,3,7}

Medication for a sore throat

Oral analgesics such as paracetamol or ibuprofen are effective for treatment of sore throats.⁵ Aspirin may also be used but is not recommended for children and teenagers due to the risk of a serious condition called Reye's syndrome that causes swelling in the liver and brain.^{1,5} Other treatment options may include the use of throat sprays, gargles or lozenges that contain cooling agents such as menthol or eucalyptus, local anaesthetics or antiseptic agents

Table I: Some products available OTC in South Africa to manage a sore throat^{6,8}

Active ingredient	Products available	Formulation
ORAL ANALGESICS		
Aspirin	Disprin [®] Bayer [®] Aspirin Gulf Aspirin	Dispersible tablets Tablets Tablets
Ibuprofen	Brufen [®] Brufen [®]	Tablets Suspension
Paracetamol	Calpol [®] Panado [®] Panado [®] Painblok [®] Parafizz [®] 500	Suspension Tablets Syrup Tablets Effervescent tablets
LOCAL ANALGESICS		
Flurbiprofen	Strepsils [®] Intensive	Lozenges
LOCAL ANAESTHETICS		
Benzylamine	Andolex [®] Andolex [®]	Oral rinse Spray
LOCAL ANTISEPTICS		
Chlorhexidine gluconate	Corsodyl [®]	Mouthwash
Povidone Iodine	Betadine [®] Dermadine [®] Podine [®] Septadine [®]	Mouthwash and gargle
Chlorhexidine and Cetylpyridinium (antiseptics)	GUM [®] Paroex [®]	Mouthwash
Dichlorobenzyl alcohol and Amylmetacresol (antiseptics)	Orothroat [®] Strepsils [®]	Lozenges
Dichlorobenzyl Alcohol, Amylmetacresol and Lidocaine Hydrochloride	Orothroat [®] Plus	Lozenges
COMBINATION PRODUCTS		
Benzocaine (local anaesthetic) and cetylpyridinium (antiseptic)	Medi-Keel A [®] Endcol [®]	Lozenges
Benzocaine and dibucaine (local anaesthetics) with cetylpyridinium (antiseptic)	Medi-Keel A [®]	Throat gargle
Benzylamine (local analgesic) and cetylpyridinium (antiseptic)	Andolex [®] C	Lozenges
Benzylamine (local analgesic) and chlorhexidine (antiseptic)	Andolex [®] C, Oranix [®] Andolex [®] C, Oranix [®] Orochlor [®]	Oral rinse Spray

to relieve the symptoms of a sore throat.⁵ Lozenges may persist longer in the throat than sprays or gargles and may, therefore, be more effective in relieving the symptoms. Table I provides a list of treatment options that are available OTC to alleviate symptoms of a sore throat. Always refer to the manufacturer's package insert for dosing and safety information.

When to refer

Patients should be referred to a doctor if any of the following symptoms occur:^{1,4,5,7}

- Severe sore throat
- Sore throat in children that is not associated with other flu-like symptoms
- Sore throat that lasts for longer than seven days
- Blood in the saliva or phlegm
- Fever of 38.5 ° C or higher
- Frequently recurring sore throats
- Enlarged lymph glands in the neck
- Hoarseness lasting for more than two weeks
- Joint pain
- Earache

Patients should seek urgent medical assistance if any of the following symptoms are present:³

- Skin rash
- Difficult or painful breathing
- Difficulty swallowing
- Difficulty opening the mouth
- Painful or stiff neck
- Swelling in the face, neck, or tongue

These symptoms may indicate sore throat due to bacterial infection or other serious causes and need assessment by a doctor to determine appropriate treatment options.

Conclusion

A sore throat is a painful, dry, scratchiness or irritation of the throat that worsens upon swallowing or talking.^{1,2} Most sore throats are not serious and resolve over a period of five to seven days. Managing a sore throat at home may include sucking hard candy, consumption of warm liquids such as broth, warm water or tea with honey and lemon, or cold beverages or desserts such as ice pops or ice cream to coat and soothe the throat. Oral analgesics such as aspirin, ibuprofen or paracetamol are effective in relieving pain associated with a sore throat, whilst various lozenges, throat sprays, mouthwashes and gargles containing local anaesthetics and or antiseptics are also available to alleviate symptoms. It is important to identify symptoms that would require referral to a doctor for further assessment and treatment.

References

1. Mayo Clinic. Sore throat. Available from: <https://www.mayoclinic.org/diseases-conditions/sore-throat/symptoms-causes/syc-20351635>. Updated 10 June 2021; Accessed 26 April 2024.
2. Cleveland clinic. Sore throat (Pharyngitis). Available from: <https://my.clevelandclinic.org/health/diseases/8274-sore-throat-pharyngitis>. Updated 11 Aug 2022; Accessed 23 April 2024.
3. Stead W. Patient education: Sore throat in adults (Beyond the Basics). In: UpToDate. Available from: <https://www.uptodate.com/contents/sore-throat-in-adults-beyond-the-basics>. Updated 14 July 2023; Accessed 23 April 2024.
4. Soliman M. How to deal with a sore throat. In Medical News Today. Available from: <https://www.medicalnewstoday.com/articles/311449>. Updated 29 Nov 2023; Accessed 26 April 2024.
5. Watson S. Sore throat 101: Symptoms, causes and treatment. In Healthline. Available from: <https://www.healthline.com/health/sore-throat>. Updated 20 July 2022. Accessed 26 April 2024.
6. OTC MIMS guide to OTC products. 2022;28.
7. Wald ER. Patient education: Sore throat in children (Beyond the Basics). In: UpToDate. Available from: <https://www.uptodate.com/contents/sore-throat-in-adults-beyond-the-basics>. Updated 21 Nov 2022; Accessed 25 April 2024.
8. Rossiter D, Blockman M, Barnes KI, editors. South African Medicines Formulary. South African Medical Association; 2022.



Acute rhinosinusitis in the pharmacy

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Abstract

Rhinosinusitis refers to inflammation or swelling of the lining of the sinuses and nose. Acute rhinosinusitis lasts for less than four weeks and is usually caused by a viral upper respiratory tract infection such as the common cold. Acute bacterial rhinosinusitis occurs much less commonly. Symptoms of acute viral and acute bacterial rhinosinusitis overlap, and it is not possible to distinguish viral or bacterial rhinosinusitis based on the symptoms. Acute bacterial rhinosinusitis, however, may last for longer than 10 days and often improves and then worsens again within seven days. Antibiotics are not indicated for the treatment of acute viral rhinosinusitis and many otherwise healthy patients can clear acute bacterial rhinosinusitis without an antibiotic. Symptomatic treatment may be recommended for patients with acute rhinosinusitis. Patients with persistent symptoms or symptoms suggesting a more severe disease should be referred to the doctor.

Introduction

The bones of the face around the nose contain hollow spaces which make up the paranasal sinuses and which are connected to the nasal openings.^{1,2} The sinuses are lined with mucous membranes, much like the inside of the nose.² There are four groups of paranasal sinuses: the maxillary, ethmoid, frontal and sphenoid sinuses.¹ The sinuses reduce the weight of the facial bones and skull and also add resonance to the voice.¹

Rhinosinusitis, or more commonly sinusitis, refers to inflammation or swelling of the lining of the sinuses and nose.² The term rhinosinusitis is preferred as inflammation of the sinuses rarely occurs without concurrent inflammation of the nasal mucosa.³ There are two main types of sinusitis: acute and chronic.² Acute rhinosinusitis lasts for

less than four weeks while chronic sinusitis lasts for more than 12 weeks.²

Causes of acute rhinosinusitis

The most common cause of acute sinusitis is a viral infection associated with the common cold i.e. a viral rhinosinusitis.² Most acute rhinosinusitis, therefore, is caused by the same viruses that cause the common cold.⁴ During a cold, the swollen mucous membranes of the nasal cavity tend to block the openings of the sinuses.⁵ Air in the sinuses is absorbed into the bloodstream, and the pressure in the sinuses increases, causing pain and drawing fluid into the sinuses.⁵ This fluid is a breeding ground for infection.⁵ About 90% of patients with colds have an element of viral rhinosinusitis.⁶

Bacterial sinusitis occurs much less commonly, in only 0.5 to 2 % of cases, usually as a complication of viral sinusitis.² *Streptococcus pneumoniae*, *Haemophilus influenzae* and *Moraxella catarrhalis* appear to be the most common causes of bacterial sinusitis, with the first two making up about 75% of cases.^{4,7}

Although rare, fungal infections can also cause rhinosinusitis.⁵ Nonetheless, this is almost always seen in patients with immunosuppression (e.g. HIV-positive patients, cancer patients undergoing active treatment and patients taking immunosuppressant medicines).⁷

More women than men have episodes of rhinosinusitis, and among adults, the incidence is highest among those aged 45 to 64 years.³ Since children have small, underdeveloped sinuses, acute rhinosinusitis is less likely to occur in children.⁴

Other risk factors for acute rhinosinusitis include older age, smoking, air travel, exposure to changes in atmospheric pressure (e.g. deep-sea diving), swimming, asthma and allergies, dental disease and poor immunity.³

Symptoms of acute rhinosinusitis

Symptoms of acute rhinosinusitis include:^{2,3,5}

- Nasal congestion or blockage
- Thick, yellow to green discharge from the nose

Table I: Symptomatic care options for adults with acute rhinosinusitis^{8,9}

Class	Options	Advantages	Disadvantages
Saline nasal irrigation Saline nose sprays	Salex® Saline Sinus Rinse Salex® Saline Nasal DropSpray	Relieves nasal congestion Reduces need for OTC medicines	Some patients find the process of nasal irrigation uncomfortable or difficult
Oral analgesics and antipyretics	Paracetamol (e.g. Panado®) Nonsteroidal anti-inflammatory drugs (NSAIDs) such as ibuprofen (e.g. Nurofen®)	Provide pain relief and help control fever Generally well-tolerated	NSAIDs should be avoided in patients with heart or kidney disease NSAIDs can increase risk of bleeding and gastrointestinal upset
Intranasal corticosteroid sprays	Beclomethasone (e.g. Beclate® Aquanase) Budesonide (e.g. Aromide® Nasal) Fluticasone (e.g. Flomist®) Mometasone (e.g. Nasonex®)	Short-term use can help relieve nasal congestion by reducing inflammation May be particularly helpful for patients who also have allergic rhinitis	Can cause a nosebleeds and sore throat
Oral decongestants	Available in combination with an analgesic such as paracetamol (e.g. Sudafed® Sinus Pain) or in combination with an antihistamine (e.g. Demazin®)	May be used for three to five days to help relieve symptoms of congestion	Use with caution in patients with heart disease, hypertension, angle-closure glaucoma or bladder neck obstruction Antihistamines may cause drying of the nasal mucosa which may be uncomfortable
Intranasal decongestants	Oxymetazoline (e.g. Iliadin®)	May help relieve nasal congestion If used, should be used sparingly for no more than three consecutive days	May cause rebound nasal congestion and mucosal damage if used long-term

- Facial pain or pressure that is worse or localised to the sinuses when bending forward
- Tenderness (pain when touched) and swelling over the affected sinus
- Tooth discomfort

Other acute rhinosinusitis symptoms can include fever, fatigue, productive cough, problems with smell, ear pressure or fullness, headache and bad breath.^{2,3}

In most cases, these symptoms develop over the course of one day and may last for seven to 10 days.² The symptoms of acute viral rhinosinusitis and acute bacterial rhinosinusitis overlap and there are no symptoms that can distinguish between a bacterial or a viral rhinosinusitis.³ However, acute viral and bacterial rhinosinusitis tend to run different clinical courses:³

- Acute viral rhinosinusitis runs a similar clinical course to other viral upper respiratory tract infections (e.g. colds and flu) with symptoms improving within seven to 10 days.³ Although symptoms may persist for more than 10 days, there is usually some improvement by day 10.³ In most cases of viral upper respiratory tract infections, symptoms peak in severity between days three and six, after which they improve.³ If fever is present, it generally occurs early in the illness and disappears within the first 24 to 48 hours.³
- Patients with acute bacterial rhinosinusitis tend to have symptoms that last longer than 10 days.³ Patients who have symptoms that improve but that then worsen again may have a bacterial rhinosinusitis.³

Discoloured, thick nasal discharge cannot be used to accurately distinguish between acute viral and acute bacterial rhinosinusitis.³ However, the following patients with symptoms of acute rhinosinusitis should be referred to the doctor:^{2,3}

- Patients with symptoms that last more than 10 days
- Patients with symptoms that initially improve but then worsen again within the first seven days
- Patients with persistent high fever
- Patients with double vision or impaired vision
- Patients with severe or persistent headache or a stiff neck

- Patients with confusion or difficulty thinking clearly
- Patients with swelling or redness around one or both eyes
- Patients with symptoms of ear pain, fullness or pressure, hearing loss or tinnitus

Treatment of acute rhinosinusitis

Since antibiotics are only effective against bacterial and not viral infections, most patients with acute rhinosinusitis do not need antibiotics.² Using antibiotics for the treatment of a viral infection places patients at risk of antibiotic-associated side effects and also increases the risk of antibiotic resistance (when bacteria become resistant to antibiotic treatment) in the community.² Furthermore, most adults with a normal immune system are able to clear acute bacterial rhinosinusitis without antibiotics.²

The primary treatment for acute viral and acute bacterial rhinosinusitis involves symptom relief.^{2,8} There are no treatments that shorten the clinical course of the disease.⁸ Symptomatic management of acute rhinosinusitis aims to:⁸

- Relieve symptoms of nasal obstruction and rhinorrhoea
- Relieve symptoms of pain and fever

Table I describes over-the-counter (OTC) medicines that may be recommended for the symptomatic management of acute uncomplicated rhinosinusitis.

Saline irrigation i.e. flushing the nose and sinuses with a saline solution several times a day can improve patient comfort by relieving the congestion and may reduce the need for OTC medicines.^{2,8} A variety of devices, including syringes, bottle sprayers and nasal irrigation kits may be used to perform nasal irrigation.² These are available without a prescription.²

Steam inhalations may also provide short-term relief of nasal congestion.⁸

In summary

Acute viral rhinosinusitis is expected to improve or resolve within 10 days.⁸ Patients with acute viral rhinosinusitis may be managed with supportive care to relieve symptoms.⁸ Patients who fail to improve

after 10 days or who improve and then worsen again within seven days should be referred to the doctor.⁸

References

1. Kaylie DM. Nose and sinuses. MSD Manual Consumer Version. April 2022. Accessed May 2024. Available from <https://www.merckmanuals.com/home/ear,-nose,-and-throat-disorders/biology-of-the-ears,-nose,-and-throat/nose-and-sinuses>.
2. Patel ZM, Hwang PH. Patient education: Acute sinusitis (sinus infection) (Beyond the Basics). Uptodate. Feb 26, 2024. Available from <https://www.uptodate.com/contents/acute-sinusitis-sinus-infection-beyond-the-basics>. Accessed May 2024.
3. Patel ZM, Hwang PH. Acute sinusitis and rhinosinusitis in adults: Clinical manifestations and diagnosis. Uptodate. Feb 23, 2024. Available from <https://www.uptodate.com/contents/acute-sinusitis-sinus-infection-beyond-the-basics>.
4. Worrall G. Acute sinusitis. Canadian Family Physician 2011;57:565–567. Accessed May 2024.
5. Fried MP. Sinusitis. MSD Manual Consumer Version. July 2023. Available from <https://www.msdmanuals.com/home/ear,-nose,-and-throat-disorders/nose-and-sinus-disorders/sinusitis>. Accessed May 2024.
6. Battisti AS, Modi P, Pangia J. Sinusitis. StatPearls [Internet]. March 2023. Available from <https://pubmed.ncbi.nlm.nih.gov/29262090/>. Accessed May 2024.
7. DeBoer DL, Kwon E. Acute sinusitis. StatPearls [Internet]. August 2023. Available from <https://pubmed.ncbi.nlm.nih.gov/31613481/>. Accessed May 2024.
8. Patel ZM, Hwang PH. Uncomplicated acute sinusitis and rhinosinusitis in adults: Treatment. Uptodate. Nov 2022. Available from <https://www.uptodate.com/contents/uncomplicated-acute-sinusitis-and-rhinosinusitis-in-adults-treatment>. Accessed May 2024.
9. Monthly Index of Medical Specialities (MIMS). 2024;64(3). April.





Cough care choices

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Introduction

A cough is a protective reflex that clears the airways from inhaled foreign objects.¹ Viral infections, such as colds, can increase the production of mucus which is cleared by coughing.¹

There are a range of different cough preparations available, however, there is little information on their efficacy.² Nevertheless, cough preparations are widely sought out and used, and this article will aid in selecting the most appropriate product.^{1,2}

A cough that produces mucus is known as a “productive” or “wet” cough.³ A non-productive (dry, tickly or tight) cough is when no phlegm is produced.¹ In most cases, these coughs are viral in origin and are self-limiting.¹

Expectorants

Products that have an expectorant action should only be used if the mucus produced can be coughed up.⁴

Expectorants describe medications that increase the production of mucus (by increasing the water content of secretions), making it less sticky and easier to cough up.^{4,5}

Patients should be made aware that expectorants do not stop the cough, rather they aid the body in removing excess mucus from the airways.⁵

Table 1: Medications available with an expectorant action^{2,3,6,7,8}

Expectorants and examples	Notes
Guaifenesin	<ul style="list-style-type: none"> Most commonly available expectorant. Commonly found in combination with decongestants, cough suppressants, as well as pain and fever medications.
Ivy leaf extract (<i>Hedera helix</i>)	<ul style="list-style-type: none"> Ivy leaf extract is a herbal medicine thought to have expectorant and bronchodilatory properties.
Ammonium chloride	<ul style="list-style-type: none"> Ammonium chloride has an irritant effect on the bronchial mucosa, which increases the production of respiratory fluids.

Mucolytics

Patients with thick, persistent mucus production (tenacious sputum) may benefit from the use of a mucolytic to reduce the thickness (viscosity) of the mucus.²

Mucolytics work differently to expectorants in that they act on the mucus layer lining the respiratory tract.⁹ The bonds within the mucus are broken down with a mucolytic, thereby increasing its flowability and improving its clearance.^{5,9}

Bronchodilators (e.g. theophylline, orciprenaline) widen the airways for the treatment of lung conditions that cause the airways to narrow (such as asthma).^{4,7} Some cough expectorants and mucolytics include a bronchodilator for coughs associated with bronchospasm.⁷

Cough suppressants (antitussives)

Cough suppressants suppress the urge to cough and should only be used in patients with a severe, dry cough that disturbs sleep.^{2,4} A productive (wet) cough should not be suppressed, as this may cause the phlegm to remain in the respiratory tract, encouraging the development of infection.²

Demulcents

Demulcents act by increasing the flow of saliva, thereby producing a protective and soothing effect.¹¹ These include honey, marshmallow root dry extract, liquorice root and glycerine, and may be found in the form of syrups or cough drops.^{11,12}

Table II: Classic mucolytics available in South Africa^{2,9}

Mucolytic and examples	Notes
Carbocysteine	<ul style="list-style-type: none"> • In addition to its mucolytic action, carbocysteine also has an expectorant action. • May cause headache, gastrointestinal bleeding, nausea, diarrhoea. • Contraindicated in patients with active peptic ulceration.
N-Acetylcysteine	<ul style="list-style-type: none"> • May cause bronchospasm, nausea, vomiting. • Use with caution in asthmatics and in people with a history of peptic ulceration.
Bromhexine	<ul style="list-style-type: none"> • May cause gastrointestinal symptoms and bronchospasm. • Use with caution in patients with asthma and those with a history or symptoms of peptic ulceration.
Bromhexine/bronchodilator	<ul style="list-style-type: none"> • A mucolytic with a bronchodilator may be recommended for a patient with a wheezy, productive cough.

Table III: Medications available with a suppressive (antitussive) action^{2,10}

Medications and examples	Notes
Dextromethorphan	<ul style="list-style-type: none"> • May interact with certain medications (such as certain antidepressants). Refer to pharmacist or doctor if unsure. • Caution in patients with asthma, emphysema, liver impairment or respiratory depression. • Acts on the part of the brain that causes coughing. • May be found on its own in certain cough mixtures, or in combination with an antihistamine and/or a decongestant.
Codeine	<ul style="list-style-type: none"> • May cause constipation and respiratory depression. • Potential for misuse or abuse.

Mildly irritating coughs, with no bronchospasm or underlying infection, may be soothed naturally with a mixture of glycerine, honey and lemon.²

Conclusion

Although there is uncertainty on the efficacy of over-the-counter cough preparations, many people will find that the preparations do have a soothing effect on the cough.¹ The choice of cough syrup depends on the type of cough (productive or non-productive).¹ Cough mixtures with multiple ingredients may have ingredients with opposing pharmacological effects (e.g. an antihistamine and an expectorant), which does not make sense when treating a cough.² A cough that lasts for longer than two to three weeks, is not showing signs of improvement, or is getting worse should be referred to a doctor.¹

References

1. Blenkinsopp A, Duerden M, Blenkinsopp J. Symptoms in the pharmacy: a guide to the management of common illnesses. John Wiley & Sons; 2023.
2. South African Medicines Formulary (SAMF). Edition 15. Version 19. [updated Feb 2024; cited 16 May 2024]. <https://samf-app.com>.
3. Caporuscio J. Expectorants: Everything you need to know. Medical News Today. [updated 16 Nov 2023; cited 16 May 2024]. Available from: <https://www.medicalnewstoday.com/articles/expectorants>.
4. InformedHealth.org [Internet]. Cologne, Germany: Institute for Quality and Efficiency in Health Care (IQWiG); 2006-. Acute bronchitis: Learn More - Treating acute bronchitis. [Updated 2023 Apr 18; cited 2024 May 5]. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK458286/>.
5. Pope C. Expectorants. Drugs.com. [updated 14 April 2023; cited 16 May 2024]. Available from: <https://www.drugs.com/drug-class/expectorants.html>.
6. Ivy leaf. Herbal medicine:summary for the public. European Medicines Agency. 21 Nov 2017. Available from: https://www.ema.europa.eu/en/documents/herbal-summary/ivy-leaf-summary-public_en.pdf.
7. MIMS. Vol 63 Number 6. July 2023.
8. Biring SS, Brew J, Kilbourn A, et al. Rococo study: a real-world evaluation of an over-the-counter medicine in acute cough (a multicentre, randomised, controlled study). *BMJ Open*. 2017;7(1):e014112. <https://doi.org/10.1136/bmjopen-2016-014112>.
9. Gupta R, Wadhwa R. Mucolytic medications. In: StatPearls. Treasure Island (FL): StatPearls Publishing; July 4, 2023.
10. Dextromethorphan. MedlinePlus. [update 15 Jan 2022; cited 16 May 2024]. Available from: <https://medlineplus.gov/druginfo/meds/a682492.html#:~:text=Dextromethorphan%20is%20used%20to%20temporarily,class%20of%20medications%20called%20antitussives>.
11. Herbal demulcents: highly underestimated. In: Pharmacy Magazine. May 2022. Available from: <https://www.medicalacademic.co.za/nutrition-supplements/herbal-demulcents-highly-underestimated/>.
12. Eccles R, Mallefet P. Soothing properties of glycerol in cough syrups for acute cough due to common cold. *Pharmacy (Basel)*. 2017;5(1):4. <https://doi.org/10.3390/pharmacy5010004>.



Dry Eye

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Abstract

Eyes receive moisture and protection from the tear film each time one blinks, but several conditions can affect this tear film. A patient presenting in the pharmacy with the common condition of dry eyes may be advised to use one of the many lubricating eye drops on the market, but often a nutritional approach will complement and support the treatment.

Introduction

The causes of dry eyes are often complex involving various factors that disrupt the normal functioning of the tear film which is composed of three layers (lipid, aqueous, and mucin). The tear film is essential for maintaining eye health and good vision. Any changes in the production, composition, or drainage of tears can lead to the development of dry eye disease. There are glands on the edge of the eyelids called meibomian glands which secrete the lipid layer of the tear film. If these glands become blocked an unstable tear film and increased tear evaporation results. Environmental factors, such as low humidity, air pollution, and exposure to cigarette smoke, can contribute to dry eye symptoms. Aging is another significant factor: as individuals grow older, the production of tears may decrease, and the tear film quality may change. Hormonal changes, particularly in women, experienced during pregnancy, oral contraceptive use, hormone replacement therapy, and menopause can also contribute to dry eye development. Certain medical conditions, particularly autoimmune disorders, can directly impact the production of tears. Additionally, some medications, including antihistamines, decongestants, antidepressants, and certain eye drops used to treat glaucoma, can reduce tear production, and contribute to dry eye symptoms.

Eye surgeries can also cause dry eyes by disrupting the nerves and altering tear film production. Contact lens wear, particularly if the

lenses are not properly fitted or maintained, can lead to dry eye symptoms due to decreased oxygen flow to the eye surface and altered tear film quality.^{1,2}

Signs and symptoms

The hallmark symptoms of dry eyes include a stinging, burning, or scratchy sensation in the eyes, often accompanied by a gritty feeling. Individuals with dry eyes may also experience stringy mucus in or around the eyes, sensitivity to light, eye redness, and a sensation of having something in the eyes. Moreover, dry eyes can present as difficulty wearing contact lenses, challenges with nighttime driving, watery eyes (an attempt by the body to settle the irritation), blurred vision, and eye fatigue. The sensation of having a foreign body in the eyes is a common complaint among individuals with dry eyes, contributing to discomfort and visual disturbances.² Although the symptoms may improve or worsen over the natural course of the disease, dry eye disease is considered a lifelong condition. Symptoms can become very uncomfortable and interfere with daily activities if they are left untreated.

Causes

Dry eyes are caused by disruptions to the healthy tear film's three layers: fatty oils, aqueous fluid and mucus, which usually keep the eye surface lubricated, smooth and clear. The cause is either decreased tear production or increased tear evaporation, or a combination.³

Decreased tear production is commonly caused by:

- Ageing
- Certain conditions, especially auto-immune diseases
- Some medications, for example antidepressants, antihistamines and decongestants
- Corneal nerve desensitivity

Table I: Examples of drops to relieve dry eye symptoms

Brand name range	Quick short-term relief	Sustained relief	Evaporative Prevention	Nighttime use
<i>Artelac™</i>	Splash Moisture	Intense	Advanced Complete	Advanced gel
<i>Blink™</i>	Refreshing Contacts	Intensive Plus		
<i>Optive™</i>	Original	Fusion	Plus Omega	Gel drops
<i>Systane™</i>	Ultra Ultra-fast acting	Complete Hydration-long lasting	Balance	Gel drops
<i>Xailin™</i>	Fresh Hydrate	HA/Plus Gel		Night

Increased tear evaporation is often due to:

- Meibomian gland dysfunction
- Blinking infrequently
- Eyelid disorders, where the eyelids either turn inward or outward
- Allergies
- Preservatives in eye drops
- Poor air quality
- Vitamin A deficiency
- Contact lens use²

Treatment

Eye drops known as artificial tears, are one of the primary treatments for dry eyes and help reduce inflammation and improve lubrication.⁴ The main types of ingredients used in tear substitutes are described below:

1. *Lubricants* such as cellulose, carbomers, hyaluronic acid and povidone, increase the tear film thickness and prevent evaporation by creating a gel-like cushion.
2. *Electrolytes* help maintain the moisture balance of the eye surface. Agents include sodium, potassium, and chloride.
3. *Osmoprotectants* protect against loss of moisture from the eye surface and subsequent damage. Betaine, sorbitol, and glycerin are examples.
4. *Oily agents and surfactants* help replenish the lipid layer and prevent further moisture loss. Examples include castor oil, paraffins and lanolin.⁴
5. *Preservatives* protect the tear substitute from bacterial growth once the bottle is opened. Some can irritate the eyes, especially in severe dry eye cases.⁵

Note: Some single-use tear-film substitute products are preservative free.

Artificial tears come in various forms: liquids, gels, and ointments, and are available in bottles, tubes or unit dose vials (refer to Table I). Thicker formulations may only be suitable for use at night as they can blur the vision. Factors to consider when recommending an artificial tear replacement are contact lens use, cost, convenience, and environmental impact.

Studies have shown that certain nutrients help the eyes stay properly hydrated.^{3,6,7}

- Omega fatty acids are responsible for forming the stabilising oil layer in the tear film, in addition to having an anti-inflammatory effect.

- Vitamin A (retinol), otherwise known as beta-carotene, helps protect the cornea or outer surface of the eye, improving tear smoothness and quantity.
- Vitamin B2, B5 and B12 protect the eye from cell damage, encourage a healthy tear film and aid optical nerve function.
- Vitamin C protects against oxidative stress, benefits blood circulation and assists collagen synthesis.
- Vitamin D may improve the coating of the tears across the eye surface and reduce inflammation.
- Vitamin E is necessary to protect eyes against cell damage.
- Lutein and zeaxanthin are antioxidants that protect eyes against harmful UV rays.
- Zinc is responsible for getting vitamin A from liver to retina and produces melanin, a pigment that protects eyes.
- "Vitamin W" = Water: staying hydrated can help improve eye comfort.

Specific combination formulations are available as oral supplements to help improve dry eye symptoms, such as:

- Ocuville complete™
- Fithealth Dry Eye and Dry Eye Plus™
- Biogen Ocumax Plus™
- Vital Eye Health™

Research on supplements for dry eyes is still evolving and patients should consult a healthcare professional before taking any supplements for dry eyes. In high doses, some of these supplements can be unsafe or contraindicated, for example, products containing omega fatty acids should be used with caution in patients on blood thinners.⁷ There are also warnings against high-dose beta-carotene and vitamin E use in smokers.

Long-term outlook

It is likely that a dry eye sufferer needs to take measures indefinitely to control their symptoms. People who have dry eyes may experience complications such as eye infections, damaged and inflamed corneas, vision loss and decreased quality of life.²

Refer a patient to a doctor or optometrist if there is:

- a sudden change in vision
- severe pain or redness
- persisting irritation

Conclusion

Pharmacists and pharmacist's assistants can be instrumental in identifying agents that may contribute to or exacerbate dry eye.⁷

Healthy nutrition and staying hydrated helps to ensure eyes get the vitamins and minerals needed, but a topical eye remedy may be required to relieve symptoms and improve the tear film quality.²

References

1. Cleveland Clinic. Health Library. Dry eye. 2022. Available from: <https://my.clevelandclinic.org/health/diseases/24479-dry-eye>.
2. Mayo Clinic. Dry Eyes. 2022. Available from: <https://www.mayoclinic.org/diseases-conditions/dry-eyes/symptoms-causes/syc-20371863>.
3. Capogna L. EyeWellness. Niagra Falls. The best supplements for dry eye [Omega 3s & More] 2021. Available from: <https://myeyewellness.com/the-best-supplements-for-dry-eye-omega-3s-more/>.
4. Kathuri A, Shamloo K. National Library of Medicine. PubMed Central. Categorization of marketed artificial tear formulations based on their ingredients: a rational approach for their use. 2021. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8003881/>.
5. Plowman L. Dry Eye Directory. Australia. What are the best eye drops for dry eyes? 2023. Available from: <https://dryeyedirectory.com/what-are-the-best-eye-drops-for-dry-eyes/>.
6. US Pharmacist. Jobson Medical Information. Recommended nutritional supplements for managing and preventing dry eye. 2021. Available from: <https://www.uspharmacist.com/article/recommended-nutritional-supplements-for-managing-and-preventing-dry-eye>.
7. Nunez K. Healthline Media. Vitamins and supplements for dry eyes. 2021. Available from: <https://www.healthline.com/health/dry-eye/vitamins-for-dry-eyes#takeaway>.



Immune support supplements

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Abstract

A strong immune system is vital for defending the body against infection. Innate and acquired immunity are the two main components of the immune system. Each component is made up of multiple, complex processes that work together to maintain health. Lifestyle factors such as diet, exercise, sleep, and stress play significant roles in immunity. Healthy lifestyle behaviours are, therefore, key to maintaining immune health. The use of immune support supplements containing a variety of vitamins, minerals, dietary constituents, and herbal ingredients has increased globally. Many of these ingredients elicit antimicrobial, anti-inflammatory and antioxidant effects. Used appropriately, immune supplements can be useful in bolstering an impaired immune system.

Introduction

A healthy immune system is needed to protect the body against disease-causing invaders and maintain overall health.^{1,2} The immune system is comprised of specialised cells, physical and chemical barriers and antibodies that target and destroy harmful pathogens.² Lifestyle factors such as diet, exercise, sleep, and stress can influence immune function.³ The use of immune support supplements has increased worldwide. These products contain a variety of vitamins, minerals, food components and herbal ingredients which may support immune function and help fight against infection.⁴

The immune system

A healthy immune system is needed to fight off pathogens (disease-causing organisms) and maintain overall health.¹ Physical barriers

such as the skin, as well as the gastrointestinal and respiratory tract prevent pathogens from entering the body. Chemical barriers such as secretions, mucus, saliva and gastric acid also help to keep invaders out.² Once a pathogen enters the body, the cells of the immune system are activated. The immune system can be divided into two components:

Innate immunity: The first response to an invading pathogen. Although rapid, it is not a specialised response and is not as effective as the adaptive immune system. Cells of the innate immune system include phagocytes (e.g. macrophages and monocytes), neutrophils, dendritic cells, mast cells, and eosinophils.

Adaptive immunity: The cells of the adaptive immune system can recognise and remember specific pathogens and launch a specific and effective defence against invaders. Cells of the adaptive immune system include the T cells (cytotoxic T cells and T helper cells) and antibody-producing B-cells.

These systems work together to rid the body of harmful pathogens. When the immune system is “activated”, inflammation in the form of swelling, redness and pain is observed. Although this is a sign that the immune system is doing its job, inflammation itself causes damage to body tissues.¹

Diet and immunity

Good nutrition is key to fighting off infection as the cells of the immune system require energy from food to work effectively. Furthermore, specific nutrients like protein, vitamins, and minerals work together to support the cells and tissues of the immune system. A nutrient-poor diet can lead to malnutrition, which negatively affects health and immunity. Furthermore, unhealthy diets consisting of high levels of sugar and saturated fats and low levels of fibre and essential micronutrients are associated with the development of chronic, low-grade inflammation, which increases infection risk.³

Other lifestyle factors

Other lifestyle habits can influence immune function. Moderate-intensity exercise benefits immunity, as well as other health

parameters. Exercise can also lower stress and anxiety levels, both of which can weaken immunity. Although beneficial in moderation, heavy exercise loads/over-training may impair immune function. The use of alcohol, tobacco and other substances also has a damaging effect on immunity. Managing stress, getting enough sleep, following a healthy diet, and exercising regularly are lifestyle habits recommended for maintaining a healthy immune system.³

Vitamins and minerals

Vitamins and minerals are micronutrients that are needed for many bodily functions, including immune function. Some micronutrients (e.g. vitamin D and selenium) are directly involved in immune cell function, while others act as antioxidants to protect the body against inflammation (e.g. vitamins A, C, and zinc). The best way to meet micronutrient needs is by following a varied diet rich in fruits, vegetables, whole-grains, legumes, low-fat dairy, healthy fats, and meat/meat alternatives. Failing to meet the body's vitamin and mineral needs can lead to deficiencies, which may negatively affect immune function and overall health. In these cases, supplements may be beneficial. Some of the most important nutrients required for immune function include vitamins A, C, B₆, B₁₂, D, E and folate as well as magnesium, zinc, iron, and selenium. These micronutrients are often found in immune-support supplements.³ Other nutritional components like omega-3 fatty acids, probiotics, B-glucans, and fibre may support immunity and are therefore also included in many immune supplements.^{4,5}

Herbal ingredients

Medicinal herbs and plant extracts have been used for their therapeutic and immune-supporting qualities throughout history. Many of these natural remedies (e.g. garlic, ginger, and turmeric) are common ingredients in our daily diets and known to elicit anti-inflammatory and antioxidant effects.^{4,5,6} These effects are often attributed to polyphenols, a diverse group of compounds found in plant-based foods.⁵ Some of the most popular herbal ingredients used for immune support are summarised in Table I.

Table I: Herbal ingredients and their effect on immune function

Ingredient	Effect on immune function
African potato	Elicits antioxidant, anti-inflammatory and antibacterial effects. ⁷
Black cumin	Antibacterial and anti-inflammatory. ⁶
Cardamon	Antioxidant, anti-inflammatory and antimicrobial. It also helps regulate immune cell function. ⁶
Echinacea	May help to treat the common cold and supports innate immune function. ^{4,5,6}
Elderberry	Rich in polyphenols. Elicits antiviral and anti-inflammatory effects. ⁴
Garlic	May help to treat the common cold. ⁵
Ginger	Anti-inflammatory and antibacterial. ^{4,5,6}
Ginseng	Anti-inflammatory and antimicrobial. Support both innate and adaptive immune function. ⁵
Pelargonium	Antiviral, antimicrobial, and anti-inflammatory. Supports innate immune function. ⁸
Quercetin	Antioxidant, anti-inflammatory and antiviral. ⁵
Turmeric	Anti-inflammatory. Helps modulate immune cells. ⁶

Table II: Examples of immune support supplements

Supplement name	Active ingredients
Alpha: Colds and Flu Effervescent Tablets	<ul style="list-style-type: none"> Vitamin C Elderberry N-Acetyl-Cysteine Caffeine Menthol
Alpha KiddyVite Immune Gummies	<ul style="list-style-type: none"> Vitamin C Elderberry Extract Vitamin E Vitamin A Zinc Vitamin D
Cipla: Airmune	<ul style="list-style-type: none"> Vitamin A Vitamin C Vitamin E Magnesium Zinc Selenium Manganese Lonicera japonica Forsythia Schizonepeta Ginger Chinese vitex Isatis root Echinacea Beetroot L-glutamine L-lysine
Echinaforce®	<ul style="list-style-type: none"> Echinacea
Efferflu-C Immune Booster	<ul style="list-style-type: none"> Vitamin C Echinacea Zinc
Nativa: Linctagon® C	<ul style="list-style-type: none"> Pelargonium Vitamin A Vitamin C Methylsulfonylmethane Zinc Quercetin
NutriPure: Immune Support Adult Gummies	<ul style="list-style-type: none"> Vitamin B₆ Vitamin B₁₂ Vitamin C Vitamin D Selenium Zinc
Viral Guard	<ul style="list-style-type: none"> <i>Lactobacillus rhamnosus</i>, <i>Bifidobacterium longum</i> Echinacea Elderberry Garlic Beta Glucan Vitamin C Vitamin A Vitamin E Vitamin D Folic acid Vitamin B₁₂ Vitamin B₆ Biotin Iron Zinc oxide Selenium
Youthful Living: Immune Shield	<ul style="list-style-type: none"> Vitamin C Vitamin D₃ Zinc Selenium Pelargonium Quercetin

Immune supplements often contain numerous herbs, spices, and plant extracts, each contributing to immune function in various ways.

Immune support supplements

With cold and flu season on the horizon, maintaining a healthy immune system has become even more important.^{2,4,9} Ingredients such as vitamin C, vitamin D, zinc, garlic and echinacea may help to curb the common cold and also have antimicrobial, anti-inflammatory and antioxidant benefits.^{2,4,5} It is important to note that not all ingredients found in immune supplements have been tested for effectiveness and safety in all populations and some may interact with certain medications. It is, therefore, advised to consult a healthcare professional before choosing to take a supplement.⁴ Common immune-support supplements and their active ingredients are summarised in Table II.

Conclusion

A strong immune system is needed to fight off infection and maintain health. A nutritious and varied diet, as well as healthy lifestyle practices are key to supporting immune function. Immune supplements often contain a variety of vitamins, minerals, dietary components, and herbs and can help to support an impaired immune system. Immune supplements should be taken under the guidance of a healthcare professional.

References

1. Childs CE, Calder PC, Miles EA. Diet and immune function. *Nutrients*. 2019;11(8):1933. <https://doi.org/10.3390/nu11081933>.
2. Gombart AF, Pierre A, Maggini S. A review of micronutrients and the immune system-working in harmony to reduce the risk of infection. *Nutrients*. 2020;12(1):236. <https://doi.org/10.3390/nu12010236>.
3. Monye I, Adelowo AB. Strengthening immunity through healthy lifestyle practices: Recommendations for lifestyle interventions in the management of COVID-19. *Lifestyle Med (Hoboken)*. 2020;1(1):e7. <https://doi.org/10.1002/lim2.7>.
4. Crawford C, Brown LL, Costello RB, Deuster PA. Select dietary supplement ingredients for preserving and protecting the immune system in healthy individuals: a systematic Review. *Nutrients* 2022;14:4604. <https://doi.org/10.3390/nu14214604>.
5. Gasmil A, Shanaida M, Oleshchuk O, et al. Natural ingredients to improve immunity. *Pharmaceuticals* 2023;16(4):528. <https://doi.org/10.3390/ph16040528>.
6. Kadiyska T, Tourtourikov I, Dabchev K, et al. Herbs and plants in immunomodulation (Review). *International Journal of Functional Nutrition*. 2023. <https://doi.org/10.3892/ijfn.2023.31>.
7. Matyanga CMJ, Morse GD, Gundidza M, Nhachi CFB. African potato (*Hypoxis hemerocallidea*): a systematic review of its chemistry, pharmacology and ethno medicinal properties. *BMC Complement Med Ther*. 2020;20(1):182. <https://doi.org/10.1186/s12906-020-02956-x>.
8. Kolodziej H. Antimicrobial, antiviral and immunomodulatory activity studies of pelargonium sidoides (EPs® 7630) in the Context of Health Promotion. *Pharmaceuticals (Basel)*. 2011;4(10):1295-1314. <https://doi.org/10.3390/ph4101295>.
9. Iddir M, Brito A, Dingen G, et al. Strengthening the immune system and reducing inflammation and oxidative stress through diet and nutrition: Considerations during the COVID-19 crisis. *Nutrients*. 2020;12(6):1562. <https://doi.org/10.3390/nu12061562>.





Pain and fever in babies and children

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Abstract

Minor pain and fever can be managed in a pharmacy setting with medication and non-pharmacological methods. A child with a mild fever does not automatically need an antipyretic. Rather, the caregiver should be counselled to monitor the child for signs of discomfort. Paracetamol and ibuprofen are available over-the-counter (OTC) for both mild to moderate pain and/or fever in the paediatric patient.

Introduction

Adults often feel anxious and helpless when a child is in pain or has a fever, and a community pharmacy is often the first healthcare provider that the parent or caregiver will turn to for help.^{1,2} This article provides some guidance on which, when (and if) non-prescription medications should be recommended and also how to recognise the need to refer the child to a doctor.²

“Fever Phobia”

A child presenting with a fever is enough to strike fear in the hearts of many parents and caregivers.³ This fear of fever, known as “fever phobia”, is also shown to be common amongst healthcare providers.⁴ However, fever is a natural response to an infection in the body, and, as such, is not harmful.³ It is important to be aware of this fear, as often the focus is on giving medications to reduce fever (antipyretics) resulting in unnecessary side effects, rather than addressing the cause of the fever.³

A fever is usually a sign of an underlying illness, such as an infection, the cause of which should be determined, especially if the fever persists or the child does not look well.⁵

The bottom line is that a fever may help the body to fight infection and doesn't always need to be treated in children who are otherwise healthy.⁶ The focus, rather, should be on managing the child's discomfort, instead of focusing on the fever itself.⁷

What's normal?

A high fever is not always an indication of how serious an illness is.⁶ For instance, some serious illnesses may only cause a mild fever, and some mild illnesses may result in a high fever.⁶ In infants, even a low fever may be a sign of a serious infection.⁹ The severity of an illness may be determined by looking at other factors, such as difficulty in breathing, not drinking and confusion.⁶

A normal body temperature may differ slightly depending on age, how the temperature is measured, as well as the time of day and the activity level of the person.⁹ The average normal body temperature is 37 °C. However, a reading slightly higher or lower than this, does not necessarily mean that the reading is abnormal.⁹

Measuring temperature

The most common sites for measuring temperature include the mouth, rectum, armpit (axilla), temporal (forehead) and tympanic

Table I: Methods of measuring temperature^{3,6,7}

Rectal	Most accurate method of taking temperature for infants • Fever: 38 °C or higher
Oral	Reliable readings, but difficult to use in young children Most reliable in children above 4 years of age • Fever: 37.8 °C or higher
Axilla (armpit)	Not always accurate Alternative method for reading temperature in children under 4 weeks of age if rectal method is not an option • Fever: 37.2 °C or higher
Tympanic (ear)	Unreliable in infants under 3 months of age • Fever: 38 °C or higher
Temporal (forehead)	Not as accurate as rectal temperatures, especially in infants under 3 months of age • Fever: 38 °C or higher

(ear).⁵ Each of these sites have their own range of normal readings, e.g. an oral temperature reading is generally 0.6° lower than a rectal temperature reading.⁵

Signs of discomfort

Recognising signs and symptoms of discomfort in a child with a fever makes it easier to determine the need for treatment or referral.⁷

The following are some of the signs of discomfort in a child with a fever, where administering an antipyretic may be of benefit:⁷

- Delayed sleep, early sleep or night awakenings
- Change in appetite or not drinking fluids
- Restlessness, agitation, weakness
- Irritability, anger, crying
- Seeking comfort, uncooperative, not playing
- Paleness, changes in facial expression
- Pain, chills

Reducing a fever is important in children with an underlying lung, heart or brain disorder, as a fever in these children causes extra demands on the body (such as increased heart rate) which may lead to complications.⁹ A child with a fever who is not showing signs of distress or discomfort does not always require treatment with an antipyretic.⁶ Always ensure that a child with a fever is drinking sufficient fluids and is sufficiently hydrated.²

When to refer a child with a fever:^{3,5,6,9,10}

- Any child under 3 months of age with a fever or temperature $\geq 38^{\circ}\text{C}$
- Children 3–6 months with a temperature $\geq 39^{\circ}\text{C}$
- Child has a seizure
- Child has a very high fever (about 41°C)
- Child with breathing difficulties
- Child has a non-blanching rash (rash does not disappear with pressure)
- Fever that has lasted more than a few days
- Recent travel to areas with a risk of certain diseases (such as malaria)
- Child struggles to drink liquids
- Child has signs of dehydration
 - Soft spot on top of baby's head (fontanel) appears sunken

- Dry tongue and mouth
- No tears when crying
- Sunken eyes and/or cheeks
- No wet nappy for 3 or more hours

Acute pain

Common reasons for parents or caregivers to seek pain relief for their children include teething or toothache, earache, headache, musculoskeletal injuries and abdominal pain or cramping.^{1,11}

Pain in children is often under-recognised and not managed effectively.¹² Older children are usually able to verbalise their pain and explain what hurts, but younger children may display other signs of pain, such as:¹³

- Crying or screaming
- Becoming quiet or withdrawn
- Pulling a face
- Refusing to move or seeming restless

In a community pharmacy setting, it may not always be possible to assess these signs, as the child may not be with the caregiver. However, taking a proper history from the caregiver may help the decision as to whether to recommend an age-appropriate analgesic or to refer the child to the doctor.²

A child in pain should always be referred to a doctor for assessment if there is any concern, if the baby is under 3 months of age, or if the pain persists.¹⁴ Caregivers must be made aware that if the child's pain persists or worsens, that they should take the child to a doctor.²

Managing fever and/or pain

Mild to moderate pain and fever may be managed through non-pharmacological or pharmacological measures (or a combination of both).²

Non-pharmacological measures that caregivers can use to manage pain in children include:^{2,14}

- Ensuring the child is wearing loose and comfortable clothes
- Creating a calm, restful atmosphere

Table II: Non-prescription medications for pain and/or fever^{2,15,16}

Antipyretic/Analgesic	Examples	Important notes
Paracetamol Indicated for pyrexia (fever) or mild to moderate pain	Oral (syrup) Panado® Infant drops, Panado® Syrup, Calpol® Feverpain® Painamol®	Babies under 3 months, refer to doctor Registered for babies and children 3 months and older Dose according to manufacturer's recommendation every 4–6 hours, with a maximum of 4 doses in 24 hours
	Rectal (suppositories) Empaped® Pyracet®	
Ibuprofen Indicated for relief of fever, pain and inflammation	Oral (suspension) Brufen® Ibugesic® Nurofen®	Registered for babies and children 12 months and older Dose according to manufacturer's recommendation every 6 to 8 hours, with a maximum of 3 doses in 24 hours
Paracetamol/ibuprofen Combination Indicated for mild to moderate pain and fever	Oral (suspension) Lotem® I Bumol®	Registered for children from 2 years of age Dose according to manufacturer's recommendation 3 to 4 times daily Do not exceed recommended dosage

- Comforting, cuddling and reassuring the child that their pain is being taken seriously
- Using distraction techniques, such as reading a story, playing with toys or games
- Using ice packs or heat treatments

Pharmacological measures include the use of paracetamol or ibuprofen as first-line OTC options for the management of mild to moderate pain and fever.³

While it is not recommended to routinely alternate these products in a child with fever or pain, there is some information to show that if a child's temperature remains high or if the pain returns (breakthrough pain/fever) 3–4 hours after the administration of either paracetamol or ibuprofen, that switching from the one to the other is acceptable.^{2,5}

Aspirin should never be used in children for the treatment of fever or viral syndromes, due to the risk of Reye syndrome (a rare but serious condition that causes swelling in the liver and brain).⁵

Several codeine combination products are available to treat mild to moderate pain and fever in children from 2 years of age.^{15,16} These products, (e.g. Stilpane® Syrup, Painagon® Syrup, Tensopyn® Syrup) contain codeine (an opioid) in combination with paracetamol and/or promethazine (a sedating antihistamine).¹⁶ Children presenting with pain severe enough to warrant the use of these products should be referred to a doctor for evaluation.¹¹

Conclusion

Paracetamol and ibuprofen are used first-line in the management of pain and/or fever.² These products should be administered according to the manufacturer's instructions based on the child's weight.¹³ An appropriate dosing spoon or syringe must be used to measure a dose and the caregiver should be counselled not to use any other household measure. The recommended doses or intervals must not be exceeded, and the child should be referred to a doctor

if the pain or fever persists or worsens.² Any infant under the age of 3 months with fever or pain should be immediately referred to a doctor.²

References

1. Zempsky W, Bell J, Mossali VM, Kachroo P, Siddiqui K. Common selfcare indications of pain medications in children. *Paediatr Drugs*. 2023;25(3):321-341. <https://doi.org/10.1007/s40272-023-00562-1>.
2. Australasian College of Pharmacy. Management of acute pain and fever in children: a guideline for pharmacists. [update Sept 2023; cited May 2024]. Available from: <https://www.acp.edu.au/education/guidelines/>.
3. National Institute for Health and Care Excellence (NICE guideline). Fever in under 5s: assessment and initial management. [updated 26 Nov 2021; cited 1 May 2024]. Available from: <https://www.nice.org.uk/guidance/ng143>.
4. Clericetti CM, Milani GP, Bianchetti MG, et al. Systematic review finds that fever phobia is a worldwide issue among caregivers and healthcare providers. *Acta Paediatr*. 2019;108(8):1393-1397. <https://doi.org/10.1111/apa.14739>.
5. Ward M. Fever in infants and children: Pathophysiology and management. In: *UptoDate*. [updated 7 Jul 2022; cited 1 May 2024].
6. Consolini D. Fever in infants and children. *MSD Manual Consumer Version*. [updated Sept 2023; cited May 2024]. Available from: <https://www.msdmanuals.com/home/children-s-health-issues/symptoms-in-infants-and-children/fever-in-infants-and-children>.
7. Doria M, Careddu D, Ceschin F, et al. Understanding discomfort in order to appropriately treat fever. *Int J Environ Res Public Health*. 2019;16(22):4487. <https://doi.org/10.3390/ijerph16224487>.
8. Mayo Clinic. Fever. [updated 7 May 2022; cited 1 May 2024]. Available from: <https://www.mayoclinic.org/diseases-conditions/fever/symptoms-causes/syc-20352759>.
9. Wright SA. What is the normal body temperature range? *Healthline*. [updated 5 Jan 2022; cited 1 May 2024]. Available from: <https://www.healthline.com/health/what-is-normal-body-temperature>.
10. Crosta P. What you should know about dehydration. *Medical News Today*. [updated 20 Dec 2017, cited 1 May 2024]. Available from: <https://www.medicalnewstoday.com/articles/153363>.
11. Terrie Y. Managing pediatric pain. *U.S. Pharmacist*. *US Pharm*. 2023;48(8):8-12.
12. Gai N, Naser B, Hanley J, et al. A practical guide to acute pain management in children. *J Anesth*. 2020;34(3):421-433. <https://doi.org/10.1007/s00540-020-02767-x>.
13. The Royal Children's Hospital Melbourne. Pain relief for children- paracetamol and ibuprofen. [updated July 2020; cited 1 May 2024]. Available from: https://www.rch.org.au/kidsinfo/fact_sheets/Pain_relief_for_children_-_Paracetamol_and_ibuprofen/#:~:text=Paracetamol%20can%20be%20used%20for,in%20children%2C%20adolescents%20and%20adults.
14. Victoria State Government. Better Health Channel. Pain management (acute)-children. [updated 19 July 2021; cited 1 May 2024]. Available from: <https://www.betterhealth.vic.gov.au/health/conditionsandtreatments/acute-pain-management-children>.
15. SAMF 15th Edition. Online. Available from: <https://samf-app.com>. Accessed 1 May 2024.
16. Monthly Index of Medical Specialities (MIMS). J023;63(6).



Constipation in the elderly

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Abstract

Constipation is a frequent concern among the elderly population, impacting their overall well-being. This article explores the various symptoms experienced by seniors suffering from constipation, delving into the underlying causes unique to this age group. It further discusses preventative measures to ensure regular bowel movements, including dietary adjustments and lifestyle changes. Finally, the article examines treatment options for managing constipation in the elderly, considering both lifestyle and over-the-counter (OTC) interventions. By addressing these key aspects, the article aims to empower both elderly individuals and caregivers to promote digestive health and prevent constipation.

Introduction

Constipation is a condition where a person has bowel movements less frequently than usual, and the stool itself is hard and dry, making it difficult to pass. While the number of bowel movements can vary from person to person, generally having less than three bowel movements a week is considered constipation.

Constipation is a prevalent issue among elderly populations, often resulting in significant discomfort and impacting overall health. The World Health Organization commonly defines age measured by chronological age, and a person over age 65 is referred to as elderly.

Understanding the causes, recognising the symptoms, and implementing appropriate treatment strategies are crucial steps to effectively managing this condition.¹

Causes

Decreased physical activity

As people age, the digestive system naturally becomes less efficient. Muscle tone in the gastrointestinal (GI) tract decreases, and reduced

mobility and sedentary lifestyle, which are common in the elderly, can further reduce bowel motility. Lack of physical activity can lead to weaker abdominal and pelvic floor muscles and can add to the already decreased bowel motility, all of which can cause and aggravate constipation.²

Dietary factors

Older adults often consume less fibre and fluids, which are essential for regular bowel movements.² Appetite and thirst also tend to diminish with age. This means that even when their body is craving fluids, the older individual might not be aware of it, and may drink less than what is needed to stay healthy. Older adults experience body composition changes over time that leave them with less water in their bodies than their younger counterparts.³ Insufficient intake of fibre and fluids can lead to harder stools that are difficult to pass.²

Medications

Many medications commonly used by elderly people, such as analgesics (especially opioids), anticholinergics, some antidepressants, anticonvulsants, antispasmodics, and calcium channel blockers, can cause constipation as a side effect. The elderly often take multiple medications, all of which could contribute to causing and aggravating constipation.^{1,2}

Underlying medical conditions

Several chronic conditions like diabetes, hypothyroidism, and neurological disorders (such as Parkinson's disease or multiple sclerosis) can affect bowel function.¹

Psychological issues

Depression and cognitive impairment, which are more prevalent in the elderly, can alter eating and toileting habits, contributing to constipation.¹

Changes in the gastrointestinal tract

Aging can lead to alterations in the digestive system's structure and function, reducing intestinal activity.¹

Symptoms of constipation in the elderly

- Infrequent bowel movements: fewer than three stools per week
- Difficulty passing stool: straining, pain, or discomfort during bowel movements
- Hard or lumpy stools: stools that are difficult to pass and require significant effort
- Feeling of incomplete evacuation: the sensation of not being able to empty the bowel fully
- Bloating and abdominal pain: discomfort or pain in the abdominal area
- Decreased appetite: often due to discomfort or bloating.^{2,4}

Preventing constipation in the elderly

Medication review

Regular reviews with a healthcare provider can help manage the number of medications taken and minimise those that contribute to constipation.

Lifestyle modifications

Increasing fibre intake, staying hydrated, and maintaining physical activity can counteract the constipating effects of ageing and possibly even medications.

Alternative treatments

Exploring non-pharmacological pain relief methods or using medications with fewer GI side effects can also be helpful.

Education

Educating elderly patients and caregivers about the potential side effects of over-the-counter (OTC) medications, including constipation, can lead to better management of medication use.^{5,6}

Treatment

Prevention and treatment of constipation are closely related and often are the same strategy.

Dietary adjustments

- **Increase fibre intake:** incorporating more fruits, vegetables, whole grains, and other high-fibre foods into the diet can help.
- **Hydration:** ensuring adequate fluid intake is crucial, as water helps to soften stools.^{2,4,5}

Lifestyle modifications

- **Exercise:** Encouraging regular physical activity, such as walking and light aerobic exercises can stimulate bowel function and improve gut motility. It also strengthens the abdominal and pelvic floor muscles, which improves bowel motility.
- **Routine:** Establishing a regular toileting schedule can help promote consistent bowel movements. This involves trying to pass stool at the same time each day to help establish a regular pattern.^{2,4,7}

Medications

Review and adjust existing medications:

Reviewing and potentially adjusting medications that exacerbate constipation with a healthcare provider. Medications that commonly cause constipation:

- Opioids: Opioids induce constipation by peripherally acting on μ

Table I

Bulking agents		
Absorbs water, so fluid intake should be increased		
Slow acting - does not interfere with normal bowel action		
Time of onset is 12-72 hours		
e.g.	methylcellulose powder	Citrucel®
	Psyllium/Ispaghulla husk	Metamucil®
		Agiobulk
		Fybogel
	Sterculia	Normacol
Osmotic laxatives		
Draws water into the colon to allow easier passage of stool		
Alternative to bulking laxatives for long-term treatment		
Time of onset is 24-48 hours		
e.g.	lactulose solution	Duphalac, Laxette
	magnesium hydroxide suspension	Phipps Milk of Magnesia*
	polyethylene glycol (PEG) powder	Movicol®
	sodium phosphate	Lenolax enemas
Stimulant laxatives		
Trigger rhythmic contractions of intestinal muscles		
Suitable for occasional use only - not longer than a week		
Can cause abdominal cramps and diarrhoea		
Time of onset is 6-12 hours		
e.g.	Bisacodyl	Dulcolax®
	Senna glycosides	Senokot®
Stool softeners		
Softens dry, hard stools to allow strain-free bowel movements		
Time of onset is 24-48 hours		
e.g.	Docusate sodium	Dulcolax® Stool Softener
	Glycerin suppositories	

*Time of onset is 30min to 6 hours

References

1. Mounsey A, Raleigh M, Wilson A. Management of Constipation in Older Adults. *Am Fam Physician*. 2015;92(6):500-504.
2. Rao, S. (2022) Constipation in the older adult, UpToDate. Edited by N. Talley and K. Schmadler. Available at: <https://www.uptodate.com/contents/constipation-in-the-older-adult> (Accessed: 24 April 2024).
3. SAMF 13th edition
4. Nonprescription laxatives for constipation: Use with caution (2024) Mayo Clinic. Available at: <https://www.mayoclinic.org/diseases-conditions/constipation/in-depth/laxatives/art-20045906> (Accessed: 25 April 2024).

receptors present in the GI tract smooth muscles, slowing down gut motility.

- Nonsteroidal anti-inflammatory drugs (NSAIDs): NSAIDs like ibuprofen and naproxen can cause constipation, especially at higher doses.
- Anticholinergics: This large drug class, which includes medications for allergies, bladder incontinence, and nausea, prevents activity by the neurotransmitter acetylcholine, enabling muscles to move and potentially causing constipation.
- Tricyclic antidepressants (TCAs): TCAs increase norepinephrine and serotonin levels by blocking acetylcholine, leading to constipation as a side effect.
- Calcium channel blockers: Medications like amlodipine and

diltiazem, used for high blood pressure, can cause constipation by reducing smooth muscle contractility.

- Iron supplements: Oral iron can cause constipation in addition to darker stools.
- Antidepressants: Selective serotonin reuptake inhibitors (SSRIs) like citalopram and fluoxetine can also cause constipation.
- Antihypertensive drugs: Clonidine, calcium antagonists, and ganglionic blockers reduce smooth muscle contractility, contributing to constipation.

Use of laxatives:

There are several types of laxatives that might be recommended, including bulk-forming agents, stool softeners, osmotic agents, and stimulant laxatives.

- Osmotic laxatives draw water into the colon to allow easier passage of stool.
- Bulking laxatives absorb water to form soft, bulky stool, prompting normal contraction of the intestinal muscles.
- Stool softeners add moisture to the stool to soften and allow strain-free bowel movements. Although they are widely used, they have limited clinical efficacy.⁴
- Stimulant laxatives trigger rhythmic contractions of the intestinal muscles to eliminate the stool. These are mostly oral formulations but are also available as suppositories.⁸

The overuse of OTC laxatives and other medications can contribute to constipation in the elderly, often exacerbating the very problem they're intended to alleviate. The practice of using multiple medications increases the likelihood of drug interactions and side effects, including constipation. This then also falls into the category of reviewing and adjusting the medications they are taking.^{1,2,6,7}

Conclusion

In conclusion, constipation in the elderly is a preventable and manageable condition. By understanding the signs and symptoms, identifying potential causes, and implementing preventative measures like dietary changes and exercise, constipation can often be avoided. However, if constipation persists, consulting a doctor is crucial to rule out underlying medical conditions and receive appropriate treatment. Through proactive management and open communication with healthcare professionals, seniors can maintain regularity and digestive health, promoting overall well-being and a better quality of life.

References

1. Schuster BG, Kosar L, Kamrul R. Constipation in older adults: stepwise approach to keep things moving. *Can Fam Physician*. 2015;61(2):152-158.
2. Mari A, Mahamid M, Amara H, Baker FA, Yaccob A. Chronic constipation in the elderly patient: updates in evaluation and management. *Korean J Fam Med*. 2020;41(3):139-145. <https://doi.org/10.4082/kjfm.18.0182>.
3. Hydration for older adults - how to stay hydrated for better health [Internet]. 2024 [cited 2024 Apr 30]. Available from: <https://www.ncoa.org/article/how-to-stay-hydrated-for-better-health>.
4. Rao S. (2022) Constipation in the older adult, UpToDate. Edited by N Talley and K Schmader. Available at: <https://www.uptodate.com/contents/constipation-in-the-older-adult>. Accessed: 24 April 2024.
5. Zimlich R. Constipation in elderly people: Diagnosis, treatment, and outlook, Healthline. 2022. Available at: <https://www.healthline.com/health/constipation-in-elderly>. Accessed: 23 April 2024.
6. Blenkinsopp A, Duerden M, Blenkinsopp J. Chapter 3 Gastrointestinal Tract Problems, in *Symptoms in the Pharmacy: A Guide to the Management of Common Illnesses*, 9th Edition. John Wiley & Sons, 2023, pp. 116-130.
7. Mounsey A, Raleigh M, Wilson A. Management of constipation in older adults. *Am Fam Physician*. 2015;92(6):500-504.
8. Nonprescription laxatives for constipation: Use with caution. Mayo Clinic. 2024. Available at: <https://www.mayoclinic.org/diseases-conditions/constipation/in-depth/laxatives/art-20045906>. Accessed: 25 April 2024.





What is new in EPI: focus on Tdap in pregnancy

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Abstract

Most pertussis-related deaths occur in infants, especially during the first few months of life when they are too young to be protected through their own vaccination. A pertussis-containing vaccine administered in pregnancy, not only protects the expectant woman, but importantly, it has also been shown to be an effective strategy to protect against infant pertussis.

Protecting infants when they are most vulnerable

During a pertussis outbreak, it appears that most infant cases of pertussis occur in infants under three months of age. The earliest that infants can receive a pertussis-containing vaccine is at six weeks of age.¹⁻³ This leaves a period of vulnerability for newborns. Infants who are too young to be protected through their own vaccination are at greatest risk of developing serious pertussis-related complications, of needing hospitalisation and of dying.^{1,2,4}

One of the strategies to protect against pertussis in early infancy, is to administer a combined tetanus toxoid, reduced diphtheria toxoid and acellular pertussis vaccine (Tdap) to pregnant women.^{1,4,5}

The mother will then develop antibodies (protective proteins produced by the immune system) against pertussis. It usually takes about two weeks after vaccination for the mother to be protected against pertussis.^{1,4} Antibodies from the mother are then passed on to the unborn baby to provide passive protection in early infancy, until the child is old enough to be protected by his/her own routine vaccination.³

Tdap effectiveness and safety

In a consensus statement on behalf of the global pertussis initiative, the authors stated that vaccination against pertussis during the second or early part of the third trimester is highly effective against pertussis in young infants.⁵

Evidence from several studies reported an effectiveness of 95% for maternal Tdap vaccination in pregnancy for the prevention of death due to pertussis in infants < 2–3 months of age.⁵ Results from these studies also showed that the vaccine effectiveness ranged from 69–93% for the prevention of laboratory-confirmed infection and 91–94% for the prevention of hospitalisation in infants < 2–3 months of age.⁵

With regards to safety during pregnancy, studies have not shown any Tdap vaccine-related side effects on the foetus/newborn child.^{5,6}

South African recommendations on the use of Tdap in pregnancy

As from January 2024, pregnant women, in the public sector will also be able to receive Tdap (Adacel[®]), during each pregnancy, as part of the South African Expanded Programme on Immunisation (EPI).^{4,7,8} Tdap should be administered between 26 and 34 weeks of gestation.^{7,8} This will allow enough time for maximum maternal antibody response, optimal transfer of antibodies and maximum infant protection.^{4,8}

Tdap should, however, still be offered, even if the above optimal time for Tdap vaccination was missed.⁸ In this case, vaccination will protect the mother against pertussis and reduces the likelihood of her spreading pertussis to her baby (indirectly protecting the infant).^{1,2}

Because antibody levels decline with time, a Tdap vaccine is recommended in each pregnancy, irrespective of interval between subsequent pregnancies.⁵ This will ensure that every infant is optimally protected against pertussis.^{1,4,5}

Table I: Tdap vaccines registered, in South Africa for use in pregnancy^{6,9,10}

Product	Adacel Quadra [®]	Adacel [®]	Boostrix [®]
Vaccine composition	Tdap plus inactivated polio vaccine (Tdap-IPV)	Tdap	Tdap
Approved for use in pregnancy (as per package insert)	During the second and third trimester	During the second and third trimester	During the third trimester
Availability	Private sector	Private and public sector	Private sector

Suitable pertussis-containing vaccine for use in pregnancy

Table I contains a list of pertussis-containing vaccines, available in South Africa, suitable for use in pregnancy^{6,9,10}

Conclusion

Most cases of pertussis-related hospitalisations and deaths occur in infants within the first three months of life. Tdap vaccination in pregnancy has emerged as one of the most important ways to protect not only the mother, but more importantly, to protect infants against severe pertussis-related complications and death when they are most vulnerable.

References

1. Australian government. Australian Immunisation Handbook. Pertussis. Available from: <https://immunisationhandbook.health.gov.au/contents/vaccine-preventable-diseases/pertussis-whooping-cough>. Accessed 20 April 2024.
2. UK Green Book. Pertussis. Available from: <https://www.gov.uk/government/publications/pertussis-the-green-book-chapter-24>. Accessed 20 April 2024.
3. Amayeza Info Services. 2024. Childhood vaccine schedule. Available from: <https://www.amayeza-info.co.za/vaccine-info/>. Accessed 20 April 2024.
4. Centers for Disease Control and Prevention (CDC). Tdap (pertussis) vaccine and pregnancy. Available from: <https://www.cdc.gov/vaccines/pregnancy/hcp-toolkit/tdap-vaccine-pregnancy.html>. Accessed 20 April 2024.
5. Abu-Raya B, Forsyth K, Halperin SA, et al. Vaccination in pregnancy against pertussis: A Consensus Statement on Behalf of the Global Pertussis Initiative. *Vaccines (Basel)*. 2022;10(12):1990. <https://doi.org/10.3390/vaccines10121990>.
6. Adacel package insert. Sanofi-Aventis South Africa (pty) Ltd. 2 Nov 2020. Accessed 20 April 2024.
7. Western Cape Government. Circular H20/2024. Changes in the expanded programme of vaccination and the maternal vaccination schedule. Western Cape Government. Accessed 20 April 2024.
8. KnowledgeHub. Webinar Session 2 Tdap. October 2023. Available from: <https://knowledgehub.health.gov.za/webinar/training-introduction-new-expanded-programme-immunisation-epi-vaccines-session-2>. Accessed 20 April 2024.
9. Adacel Quadra package insert. Sanofi Pasteur Limited. 2 Nov 2020. Accessed 20 April 2024.
10. Boostrix package insert. GlaxoSmithKline South Africa (Pty) Ltd. 25 May 2020. Accessed 20 April 2024.

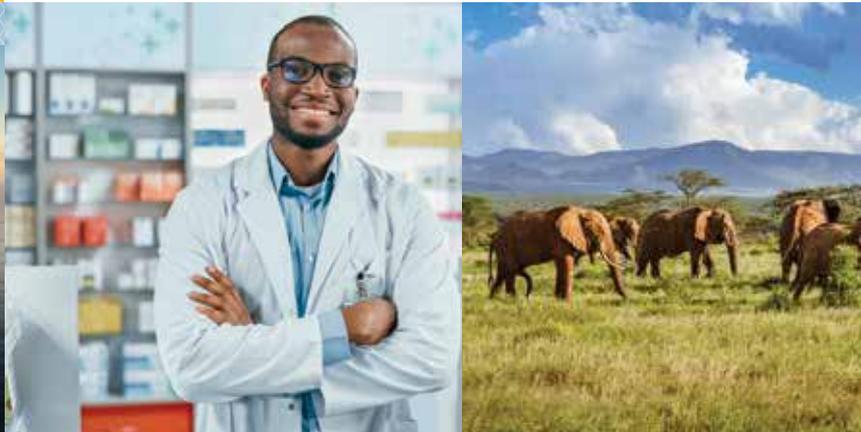
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