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SA Pharmacist's Assistant

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FOR PHARMACIST'S ASSISTANTS

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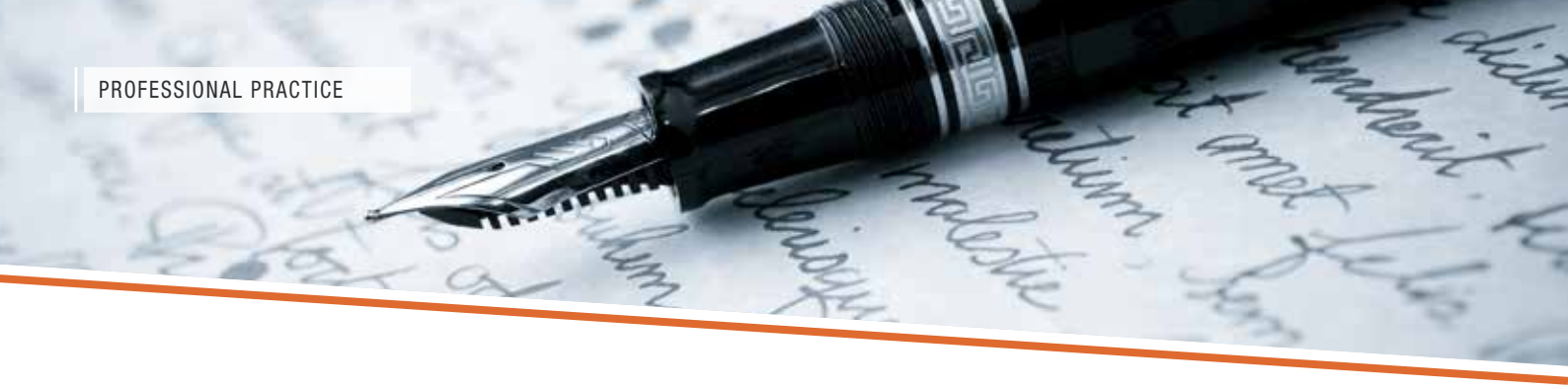

Joining the PSSA – what do I get for my money?

Lorraine Osman

Who or what is the PSSA?

The Pharmaceutical Society of South Africa (PSSA) is a voluntary association of pharmacy professionals. Originally, only pharmacists were permitted to join, but over the years, it became obvious that there are other personnel that could benefit from membership, such as pharmacist's assistants.

Why should pharmacist's assistants be included?

It was recognised years ago that properly educated and trained pharmacist's assistants are key to providing efficient and effective pharmaceutical services in this country.

Over the years, pharmacist's assistants have shown that they make a valuable contribution to pharmacy practice. They form a significant part of the pharmacist's team, and are bound by the same laws and rules that control a pharmacist's professional practice.

As part of the pharmacy team, it makes perfect sense that pharmacist's assistants should also benefit from the work of the PSSA. Pharmacist's assistants are welcomed as associate members of the PSSA.

How can the PSSA help you?

Discussions with people in authority

There are so many bodies that either control or influence the practice of pharmacists and pharmacist's assistants. Think about it – there are so many laws that affect our practice. When something apparently small is changed, it may have huge impact on our practice. The PSSA will monitor changes, and will discuss them both with those in authority, e.g. the National Department of Health, and those whose job it is to implement the changes, e.g. Heads of Pharmaceutical Services and Responsible Pharmacists in all categories of pharmacy. Importantly, the PSSA will interact with the SA Pharmacy Council when new rules or guidelines are considered.

We're only a phone call away

Or, nowadays, we're more likely to be only an email away. There are times when you may need advice and support from the PSSA offices. While they may not have all the answers, they usually know who you can ask.

Your local branch of the PSSA and SAAHIP

Both the PSSA and two of its sectors (i.e. the South African Association of Hospital and Institutional Pharmacy as well as the South African Association of Community Pharmacists) may have a local branch in the area in which you live or work. Why not get involved with them? Not only will you benefit by forming a relationship with them, but they will benefit from your experience as well.

A suggestion here – speak to your local branch about setting up a pharmacist's assistants group within the branch. You're not alone in facing the challenges of working in pharmacy!

Communication and information

The PSSA will provide you with reliable information and relevant news in a number of ways.

For example

- The South African Pharmaceutical Journal (SAPJ)
- The South African Pharmacist's Assistant (SAPA) journal, which you are reading now! SAPA is geared specifically to the pharmacist's assistant. You are also welcome to share your opinions as a letter to the editor.
- The PSSA website
- Electronic newsletters
- Social media

Human resource matters

When PSSA members need help with human resource related issues, they are welcome to contact the PSSA for advice. If labour law is part of an issue that you are facing, members are able to have free telephonic advice.

Professional Indemnity Insurance

While we don't want to be obsessed with the professional risks that we face, we must remember that everyone working in a pharmacy may make a mistake when working under pressure. If you make a

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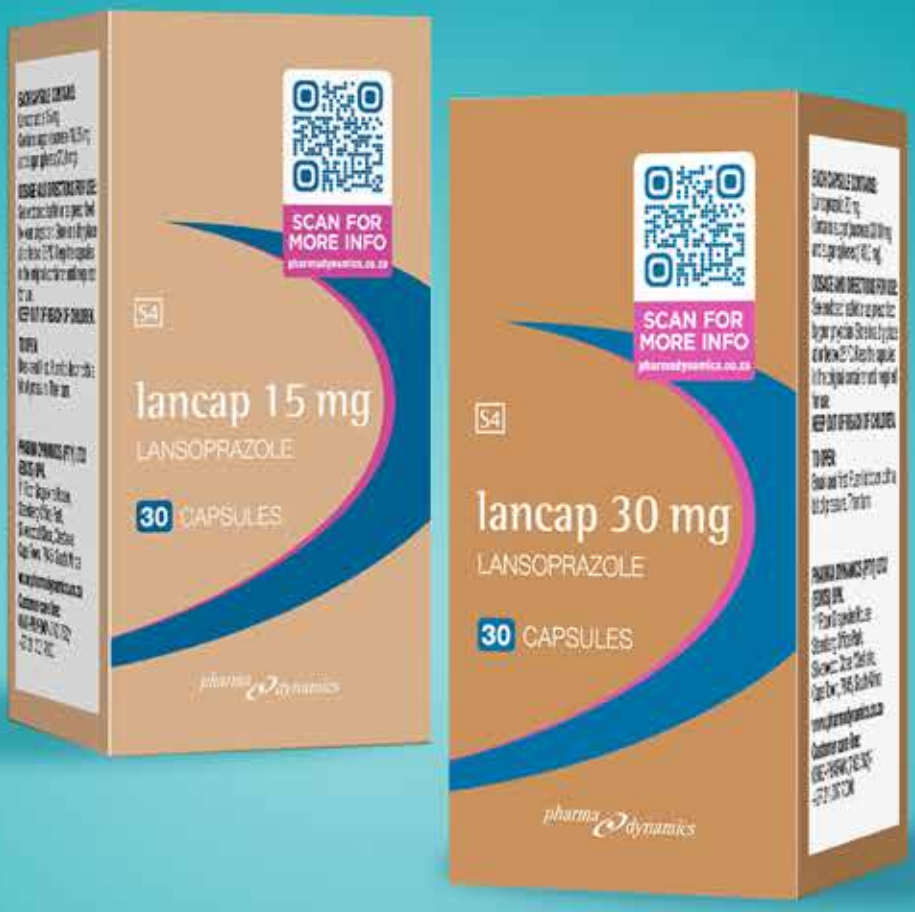

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dispensing error, you will be held responsible, even though you work under the supervision of a pharmacist.

Keeping your knowledge up to date

The PSSA offers continuing professional development (CPD) opportunities in a number of convenient ways. These include attending a CPD evening at your branch, as well as online webinars that you can attend from home.

The PSSA has an agreement to supply the Alpha Pharm distance learning programme at a discounted rate. Five different diseases are studied during the year, and you are able to test your knowledge online.

There's a home for everyone!

No matter what your area of practice is, there is a home for you in the PSSA branches and sectors. Use your initiative – make contact and get involved. You will find contact details on the PSSA website (www.pssa.org.za). We look forward to welcoming you!

Is it **allergic rhinitis** or **sinusitis?**

Yolanda Moroney

Introduction

Allergic rhinitis occurs when a person inhales a specific substance to which they are allergic. This substance is called an allergen, and although the allergen may be harmless to others, the immune system in an allergic person will react against it by causing the membrane lining in the nose to become inflamed and swollen, and allergy symptoms such as sneezing and nasal congestion may result. Seasonal allergic rhinitis or hay fever may be triggered by **outdoor allergens** such as pollens and grasses, particularly during spring and summer. Perennial allergic rhinitis occurs all year round and may be caused by **indoor allergens** found in the home, such as animal dander or house dust mites.

Sinusitis is an inflammation of the lining inside the sinuses. When the sinuses become blocked, mucus drainage is impeded and the sinus cavities fill with fluid. This encourages the growth of bacteria or viruses, and symptoms such as headache and yellowish nasal secretions may occur. Sinusitis may be **acute or chronic**. Acute sinusitis is temporary and usually resolves within four weeks with conservative treatment. Chronic sinusitis may last for longer than 12 weeks. Conservative measures may alleviate the symptoms, but a doctor may have to be consulted if this is not helpful. Sinusitis may be a complication of infections such as colds or flu and is a common complication of allergic rhinitis.

Symptoms

Both allergic rhinitis and sinusitis can cause nasal inflammation and related symptoms such as headache, nasal congestion, runny nose, and sneezing.

- Allergic rhinitis is characterised by itchy eyes and sneezing.
- Distinguishing symptoms of sinusitis are pain around the eyes and cheeks, bad breath, and thick, discoloured mucus. The mucus may drain down the back of the throat and cause a postnasal drip, and the throat may be sore or itchy. Fever and toothache may also occur.

Table I: Comparison of symptoms of allergic rhinitis and sinusitis

	Allergic rhinitis	Sinusitis
Headache	Y	Y
Nasal congestion	Y	Y
Runny nose	Y	Y
Sneezing	Y	Y
Itchy nose	Y	
Itchy, watery eyes	Y	
Thick, yellow/green discharge		Y
Pain around eyes and cheeks		Y
Fever		Y
Bad breath		Y
Toothache		Y

Allergic rhinitis

Preventative measures

When managing allergic rhinitis, the causative allergen should be identified and exposure to the allergen prevented as far as possible. If **pollen** is known to trigger **seasonal allergic rhinitis,** limit exposure to this allergen by staying indoors when pollen counts are high, and keeping windows closed during the allergy season. Initiate treatment before the pollen season starts.

Dust mites and pet dander commonly trigger perennial allergic rhinitis. Exposure to **dust mites** may be reduced by wet mopping floors and vacuuming carpets using a HEPA filter. If **pet dander** is a causative allergen, limit exposure to animals and wash hands immediately after touching pets. Keep pets off the bed.

The following factors may trigger or exacerbate allergic rhinitis and should be avoided as far as possible:

- Wind and air pollution
- Chemicals
- Cigarette smoke
- Cold temperatures
- Humidity
- Fumes

Treatment

Should preventative measures not prove helpful, allergic rhinitis can usually be well managed with over-the-counter (OTC) medications. Several suitable preparations are available, and agents include oral antihistamines, topical corticosteroids, and decongestants.

Oral antihistamines relieve allergic symptoms but will not prevent further allergic reactions. Oral antihistamines may be particularly effective when sneezing or runny nose are troublesome. Some antihistamines may cause drowsiness and should be avoided when driving or operating machinery. Non-sedating oral antihistamines such as loratadine, desloratadine, cetirizine, rupatadine and fexofenadine are preferred.

Aqueous formulations containing **topical corticosteroids** alleviate nasal inflammation and congestion and are available as intranasal formulations. These agents are helpful as maintenance therapy for all forms of allergic rhinitis. If prophylactic treatment for seasonal allergic rhinitis is indicated, treatment should be initiated two weeks before the allergy season starts and continued for the duration of the season. Available OTC agents include beclomethasone, fluticasone, mometasone and budesonide aqueous nasal sprays.

Levocabastine is a nonsteroidal topical nasal agent with antihistaminic action. It is suitable for short-term therapy in seasonal allergic rhinitis and is available in a nasal spray formulation.

Locally-acting **decongestant nasal preparations** may be used to relieve the symptoms of nasal congestion and sinus pressure. These are available as nose drops, sprays and metered-dose sprays. Their use should be limited to short periods, usually no longer than three days. Using them for an extended time may cause a rebound effect, where symptoms become worse instead of improving. Available agents include oxymetazoline and xylometazoline, which are longer acting, and phenylephrine hydrochloride, which has a shorter duration of action. Nasal sprays are preferred to nose drops since there is less risk of causing systemic absorption through swallowing the drug. Metered-dose nasal sprays help prevent overdosage.

Decongestant preparations for oral use include sympathomimetics such as pseudoephedrine, phenylpropanolamine, and phenylephrine. These agents relieve nasal and sinus congestion but may not be suitable for people with certain conditions, including hypertension, glaucoma, ischaemic heart disease and prostate issues. No single-ingredient oral decongestants are available, and combination products usually contain a decongestant, an analgesic and/or an antihistamine. Topical decongestant therapy is preferred since these agents have less systemic absorption.

Sinusitis

Preventative and home-care measures

- Avoid cigarette smoke and stop smoking.
- Wash hands frequently to prevent harmful bacteria and viruses

Table II: Examples of products available OTC for treating allergic rhinitis and sinusitis

Active ingredient	Some examples	Formulations
Antihistamines		
Cetirizine	Allecet® Allermine™ Texa® Zyrtec®	Tablet 10 mg Syrup 1 mg/ml
Desloratadine	Accuhist® Dazit® Deselex® Deseneeze® Neoclarityne® Neoloridin 5 Pollentyme® ND	Tablet 5 mg Syrup 2.5 mg/5 ml
Levocetirizine	Allerway® 5 Cetizal™ 5 Glencet™ 5 Levogex® Xyzal® Texamer®	Tablet 5 mg Oral solution 0.5 mg/ml
Loratadine	AP® Loratadine Cipla Loratadine Clarinese® Clarityne™ Laura® 10 Lorano® Lorfast® Pollentyme®	Tablet 10 mg Syrup 5 mg/ml
Fexofenadine	Fexaway® Fexo® Telfast® Tellerge®	Tablet 120 mg Suspension 6 mg/ml
Rupatadine	Rupanase®10 Rupanase® Junior	10 mg tablet 1 mg/ml oral solution
Levocabastine	Sinumax® Allergy Nasal Spray	100 mcg per spray
Nasal corticosteroids		
Beclomethasone	Beclate® Aquanase	Aqueous nasal spray 50 mcg per spray
Fluticasone	Flomist® Flonase®	Aqueous nasal spray 50 mcg/per spray
Mometasone	Nasonex® Nexomist® Rinelon™	Aqueous nasal spray 50 mcg/per spray
Budesonide	Aeromide	Aqueous nasal spray 100 mcg/spray
Nasal decongestants		
Oxymetazoline	DriNasal® Paediatric Dristan® Long Drixine® Iliadin® Lasting Vapour Nazene®	Nose drops, sprays, metered-dose sprays 0.05% Paediatric nose drops and sprays, metered-dose sprays 0.025%
Xylometazoline	Otrivin® Sinutab® Nasal Spray	Nose drops, metered spray 0.1% Paediatric nose drops, metered spray 0.05% Solution 0.1%
Phenylephrine	Adco-Naphensyl®	Nose drops 1% Paediatric drops 0.25%
Saline solution > 2 years	Sinutab® Saline Nasal Spray Sterimar® Nasal Hygiene	Nasal Spray Solution

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from entering the nose, particularly during the cold and flu season.

- Consider the possibility of allergies being the cause of the sinusitis. Appropriate treatment of allergic rhinitis symptoms may relieve the discomfort of sinus infection.
- Increase fluid intake to help thin mucous.
- Breathe in moist air such as steam from a shower or bowl of hot water to help relieve congestion.
- Using a saline nasal spray may hydrate and clean the nasal mucosa.
- Irrigating the nasal passages with a saline solution can wash away allergens, mucus, and other debris, and help to moisten the mucous membranes. This will relieve nasal congestion and sinus symptoms.

Treatment

OTC options are available to relieve the symptoms of sinusitis.

- **Oral antihistamines** alleviate symptoms of sneezing and runny nose.
- **Intranasal corticosteroid sprays** may alleviate inflammation.
- **Decongestant nasal preparations** may be used for a limited period to relieve nasal congestion and sinus pressure.
- Sinus pain may be relieved by taking analgesics such as paracetamol and ibuprofen.
- Oral decongestants in combination with analgesics, or anti-histamines, are available OTC to relieve the discomfort of sinusitis.

Remember

When considering any OTC medication for allergic rhinitis or sinusitis, the instructions of the manufacturer or prescriber should be observed.

Consult a doctor if

- conservative measures and OTC medications do not relieve symptoms of allergic rhinitis or sinusitis within a reasonable length of time; or
- the following symptoms of sinusitis persist: fever, nasal discharge, congestion, and facial pain.

Conclusion

Allergic rhinitis and sinus infections can have similar symptoms. The main differences are itchy eyes and sneezing, which occur with allergic rhinitis, and the thick, yellow, or green nasal discharge which is seen with sinusitis.

Allergic rhinitis can be seasonal or perennial, but avoiding the allergen and taking appropriate OTC medication can help alleviate symptoms. A sinus infection can take several days to improve with conservative measures, but depending on the severity of the condition, referral to a doctor may be necessary.

Bibliography

- Aaronson NL, Ellis ME. Sinus infection (sinusitis): what it is, symptoms and more. Updated 30 Nov 2021. Available from: https://www.healthline.com/health/cold-flu/sinus-infection-symptoms?utm_source=ReadNext. Accessed 15 Jun 2022.
- Biggers A, Cherney K. Do you have allergies or a sinus infection? Healthline. Updated 21 Nov 2018. Available from: https://www.healthline.com/health/allergies-or-sinus-infection. Accessed 28 Jun 2022.
- Biggers A, Villines Z. The difference between sinus infections and allergies. Medical News Today. Updated 24 Feb. 2020. Available from: https://www.medicalnewstoday.com/articles/allergies-or-sinus-infection. Accessed 15 Jul 2022.
- Davis S. Allergic rhinitis or conjunctivitis. SAPA. 2021;21(3):5-8.
- Fisher KF, Cafasso J. How to do a sinus flush at home. Healthline. Updated 28 Jan 2019. Available from: https://www.healthline.com/health/sinus-flush. Accessed 29 Jun 2022.
- Marcin J, Moore K. Allergic rhinitis. Healthline. Updated 7 March 2019. Available from: https://www.healthline.com/health/allergic-rhinitis?utm_source=ReadNext#symptoms. Accessed 28 June 2022.
- Monthly Index of Medical Specialities (MIMS). Guide to OTC products. 2018;24.
- Monthly Index of Medical Specialities (MIMS). Nov 2021;61(10).
- Rossiter D, editor. South African Medicines Formulary. 12th ed. Cape Town: Health and Medical Publishing Group; 2016.
- Slavin R. Sinusitis in adults and its relation to allergic rhinitis, asthma, and nasal polyps. J Allergy Clin Immunol. 1988;82(5 Pt 2):950-6.
- World Health Organisation. Noncommunicable diseases: Allergic rhinitis and sinusitis [Internet]. c2022. World Health Organisation. Updated 18 Sept 2019. Available from: https://www.who.int/news-room/questions-and-answers/item/noncommunicable-diseases-allergic-rhinitis-and-sinusitis. Accessed 28 Jun 2022.

Supplements for plant-based diets

Roslynn van Schoor

Introduction

Dietary practices affect health during all phases of life. Restrictive diets such as vegetarianism and veganism are becoming increasingly popular worldwide. This is mainly due to the environmental and purported health benefits associated with plant-based eating. However, it can be difficult to obtain certain nutrients when animal-based products are excluded from the diet. Nutrients of concern include protein, vitamin B_{12}, iron, zinc, calcium, omega-3 fatty acids and vitamin D. In addition to selecting nutrient-rich foods, people following restrictive diets may require supplementation to prevent deficiencies.

Food, health, and the environment

The current dietary practices of the world are not sustainable in terms of global food production, food security and combatting climate change. Furthermore, obesity, nutrient deficiencies, and lifestyle diseases remain a global health concern. We need to change our eating habits to improve our health and protect the environment. Global bodies such as the World Health Organization (WHO) and the Food and Agriculture Organization of the United Nations (FAO) have provided guidelines on good dietary principles.

- It is recommended that we consume a balanced diet rich in vegetables, fruits, legumes (e.g., beans and lentils), whole grains and nuts.
- We should eat some eggs, fish, poultry, and dairy but limit red meat.
- Foods high in saturated fat, salt and sugar should be avoided.

It is predicted that a global shift from our current eating patterns to a more plant-based diet will lower the risk of lifestyle diseases and reduce greenhouse gas emissions. Vegan diets have the lowest impact on the environment. However, research has shown that a similar benefit to the environment could result if the global population significantly reduced their overall intake of animal products. Although considered healthier, plant-based diets need to be balanced and contain a large variety of foods to meet nutrient requirements.

Plant-based diets

Plant-based diets consist mainly of fruits, vegetables, whole grains, seeds, and nuts; and limit or exclude all animal products such as meat, fish, poultry, eggs, and dairy.

Some popular plant-based diets are described in Table I.

Table I: Popular plant-based diets

Diet	Description
Vegetarian (lacto-ovo-vegetarian)	A diet consisting of plant-based foods, eggs and/or dairy but no meat, poultry, or fish
Flexitarian/Semi-vegetarian	A vegetarian diet that occasionally includes meat
Pescatarian (Pesco-vegetarian)	A vegetarian diet that includes fish but no meat or poultry
Vegan	A diet comprised only of plant-based foods and no animal products

Plant-based diets contain more fibre, vitamin C, vitamin E, magnesium, and polyunsaturated fats than other diets. Despite the health benefits of vegan/vegetarian diets, certain nutrients are less concentrated or are poorly absorbed from plant-based sources. Poorly planned, highly restricted plant-based diets could negatively impact health. People following plant-based diets need to consume nutrient-dense or fortified foods to prevent nutrient deficiencies. If nutrient requirements cannot be met through dietary changes, supplementation may be needed.

Nutrients of concern for plant-based diets

Protein

Protein is a macronutrient made up of amino acids. It is needed to build and maintain body cells, regulate metabolism, and maintain immune function. Protein should make up 10–35% of daily energy intake. Plant-based diets provide sufficient protein, especially if some animal products (e.g., dairy and eggs) are included. Soy, legumes (e.g., chickpeas, lentils, beans) and fortified cereals are good protein sources. It is important to note that plant-based proteins are not as easily digested and contain less essential amino acids than animal products. People following plant-based diets (especially vegans) should consume plenty of protein-rich foods to meet their requirements. Insufficient intake of protein could lead to muscle loss and poor immune function. In cases where protein requirements are elevated (e.g., athletes), protein supplementation may be necessary.

Vitamin B_{12}

Vitamin B_{12} is an essential micronutrient needed for cell division and the maintenance of nerve cells. Deficiency of vitamin B_{12} can result in macrocytic anaemia, which may cause significant health complications. Vitamin B_{12} is found almost exclusively in animal-based products, particularly milk and fish. Vegetarians who consume eggs and dairy can meet vitamin B_{12} requirements through food alone. Vegans need to include foods fortified with vitamin B_{12} (e.g., soy milk and cereals) and may need to take routine supplements to avoid deficiency.

Iron

Iron is used to make red blood cells, which transport oxygen around the body. Plant-based sources of iron include fortified cereals, legumes, and nuts. Iron deficiency is common amongst vegetarians and vegans because iron is not well absorbed from plant-based foods. Vitamin C enhances iron absorption. Those following plant-based diets should try to include vitamin C-rich foods in meals (e.g., tomatoes, citrus fruits). Furthermore, cooking with cast-iron pots and pans can increase the iron content of food. Young women are especially at risk of iron deficiency due to blood loss through menstruation. Growing children/teenagers and athletes also have relatively high iron requirements. These populations should consider taking an iron supplement if they follow plant-based diets.

Zinc

Zinc performs multiple functions in the human body and is known for its immune-enhancing properties. Animal products such as meat and fish are rich sources of zinc. Like iron, zinc is not well absorbed from plant sources. Despite this, vegetarians and vegans can meet zinc requirements by including foods such as legumes, nuts, and whole grain cereals in their diets. Supplementation may be necessary if zinc requirements cannot be met with food alone.

Calcium

Calcium helps to maintain healthy bones and teeth and is essential for blood clotting and muscle function. Calcium is mainly found in dairy products, but soy milk, cereals, legumes, green vegetables, and nuts are also good calcium sources. Plant-based diets that do not include dairy may not contain sufficient calcium, in which case supplementation may be indicated.

Omega-3 fatty acids

Omega-3 fatty acids (omega-3s) are powerful anti-inflammatories that perform essential functions in the body. They are found primarily in fatty fish products and are not as abundant in plant-based diets. Some plant-based sources of omega-3s include walnuts, soy, flaxseed, and canola oil. Supplements may help to prevent omega-3 deficiency for vegetarians and vegans.

Vitamin D

Vitamin D is important for bone health and normal cell function. The vitamin D status of vegetarians and non-vegetarians is usually similar. However, those that do not consume vitamin D fortified foods or spend time exposed to sunlight may be at risk for vitamin D deficiency. In these cases, supplementation is necessary.

Supplements

Several nutritional supplements available on the market can help prevent and treat nutrient deficiencies for those following plant-based diets (Table II). Strict vegans are advised to check ingredient labels to ensure they are free from animal-based products. It is not recommended to take high volumes/multiple supplements as exceeding the requirements of certain nutrients could be dangerous.

Table II: Supplements currently available

Nutrient	Products
Protein	• Biogen Plant-Based Protein • Evox® 100% Whey Protein • NPL Vegan Protein
Vitamin B_{12}	• Clicks Essentials Vitamin B_{12} • Solal® Vitamin B_{12} • Vital® Folic and B_{12} complex
Iron	• Ferrous Forte® • Biogen Iron plus • Lifestyle Nutrition Iron AAC
Zinc	• Vital® Zinc Complex • Wellvita® Vegan Zinc • Zinplex® Zinc Mineral Supplement
Calcium	• Caltrate® Plus • Lifestyle Nutrition Calcium Plus • Vital® Calcium Complex
Omega-3 fatty acids	• Deva Vegan Omega-3 DHA • Naturelo® Vegan DHA • Wellvita® Omega 3, 6 and 9
Vitamin D	• Biogen Vitamin D3 • Bioplus® Vit-ality Vitamin D3 • Wellvita® Vegan D3

Conclusion

People choose to follow plant-based diets for several environmental, health and ethical reasons. Switching to plant-based diets has been shown to improve overall health and place less strain on the environment. Vegetarian or vegan diets can be nutritionally adequate if they are well planned and contain nutrient-dense foods. In cases where nutrient requirements are high, or the diet is very restricted, supplementation can help prevent and treat deficiency. Overdosing on supplements should be avoided.

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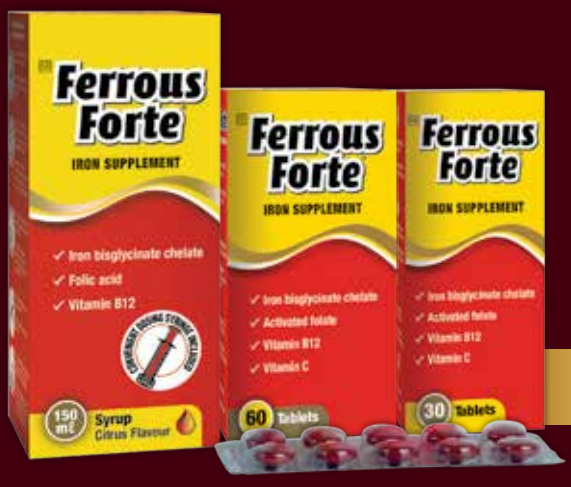

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References: 1. Ferrous Forte tablets approved professional information, September 2021. **2.** Hurrell RF. Iron fortification practices and implications for iron addition to salt. *The Journal of Nutrition*. 2021;151(1):3S–14S. **3.** Pineda O, *et al.* Effectiveness of treatment of iron-deficiency anemia in infants and young children with ferrous bis-glycinate chelate. *Nutrition.* 2001;17:381–384. **4.** Name JJ, *et al.* Iron bisglycinate chelate and polymaltose iron for the treatment of iron deficiency anemia: a pilot randomized trial. *Current Pediatric Reviews.* 2018;14:261-268. **5.** Ferrous Forte syrup approved professional information, February 2022. **6.** Duque X, *et al.* Effect of supplementation with ferrous sulfate or iron bis-glycinate chelate on ferritin concentration in mexican schoolchildren: a randomized controlled trial. *Nutrition Journal* 2014,13:71. **7.** Makled AK, *et al*. Amino acid chelated iron versus ferrous fumarate in the treatment of iron deficiency anemia with pregnancy: randomized controlled trial. *Evidence Based Women's Health Journal*. 2020;10(1):95-103.

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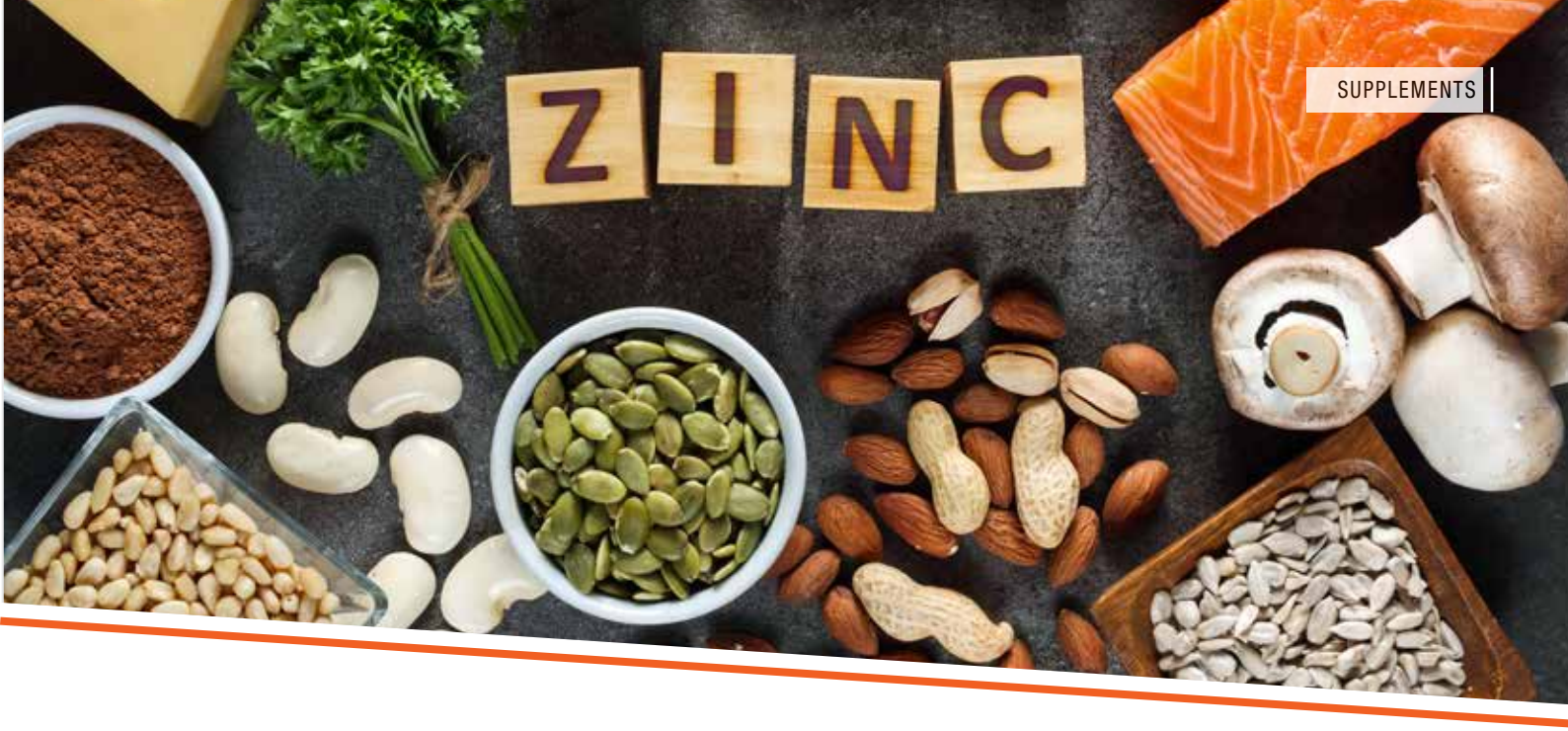
Bibliography

- Lynch H, Johnston C, Wharton C. Plant-based diets: considerations for environmental impact, protein quality, and exercise performance. Nutrients. 2018;10(12):1841. https://doi.org/10.3390/nu10121841.
- Neufingerl N, Eilander A. Nutrient intake and status in adults consuming plant-based diets compared to meat-eaters: a systematic review. Nutrients. 2021;14(1):29. https://doi.org/10.3390/nu14010029.
- Obeid R, Heil S, Verhoeven M, et al. Vitamin B12 intake from animal foods, biomarkers, and health aspects. Front Nutr. 2019;6.93. https://doi.org/10.3389/fnut.2019.00093.
- Rogerson D. Vegan diets: practical advice for athletes and exercisers. J Int Soc Sports Nutr. 2017;14:36. https://doi.org/10.1186/s12970-017-0192-9.
- Sofi F, Dinu M, Pagliai G, et al. Mediterranean versus vegetarian diet for cardiovascular disease prevention (the CARDIVEG study): study protocol for a randomized controlled trial. Trials. 2016;17(1):233. https://doi.org/10.1186/s13063-016-1353-x.
- Weikert C, Trefflich I, Menzel J, et al. Vitamin and mineral status in a vegan diet. Dtsch Arztebl Int. 2020;117(35-36):575-82. https://doi.org/10.3238/arztebl.2020.0575.
- Whitney E, Rolfes S. Understanding nutrition. 40th ed. Stamford: Cengage Learning; 2016.
- Zhang FF, Barr SI, McNulty H, Li D, Blumberg JB. Health effects of vitamin and mineral supplements. BMJ. 2020;369:m2511. https://doi.org/10.1136/bmj.m2511.



Zinc and immune health

Roslynn van Schoor

Introduction

Zinc is an essential micronutrient that performs numerous functions in the body. It works to maintain a healthy immune system and is a powerful antioxidant and anti-inflammatory. Zinc deficiency is damaging to health and increases the risk of infection and illness. A healthy diet can help meet zinc requirements through all stages of life. Zinc supplements may help treat and prevent zinc deficiency but should be used cautiously as overdosing can be dangerous.

Background on the immune system

The immune system is a complex system of cells, tissues and organs that work together to protect the body against infection. White blood cells, lymph nodes, bone marrow and the thymus are some components of the immune system. When a pathogen (e.g., bacteria, virus, fungus) invades the body, the immune system tries to destroy it before it can cause disease. There are two main types of immunity: innate immunity and acquired immunity.

Innate immunity

The innate immune system is the first line of defence against invading pathogens. It includes physical barriers such as the skin, mucous membranes, digestive enzymes, and stomach acid. These barriers prevent pathogens from successfully entering the body. If pathogens do make it through, the cells of the innate system (e.g., natural killer cells) destroy them. Although the innate immune response is fast, it is not specific and not always effective.

Acquired immunity

Cells of the acquired/adaptive immune system can identify and launch an attack on specific pathogens. This process takes longer than the innate system but is highly effective. Antibodies and lymphocytes are examples of immune cells important in acquired immunity.

The role of nutrition on immunity

Good nutrition is key to maintaining a healthy immune system. Consuming insufficient calories, protein and micronutrients results in nutrient deficiencies and increases the risk of illness. It is advised that we follow a diet rich in whole grains, vegetables, fruits, low-fat dairy, legumes, lean meats/meat substitutes and healthy fats. Certain nutrients are well-known for boosting a weakened immune system. Zinc is one such nutrient. Foods such as dairy, red meat, shellfish, legumes, whole grains, and fortified cereals are good sources of zinc. Supplements may be necessary if we cannot meet our body's nutritional requirements by altering our diets. It is important to note that although supplements can help treat deficiencies, overdosing can damage the immune system.

The functions of zinc in the body

Zinc is a trace mineral required by the body in relatively small amounts. Almost all cells of the body contain zinc, but high concentrations are found in muscle and bone. Zinc is needed for proper growth and development and is involved in numerous metabolic processes. It helps maintain genetic material such as DNA and helps regulate blood sugar levels. Zinc is also required for blood clotting, thyroid hormone function, vitamin A metabolism, taste perception, sperm production, and learning performance. It is also one of the most important nutrients required for immune function. Zinc is a powerful antioxidant and protects cells from damaging chemicals. Zinc works to reduce inflammation and is essential for the synthesis and function of immune cells (T and B cells).

Zinc requirements

Zinc is required by people of all ages. The recommended daily allowance (RDA) of zinc is the minimum amount necessary to maintain optimal health. The tolerable upper intake level (UL) of zinc

is the maximum amount that can be consumed without causing negative health effects. Table I indicates the RDAs and ULs for zinc across different life stages.

Table I: RDAs and ULs for zinc across different life stages

Age	RDA (mg/day)	UL (mg/day)
0–6 months	2	4
6 months–1 year	3	5
1–3 years	3	7
4–8 years	5	12
9–13 years	8	23
14–18 years	Males: 11 Females: 9	34
19–70 years	Males: 11 Females: 8	40
Pregnancy	11	40
Lactation	12	40

Zinc deficiency

Zinc deficiency is common in developing countries. Those following restricted diets (e.g., vegetarian/vegan) or those unable to consume a varied diet are at risk of zinc deficiency. This is because zinc is found most abundantly in animal products and is poorly absorbed from plant-based sources. Children, pregnant and breastfeeding women, and immune-compromised individuals are particularly vulnerable to zinc deficiency. Symptoms of zinc deficiency include growth retardation, poor sexual development, loss of appetite, skin lesions and poor mental performance. Lack of zinc also interferes with vitamin A metabolism, which could impair eyesight. Poor immune function, slow wound healing, and respiratory and gastrointestinal infections are common side effects of zinc deficiency. Diarrhoea caused by a lack of zinc can cause poor absorption of nutrients and lead to further nutrient deficiencies. Supplements may be needed to prevent and treat zinc deficiency.

Zinc supplements

Zinc supplements can help prevent and treat zinc deficiency and are widely available in multiple forms (tablets, powders, and syrups). Supplements containing zinc have been shown to reduce the duration of the common cold. Furthermore, administration of supplemental zinc results in a shorter duration and decreased severity of diarrhoea. This is especially important for children as multiple episodes of diarrhoea may hinder growth and increases the risk for malnutrition. Caution should be taken not to overdose on zinc. Overdose symptoms include loss of appetite, poor immune function, and copper and iron deficiencies. Table II shows examples of zinc-containing supplements currently on the market.

Table II: Zinc-containing supplements

Product	mg zinc
Clicks Vitamin-C & zinc	5
Zinplex®	8.3
Zinplex® Junior Syrup	5
Wellvita® Zinc Chelate	25
Biogen Zinc Powder	25
ActivoVite™ Multivitamin and Mineral	20
Centrum®	5
Vital® Zinc Complex	15
Dis-Chem Spectrum Multivitamin	1.5

Conclusion

Zinc is an essential micronutrient and is vital for many metabolic processes. Zinc deficiency is associated with poor immune function and an increased risk of infection. If zinc requirements cannot be met through dietary means, supplementation may be necessary.

Bibliography

- Bajait C, Thawani V. Role of zinc in pediatric diarrhea. Indian J Pharmacol. 2011;43(3):232-5. https://doi.org/10.4103/0253-7613.81495.
- Choi S, Liu X, Pan Z. Zinc deficiency and cellular oxidative stress: prognostic implications in cardiovascular diseases. Acta Pharmacol Sin. 2018;39(7):1120-32. https://doi.org/10.1038/aps.2018.25.
- Gupta S, Brazier AKM, Lowe NM. Zinc deficiency in low- and middle-income countries: prevalence and approaches for mitigation. J Hum Nutr Diet. 2020;33(5):624-43. https://doi.org/10.1111/jhn.12791.
- Link R. Zinc supplements: benefits, dosage, and side effects [Internet]. c2022. Healthline Media. Available from: https://www.healthline.com/nutrition/zinc-supplements#safety-side-effects. Accessed 13 Jul 2022.
- Prasad A. Lessons learned from experimental human model of zinc deficiency. J Immunol Res. 2020;2020:9207279. https://doi.org/10.1155/2020/9207279.
- Skrajnowska D, Bobrowska-Korczak B. Role of zinc in immune system and anti-cancer defense mechanisms. Nutrients. 2019;11(10):2273. https://doi.org/10.3390/nu11102273.
- Whitney E, Rolfes S. Understanding nutrition. 40th ed. Stamford: Cengage Learning; 2016. p. 419-22.

Xylometazoline: relief for a stuffy, blocked **nose**

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Introduction

Nasal congestion occurs when the surfaces that line the nasal passageway swell. Swelling is due to the dilation of blood vessels in the nasal tissue, narrowing the nasal passage. This gives rise to a blocked or stuffy feeling in the nose which is further blocked by excessive mucus production.

In children and adults, nasal congestion can cause discomfort. Babies with blocked noses may struggle to breathe or have difficulties feeding. In some cases, symptoms only last for a few days. However, depending on the cause, symptoms may be persistent.

Common causes of nasal congestion include:

- Infections, for example, common cold, influenza (flu) and sinusitis
- Allergies including hay fever
- Persistent rhinitis (inflammation of the mucous membrane lining the inside of the nose)
- Nasal polyps

Nasal congestion may also be due to an injury to the nose, swollen adenoid glands (adenoid glands are a patch of soft tissue in the back of the nasal cavity), side effects of some medication, foreign bodies in the nose or tumours inside the nose/sinuses. In addition, rebound congestion may occur due to overuse or prolonged use of topical nasal decongestants.

Focus on xylometazoline

Xylometazoline is indicated to relieve nasopharyngeal congestion associated with sinusitis, rhinitis, colds, hay fever and otitis media. It is also used to facilitate rhinoscopy.

Xylometazoline is a decongestant (sympathomimetic agent) and works locally by constricting the dilated blood vessels in the nasal and pharyngeal mucosa. Swollen blood vessels in the nose contract and return to their normal size. Consequently, air circulation and sinus drainage are improved, and the feeling of nasal stuffiness is alleviated.

Table I: Dosage and administration of xylometazoline products

Formulations available	Suitable for use in	Recommended dose (number of puffs of the metered-dose spray or drops to be administered/instilled into each nostril)	Number of applications per day
Nazovin® adult metered spray	Adults and children over 12 years of age	One puff	A total of three applications a day is usually adequate
Otrivin® adult nasal metered-dose spray		One puff	
Otrivin® adult nasal drops (1 mg/ml solution)		Two to three drops	
Otrivin® menthol nasal metered-dose spray		One puff	
Sinutab nasal spray		One puff	
Nazovin® paed nasal drops (0.5 mg/ml solution)	Children aged two up to 12 years of age	One to two drops	A total of two applications a day should not be exceeded
Otrivin® paed nasal drops (0.5 mg/ml solution)		One to two drops	
Otrivin® paed nasal metered-dose spray		One puff	

Xylometazoline starts working within a few minutes and provides relief for several hours.

Dosage and administration

Xylometazoline is only suitable for nasal administration. There are several xylometazoline formulations available. It is important not to exceed the recommended dose, especially in children and the elderly. Refer to Table I for information regarding the dosage and administration. Before using xylometazoline, the patient should be instructed to first blow their nose.

Duration of treatment

Xylometazoline should not be used continuously for more than ten days as prolonged or excessive use of nasal decongestants may cause rebound nasal congestion (also known as rhinitis medicamentosa) and/or atrophy of the nasal mucosa.

Side effects, special precautions, and contraindications

Common side effects associated with the use of xylometazoline include headaches, nausea, local irritation and a burning sensation at the application site.

Due to precautions and/or possible contraindications, it is recommended that people with the following health problems consult with their pharmacist or doctor before using xylometazoline:

- Hypertension (high blood pressure), ischaemic heart disease or other cardiovascular conditions
- Diabetes mellitus
- Hyperthyroidism (an overactive thyroid gland)
- Narrow-angle glaucoma (increased pressure in the eye)
- Epistaxis (a tendency to have nose bleeds)
- Pheochromocytoma (a rare tumour of the adrenal gland that produces high amounts of adrenaline and noradrenaline)
- Rhinitis sicca or atrophic rhinitis (chronic nasal inflammation with very dry nasal passages)
- A history of a recent transnasal or transoral surgery
- Male patients with enlarged prostate gland
- Female patients who are pregnant or breastfeeding

In addition, due to a potential serious interaction, xylometazoline should not be used in people who are using monoamine oxidase inhibitors (MAOIs) or have stopped taking them in the last 14 days.

Conclusion

Xylometazoline is applied directly to the nasal mucosa and provides quick and effective relief of nasal congestion. However, due to the risk of rebound nasal congestion, xylometazoline should not be used for extended periods.

Bibliography

- Blenkinsopp A, Duerden M, Blenkinsopp J. Symptoms in the pharmacy. A guide to the management of common illnesses. 8th ed. John Wiley & Sons; 2018.
- DeShazo RD, Kemp SF. Pharmacotherapy of allergic rhinitis. In: UpToDate, Post TW, editor. UpToDate, Waltham, MA.
- Knott L. Nasal congestion causes and treatment. Patient [Internet]. Available from: https://patient.info/ears-nose-throat-mouth/nasal-congestion. Accessed 15 Jun 2022.
- Lieberman PL. Patient education. Nonallergic rhinitis (runny or stuffy nose) (Beyond the Basics). In: UpToDate, Post TW, editor. UpToDate, Waltham, MA.
- Otrivin menthol nasal metered-dose spray (xylometazoline hydrochloride). Package Insert. GlaxoSmithKline Consumer Healthcare South Africa (Pty) Ltd. 2019
- Otrivin range (xylometazoline hydrochloride). Nose drops and nasal metered -dose spray. Package Insert. GlaxoSmithKline Consumer Healthcare South Africa (Pty) Ltd.
- Otrivine adult nasal spray (xylometazoline hydrochloride). Patient leaflet. GlaxoSmithKline Consumer Healthcare UK. EMC. Available from: https://www.medicines.org.uk/emc/product/6155/pil#gref. Accessed 27 June 2022

Managing allergies to **insect bites** and **stings**

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Introduction

Stings and bites from insects and other bugs occur commonly, most of which are harmless, causing local irritation and swelling that usually resolves in a couple of hours. However, some are more serious and can contain parasites and microorganisms that can cause systemic diseases such as tick bite fever, malaria, and yellow fever. In some cases, saliva or venom can also be transferred, causing an intense initial burning pain at the site, that can spread to regional lymph nodes (especially following spider bites or stings from scorpions).

Some bites and stings can result in an allergic reaction in some people. The following insects may be more likely to do so:

- Honeybees
- Wasps
- Hornets
- Fire ants
- Mosquitos (rarely)
- Bed bugs (rarely)

Symptoms of mild allergic reactions may include pain, redness, swelling, flushing, hives, and itching. Mild or moderate reactions can be treated at home by cleaning the area with soap and water to remove as much venom as possible. Apply a cold pack wrapped in a thin cloth to the site to reduce swelling and pain. Keep the area clean and dry and treat with cortisone cream, oral pain relievers, and antihistamines. Repeat exposure to the same bites or stings can result in more severe reactions with each subsequent exposure.

Severe allergic reactions can impair breathing and cause the body to go into shock. This is considered a medical emergency, and patients should be treated with adrenaline injection as soon as possible and go to an emergency room.

Some venoms can cause damage to the tissue around the bite site, while others can cause paralysis of the muscles that can affect breathing. Any of these symptoms is an indication for referral to a doctor.

Do

- Avoid bites and stings by wearing closed shoes, socks, long pants, and long-sleeved shirts when outdoors and apply DEET-containing insect repellents frequently.
- When rocks or logs must be moved, use thick leather gloves to avoid bites and stings.
- Check drinks and food as bees and insects are attracted to sugary liquids.
- Remove stingers as soon as possible by scraping them with a fingernail or a banking-type plastic card (e.g. credit card).
- Apply an ice pack (wrapped in a thin cloth) to reduce swelling at the site.
- Use topical steroids and oral antihistamines to manage swelling and itching at the site.
- If possible, take a photo of the insect or bug to help with identification in case it is necessary to obtain antivenom.
- Patients with known allergies should wear a medical alert bracelet and carry adrenaline auto-injectors.

Don't

- Approach beehives, wasp nests and swarms.
- Lift rocks or logs as insects and spiders often hide below these.
- Use tweezers or squeeze venom bags when removing stingers.
- Scratch the area as this can damage the skin and cause a secondary infection.

Refer to the doctor

- If any signs of anaphylaxis, such as swelling of the mouth or lips, wheezing, or difficulty breathing, occurs. Go to a doctor or emergency room as soon as possible.

- Any signs of muscle weakness as this may indicate that the venom is neurotoxic.
- If any signs of tissue damage appear around the wound.

A word on treatment

- Keep the area clean and dry to prevent infection.
- Apply cortisone cream to reduce swelling and pain.
- Oral antihistamines such as chlorpheniramine or diphenhydramine can reduce the itching associated with a bite or sting.
- Pain relievers such as ibuprofen or paracetamol may be helpful for the pain.
- Check for any interactions with existing medicine before starting treatment with any medication.

Bibliography

- A guide to the practice of travel medicine in the South African context. 3rd ed. South African Society of Travel Medicine; 2022.
- American College of Allergy, Asthma, and Immunology. Insect sting allergies. Updated 2 May 2018. Available from: https://acaai.org/allergies/allergic-conditions/insect-sting-allergies/#:~:text=The%20most%20serious%20reaction%20to,other%20than%20the%20sting%20site. Accessed 6 Jul 2022.
- Murrell D. Insect sting allergy overview. Healthline. Updated 17 Sept 2018. Available from: https://www.healthline.com/health/insect-sting-allergy#:~:text=Allergic%20reaction%20to%20an%20insect%20sting&text=This%20may%20include%20some%20redness,a%20year%20result%20in%20death. Accessed 6 Jul 2022.
- Selner M, Wolfson E and Watson K. Bug bites and stings. Healthline. Updated 29 July 2020. Available from: https://www.healthline.com/health/bug-bites. Accessed 6 Jul 2022.
- Stanford Children's Health. Insect stings and allergic reactions [Internet]. c2022. Stanford Medicine children's health. Available from: https://www.stanfordchildrens.org/en/topic/default?id=insect-stings-and-allergic-reactions-90-P01691. Accessed 6 Jul 2022.

Dealing with soft tissue **strains** and **sprains** in the pharmacy

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Introduction

Sports and exercise have become part of our daily lives, with increasing numbers of people exercising regularly. Health benefits and stress relief are among the leading motivational factors for being active. However, exercise may sometimes result in injury.

Generally, sports injuries can be divided into:

- Overuse injuries
- Blunt trauma
- Fractures and dislocations
- Acute soft-tissue sprains and strains

These injuries, however, are not unique to sports participation and can also result from activities that are not athletic or from accidents.

Sprains

A sprain is a stretch and/or tear of a ligament, a strong band of connective tissue that connects one bone to another. Ligaments stabilise and support the body's joints. The areas of the body that are most vulnerable to sprains are the ankles, knees and wrists. For example, a sprained ankle can occur when the foot turns inward, placing extreme tension on the ligaments of the outer ankle.

Sprains are classified by severity:

- Grade 1 sprain (mild): Slight stretching and some damage to the ligament fibres.
- Grade 2 sprain (moderate): Partial tearing of the ligament. There is abnormal looseness (laxity) in the joint.
- Grade 3 sprain (severe): Complete tear of the ligament. This may cause significant instability.

While the intensity may vary, pain, bruising, swelling, and inflammation are common to all categories of sprains. Treatment for sprains begins with the rest, ice, compression, elevation (RICE) protocol and physical therapy. Moderate sprains may require a period of bracing, while severe sprains require surgery to repair torn ligaments.

Strains

A strain is an injury to a muscle and/or a tendon. Tendons are fibrous cords of tissue that attach muscles to bone. A strain may be a simple stretch, or it may involve a partial or complete tear of the muscle or tendon. It is commonly referred to as a 'pulled muscle' or 'torn tendon'. Symptoms of a strain may include pain, muscle spasm, muscle weakness, swelling, inflammation and cramping. Like sprains, there are also different degrees of muscle and/or tendon strains ranging from mild to grade 3 or severe.

The recommended treatment for a strain is the same as for a sprain and begins with the RICE protocol. This should be followed by simple exercises to relieve pain and restore mobility. Surgery may be required for a more severe tear.

RICE protocol

Immediate treatment of most acute sprains and strains is the RICE protocol.

Pain control

Pain may promote muscle spasms, leading to a vicious cycle of increased pain and spasm. Pain control for sprains and strains usually involves the use of analgesics, typically paracetamol or nonsteroidal anti-inflammatory drugs (NSAIDs). If pain persists for more than 72 hours after a seemingly minor injury, referral to the doctor is recommended.

- Paracetamol relieves pain but does not affect swelling and inflammation. It may be used alone when pain is the main symptom, and there is only slight swelling.
- NSAIDs such as ibuprofen or diclofenac, which are available over-

Table I: The RICE protocol*

R – Rest • Rest prevents further injury and helps to reduce swelling. • Stopping exercise at the first sign of pain limits the degree of injury.
I – Ice • Ice (or a commercial ice pack) causes vasoconstriction and reduces soft tissue swelling, inflammation and pain. • Ice and cold packs should not be applied directly to the skin but should be enclosed in plastic or a towel. • It should be left in place for no more than 20 minutes at a time and should be used periodically throughout the initial 24–48 hours after an acute injury.
C – Compression • Wrapping an injured extremity with a crepe (elasticated) bandage reduces swelling and pain. • The bandage should be wrapped firmly but not too tightly to obstruct blood flow. • Remove the bandage before going to sleep and permanently after 48 hours.
E – Elevation • The injured area should be elevated above heart level so that gravity can facilitate fluid drainage, which reduces swelling and pain.

*P is sometimes included in the RICE protocol, i.e. PRICE and stands for protection or physical support of the affected injury, where applicable, using, e.g. a splint

the-counter (OTC), may be used to relieve pain, swelling and inflammation.

- Combination analgesics that contain both paracetamol and an NSAID may provide additional analgesia and allow the use of lower doses of each agent, which may reduce the risk of side effects.

Please refer to the prescribing information of the individual products for complete information on indications, contraindications, dosage and side effects.

A word on nutraceuticals for sprains and strains

Nutraceuticals are products that, other than nutrition, are also used as medicines. Nutraceuticals may be used to improve health, prevent chronic disease, or support the structure and function of the body. Nutraceuticals that have been evaluated for their effects on the musculoskeletal system and inflammation include glucosamine, chondroitin, methylsulphonylmethane (MSM), collagen, vitamins C and D, as well as various minerals and micronutrients. These products are generally well-tolerated and may be considered as nutritional supplements to temporarily assist in the relief of aching muscles and joints.

Bibliography

- American Academy of Orthopedic Surgeons (AAOS). Sprains, strains and other soft-tissue injuries. American Academy of Orthopedic Surgeons; c1995-2021. Available from: https://orthoinfo.aaos.org/en/diseases--conditions/sprains-strains-and-other-soft-tissue-injuries/. Accessed 15 Feb 2022.
- Kushner I. Overview of soft tissue rheumatic disorders [Internet]. UpToDate; c2022. Available from: https://www.uptodate.com/contents/overview-of-soft-tissue-rheumatic-disorders. Accessed 15 Feb 2022.
- Liebert PL. Overview of sports injuries [Internet]. Merck Manual Consumer version. Kenilworth, NJ: Merck & Co., Inc.; c2022. Available from: https://www.merckmanuals.com/home/injuries-and-poisoning/sports-injuries/overview-of-sports-injuries. Accessed 15 Feb 2022.
- Nasri H, Baradaran A, Shirzad H, Rafieian-Kopaei M. New concepts in nutraceuticals as alternative for pharmaceuticals. Int J Prev Med. 2014;5(12):1487-99.
- Raff M, editor. Injuries and pain in sports and exercise. J Pain SA. 2010;5(1):5-6.
- Schellack N, Masuku P, Mogale K, Mokwele N, Skosana P. Hands on management of muscle pain and injuries. S Afr Fam Pract. 2018;60(5):26-36.
- Schmidt S. Focus on ArthroGuard® acute intensive joint protection & support. SA Pharmacist's Assistant. 2021;11(3):19-20.
- Shakibaei M, Buhrmann C, Mobasheri A. Anti-inflammatory and anti-catabolic effects of TENDOACTIVE® on human tenocytes in vitro. Histol Histopathol. 2011;26(9):1173-85. https://doi.org/10.14670/hh-26.1173.
- Souter J. Sports injuries treatment guidelines. SA Pharmacist's Assistant. 2021;21(1):8-10.

How to fight a **gout flare**

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Introduction

Purine is a chemical found naturally in the body and in certain foods. The human body breaks down purines to form uric acid, which is then excreted via the kidneys. Increased production of uric acid, or a decreased excretion of uric acid from the kidneys, can result in high uric acid levels in the blood (hyperuricaemia), leading to a build-up of urate crystals in the joints and causing a painful form of arthritis known as gout.

Gout flare

A gout flare is a highly painful (sometimes disabling) inflammation occurring most often in a single joint, and in some cases, in more than one joint. The big toe is most often involved. However, any joint may be affected. Gout flares can occur at any time of the day, but many patients seem to experience gout flares at night or in the early hours of the morning. The intense pain and inflammation can last for 12 or 24 hours, then gradually tapers off and resolves spontaneously within a few days or weeks.

Risk factors for gout

Certain risk factors can predispose a patient towards developing gout.

These factors include:

- Men over 30 years and women over 50 years of age
- Patients with chronic kidney problems (renal dysfunction)
- Obesity
- Diet
  - Excessive intake of high-fructose corn syrup
  - Excessive alcohol intake
  - A diet rich in purines (e.g., red meat, organ meats, seafood, beer, whiskey, game meats)
- Certain medications (e.g., certain diuretics, niacin, cyclosporine, tacrolimus)
- Comorbid conditions (e.g., diabetes, high blood pressure, smoking)

Managing a gout flare in the pharmacy

In the pharmacy setting, management of gout involves managing the acute flare. Treatment of a gout flare needs to begin as soon as possible after the onset of symptoms, ideally within 24 hours, and treatment time should be limited to the duration of the flare.

A gout flare is typically treated with a nonsteroidal anti-inflammatory drug (NSAID) and/or colchicine. Choice of therapy needs to be individualised, considering the patient's age, current medications, and the simultaneous presence of other diseases the patient may have (comorbidities).

While colchicine works quicker than an NSAID to treat gout, an NSAID is usually tolerated better. An anti-inflammatory and colchicine combination may be considered for a patient with severe pain.

Patients taking chronic medication to lower their uric acid levels (e.g., allopurinol) should be encouraged to continue taking their medications while the gout flare is being treated.

Gout usually takes about 2–3 days to resolve if therapy is started early. However, it may take longer to resolve if treatment only begins after the patient has been experiencing symptoms for 4–5 days. Table I provides an overview of medication for acute management of gout.

Colchicine

Colchicine has a novel mechanism of action. Overall, it prevents certain white blood cells from moving to the area of inflammation, thereby preventing further inflammation. It is *not*, however, an anti-inflammatory.

A low-dose colchicine regimen is preferred and has been shown to be as effective, with fewer side effects, than a high-dose regimen.

The most common adverse effects of colchicine (where the patient should be advised to stop the medication) include nausea, vomiting,

Table I: Acute management of gout

Medication	Adult dose
Colchicine	
Aspen Colchicine (0.5 mg) *or* Colchicine® Houdé (1 mg)	Preferred low-dose regimen (ideally within 12 hours of onset of flare): • 1 mg (2 x 0.5 mg tablets *or* 1 x 1 mg tablet) to be taken immediately • 0.5 mg (1 x 0.5 mg tablet *or* half a 1 mg tablet) to be taken 1 hour later • Maximum of 1.5 mg on day 1 • 12 hours later, if not yet resolved, 0.5 mg to be taken once or twice daily until symptoms resolve A gap of 7–14 days is recommended between each course of gout treatment to prevent a build-up of colchicine
NSAIDs	
Diclofenac 50 mg tablets (e.g., Panamor AT-50®, K-Fenak®) *or* Diclofenac 50 mg dispersible tablets (e.g., Catafast D®, Diclo-flam® Blackcurrant)	50 mg (1 tablet) 3 times daily after a meal Maximum of 150 mg daily for 3 days Dissolve 1 tablet in water 3 times daily before meals Maximum of 150 mg daily for 3 days

and abdominal pain. Serious, life-threatening or fatal adverse events affecting the blood (blood cytopaenias), muscle (rhabdomyolysis or myopathy), liver (liver failure), nervous system and skin have been reported.

Overdose of colchicine may be fatal. It is important to counsel the patient regarding the symptoms of colchicine toxicity. Early signs of toxicity include diarrhoea, vomiting and abdominal pain.

Colchicine does not interact with anticoagulants, nor does it increase the risk of ulcers. It can, however, have a serious interaction with certain medications (e.g., clarithromycin, itraconazole, digoxin), causing an increase in colchicine concentration and leading to possible toxicity. This medication should not be taken by patients with moderate to severe renal or hepatic disease or in patients with cardiac disease.

All patients receiving colchicine should be advised not to drink grapefruit juice, as there is a potential for grapefruit juice to increase the concentration of colchicine to toxic levels.

Nonsteroidal anti-inflammatory drugs

An NSAID is recommended to treat a gout flare in patients who:

- Are under the age of 65
- Do not have chronic kidney or cardiovascular disease
- Are not taking anticoagulants
- Have no history of peptic ulcer disease (PUD)
- Do not have uncontrolled high blood pressure

The maximum recommended dose of anti-inflammatory should be used initially in those patients who can tolerate anti-inflammatories. The dose may be decreased or stopped once symptoms have subsided.

Aspirin should *not* be used to treat a gout flare, as there is a risk of it increasing uric acid levels in the blood.

Colchicine may be considered as an alternative for patients where anti-inflammatories are contraindicated.

Lifestyle modifications

Educating the patient on the risk factors for gout and the management of lifestyle factors should go hand in hand with counselling on medication dose and administration.

Counselling on the management of lifestyle factors should include encouraging the patient to:

- Limit alcohol intake
- Limit sugary drinks, such as those sweetened with sugar or high fructose corn syrup
- Limit the intake of foods high in purines
- Exercise regularly

Conclusion

Gout is often associated with other comorbidities, such as high blood pressure (hypertension), diabetes, kidney disease, obesity, and heart failure. Certain medications (e.g., some diuretics) used to treat chronic conditions may also increase the risk of developing gout. Caution should be exercised in elderly patients, as many have comorbidities or are taking medications which can affect the choice of treatment for gout. Refer patients taking medications or chronic illnesses to the pharmacist or doctor. Treatment of gout flares should be short-term only (maximum of 3 days). A patient suffering from regular gout flares should be referred to their doctor.

Bibliography

- Cassagnol M, Saad, M. Pharmacologic management of gout. US Pharm. 2013;38(3):22-26. Available from: https://www.uspharmacist.com/article/pharmacologic-management-of-gout. Accessed 3 Aug 2022.
- Gaffo A. Treatment of gout flares [Internet]. UpToDate. Updated 7 Apr 2022. Available from: https://www.uptodate.com/contents/treatment-of-gout-flares. Accessed 3 Aug 2022.
- Haines A, Bolt J, Dumont Z, Semchuk W. Pharmacists' assessment and management of acute and chronic gout. Can Pharm J (Ott). 2018;151(2):107-13. https://doi.org/10.1177/1715163518754916.
- Leung YY, Yao Hui LL, Kraus VB. Colchicine--Update on mechanisms of action and therapeutic uses. Semin Arthritis Rheum. 2015;45(3):341-50. https://doi.org/10.1016/j.semarthrit.2015.06.013.
- Li D. Colchicine toxicity: what pharmacists need to know [Internet]. c 2017. BC DPIC. Updated 15 Sept 2017. Available from: http://www.dpic.org/article/professional/colchicine-toxicity-what-pharmacists-need-know. Accessed 3 Aug 2022.
- Perez-Ruiz F. Patient education: Gout (Beyond the Basics). UptoDate. Updated 13 Dec 2021. Available from: https://www.uptodate.com/contents/gout-beyond-the-basics#:~:text=Gout%20is%20a%20form%20of,uric%20acid)%20in%20the%20blood. Accessed 3 Aug 2022.
- Robinson PC, Stamp LK. The management of gout: much has changed. Aust Fam Physician. 2016;45(5):299-302.
- Sadiq NM, Robinson KJ, Terrell JM. Colchicine. Updated 5 Jun 2022. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2022 Jan-. Available from: https://www.ncbi.nlm.nih.gov/books/NBK431102/. Accessed 3 Aug 2022.

Skin conditions treatable with topical corticosteroids

Wilna Rabbets

Introduction

Topical corticosteroids are steroid formulations that are applied directly to the skin to reduce inflammation and irritation. These formulations can be either creams, ointments, or lotions. Generally, topical corticosteroids are used for short periods to alleviate localised inflammatory conditions. In chronic conditions, these products are generally used to help treat flare-ups of, e.g., eczema, and in more severe cases, prescription formulations will need to be used.

Conditions treated with topical corticosteroids include atopic eczema, contact dermatitis, psoriasis, and insect bites.

Eczema

Eczema refers to a group of conditions that cause inflamed and irritated skin. There are many eczema types, and atopic dermatitis is the most common type.

Other types of eczema include contact dermatitis, neurodermatitis, nummular eczema, and seborrheic dermatitis. People often refer to the condition as eczema when referring to any one of these disorders.

Atopic eczema

Atopic eczema, also known as atopic dermatitis, is a chronic, inflammatory skin disease that occurs primarily in children but also affects adults. It usually develops in early childhood and is more common in people with a family history of the condition. "Atopic" refers to a sensitivity to allergens, and very often, the eczema is accompanied by asthma, allergies, or hay fever. The main symptom is a rash that typically appears on the areas where the skin flexes but can also appear anywhere else.

Symptoms vary from person to person and can include:

- Dry skin
- Itching
- Red to brownish-grey patches, especially on the hands, feet, ankles, wrists, neck, upper chest, eyelids, inside the bend of the elbows and knees, and in infants, the face and scalp
- Small, raised bumps, which may leak fluid and crust over when scratched
- Thickened, cracked, scaly skin
- Raw, sensitive, swollen skin from scratching

Most cases of atopic dermatitis are thought to occur due to a combination of genetic and environmental factors. Years of research has proven that no one thing causes atopic dermatitis. It's a complex disease that has no cure. Often it clears up for a time, even for several years and can then periodically flare up.

Contact dermatitis

Similar to atopic eczema, contact dermatitis is an inflammatory skin disease, but unlike atopic eczema, the cause can usually be identified and then avoided. Contact dermatitis usually improves and clears up completely when the substance causing the problem is avoided. The inflammatory reaction usually occurs within a few hours or days of exposure to the allergen or irritant.

While atopic eczema is dry and scaly, contact dermatitis often presents as blisters and weeps. Sometimes contact dermatitis can have a delayed hypersensitivity response.

Treatment for both forms of dermatitis mainly focuses on reducing inflammation and itching and preventing future breakouts. Keeping the skin well moisturised is very important when treating atopic eczema, and regular application of creams or ointments will soothe the skin and help prevent flare-ups. The other important aspect is identifying the cause of the breakouts and trying to avoid them.

Topical corticosteroids that are available over-the-counter (OTC) are effective in treating mild cases of both atopic and contact dermatitis. The products available are 0.5% and 1% hydrocortisone creams and ointments. It is best to refer the patient to a doctor or dermatologist for more severe cases.

Psoriasis

Psoriasis is a chronic skin disease characterised by inflammation that causes a rash with itchy, scaly patches or plaques that most commonly occur on the knees, elbows, trunk, and scalp. These

Table I: Topical corticosteroids available OTC

Product	Active ingredient	Directions for use	Contraindications
Biocort™ cream	Hydrocortisone acetate 1%	Apply a thin layer to the affected skin	• Herpes simplex • Varicella • Nappy rash in infants • Leg ulcer • Rosacea
Stopitch cream	Hydrocortisone acetate 1%	Apply a thin layer twice a day	• Nappy rash • Infected skin • Rosacea
DiluCORT® cream and ointment	Hydrocortisone acetate 0.5%	Apply up to 4 times a day – reduce gradually as condition improves, do not use for more than 7 days	• Nappy rash • Infected skin • Children under 2 years
MyloCORT® cream and ointment	Hydrocortisone acetate 1%	Apply up to 4 times a day – reduce gradually as condition improves	• Nappy rash • Infected skin • Children under 2 years • Scabies infection • Rosacea
Skincalm® cream	Hydrocortisone 0.5%	Apply up to 4 times a day – reduce gradually as condition improves	• Nappy rash • Infected skin • Children under 2 years

plaques may look different on different skin types. It is not known what exactly causes psoriasis, but it is generally accepted that the immune system and genetics play important roles. It is not infectious; therefore, the disease cannot be contracted from another person.

The rash occurs because the overactive immune system speeds up skin cell growth and the normal shedding of old skin cells happen at the normal rate so that the skin cells pile up on the skin surface, causing the plaques and scales.

Inflammation caused by psoriasis can impact other organs and tissues in the body. People with psoriasis may also experience other health conditions. One in three people with psoriasis may also develop psoriatic arthritis.

Symptoms often start between the ages of 15 and 25 but can begin at any age. Men, women, and children of all skin colours can get psoriasis. The disease can also vary from mild to very severe.

Triggers that cause flare-ups vary from person to person; what causes a flare in one person might not affect another. Common triggers for psoriasis flare-ups include stress, illness (particularly strep infections), certain medications (malaria treatment and beta-blockers), and injury to the skin such as sunburn, scratches, and insect bites and even vaccinations.

Topical corticosteroids that are available OTC are effective in treating some instances of psoriasis because of their anti-inflammatory and antiproliferative properties. In general, they can be used for areas with delicate skin, such as on the face, genitals, and areas that flex. Ointments are the best choice but tend to feel oily to the touch. Creams can be used on all areas. Moisturisers are also advised to help protect the skin from becoming too dry or irritated.

Insect bites

Bites and stings from insects and animals can merely be a nuisance, or they can cause severe local reactions and even have life-threatening consequences. But whether harmless nuisances or potentially dangerous, most bites and stings have local reactions that can be treated with topical preparations.

Stinging insects, including bees, wasps, and fire ants, inject venom into the skin, and biting insects, including mosquitoes, spiders, bedbugs, fleas, and ticks, release saliva around the bite. The venom or saliva will cause the immune system to respond, and the local reaction in the skin to this venom and saliva causes swelling, itching and sometimes pain.

In rare cases, some people can have a serious allergic reaction (anaphylaxis) to a bite or sting that requires immediate medical treatment. The severity of bites and stings varies depending on the type of insect involved and the sensitivity of the person. Mostly they cause local reactions that can be treated with OTC formulations.

While topical antihistamine products are also helpful, topical corticosteroids are more effective in controlling the local inflammatory and allergic reactions caused by the bites or stings.

Application of topical corticosteroids

When using topical corticosteroids, it is recommended to clean the area and ensure the person's hands are washed before application.

- Application should only be to the affected areas of the skin.
- Gently smooth a thin layer onto the skin 2–4 times a day.
- Rub it in gently.
- If using moisturising emollients also, the corticosteroid can be applied approximately 30 minutes after the emollient.
- Once the inflammation is under control, reduce or stop using the corticosteroid.

Bibliography

- American Academy of Dermatology. Eczema types: Atopic dermatitis overview [Internet]. c2022. Aad.org. Available from: https://www.aad.org/public/diseases/eczema/types/atopic-dermatitis. Accessed 8 Jul 2022.
- Howe W. UpToDate [Internet]. c2022. Uptodate.com. Available from: https://www.uptodate.com/contents/treatment-of-atopic-dermatitis-eczema. Accessed 8 Jul 2022.
- Mayo Clinic. Atopic dermatitis (eczema) – Symptoms and causes [Internet]. c1998-2022. Mayo Clinic. Available from: https://www.mayoclinic.org/diseases-conditions/atopic-dermatitis-eczema/symptoms-causes/syc-20353273. Accessed 8 Jul 2022.
- Psoriasis SA. Types & treatments [Internet]. Psoriasis.org.za. Available from: http://psoriasis.org.za/types-treatments/. Accessed 8 Jul 2022.
- SAMF 13th edition
- Starr O. Topical Steroids [Internet]. 2018. Egton Medical Information Systems Limited. Available from: https://patient.info/treatment-medication/steroids/topical-steroids-excluding-inhaled-steroids#nav-5. Accessed 8 Jul 2022.
- Topical corticosteroids [Internet]. 2020. nhs.uk. Available from: https://www.nhs.uk/conditions/topical-steroids/. Accessed 8 Jul 2022.

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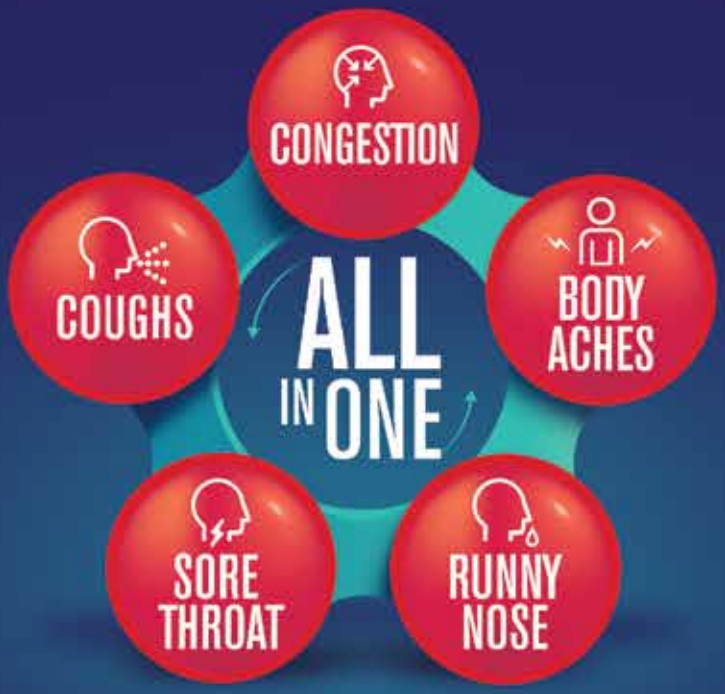

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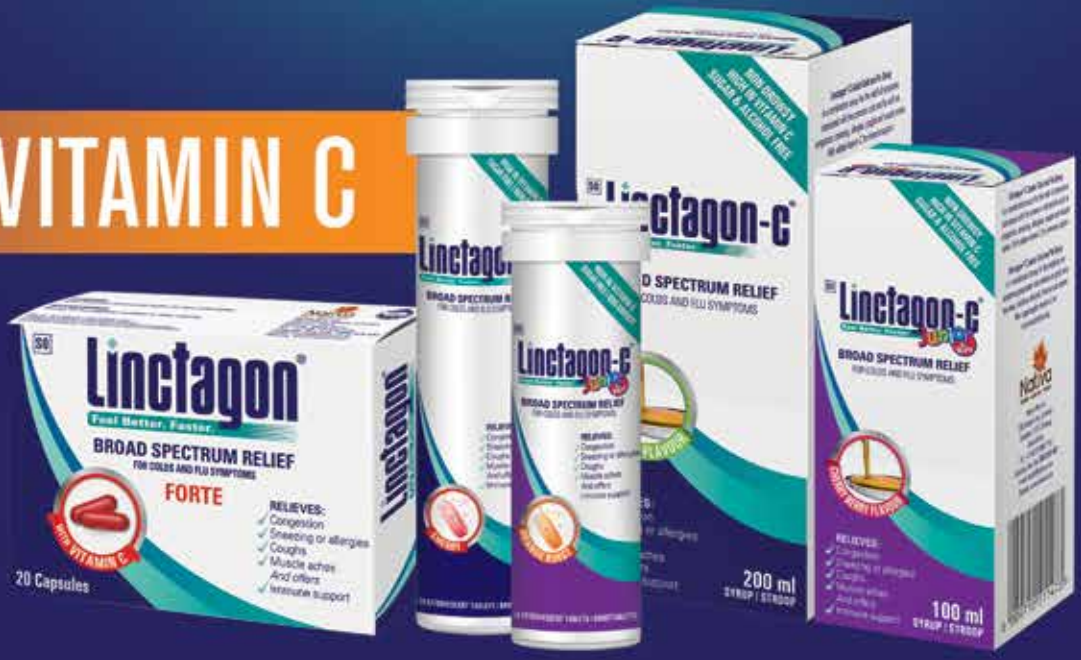

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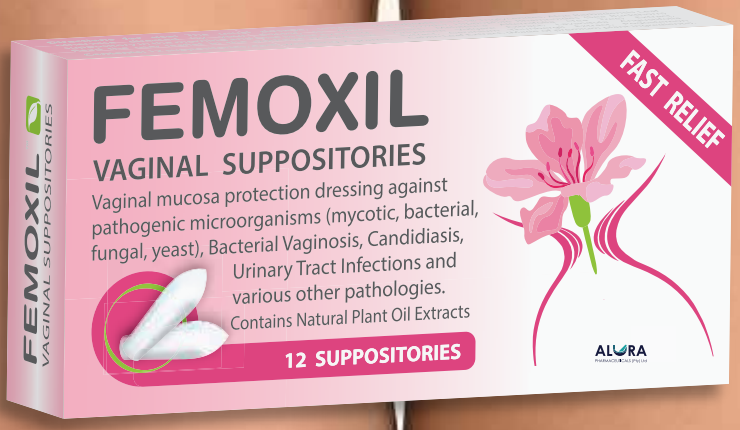

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