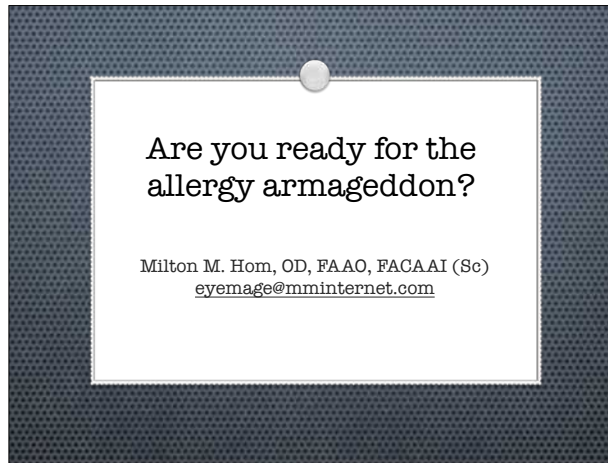




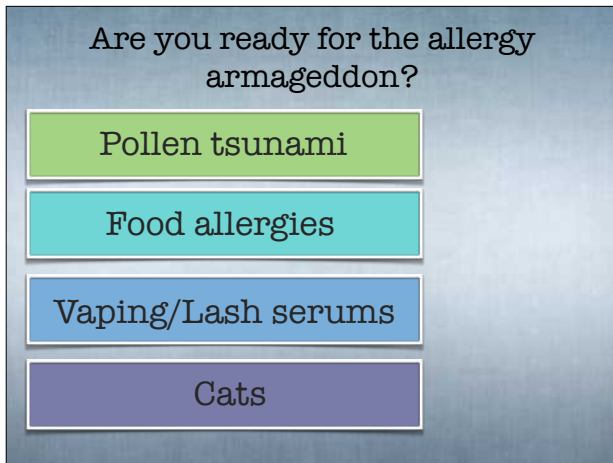
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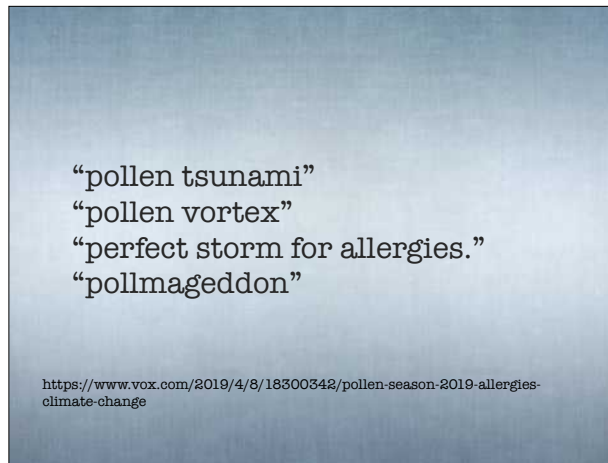
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5



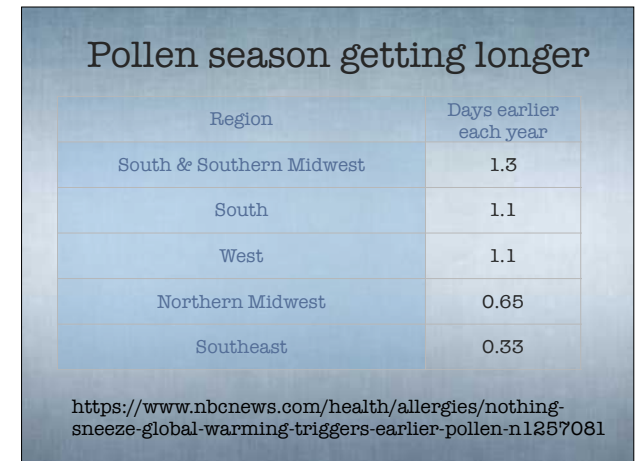
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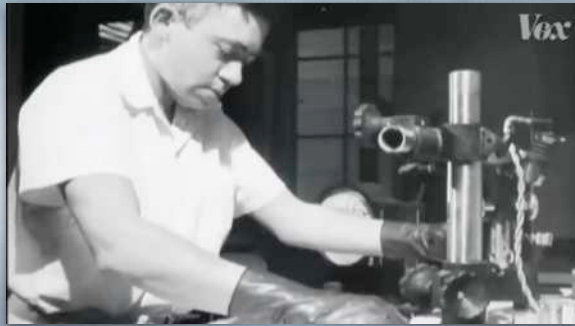
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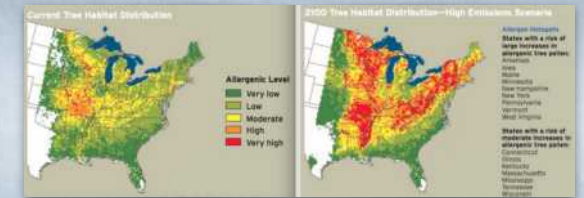
1:53
<https://www.vox.com/2019/4/8/18300342/pollen-season-2019-allergies-climate-change>

10



<https://www.vox.com/2019/4/8/18300342/pollen-season-2019-allergies-climate-change>

11



2019

2100

<https://www.vox.com/2019/4/8/18300342/pollen-season-2019-allergies-climate-change>

12

Pollen season getting longer

“Start taking...med[s]...around St. Patrick’s Day”

“Now start around Valentine’s Day”

Stanley Fineman, MD
 Allergist, Atlanta

<https://www.nbcnews.com/health/allergies/nothing-sneeze-global-warming-triggers-earlier-pollen-n1257081>

13

Weather	Asthma	Dry eye	Allergic conjunctivitis
Temperature	High (or very cold)	High	High
Pollen	High	High	High
Humidity	High (or very dry)	Low	High (dust mites)

Harthan JS, Hon MM, O'Dell L, Halleran CC. Humidity Levels and Temperature Effects on Dry Eye Symptom Scores. Optom Vis Sci American Academy of Optometry 2017 Chicago IL.
 Halleran CC, Hipolito K, Harthan J, Hon MM. The role of Pollen counts on the Signs and Symptoms of Ocular Surface disease. Optom Vis Sci American Academy of Optometry 2017 Chicago IL.
 Heddy A, J. I. Hornsman, and M. Herrero. "The effect of temperature on pollen germination, pollen tube growth, and stigmatic receptivity in peach." Plant Biology 7:56 (2005): 470-483.

14

“Pollen really follows the temperature. There’s not a question.”

Stanley Fineman, MD
 Allergist, Atlanta

<https://www.nbcnews.com/health/allergies/nothing-sneeze-global-warming-triggers-earlier-pollen-n1257081>

15

Increased COVID

"When the higher pollen count levels were in place it was linked to an extra 10 to 30% infection rate in COVID"

Damialis, Athanasios, et al. "Higher airborne pollen concentrations correlated with increased SARS-CoV-2 infection rates, as evidenced from 31 countries across the globe." Proceedings of the National Academy of Sciences 118.12 (2021).

16

Increased COVID

"Pollen releases substances... diminish the ability of nasal cells to fend off viruses "

Damialis, Athanasios, et al. "Higher airborne pollen concentrations correlated with increased SARS-CoV-2 infection rates, as evidenced from 31 countries across the globe." Proceedings of the National Academy of Sciences 118.12 (2021).

17

Increased COVID

"your nose is a bouncer for the virus,...if...your nose [cells] aren't doing a good job, it can interfere with your immune response to...fend off viruses at the door."

Damialis, Athanasios, et al. "Higher airborne pollen concentrations correlated with increased SARS-CoV-2 infection rates, as evidenced from 31 countries across the globe." Proceedings of the National Academy of Sciences 118.12 (2021).

18

Armageddon

“COVID-19 precautions taken in 2020...may have offered a temporary reprieve from the worsening allergy season”

Anna H. Nowak-Węgrzyn, MD, PhD
Allergist, NYU

<https://www.healthline.com/health-news/why-allergy-season-is-longer-and-stronger-this-year>

19

Armageddon

“lower COVID-19 cases may lead to less mask wearing and handwashing and more outdoor activity”

Anna H. Nowak-Węgrzyn, MD, PhD
Allergist, NYU

<https://www.healthline.com/health-news/why-allergy-season-is-longer-and-stronger-this-year>

20

Food allergies

21

Peanut

Boy, 2, suffers horrific allergic reaction after 'taking whiff of exposed nuts in Lidl supermarket'

Mum Hannah calls it the 'most terrifying experience of my life' as son rushed to Scarborough hospital

<https://www.mirror.co.uk/news/uk-news/boy-2-suffers-horrific-allergic-12880345>

July 8 2018

Peanut



<https://www.mirror.co.uk/news/uk-news/boy-2-suffers-horrific-allergic-12880345>

23

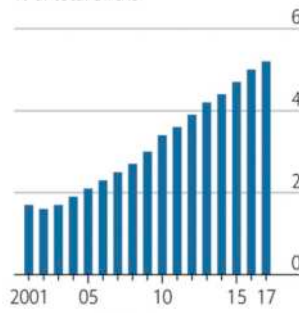


https://www.youtube.com/watch?v=12MrO_1cblA :49

22

Peanut

Peanut allergy incidence
% of total births



Sources: "National trends in emergency department visits and hospitalizations for food-induced anaphylaxis in US children" by Motosue et al., *Pediatric Allergy and Immunology* (2018); "Increased incidence and prevalence of peanut allergy in children and adolescents in the United States" by Lieberman et al., *Annals of Allergy, Asthma & Immunology* (2018)

25

Shock treatment
United States

Emergency-department visits for food-induced anaphylaxis
By allergen, per 100,000 children



Sources: "National trends in emergency department visits and hospitalizations for food-induced anaphylaxis in US children" by Motosue et al., *Pediatric Allergy and Immunology* (2018); "Increased incidence and prevalence of peanut allergy in children and adolescents in the United States" by Lieberman et al., *Annals of Allergy, Asthma & Immunology* (2018)

26

24

Peanut



<https://www.youtube.com/watch?v=17m8YEFyo7I>

1:21

27

OIT

Palförzia

Peanut (*Arachis hypogaea*)
Allergen Powder-dnfp



28

OIT

Pull-apart color-coded capsules

Mixed with a small amount of semisolid food

Dosing regimen spread out over several months

Cost: \$890 per month

http://www.healio.com/primary-care/allergy-asthma-immunology/news/online/%7B472aaa7d-2dd4-4325-af8-b0440cb7672c%7D/fda-approves-palforzia-first-peanut-allergy-treatment-for-children?utm_source=sellgent&utm_medium=email&utm_campaign=primary%20care%20news&utm_term=.766311477250

29

Allergies

Other allergies

Peanut

Bus story

Human Seminal Plasma Hypersensitivity
genital itching, burning, and swelling

Tx: immunotherapy, frequent sex

<http://www.webmd.com/allergies/news/20061113/semen-allergies-helped-by-frequent-sex>

30

Gluten = allergy?

31

OIT

According to a 2013 survey, a third of Americans actively try to avoid gluten.

<https://www.healthline.com/nutrition/gluten-sensitivity-is-real>

32

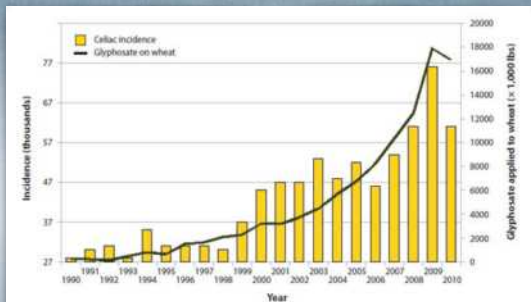


Figure 1. Hospital discharge diagnosis (any) of celiac disease ICD-9 579 and glyphosate applications to wheat (R=0.9758, p<1.842e-06). Sources: USGA/NAAS, CDC. (Figure courtesy of Nancy Swanson)

<https://www.motherearthnews.com/real-food/food-policy/gluten-intolerance-from-roundup-herbicide-zw0z1402zkin>

33

Gluten

Self-reported Non Celiac Gluten sensitivity (NCGS)
248 respondents

“The GFD [Gluten Free Diet] was self-initiated in 44% of respondents”

Biesiekierski, Jessica R., et al. "Characterization of adults with a self-diagnosis of nonceliac gluten sensitivity." *Nutrition in Clinical Practice* 29.4 (2014): 504-509.

<https://www.clinicaleducation.org/resources/reviews/self-diagnosis-of-gluten-sensitivity-potentially-disturbing-trends/>

35

Gluten

Self-reported Non Celiac Gluten sensitivity (NCGS)

25% remained symptomatic “despite gluten avoidance”

Biesiekierski, Jessica R., et al. "Characterization of adults with a self-diagnosis of nonceliac gluten sensitivity." *Nutrition in Clinical Practice* 29.4 (2014): 504-509.

<https://www.clinicaleducation.org/resources/reviews/self-diagnosis-of-gluten-sensitivity-potentially-disturbing-trends/>

36

<https://www.youtube.com/watch?v=DXjpb7SF13s>

1:13

34

FODMAPs

Self-reported Non Celiac Gluten sensitivity (NCGS)

“individuals’ supposed gluten sensitivity was more likely a sensitivity to FODMAPs.”

Biesiekierski, Jessica R., et al. "No effects of gluten in patients with self-reported non-celiac gluten sensitivity after dietary reduction of fermentable, poorly absorbed, short-chain carbohydrates." *Gastroenterology* 145.2 (2013): 320-328.

<https://www.clinicaleducation.org/resources/reviews/self-diagnosis-of-gluten-sensitivity-potentially-disturbing-trends/>

37

Gluten

Self-reported Non Celiac Gluten sensitivity (NCGS)

“Wheat, barley and rye contain both gluten and FODMAPs”

<https://www.beyondceliac.org/celiac-news/what-are-fodmaps-and-whats-the-connection-to-celiac-disease-and-gluten-sensitivity/>

40

FODMAPs

Gluten allergy is actually FODMAP allergy and requires additional avoidance (beans, garlic, watermelon, blackberries, peaches)

43

FODMAPs



https://www.youtube.com/watch?v=Z_1Hzl9o5ic&feature=emb_logo

1:52

38

FODMAPs

“FODMAPs aren’t just hiding in...
gluten...products, they can also be
found in legumes, dairy and some
fruits and vegetables.”

<https://www.bodyandsoul.com.au/feature/special-features/low-fodmap-vs-glutenfree-which-one-is-right-for-me/news-story/45f91378d5a28b748604a4ddbfe70f3a>

41

Vaping

44

FODMAPs

Gluten = Protein
FODMAP = Carbohydrate

<https://www.bodyandsoul.com.au/feature/special-features/low-fodmap-vs-glutenfree-which-one-is-right-for-me/news-story/45f91378d5a28b748604a4ddbfe70f3a>

39

MEDICAL NEWS TODAY		
Low FODMAP Diet		
FOOD	EAT	AVOID
Vegetables	 <p>lettuce, carrot, cucumber & more</p>	 <p>onion, garlic, leeks, & more</p>
Fruits	 <p>strawberries, pineapples, grapes & more</p>	 <p>blackberries, watermelon, peaches & more</p>
Proteins	 <p>chicken, eggs, tofu & more</p>	 <p>sausages, buttered fish, breaded meats & more</p>
Fats	 <p>oil, butter, peanuts & more</p>	 <p>almonds, avocado, pistachio & more</p>
Starches, cereals & grains	 <p>penne, tortilla, rice, popcorn & more</p>	 <p>bread, muffins & more</p>

[https://
www.medicalnewstoday.com
/articles/319722.php](https://www.medicalnewstoday.com/articles/319722.php)

42

e-cigarettes




45

e-cigarettes

Battery operated

Vaporizes nicotine



Projected to surpass cigarettes in 10 years

Foggs MB. ACAAI News. American College of Allergy, Asthma and Immunology. 2015

46

e-cigarettes

Available to minors online and shopping malls in some states

Flavors to appeal

Foggs MB. ACAAI News. American College of Allergy, Asthma and Immunology. 2015

47

e-cigarettes

E-cigarette...are typically solutions of propylene glycol, glycerol, or both, plus nicotine and flavorant chemicals.

Jensen RP, Luo W, Pankow JF, et.al. Hidden Formaldehyde in E-Cigarette Aerosols N Engl J Med 2015; 372:392-394

48

e-cigarettes

"Formaldehyde is a known degradation product of propylene glycol...during vaporization"

Jensen RP, Luo W, Pankow JF, et.al. Hidden Formaldehyde in E-Cigarette Aerosols N Engl J Med 2015; 372:392-394

610

49

e-cigarettes

"inhaling gaseous formaldehyde...long-term vaping is associated with an incremental lifetime cancer risk"

Jensen RP, Luo W, Pankow JF, et.al. Hidden Formaldehyde in E-Cigarette Aerosols N Engl J Med 2015; 372:392-394

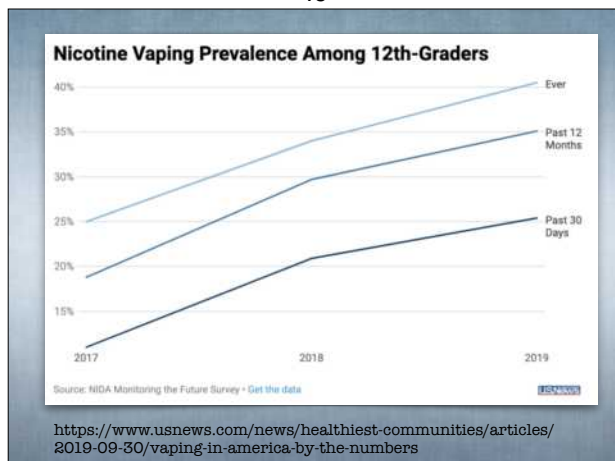
50

e-cigarettes

"risk is 5 times as high...or even 15 times as high as the risk associated with long-term smoking."

Jensen RP, Luo W, Pankow JF, et.al. Hidden Formaldehyde in E-Cigarette Aerosols N Engl J Med 2015; 372:392-394

51



52

Increased student use

"Between 2011 and 2015, e-cigarette use among high school and middle school students increased 900%"

<https://www.yorkdispatch.com/story/news/2021/03/10/red-lion-school-district-joins-lawsuit-against-vape-maker-juul-labs/6939006002/>

53

Vaping

"Vapers experienced moderate-to-severe eye dryness...Significant reductions of noninvasive tear breakup time...fluorescein breakup time...and tear meniscus height"

Isa, Nur Amalina Md, Poh Yi Koh, and Pavithra Doraj. "The tear function in electronic cigarette smokers." Optometry and Vision Science 96.9 (2019): 678-685.

54

Vaping

One JUUL pod contains 20 cigarettes worth of nicotine.

Delivers nicotine up to 2.7 times faster than other e-cigarettes.



<https://truthinitiative.org/research-resources/emerging-tobacco-products/how-much-nicotine-juul>

55

Vaping

“63% of JUUL users between 15 and 24 years old did not know that the product always contains nicotine”

-April 2018 Truth Initiative Study

<https://truthinitiative.org/research-resources/emerging-tobacco-products/how-much-nicotine-juul>

56

https://www.youtube.com/watch?time_continue=167&v=PqeEGpCQhBA&feature=emb_logo 2:07

School districts vs Juul

“The number of cases against Juul in the multi-[school]district litigation totaled 758 as of July [2020],”

<https://www.goerie.com/story/news/education/2021/02/12/erie-school-district-sue-e-cigarette-maker-juul-over-youth-vaping/6718289002/>

59

WEBINAR

Cannabis Attitudes, Allergies and Patterns of Use,

Thursday, April 1, 2021
1:00 PM ET

[AllergyAsthmaNetwork.org](https://www.allergyasthma.org)



Cannabis Attitudes, Allergies and Patterns of Use

Thursday, April 1, 1:00 p.m. ET

60

Lash serums



63



50% of patients with uncontrolled asthma smoke cannabis

Positive effects more frequent than negative effects to cannabis ($P < .001$)

Zeiger, J. S., et al. (2021) Cannabis attitudes and patterns of use among followers of the Allergy & Asthma Network. *Annals of Allergy, Asthma & Immunology*.

61

Lash serums

62

Lash serums

LASH BOOST

"Isopropyl cloprostenate is a synthetic type of compound known as a prostaglandin analog"



<https://www.buzzfeednews.com/article/stephaniemcneal/rodan-and-fields-lash-boost>

64

Lash serums

A group of unhappy Rodan + Fields customers have filed a class-action lawsuit against the company, saying its "lash boost" serum left them with swollen, red, and crusty eyes.



<https://www.buzzfeednews.com/article/stephaniemcneal/rodan-and-fields-lash-boost>

65

Lash serums

212 responders

OTC Lash serums:

Lash Boost (Rodan and Fields) 77%
GrandeLash 16%
Revitalash 13%

Doll T. et. al. Over-the-Counter Eyelash Growth Serum Use: Self-Reported Pervasiveness and User Satisfaction. ARVO 2020

66

Lash serums

"43% of users discontinued use with the primary reason being 'side effects'"

Doll T. et. al. Over-the-Counter Eyelash Growth Serum Use: Self-Reported Pervasiveness and User Satisfaction. ARVO 2020

67

Lash serums =allergy?

68

Frenemy



69

PGAs

Inflammatory factor
Found in almost every tissue
Powerful vasodilators
Cause pain
Lowers IOP in small doses
Increases IOP in higher doses

70

Lash serums

91% PGAs has MGD

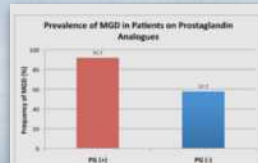


Figure 1. Prevalence of meibomian gland dysfunction in patients who were on PG analogue therapy versus those who were on non-PG medications.



Figure 2. Depiction of percentage of patients who were diagnosed with different grades of meibomian gland dysfunction (MGD).

<https://www.eyedolatryblog.com/2017/04/is-your-lash-growth-serum-causing.html>

71

Christmas trees?

72



Do you love cats?

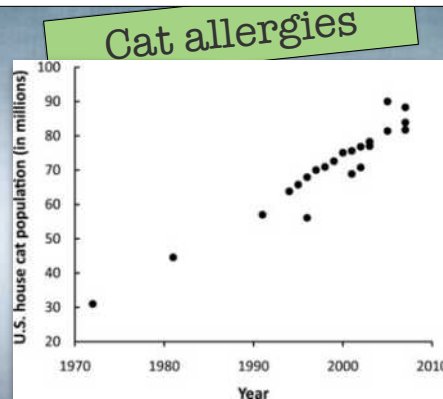
- A. Yes
B. No
C. Don't know

<https://dp1.directpoll.com/r?XDbzPBdEt8jl1rJvVupPNyvIrOxdIozX3qIw9YEFYF>

Cat allergies

Cat allergies

Fel d-I glycoprotein:
Secreted by sebaceous glands
Found in fur, urine, saliva
Can remain airborne for months
10x smaller than pollen



https://www.researchgate.net/figure/Growth-of-the-house-cat-population-in-the-United-States-over-time-Population-estimates_fig1_41101366

Cat allergies



Cat allergies



amazon
\$19.99

Cat allergies

Males neutered much lower (5.46 to 1.28)

Washing/baths only effective for 3 hours

HEPA vacuum + HEPA room filtration
works, each alone has diminished effect

Hypoallergenic cats

"Technically, there are no 100 percent hypoallergenic domestic cats"

http://www.petmd.com/cat/wellness/evr_ct_hypoallergenic_cat_breeds

Hypoallergenic cats

Popular Hypoallergenic Cats

- Siberian (Less of the Fel d 1 protein)
- Balinese (Less of the Fel d 1 protein)
- Bengal
- Burmese
- Colorpoint Shorthair
- Cornish Rex
- Devon Rex
- Javanese
- Ocicat
- Oriental Shorthair
- Russian Blue
- Siamese
- Sphynx

http://www.petmd.com/cat/wellness/evr_ct_hypoallergenic_cat_breeds

82


Cat allergies

Cat food?

“Feeding a diet with anti Fel d 1 IgY [anti Fel d 1 antibodies] significantly reduced the active Fel d 1 on the hair of cats.”

Satyaraj, Ebenezer, et al. "Reduction of active Fel d 1 from cats using an antiFel d 1 egg IgY antibody." Immunity, inflammation and disease 7.2 (2019): 68-73.

83



<https://www.purinainstitute.com/science-of-nutrition/neutralizing-allergens/breakthrough>

2:31

84

Cat allergies



Winner Cat Care Category. Survey of 40,000 people by Kantar.

85



86

Treatment

87

Treatment



88

Navage



Navage Nasal Care Starter Bundle:
Navage Nose Cleaner and 20 SaltPod Capsules

Visit the Navage Store

★★★★★ 13,752 ratings | 243 unanswered questions

Price: \$305.95 (Save \$60.00) (Save \$100.00) (Save \$100.00)

Get \$120 off. Pay \$185.95 upon approval for the Signature Business Prime Card. Terms apply.

100% Standard packaging

Brand: Navage

Ingredients: Isotonic sterile purified sea salt and purified water

Item Name: Capsule

Package Type: Box

Age Range: Kid

(Description)

See more

About this item

- Nav MED is the body's AIR FILTER, the first line of defense against airborne germs and allergens. Now you can keep your nose clean with easy-to-use Navage nasal care.
- Navage uses POWERED SALTPOD to FLUSH OUT allergens, germs, dirt, and mucus. Navage is the world's ONLY nose cleaner with powered suction. You'll love that clean nose feeling.
- For best, all-around relief from allergies and sinus congestion, NAVAGET DROGAS Navage operates only with genuine Navage SaltPod capsules.
- Bundle includes Navage Nose Cleaner, 20 Navage SaltPods inside the box, 1 pair of Standard Nose Filters, and batteries. \$199.95 if purchased separately. No need for drugs.
- Make good NAVAGE, breathe YOUR nose normal. CLEAN NOSE. HEALTHY LIFE.

89

MATTHEW LUSH

<https://www.youtube.com/watch?v=inOo4Aydxk8>

1:25

90

Neti-pot

62% lower incidence of sinusitis after stopping Neti-pots

Use nasal irrigation no more than 1-3 weeks

Neouli TM, Schluckebier CD, MoSorley-Gerard EJ, et al. Long-term use of nasal saline irrigation: harmful or helpful? *Ann Allergy Asthma Immunol* 103(suppl 3):A3-A146, 2009. (Abstracts of the 2009 annual meeting of the American College of Allergy, Asthma, and Immunology, Miami, FL, November 5-10, 2009.)

<http://www.webmd.com/allergies/guide/neti-pot-nasal-irrigation-pros-and-cons?page=2>

91



635

94

Thank you!

Milton M. Hom, OD, FAAO
Azusa, CA
eyemage@mminternet.com

97

Neti-pot

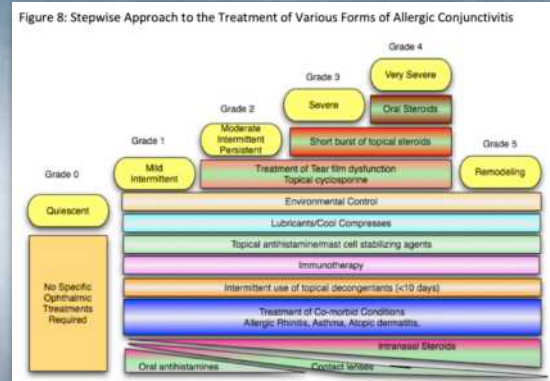
"The nasal mucus...contains very important immune elements that are the first line of respiratory defense against infections"

Talal Nsouli, MD

Nsouli TM, Schluckebier CD, McSorley-Gerard EJ, et al. Long-term use of nasal saline irrigation: harmful or helpful? *Ann Allergy Asthma Immunol* 103(suppl 3):A3-A146, 2009. (Abstracts of the 2009 annual meeting of the American College of Allergy, Asthma, and Immunology, Miami, FL, November 5-10, 2009.)

<http://www.webmd.com/allergies/guide/neti-pot-nasal-irrigation-pros-and-cons?page=2>

92



Bielory, Leonard, et al. "ICON: Diagnosis and Management of Allergic Conjunctivitis." *Annals of Allergy, Asthma & Immunology* (2019).

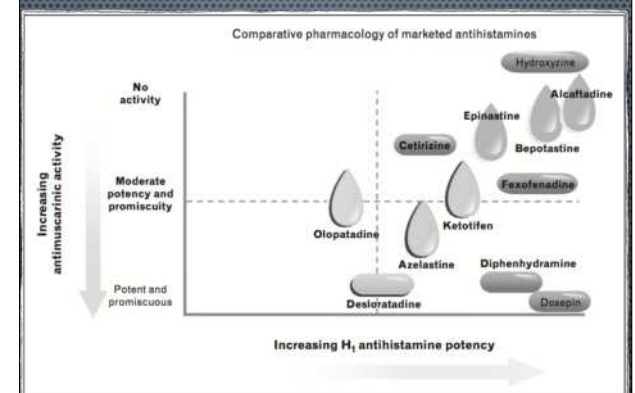
95

BRAIN-EATING AMOEBA

Neisseria meningitidis is a meningococcus, a spherical diplococcus, in pairs, fresh isolates. It can enter the bloodstream and pass through the meninges (membranes) into the subarachnoid space, reproducing by binary fission and spreading throughout the brain. The organism causes meningitis, causes swelling of the brain and finally death.



93



96