Acquiring the evidence: Guidelines

Publication

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Objectives

- This presentation aims to explain PubMed search strategies to reach the required evidence.
- At the end of this session, the participants are expected to;
 - * Explain and discuss search methods used in PubMed
 - * Explain and discuss the use of Boolean operators,
 - Explain and discuss the use of wildcards,
 - * Explain and discuss the use of search tags
 - * Explain and discuss the use of MeSH terms in PubMed
 - * Explain and discuss the use of clinical queries in PubMed

https://pubmed.ncbi.nlm.nih.gov/

- Available to the public online since 1996, PubMed was developed and is maintained by the National Center for Biotechnology Information (NCBI), at the U.S. National Library of Medicine (NLM), located at the National Institutes of Health (NIH).
- * The total number of publications in the PubMed surpasses 30 million
- * Beware! In this magnitude of papers, you may find articles supporting almost any hypothesis!

MEDLINE, PubMed, and PubMed Central

- MEDLINE[®] is the National Library of Medicine[®] (NLM[®]) journal citation database. Started in the 1960s, it now provides more than 26 million references to biomedical and life sciences journal articles back to 1946. MEDLINE includes citations from more than 5,200 scholarly journals published around the world.
- * PubMed has been available since 1996. Its more than 31 million references include the MEDLINE database plus other types of citations. Includes approximately 30,000 journal records.
- * PMC (PubMed Central) launched in 2000 as a **free archive for full-text** biomedical and life sciences journal articles. PMC is a repository for journal literature deposited by participating publishers, as well as for author manuscripts that have been submitted in compliance with the NIH Public Access Policy and similar policies of other research funding agencies.

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PMC Overview

PubMed Central® (PMC) is a free full-text archive of biomedical and life sciences journal literature at the U.S. National Institutes of Health's National Library of Medicine (NIH/NLM). In keeping with NLM's legislative mandate to collect and preserve the biomedical literature, PMC serves as a digital counterpart to NLM's extensive print journal collection.

PMC was developed and is managed by NLM's National Center for Biotechnology Information (NCBI).

How to search PubMed?

- Best Match sort order uses a state-of-the-art machine learning algorithm to place the most relevant citations at the top of your results.
- * An autocomplete feature displays suggestions as you type your search terms. This feature is based on PubMed query log analysis.
- * A spell checking feature suggests alternative spellings for search terms that may include misspellings.
- * A citation sensor displays suggested results for searches that include terms characteristic of citation searching, e.g., author names, journal titles, publication dates, and article titles.

Similar articles

- Similar articles are displayed in ranked order from most to least relevant, with the "linked from" citation displayed first.
- Similar articles are generated by comparing words from the title, abstract, and MeSH terms using a wordweighted algorithm.
- * Filters are not activated for similar articles.
- * You can refine the list of similar articles using your search History, where the similar articles retrieval is represented as a list of PMIDs.

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1Idris S, Mishra A, Khushtar M.CiteDrug Res (Stuttg). 2020 Dec 30. doi: 10.105PMID: 33378775ShareFenugreek (Trigonella foenum-graecum) or known for its anti-diabetic and hypocholest	55/a-1320-0479. Online ahead of prin methi is from the Leguminosae family terolemic activities. The germinated f	t. / and are primarily enugreek seeds
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Similar articles

Flavone C-glycosides from seeds of fenugreek, Trigonella foenum-graecum L.

Rayyan S, Fossen T, Andersen ØM. J Agric Food Chem. 2010 Jun 23;58(12):7211-7. doi: 10.1021/jf100848c. PMID: 20486688

Fenugreek.

[No authors listed]

2020 Nov 16. Drugs and Lactation Database (LactMed) [Internet]. Bethesda (MD): National Library of Medicine (US); 2006–.

PMID: 30000838 Free Books & Documents. Review.

Advances on application of fenugreek seeds as functional foods: Pharmacology, clinical application, products, patents and market.

Yao D, Zhang B, Zhu J, Zhang Q, Hu Y, Wang S, Wang Y, Cao H, Xiao J.

Crit Rev Food Sci Nutr. 2020;60(14):2342-2352. doi: 10.1080/10408398.2019.1635567. Epub 2019 Jul 9.

PMID: 31286789 Review.

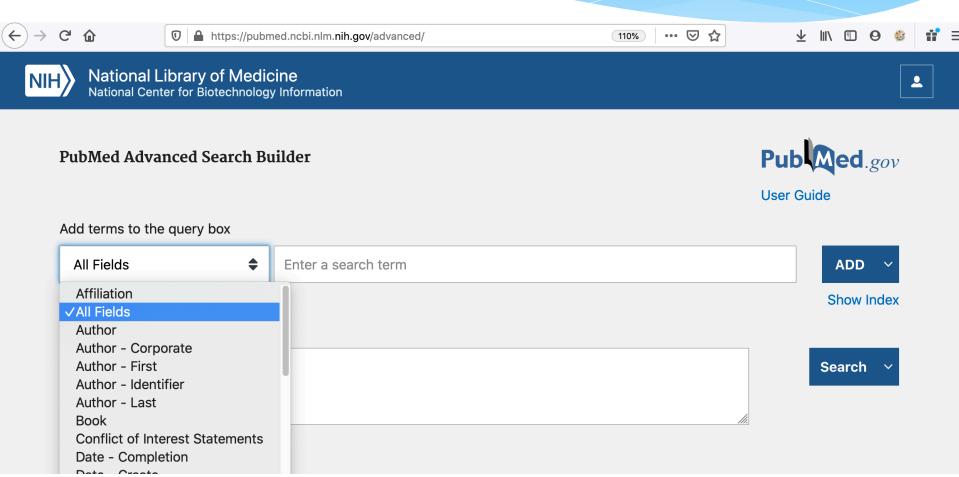
Searching by date

- Click and drag the sliders on the Results by Year timeline to change the date range for your search.
- The Results by Year timeline counts all publication dates for a citation as supplied by the publisher. These dates may span more than one year.

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MY NCBI FILTERS L RESULTS BY YEAR u² W Reset U20152021	 268,226 results Recent Therapeutic Interventions of Fenu 1 Idris S, Mishra A, Khushtar M. Cite Drug Res (Stuttg). 2020 Dec 30. doi: 10.1055/a-132 PMID: 33378775 Share Fenugreek (Trigonella foenum-graecum) or methi is known for its anti-diabetic and hypocholesterolemic were used in the treatment of E.coli infection in Gerr 	0-0479. Online ahead of print. from the Leguminosae family and are primarily c activities. The germinated fenugreek seeds

Using the search builder

* Click Advanced search and use the search builder.



Boolean operators and wildcard

- Boolean operators: AND, OR, NOT (must be capitalized)
- * Wildcard: *

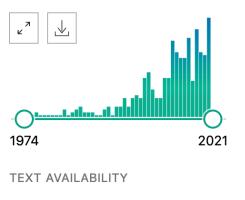
https://www.youtube.com/watch?v=ULC7ICoRkH8

AND is the default boolean operator

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RESULTS BY YEAR	Recent Therapeutic Intervention	is of Fenugreek Seed: A Mechanistic Approach.



Recent Therapeutic Interventions of **Fenugreek** Seed: A Mechanistic Approach.

Idris S, Mishra A, Khushtar M. 1

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Drug Res (Stuttg). 2020 Dec 30. doi: 10.1055/a-1320-0479. Online ahead of print. Cite PMID: 33378775

Fenugreek seeds have widespread relations with Ayurveda, Unani, and Arabic medicine. The seeds were useful for the treatment and prevention of different ailments. Fenugreek (Trigonella foenumgraecum) or methi is from the Leguminosae family and are primarily ...

4-Hydroxyisoleucine relieves inflammation through iRhom2-dependent pathway in co-cultured macrophages and adipocytes with LPS stimulation.

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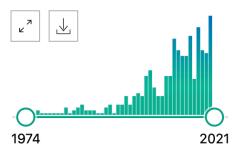
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- Recent Therapeutic Interventions of Fenugreek Seed: A Mechanistic Approach.
- 1 Idris S, Mishra A, Khushtar M.
 - Drug Res (Stuttg). 2020 Dec 30. doi: 10.1055/a-1320-0479. Online ahead of print.
 - PMID: 33378775
 - **Fenugreek** seeds have widespread relations with Ayurveda, Unani, and Arabic medicine. The seeds were useful for the treatment and prevention of different ailments. **Fenugreek** (**Trigonella** foenum-graecum) or methi is from the Leguminosae family and are primarily ...

4-Hydroxyisoleucine relieves inflammation through iRhom2-dependent pathway in co-cultured macrophages and adipocytes with LPS stimulation.

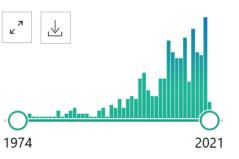
Wildcard*

Pub Med.gov	diab* AND fenugreek	× Search
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338 results

RESULTS BY YEAR



Effect of **fenugreek** on hyperglycaemia and hyperlipidemia in **diabetes** and prediabetes: A meta-analysis.

Cite Gong J, Fang K, Dong H, Wang D, Hu M, Lu F.

J Ethnopharmacol. 2016 Dec 24;194:260-268. doi: 10.1016/j.jep.2016.08.003. Epub 2016 Aug 2.

Share PMID: 27496582 Review.

ETHNOPHARMACOLOGICAL RELEVANCE: **Fenugreek** is a widely used herb for the treatment of **diabetes** mellitus (DM) but the effects in randomized controlled trials (RCTs) were controversial. Therefore, a metaanalysis was conducted to estimate the overall effects of **fenu** ...

- * Prevent*
 - * Prevention
 - * Preventable
 - * Preventive
- * Diarrh*
 - * Diarrhea
 - * Diarrhoea
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Using quotes

National Library of Medicine Zekeriya.akturk@g National Center for Biotechnology Information Pub Med.gov "fenugreek for diabetes mellitus" \times Search Advanced Create alert Create RSS **User Guide** Sorted by: Most recent \downarrow -Display options Save Email Send to MY NCBI FILTERS 2 results Fenugreek in diabetes mellitus. RESULTS BY YEAR Puri D. 1 27 J Assoc Physicians India. 1999 Feb;47(2):255-6. Cite PMID: 10999114 No abstract available. Share Fenugreek in diabetes mellitus. 1994 2020 Pavithran K. 2 J Assoc Physicians India. 1994 Jul;42(7):584. Cite TEXT AVAILABILITY PMID: 7868541 No abstract available. Share



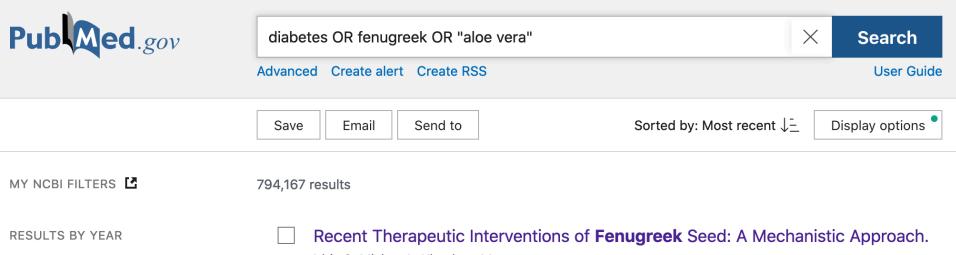
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- 1 Idris S, Mishra A, Khushtar M.
- Cite Drug Res (Stuttg). 2020 Dec 30. doi: 10.1055/a-1320-0479. Online ahead of print. PMID: 33378775 Share _

Fenugreek seeds have widespread relations with Ayurveda, Unani, and Arabic medicine. The seeds were useful for the treatment and prevention of different ailments. **Fenugreek** (**Trigonella** foenum-graecum) or methi is from the Leguminosae family and are primarily ...

A Meta-Analysis of Prognostic Factors in Patients with Posterior Circulation Stroke after Mechanical Thrombectomy.

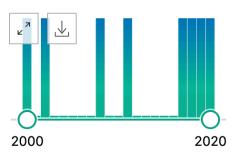
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7 results

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RESULTS BY YEAR



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Optimization of a process for microgreen and fruit-based functional beverage.

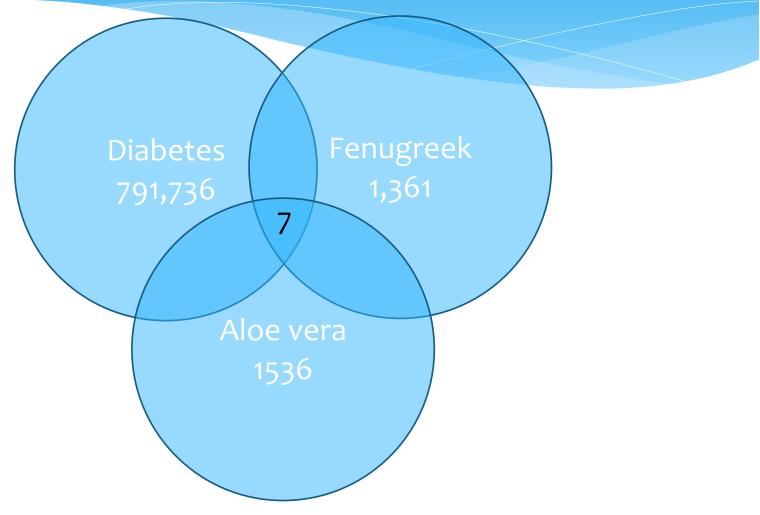
- Sharma P, Sharma A, Rasane P, Dey A, Choudhury A, Singh J, Kaur S, Dhawan K, Kaur D.
- Cite An Acad Bras Cienc. 2020 Oct 23;92(3):e20190596. doi: 10.1590/0001-3765202020190596. eCollection 2020.

Share PMID: 33111819 Free article.

Microgreen based functional juice blends containing **fenugreek** (**Trigonella** foenum-graecum), kinnow mandarin (Citrus reticulate) and **aloe vera** (**Aloe** brobadensis) in different ratios were blended with sorbitol and stevia. ...The optimized microgree ...

A Randomized Controlled Trial of a Herbal Compound for Improving Metabolic

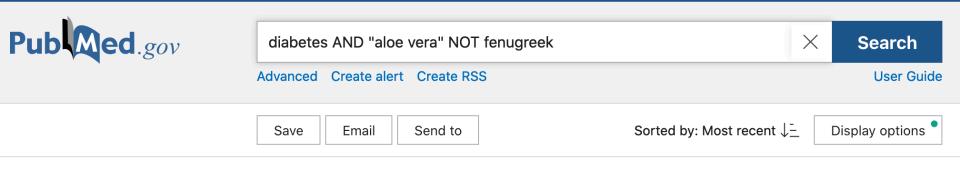
diabetes OR fenugreek OR "aloe vera": 794,167



diabetes AND "aloe vera" NOT fenugreek

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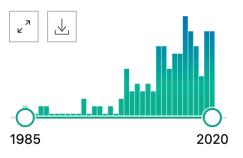


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118 results

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RESULTS BY YEAR



TEXT AVAILABILITY

A I.

Antidiabetic Activity of Aloe vera Leaves.

- 1 Muñiz-Ramirez A, Perez RM, Garcia E, Garcia FE.
- Cite Evid Based Complement Alternat Med. 2020 May 24;2020:6371201. doi: 10.1155/2020/6371201. eCollection 2020.
 - PMID: 32565868 Free PMC article.

For this, the plant was dried, ground, and subsequently macerated with methanol. **Aloe vera** methanol extract (AVM) significantly decreased the formation of AGEs, as well as the formation of fructosamine, CML, and carbonyl protein. ...As regards the content of thiol g ...

The pharmacology, toxicology and therapeutic potential of anthraquinone

Search field tags

Affiliation [AD] All Fields [ALL] Article Identifier [AID] Author [AU] Author Identifier [AUID] Book [BOOK] **Comment Correction Type** Completion Date [DCOM] Conflict of Interest Statement [COIS] Corporate Author [CN] Create Date [CRDT] EC/RN Number [RN] Editor [ED] Entry Date [EDAT] Filter [FILTER] [SB] First Author Name [1AU] Full Author Name [FAU]

Full Investigator Name [FIR] Grant Number [GR] Investigator [IR] ISBN [ISBN] Issue [IP] Journal [TA] Language [LA] Last Author Name [LASTAU] Location ID [LID] MeSH Date [MHDA] MeSH Major Topic [MAJR] MeSH Subheadings [SH] MeSH Terms [MH] Modification Date [LR] NLM Unique ID [JID] Other Term [OT] **Owner**

Pagination [PG] Personal Name as Subject [PS] Pharmacological Action [PA] Place of Publication [PL] PMCID and MID PMID [PMID] Publication Date [DP] Publication Type [PT] Publisher [PUBN] Secondary Source ID [SI] Subset [SB] Supplementary Concept [NM] Text Words [TW] Title [TI] Title/Abstract [TIAB] Transliterated Title [TT] Volume [VI]

Search in the title diabetes [ti] AND fenugreek [ti]

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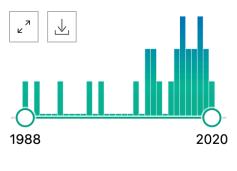
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26 results

RESULTS BY YEAR



TEXT AVAILABILITY

- The effect of fenugreek seed supplementation on serum irisin levels, blood
 pressure, and liver and kidney function in patients with type 2 diabetes
 mellitus: A parallel randomized clinical trial.
 Hadi A, Arab A, Hajianfar H, Talaei B, Miraghajani M, Babajafari S, Marx W, Tavakoly R.
- Share
 Complement Ther Med. 2020 Mar;49:102315. doi: 10.1016/j.ctim.2020.102315. Epub 2020 Feb 1.

 PMID: 32147060
 Clinical Trial.

Trigonella foenum-graceum seed (Fenugreek) hydroalcoholic extract improved
 the oxidative stress status in a rat model of diabetes-induced memory
 impairment.

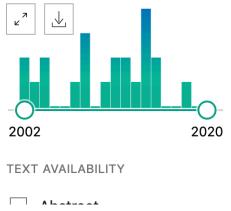
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21 results

RESULTS BY YEAR



- Delayed diagnosis of a case of Zenker's diverticulum. What may happen when a
 family physician does not visit his family physician.
- Cite Akturk Z, Ulas AB, Eroglu A.

Eur J Gen Pract. 2018 Dec;24(1):151-154. doi: 10.1080/13814788.2018.1464556.

Share PMID: 29726737 Free PMC article.

Patient satisfaction with family practice in Turkey: Three-year trend from 2010
 to 2012.

Cite Aktürk Z, Ateşoğlu D, Çiftçi E.

Eur J Gen Pract. 2015;21(4):238-45. doi: 10.3109/13814788.2015.1048681. Epub 2015 Jul 24.

Chara



- * Run a search in PubMed.
- Click the filter you would like to activate from the sidebar. A check mark will appear next to the activated filter(s).
- Subsequent searches will be filtered until the selected filters are turned off, or until your browser data is cleared.

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PubMed Clinical Queries

- One benefit of PubMed is its ability to yield productive searches without requiring familiarity with the Medical Subject Heading (MeSH) vocabulary that is the basis of Medline citation indexing.
- The clinical queries function extends this benefit by filtering retrieval to a smaller subset of methodologically sound studies meeting evidencebased standards in 4 categories relevant to adult general medicine: treatment, diagnosis, etiology, and prognosis.

- A 62 year old man presents for routine follow up of hypogonadism. After an attempt at transdermal patch treatment resulted in excessive skin irritation, he has been receiving periodic testosterone enanthate injections.
- He recently heard about a testosterone gel preparation that would be more convenient for him, and wonders if it would be an effective alternative. You conduct a quick search to find information from well designed studies.

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Search

Advanced

PubMed® comprises more than 30 million citations for biomedical literature from MEDLINE, life science journals, and online books. Citations may include links to full-text content from PubMed Central and publisher web sites.



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PubMed Clinical Queries

Results of searches on this page are limited to specific clinical research areas. For comprehensive searches, use PubMed directly.

Search PubMed					Search
COVID-19 Articles Clinical Study Categories					
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			Scope:	Broad	\$

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testosterone gel hypogonadism

COVID-19 Articles

Category:

Treatment 🔶

This column displays citations about the 2019 novel coronavirus filtered by research topic categories. See more filter information.

Clinical Study Categories

Category:	Therapy	\$
Scope:	Narrow	\$

5 of 77 results

Testosterone replacement in hypogonadal men during inpatient rehabilitation following traumatic brain injury: Results from a double-blind, placebo-controlled clinical pilot study. Ripley DL, et al. NeuroRehabilitation. 2020. PMID: 32250330 Clinical Trial.

Testosterone for Androgen Deficiency-Like Symptoms in Men Without Pathologic Hypogonadism: A Randomized, Placebo-

 \times

Background: Endocrinopathy, including hypogonadism, is common following traumatic brain injury (TBI). Prior evidence suggests hypogonadism is associated with poorer function.

Objective: Determine the feasibility, safety, and efficacy of testosterone (T) therapy in hypogonadal men following TBI in acute rehabilitation.

Design: Randomized, double blind, placebo-controlled pilot trial.

Setting: Inpatient rehabilitation brain injury unit.

Participants: Men ages 18 -65, post moderate to severe TBI receiving inpatient rehabilitation.

Interventions: Transdermal T gel or placebo.

Main outcome measures: Revised FIM[™] score, strength, adverse events.

Results: Of 498 screened, 70 participants were enrolled, and 22 meeting all criteria were randomized into placebo (n = 10) or physiologic T therapy (n = 12). There was no significant difference between groups in rate of improvement on the FIMTM (intercepts t = -0.31, p = 0.7593, or slopes t = 0.61, p = 0.5472). The Treatment group demonstrated the greatest absolute improvement in FIMTM scores and grip strength compared to Placebo or Normal T groups. There was no difference in adverse events between groups. Percentage of time with agitation or aggression was highest in the Placebo group.

Conclusions: Although there were no significant differences in rates of recovery, treatment group subjects showed greater absolute functional and strength improvement compared to the Placebo or Normal T groups. https://pubmed.ncbi.nlm.nih.gov/32250330/

- The clinical queries feature of PubMed is a useful resource for rapidly filtering and displaying methodologically sound and clinically relevant citations on treatment, diagnosis, etiology, and prognosis from the Medline database.
- It has considerable utility for busy clinicians needing rapid access to original study data to support clinical decisions.
- Among its limitations are the incomplete access to full text articles and the lack of a critical appraisal component for selected citations.

MeSH Search

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Explore

MeSH Database Journals

- * Let us say we want to find articles about giving flu vaccines to people with egg allergies.
- * The search term flu vaccines will return the MeSH term Influenza Vaccines.

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Influenza Vaccines

Vaccines used to prevent infection by viruses in the family ORTHOMYXOVIRIDAE. It includes both killed and attenuated vaccines. The composition of the vaccines is changed each year in response to antigenic shifts and changes in prevalence of influenza virus strains. The flu vaccines may be mono- or multi-valent, which contains one or more INFLUENZAVIRUS A and INFLUENZAVIRUS B strains.

Year introduced: 2005 (1963)

- In the MeSH database, terms are arranged hierarchically by subject categories with more specific terms arranged beneath broader terms.
- * You will notice that Influenza Vaccines is listed under Viral Vaccines, which is under Vaccines.
- * When we click Vaccines, it displays the variety of terms available under this concept.
 - Vaccine, Quadrivalent Influenza

All MeSH Categories <u>Chemicals and Drugs Category</u> <u>Complex Mixtures</u> <u>Biological Products</u> <u>Vaccines</u> <u>Viral Vaccines</u> Influenza Vaccines

Vaccines

Alzheimer Vaccines Bacterial Vaccines Anthrax Vaccines Autovaccines **Brucella Vaccine Cholera Vaccines** Diphtheria-Tetanus V Escherichia coli Vacc Haemophilus Vaccine Lyme Disease Vaccin Meningococcal Vacci Pertussis Vaccine + **Plague Vaccine** Pseudomonas Vaccir Vaccines, Inactivated **Rickettsial Vaccines** Salmonella Vaccines Vaccines, Live, Unattenuated Shigella Vaccines Staphylococcal Vacci Vaccines, Subunit Streptococcal Vaccine **Tuberculosis Vaccine Cancer Vaccines Fungal Vaccines Protozoan Vaccines** Leishmaniasis Vaccir Malaria Vaccines

Toxoids Diphtheria Toxoid + Staphylococcal Toxoid Tetanus Toxoid + Vaccines, Attenuated Vaccines, Combined Diphtheria-Tetanus-acellula Diphtheria-Tetanus-Pertus: Diphtheria-Tetanus Vaccine Heptavalent Pneumococca Human Papillomavirus Rec 11, 16, 18 Measles-Mumps-Rubella V Vaccines, Contraceptive Poliovirus Vaccine, Inactiva Vaccines, Marker **ISCOMs** Vaccines, Acellular + Vaccines, Edible Vaccines, Synthetic Vaccines, Conjugate Vaccines, DNA Vaccines, Edible

Vaccines, Virosome Vaccines, Virus-Like Particle Viral Vaccines Adenovirus Vaccines AIDS Vaccines **COVID-19 Vaccines Cytomegalovirus Vaccines Dengue Vaccines Ebola Vaccines** Herpesvirus Vaccines + Influenza Vaccines Japanese Encephalitis Vaccines Measles Vaccine + Mumps Vaccine + Papillomavirus Vaccines + Parainfluenza Vaccines Poliovirus Vaccines + **Pseudorabies Vaccines Rabies Vaccines** Respiratory Syncytial Virus Vaco **Rotavirus Vaccines** Rubella Vaccine + SAIDS Vaccines Smallpox Vaccine Viral Hepatitis Vaccines + West Nile Virus Vaccines Yellow Fever Vaccine

We may limit our search by selecting the subheading adverse effects and click the button Add to search builder.

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	Add to search builder AND	
	Search PubMed	
	You <mark>Tube</mark> Tu	tori
	Related information	E
	PubMed	

Vaccines

Suspensions of killed or attenuated microorganisms (bacteria, viruses, fungi, protozoa), antigenic proteins, synthetic constructs, or other bio-molecular derivatives, administered for the prevention, amelioration, or treatment of infectious and other diseases.

PubMed search builder options <u>Subheadings:</u>

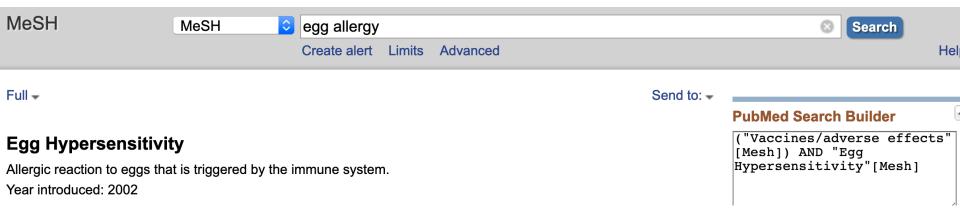
abnormalities
 administration and dosage
 adverse effects

drug effects
 economics
 embryology

physiology

- poisoning
- prevention and control

 To further limit the articles on egg allergy, we may search egg allergy, which returns Egg Hypersensitivity. Now, we may add this term by clicking Add to search builder.



* Now, if we click search, we will have a narrow number of targeted citations.

•	
Pub Med.gov	("Vaccines/adverse effects"[Mesh]) AND "Egg Hypersensitivity"[Mesh] × Search
	Advanced Create alert Create RSS User Gui
	Save Email Send to Sorted by: Most recent $\downarrow =$ Display options
MY NCBI FILTERS	64 results
RESULTS BY YEAR	 Recommendations for Prevention and Control of Influenza in Children, 2019-2020. Cite COMMITTEE ON INFECTIOUS DISEASES. Pediatrics. 2019 Oct;144(4):e20192478. doi: 10.1542/peds.2019-2478. Epub 2019 Sep 2. Share PMID: 31477606 Free article.
2002 2	 The frequency of allergic reactions to the triple viral vaccine in 94 patients with egg allergy.

The frequency of allergic reactions to the triple viral vaccine in 94 patients with egg allergy

* Objective: To evaluate the frequency of reactions after the administration of triple viral vaccine (Measles, Mumps and Rubella, MMR) in an egg-allergic population. Materials and methods: We conducted a multi-center retrospective study (2014-2016) including patients with egg allergy who visited an allergology center and required the administration of the triple viral vaccine. Results: A total of 94 patients met the selection criteria. From these patients, 68.2% had cutaneous symptoms, 22.3% had an anaphylactic reaction, 5.3% had gastrointestinal symptoms, and 4.2% had respiratory egg-related symptoms. Regardless of the severity of their reaction to egg, all patients received the triple viral vaccine and in 100% of the cases, it was well tolerated. Conclusion: Although egg allergy is common in childhood, the risk of allergic reactions during the MMR vaccination in this population was similar to that in the general population, therefore, its use should not be deferred even in patients with a history of severe egg-related allergic reactions.

MeSH terms

- Note the MeSH terms under each article.
- > Child, Preschool
- > Egg Hypersensitivity / complications*
- > Female
- > Humans
- > Hypersensitivity / epidemiology*
- > Hypersensitivity / etiology*
- > Infant
- > Male
- > Measles-Mumps-Rubella Vaccine / adverse effects*
- > Retrospective Studies

Summary

- * Boolean operators,
- * Wildcards,
- * Special search tags
- * MeSH terms
- * Clinical queries