

Comparison of 3 Free Herbal Websites to Natural Medicines



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INTRODUCTION

- Natural Medicines Database is often used to find reliable information on herbal supplements. However, it is a paid service that not all pharmacies have access to.
- Patients would also be unlikely to have access to Natural Medicines Database.
- Pharmacists and patients without access need a way to retrieve reliable herbal information.
- Natural Medicines Database was chosen as the standard to compare the free websites to based on previous research that found it to be the most helpful in answering questions,¹ as well as the top performer in completeness and ease of use.²
- The objective of this study was to evaluate the herbal drug information from three free websites—Memorial Sloan Kettering Cancer Center (MSKCC), the National Center for Complementary and Integrative Health (NCCIH), and Examine.com—by comparing the herbal drug information to Natural Medicines Database.

METHODS

- The top 10 herbal supplements by sales was pulled from the American Botanical Council for the most recent available year—2015.³
- An evaluation tool was created to score the free databases in completeness, ease of use, and reliability.
- Completeness was scored in 7 sections:
 - Indications
 - Efficacy
 - Dosing
 - Adverse reactions
 - Pregnancy/lactation
 - Drug interactions
 - Mechanism of action
- The information in the 3 free herbal websites was compared to Natural Medicines and received a score of:
 - 1 point for <25% of the information
 - 2 points for 25-49% of the information
 - 3 points for 50-75% of the information
 - 4 points for >75% of the information.
- Ease of use ratings were decided by how user-friendly the website was when finding the information for the completeness sections. The websites were ranked on the following scale:
 - Hard to use
 - Somewhat hard to use
 - Neutral
 - Somewhat easy to use
 - Easy to use
- Reliability was based on the research process of the website:
 - Updating frequency
 - Reviewers
 - Drug information resources
 - Completeness score compared to Natural Medicines Database
- Reliability was rated on the following scale:
 - Not reliable
 - Minimally reliable
 - Somewhat reliable
 - Reliable
 - Highly reliable
- Information about each herbal was collected on the same day from each website.

RESULTS

Table 1. Memorial Sloan Kettering Cancer Center completeness when compared to Natural Medicines Database^{4-14,15-22}

	Horehound	Cranberry	Echinacea	Garcinia Cambogia	Green Tea	Black Cohosh	Flaxseed oil	Ginger	Valerian	Green Coffee
Indications	0	1	1	0	1	1	2	1	1	0
Efficacy	0	2	3	0	1	1	2	1	3	0
Dosing	0	0	0	0	0	0	0	0	0	0
Adverse Reactions	0	1	3	0	1	2	3	1	4	0
Pregnancy/lactation	0	0	1	0	1	0	0	1	1	0
Drug Interactions	0	2	3	0	1	2	0	3	3	0
Mechanism of Action	0	1	2	0	1	1	4	1	1	0
TOTAL	0	7	13	0	6	7	11	8	13	0

Table 2. National Center for Complementary and Integrative Health completeness when compared to Natural Medicines Database^{4-14,23-31}

	Horehound	Cranberry	Echinacea	Garcinia Cambogia	Green Tea	Black Cohosh	Flaxseed oil	Ginger	Valerian	Green Coffee
Indications	0	1	1	3	1	1	1	1	1	0
Efficacy	0	1	1	3	1	1	1	1	3	0
Dosing	0	0	0	0	0	0	0	0	0	0
Adverse Reactions	0	2	2	0	1	2	2	1	2	0
Pregnancy/lactation	0	0	0	0	0	1	1	1	1	0
Drug Interactions	0	1	1	0	1	0	0	1	2	0
Mechanism of Action	0	0	1	1	0	1	1	0	0	0
TOTAL	0	5	6	7	4	6	6	5	9	0

Table 3. Examine.com completeness when compared to Natural Medicines Database^{4-14,32-40}

	Horehound	Cranberry	Echinacea	Garcinia Cambogia	Green Tea	Black Cohosh	Flaxseed oil	Ginger	Valerian	Green Coffee
Indications	0	0	1	2	1	1	1	1	1	3
Efficacy	0	0	2	4	1	2	1	1	2	4
Dosing	0	0	3	3	1	2	0	1	1	4
Adverse Reactions	0	0	1	1	1	1	0	1	1	1
Pregnancy/lactation	0	0	0	0	0	0	0	1	0	0
Drug Interactions	0	0	2	0	1	2	0	2	1	1
Mechanism of Action	0	0	2	3	1	1	0	1	1	3
TOTAL	0	0	11	13	6	9	2	8	7	16

Table 4. Reliability criteria information

	MSKCC	NCCIH	Examine.com
Updating frequency	Unknown	As new studies are released to the drug information resources mentioned below	Based on releases of new, big studies or audience interests
Reviewers	Unknown	Librarians, healthcare providers, researchers, students, educators, and patients	Doctors, pharmacists, and researchers
Drug information resources	Unknown	PubMed, NIH RePORTER, ClinicalTrials.gov, MedlinePlus	Controlled human studies and occasionally animal studies for more rare side effects and mechanisms of action
Total Completeness score for all herbs	65	48	72

DISCUSSION

- MSKCC did not contain any information on horehound, garcinia cambogia, or green coffee. It also did not offer any dosing information for free; a login and password from Memorial Sloan Kettering was required.
- MSKCC was "easy to use" because it had all the information separated into sections that could be clicked on to drop down the information.
- MSKCC had the second highest completeness score of the three databases, but the site didn't respond to any emails during the study period regarding their research process so reliability had to be based purely on the completeness score; it received "somewhat reliable" because the information that was provided on the site was similar to Natural Medicines Database, but the lack of knowledge on their research process limits the rating.
- NCCIH did not contain any information on horehound or green coffee. It also did not contain any dosing information. NCCIH offered the least amount of total information compared to the other two free databases, giving a general overview of the herbal and its safety.
- NCCIH was "somewhat easy to use" because the information was separated into summaries of "what we have learned" about the herb and "what do we know about safety."
- NCCIH had the lowest completeness score, but the research process is through the National Library of Medicine (NLM) and is updated as the information is posted to the NLM drug information resources; it received a "reliable" rating.
- Examine.com did not contain any information on horehound or cranberry; however, it had the highest completeness score of the three free databases. It offered the most information including extra information that wasn't contained in the completeness score such as the magnitude of the effects, how robust and consistent the research is, and links to other supplements with similar key uses as the supplement being researched.
- Examine.com was given a "neutral" ease of use rating due to the layout of the site; a general overview of the information was provided at the top of each herbal page, but finding specifics pertaining to the completeness score was occasionally more difficult to find.
- Examine.com received a "reliable" rating due to its higher completeness score and research process utilizing healthcare professionals.

CONCLUSION

- None of these websites can fully replace Natural Medicines Database.
- MSKCC can be used for quick location of herbal information related to the completeness sections.
- NCCIH can be used for a very condensed set of information for general knowledge on the herbal.
- Examine.com can be used if more in-depth knowledge is desired, or if searching for herbals for specific indications to see what herbals are available for that indication.

LIMITATIONS

- Data collection and interpretation by one individual
- No validated tool to evaluate websites
- Part of evaluation tool was subjective
- No true standard to compare the websites to for accuracy
- Herbals were chosen based on sales data from one site

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