

Morel Mushroom Information

Here are some important things to know if you forage for morels, much of which is information disseminated after 2018 when Peter first started foraging after doing his own extensive research:

Morels should never be consumed raw, and they should be boiled for at least 10 minutes and/or cooked for at least 20 minutes.

The water from reconstituting dried morels should not be used.

The morels should be cut in half before using, so that the completely hollow and unattached stem that helps identify them can be verified.

Even the true morel has a toxin (hydrazine) that can build up in the body over time, so morels should be consumed in moderation.

A person can develop a sensitivity to morels and can have a bad reaction or fatal event, even after having consumed them without any issues for years.

Please take a moment to Google the "early morel," which is the false morel closest in appearance to the true morel. They tend to grow in the same location. The early morel also has a hollow stem, although there are sometimes white fibers in the stem, and the stem is attached almost unnoticeably near the top of the mushroom cap, unlike the true morel. Confusing the early morel and the true morel can happen easily when gathering small morels. False morels contain gyromitra, an extremely dangerous toxin.

Continuing research on morel mushrooms has provided the following additional information:

As we age, our immune system and liver & kidney function are not what they used to be, so clearing toxins is more difficult.

As we age, it is typical that we use medications, which can be hard on the stomach, liver, and kidneys over time.

It is riskier to consume morel mushrooms on backcountry trips or at any time when medical assistance is not readily available, although prompt medical attention is not always successful.

Activated charcoal capsules and hydrating salts are good additions to backcountry first aid kits, because they can help rid the body of toxins when administered promptly and correctly.

Morel mushrooms should not be consumed with alcohol, which was not an issue in Peter's case, but is important to know.

False morels have a deadly toxin that typically takes 6 hours for onset but, based on Peter's reaction time of an hour or so to the dinner he prepared, it is likely that the cause was one or more of the numbered points listed above. Peter's autopsy gave the official cause of death as "acute necrotizing gastritis following ingestion of foraged mushrooms" (rehydrated dried morels gathered in the Bitterroot Mountains in June 2022). He had no underlying conditions.

The autopsy could not differentiate between the toxin found in the true morel (hydrazine) and the toxin found in the false morel (gyromitrin), nor is there a lab test for monomethylhydrazine (a chemical found in rocket fuel), which is metabolized by our bodies when morel toxins are consumed. The morel mushroom toxins destroyed Peter's stomach tissue in a 12-hour window of time. We are heartbroken and don't want this to happen to anyone else.

Please read the reference articles on the reverse side for more information.

Feel free to call, text, or email T'g, if you would like an electronic version for easier access.

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Morel Mushroom References

Warning on False or True Morels and Button Mushrooms with Potential Toxicity Linked to Hydrazinic Toxins (MDPI Open Access Journals, 2020): <https://www.mdpi.com/2072-6651/12/8/482>

False Morels—Two Types to Look Out For (FreshCap): <https://learn.freshcap.com/tips/false-morels/>

Four Mushrooms that Look Like Morels (AZ Animals, updated 2023): <https://a-z-animals.com/blog/mushrooms-that-look-like-morels/>

Final Summary of the Foodborne Outbreak Linked to Morel Mushrooms (July 2023, MT DHPPS): https://www.healthygallatin.org/wp-content/uploads/2023/07/Report_FinalSummary_FBIOutbreak_7.19.2023-Final.pdf

Investigation of Illnesses—Morel Mushrooms May 2023 (U.S. Food & Drug Administration): <https://www.fda.gov/food/outbreaks-food-borne-illness/investigation-illnesses-morel-mushrooms-may-2023>

Learning About Morel Mushroom Risks—A Naturally Occurring Toxin Called Hydrazine (Marler Food Safety Blog 2023): <https://www.marlerblog.com/case-news/learning-about-morel-mushroom-risks-a-naturally-occurring-toxin-called-hydrazine/>

Mushroom Poisoning Syndromes (North American Mycological Association): <https://namyco.org/mushroom-poisoning-syndromes.php>

Mushroom Poisoning (PubMed Central): <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7868946/>

Mushroom Poisoning Retrospective Analysis of 294 Cases (PubMed Central): <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2882543/>

Morel Mushroom Toxicity—An Update (Fungi Magazine, Spring 2021): <https://www.fungimag.com/spring-2021-articles/Morel%20Toxicity%20Update.pdf>

Gyromitra Mushroom Toxicity (National Institutes of Health, National Library of Medicine): <https://www.ncbi.nlm.nih.gov/books/NBK470580/>

Mushroom Toxicity (National Institutes of Health, National Library of Medicine): <https://www.ncbi.nlm.nih.gov/books/NBK537111/>

Human Poisoning from Poisonous Higher Fungi... (MDPI Pharmaceuticals): *Note that this is a download of a document rather than a website:* https://mdpi-res.com/d_attachment/pharmaceuticals/pharmaceuticals-13-00454/article_deploy/pharmaceuticals-13-00454-v2.pdf?version=1608112643

Poisonous Mushrooms—A Review of the Most Common Intoxications (SciELO Nutrition Hospital): http://scielo.isciii.es/scielo.php?script=sci_arttext&pid=S0212-16112012000200009

Mushroom Toxicity Treatment & Management (Medscape): *Note that this site contains a navigation bar on the left side with more detailed information:* <https://emedicine.medscape.com/article/167398-treatment#d1>

Wild Mushroom Warning... (National Capital Poison Center): <https://www.poison.org/articles/wild-mushroom-warning>

Mushroom Poisoning (ScienceDirect): <https://www.sciencedirect.com/topics/pharmacology-toxicology-and-pharmaceutical-science/mushroom-poisoning>

About Poisonous Mushrooms (Vancouver Mycological Society): <https://www.vanmyco.org/about-mushrooms/poisonous/>

Mushroom Poisoning—What You Need to Know (VinMec International Hospital): <https://www.vinmec.com/en/news/health-news/nutrition/mushroom-poisoning-what-you-need-to-know/>