Activated Charcoal – Helpful, Harmful or Hype?

If you’ve noticed a smattering of black-hued foods and beverages on your friends’ and/or celebrities’ Instagram pages lately, you’re not alone. Have you wondered what’s behind the mysterious black-hued coconut ash ice cream? And what’s the deal with black detox lemonade? The culprit behind the super-black pigment in these items is activated charcoal. It’s been used for years in emergency rooms in cases of drug overdoses, but recently has gained popularity as a “detoxifying” supplement capsule or as a black powder added to beverages or foods – sometimes as a “detox” agent or sometimes simply as a way to create an Instagram post with some flair. You can find charcoal in beauty products too – face masks, toothpastes, deodorants, and more.

What is it?
Activated charcoal is usually made of coconut shells (but could be made from peat, petroleum, coal or wood) that have been burnt – burnt so much that’s all that’s left is ash. The charcoal ash is then “activated” by exposing it to extremely high temperatures in the presence of an oxidizing gas (like steam, gas with activating agents, or carbon dioxide). The “activation” process creates millions of microscopic holes (or “pores”) in the structure of the charcoal, increasing its surface area.

In the ER
Activated charcoal is sometimes given to patients in the ER after an overdose. As long as it is given in an appropriate dose, shortly after the patient has consumed the poison, the multitude of pores in the charcoal can adsorb (or bind/soak up/trap) the poisonous substance and flush it out of the body, before the poison is absorbed into the bloodstream. It can only be used in certain types of overdoses though and the timing and appropriate dosage (which can be difficult to determine) is critical. The dosage given under medical supervision in the ER is much higher than what is typically found in supplement capsules or the amount in the “pinch” of black charcoal powder that is added to most smoothies or “black lemonade” concoctions.

Detox?
Activated charcoal’s ability to adsorb “toxins” in the GI tract is part of the reason for its popularity as an ingredient in “cleansing” and “detox” protocols; however, there are many factors that affect how well this process works (even when used in the ER during an acute poisoning). Differences in physical anatomy, the pH of the GI tract, and the presence or absence of food in the GI tract when the activated charcoal is taken can all affect its effectiveness. Furthermore, activated charcoal is NOT able to reduce the absorption of all poisons – it doesn’t affect the absorption of certain chemicals, like alkalis, strong acids, iron, boric acid, lithium, petroleum products, and alcohols. Fans of charcoal juices, water, and smoothies should remember that activated charcoal is only able to bind impurities in the stomach, that is, impurities that haven’t even been absorbed yet (so it makes one wonder, is it REALLY even “detoxing” anything?) It can do nothing to “cleanse” one’s blood or any other internal body system. As mentioned above, the dosage in most supplements may not be enough to make a difference while taking higher doses without medical supervision involves risks – see below.

For Upset Stomach/Gas?
While there is little scientific evidence to support many of the reasons people are using activated charcoal today (lowering cholesterol, preventing hangovers, etc.) there are a few studies about its potential effect on intestinal gas and upset stomach. At this point, however,
the results have been inconsistent and haven’t been reproduced in larger scaled, well-designed investigations. There’s a smidge of science-based promise, but not enough to conclude that activated charcoal is an effective resolution for those suffering from intestinal gas and indigestion.

Risks/Concerns

Generally, the occasional use of activated charcoal in recommended (small) amounts is considered safe, but users should always remember that dietary supplements (like activated charcoal) aren’t regulated nearly as tightly as FDA-approved drugs, so there’s a chance your supplement capsule or powder may not contain exactly what it says on the label. You should think twice before using activated charcoal if you have a history of intestinal blockages, holes in the intestine, slow digestion, chronic dehydration or recent abdominal surgery, as these could affect how your body responds to activated charcoal.

Overuse of activated charcoal could lead to nutritional deficiencies, since charcoal is likely to adsorb anything in its path, not differentiating between “toxins” and beneficial compounds in the stomach, like vitamins and minerals. Along with “toxins”, activated charcoal can extract important minerals, like calcium, potassium, iron, and zinc.

Just as activated charcoal can bind nutrients, it can also bind important medications – including birth control pills - so less of the medication is absorbed by the body and the medication is less effective. For this reason, activated charcoal should not be taken within an hour or two of any oral medication (Note: Activated charcoal will only affect effectiveness of ORAL contraceptives. Contraceptive patches, injections, IUDs, or Nuva Ring will not be affected by charcoal in the stomach)

Taking too much activated charcoal can lead to constipation, stomach pain/discomfort and black stools. (In the medical setting where large doses are administered, a laxative is usually given at the same time to prevent constipation and/or a blockage in the intestines.)

Lucky for us, we, (most moderately healthy individuals) are able to detoxify ourselves, using a carefully controlled and intricately designed synergistic combination of systems, including the skin, liver, kidneys, gastrointestinal tract, and immune factors in the blood. A whole-foods, balanced diet with plenty of water and fiber can do wonders to keep our bodies toxin-free. If you have more questions about dietary supplements, total body cleanses or detoxes, or any other nutrition-related matter, be sure to set up a nutrition assessment with Campus Recreation’s registered dietitian nutritionist, Annie Bell. Appointments are individualized to address your needs, questions, and concerns and last about an hour – oh, and they’re free! Follow the prompts here to register:

https://campusrec.utsa.edu/nutritionregistration

https://www.webmd.com/vitamins-and-supplements/activated-charcoal-uses-risks#1
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