

A Review on Activated Charcoal Tooth Paste

Simanchal Panda¹, Dr. S. R. Mishra², Dr. Prasanna Kumar Kar³

Jeypore College of Pharmacy, Jeypore (K), Odisha, India

Abstract: *Tooth color is primarily determined by the reflectance of the dentin, modified by the absorption, scattering, and thickness of the enamel. Staining can be intrinsic, extrinsic, or both. Charcoal is made from coal, wood, or other substances. It becomes activated charcoal when high temperatures are combined with a gas or activating agent to expand its surface area. This turns it into a powerhouse of porous material that sucks in impurities from the environment around it. Adsorption is different than absorption. Basically, it means that the porous surface of activated charcoal attracts (mostly unwanted) material a bit like a magnet and holds it in its pores. This leaves the area around it clean. Activated charcoal is being touted as a potent natural treatment used to trap toxins and chemicals. American Dental Association warns that activated charcoal is too abrasive and will wear away your tooth enamel. Once the enamel is gone, it's gone forever. The layer beneath, known as the dentin, becomes more visible. Dentin has a natural yellow tinge, meaning that you're likely to be left with teeth that look more yellow or stained than they did to begin with. So the accurate dose on with activated charcoal toothpaste.*

Keywords: activated charcoal, enamel, dentin, toxin, adsorption

1. Manuscript

Activated charcoal otherwise known as activated carbon, animal charcoal, carbo vegetabilis, carbon, carbón activado, charbon actif, charbon activé, charbon animal, charbon médicinal, charbon végétal, charbon végétal activé, charcoal, gas black, lamp black, medicinal charcoal, noir de gaz, noir de lampe, vegetable carbon, vegetable charcoal¹. Common charcoal is made from peat, coal, wood, coconut shell, or petroleum. "Activated charcoal" is similar to common charcoal, but is made especially for use as a medicine. To make activated charcoal, manufacturers heat common charcoal in the presence of a gas that causes the charcoal to develop lots of internal spaces or "pores." These pores help activated charcoal "trap" chemicals. Activated charcoal is used to treat poisonings, reduce intestinal gas (flatulence), lower cholesterol levels, prevent hangover, and treat bile flow problems (cholestasis) during pregnancy. Activated charcoal is good at trapping chemicals and prevents their absorption. Activated charcoal is safe for most adults when used short-term. Side effects of activated charcoal include constipation and black stools. More serious, but rare, side effects are a slowing or blockage of the intestinal tract, regurgitation into the lungs, and dehydration.

2. Special Precautions & Warnings

Pregnancy and breast-feeding: Activated charcoal might be safe when used short-term if pregnant or breast-feeding, but consulted with healthcare professional before using if pregnant. **Gastrointestinal (GI) blockage or slow movement of food through the intestine:** Don't use activated charcoal if you have any kind of intestinal obstruction. Also, if you have a condition that slows the passage of food through your intestine (reduced peristalsis), don't use activated charcoal, unless you are being monitored by your healthcare provider. **Syrup of ipecac interacts with activated charcoal** Activated charcoal can bind up syrup of ipecac in the stomach. This decreases the effectiveness of syrup of ipecac. **Moderate Interaction** Be cautious with this combination. **Alcohol** interacts with activated charcoal. Activated charcoal is sometimes used to prevent poisons from being absorbed into

the body⁴. Taking alcohol with activated charcoal might decrease how well activated charcoal works to prevent poison absorption. Medications taken by mouth (Oral drugs) interacts with activated charcoal. Activated charcoal absorbs substances in the stomach and intestines. Taking activated charcoal along with medications taken by mouth can decrease how much medicine your body absorbs, and decrease the effectiveness of your medication. To prevent this interaction, take activated charcoal at least one hour after medications you take by mouth. For drug overdose or poisoning: 50 to 100 grams of activated charcoal is given at first, followed by charcoal every 2 to 4 hours at a dose equal to 12.5 grams per hour.

For children, lower doses (10 to 25 grams) are used. **Toothpaste** A tooth-cleaning preparation containing a fine abrasive powder, such as chalk, a little soap or detergent, some flavouring, often peppermint, and some sweetening agent and, ideally, fluoride salt. Many dentifrices also contain a chemical to coagulate protein in the tooth tubules and desensitize them to acids and temperature changes³. **Tooth color** is primarily determined by the reflectance of the dentin, modified by the absorption, scattering, and thickness of the enamel. Staining can be intrinsic, extrinsic, or both. Charcoal is made from coal, wood, or other substances. It becomes activated charcoal when high temperatures are combined with a gas or activating agent to expand its surface area. This turns it into a powerhouse of porous material that sucks in impurities from the environment around it. Adsorption is different than absorption⁵. Basically, it means that the porous surface of activated charcoal attracts (mostly unwanted) material a bit like a magnet and holds it in its pores. This leaves the area around it clean. Activated charcoal is being touted as a potent natural treatment used to trap toxins and chemicals. American Dental Association warns that activated charcoal is too abrasive and will wear away your tooth enamel. Once the enamel is gone, it's gone forever. The layer beneath, known as the dentin, becomes more visible. Dentin has a natural yellow tinge, meaning that you're likely to be left with teeth that look more yellow or stained than they did to begin with. So the accurate dose on with activated charcoal toothpaste. As I earlier on mentioned, activated charcoal is used in reducing

the effects of food poisoning as it acts as an antioxidant. It has an ability to pull toxins from the surface of teeth and the mouth in general. It binds with the toxins and once you rinse your mouth, the toxins come out together with the rinsed activated charcoal. Although after application the activated charcoal makes your mouth look all black and feel dirty, all the black washes away when you rinse with clean water and it leaves your teeth feeling extremely clean and smooth. Brushing with the activated charcoal for a period of time has been found to improve the appearance of teeth and makes teeth lighter by up to 3 shades.⁶ Activated charcoal is helpful in change the pH of the mouth and making it inhabitable for disease causing germs and bacteria. The charcoal changes the pH of the mouth and prevents the germs and bacteria from thriving and reproducing in the mouth rendering the mouth safe and clean. This helps protect teeth from infections caused by bacteria and other organisms. This is why very many people are using activated charcoal as part of their remineralizing protocol for teeth. Activated charcoal binds mostly to organic compounds and not minerals so there should not be a concern of it pulling calcium from the teeth. The myth that it demineralizes the tooth is not true and you should therefore not be worried about the calcium levels in your teeth. If you have veneers, crowns or fillings and are worried about the charcoal staining them, be informed that the charcoal has not effect whatsoever on any of the above mentioned devices. Charcoal is easily washed away and the black does not stick on any surface whatsoever. Activated charcoal will only work on surface stains that it is able to bind to, especially those from drinks like coffee and tea. This is because it creates its absorbent properties which allow it to pull these stains from the teeth. It would not usually work on teeth that have yellowed from antibiotics or other internal problems.^{7,8}

Most dental specialists agree that if you decide to use activated charcoal toothpaste, you should do it with caution and you should brush your teeth with it no more than only once a week and not for extended periods even if your teeth continue to feel normal and they don't seem to become more sensitive. Activated charcoal is still an abrasive ingredient, and if you use it too frequently, it could wear down the enamel on your teeth. Other cautions involve lots of recession of gum tissue, because in such a case your teeth may become sensitive due to the abrasive quality of charcoal toothpaste. Doctors recommend trying a charcoal toothpaste that is manufactured by a reputable brand and taking notes of any unusual symptoms that might appear during its use like increased sensitivity or bleeding gums⁹. Smoking can damage your teeth, and it can lead to higher risks for developing oral health issues including the build-up of plaque and bacteria on the teeth and also teeth discoloration. Teeth whitening is targeted at tooth discoloration caused by smoking, and it will help you get a whiter and a healthier smile. As we age, our tooth enamel may get worn down, and this will make it much easier for tooth discoloration or oral health issues to emerge. Teeth-whitening is a fantastic way to offset the aging effect to be able to maintain a healthy smile. Charcoal toothpaste is a **cost-effective solution**. One of the main advantages of charcoal toothpaste is that aside from its teeth whitening effects it is also a cost-effective solution that you will be able to use on a regular basis. **Oral benefits of activated charcoal** is Activated charcoal is

tasteless and also odorless, and the powder works by the process of absorption. The activated charcoal can balance the pH levels from the mouth, it helps eliminate bad breath, and it naturally whitens your teeth. Soothing, gentle formulas. All-natural formula, Charcoal toothpaste is a cavity-blocker and germ killer, Immediate and long-lasting results making it more popular.

References

- [1] <https://www.webmd.com/vitamins-supplements/ingredientmono-269-activated%20charcoal.aspx?activeingredientid=269>
- [2] Natural Cures Using Activated Charcoal. Earth Clinic website. <https://www.earthclinic.com/remedies/charcoal.html>. Updated November 12, 2016. Accessed February 17, 2017.
- [3] <https://medical-dictionary.thefreedictionary.com/toothpaste>
- [4] <https://reference.medscape.com/>
- [5] <https://www.earthclinic.com/remedies/charcoal.html>
- [6] <https://www.vitadentalhouston.com/blog/dental-diy-teeth-whitening-activated-charcoal/>
- [7] Vita Katy Dental Care,
- [8] JOHNSON PL, BEVELANDER G. The localization and interrelation of nucleic acids and alkaline phosphatase in the developing tooth. *J Dent Res.* 1954 Feb;33(1):128– 135. [PubMed]
- [9] <https://www.hlbenefits.com/charcoal-toothpaste-benefits-side-effects/Dr. Mark Wolff, DDS, Professor and Chair of the Department of Cardiology and Comprehensive Care at the New York University College of Dentistry>