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A collaboration between C&EN and
Andy Brunning, author of the popular
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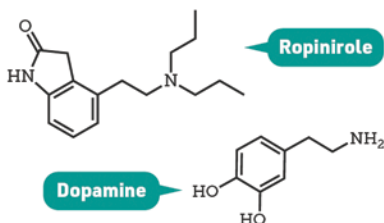
Six surprising side effects of medicines



We take medicine to treat illnesses and infections, but sometimes it has unexpected effects. Here we look at six unusual side effects and the chemistry that causes them.

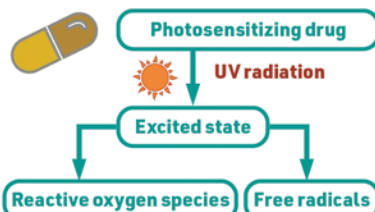
Compulsive behaviors

Ropinirole and some other medicines that treat Parkinson's disease symptoms can also cause increased libido and compulsive behaviors, including gambling. Researchers have linked these effects to the drugs' mimicry of dopamine, an action that interferes with the brain's reward system.



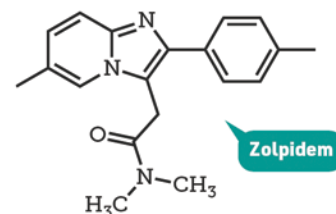
Light sensitivity

Several medicines, including tetracycline antibiotics, increase our skin's sensitivity to the sun. Their molecules absorb ultraviolet radiation and transform into an unstable, excited state. The excited state causes reactive oxygen species and free radicals to form; these oxidize cell molecules and damage cells.



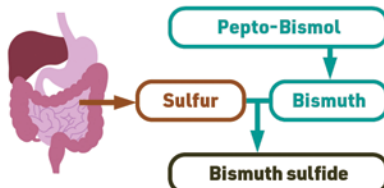
Sleep disorders

Sleep disorders, including sleepwalking, sleep eating, and sleep driving, are rare side effects of some sleeping pills, such as zolpidem. The cause is unknown, but some researchers have linked the behaviors to the medicines binding at γ -aminobutyric acid (GABA) receptors and increasing levels of serotonin.



Stool or urine discoloration

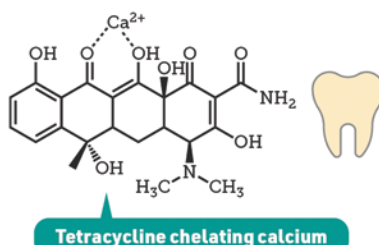
Pepto-Bismol, an indigestion medication, can turn stool black. This is due to bismuth from Pepto-Bismol reacting with sulfur in the digestive system.



Some drugs to treat bladder infection symptoms contain the dye methylene blue and can turn urine blue.

Tooth staining

Tetracycline antibiotics can discolor teeth, particularly in children while tooth calcification is still taking place. Molecules of tetracyclines chelate calcium ions, forming insoluble tetracycline-calcium orthophosphate complexes in teeth.



Vanishing fingerprints

The chemotherapy drug capecitabine can cause the temporary loss of fingerprints. The mechanism is unknown. Fingerprints return 2-4 weeks after chemotherapy ceases.

