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### The ins and outs of drug metabolism

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A furnace can't burn a whole lump of coal; some is wasted. Your body can't use all the medicine you take either; some is excreted.

How much of a drug passes through the body depends on the particular medicine. Some drugs are very efficient performers, according to data collected by chemist James Shine at the Harvard School of Public Health. The body metabolizes, or uses up, more than 80 percent of the pain reliever acetaminophen and the antidepressant fluoxetine. These metabolized portions are used by the body to make you feel better.

Other drugs are harder to metabolize, but at least half is used. That's true of the antibiotic ciprofloxacin and of digoxin for heart problems.

Yet other drugs, like metformin for diabetes and atenolol for high blood pressure, are not metabolized as much, and at least 80 percent of those pills end up in the toilet.

Once waterborne, the remains of **pharmaceuticals** find their way into sewers and streams -- and eventually into **drinking water**.

The concentration of a particular drug in **water** supplies also is determined by how much is taken and how readily the specific drug breaks down in the environment.

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