

Do you find it easy to swallow tablets, or do you prefer to take liquid medicines or have injections?

The way a medicinal drug gets into your body affects how well it works. Muslim pharmacists knew this more than a thousand years ago. That's why they made tablets, capsules, syrups and ointments.

Scientists in pharmaceutical companies continue to improve drug delivery. They want to make sure that a drug gets to the right part of your body at the right time.

People with ADHD (Attention Deficit Hyperactivity Disorder) find it hard to concentrate. They are often restless and impulsive. They may be forgetful and disorganised.

Many people with ADHD do not need medicines. They can learn to manage their condition. But some doctors recommend taking medicines like Ritalin or Concerta.

Many people with ADHD take three doses of tablets every day. But it's hard to remember to take tablets at school. Some people feel embarrassed taking Ritalin, too. So a pharmaceutical company decided to develop a drug that lasted all day. People with ADHD would need just one tablet. They could take it in the morning before school.

First, scientists made a tablet that released its active ingredient gradually, all day. The concentration of the drug in the bloodstream was always the same. But this didn't work well. The body gets used to the drug being in the body, and stops responding to it.

So the scientists realised they needed a drug that released its ingredients into the blood in short 'bursts'... just like having separate doses of the drug. The capsule they devised has several layers:

- The first layer is a 'drug overcoat'. It dissolves quickly and gets into the bloodstream fast.
- The inner layers push the drug out gradually through a tiny hole. For the next eight hours, small amounts of the drug come out of the hole. So the concentration of the drug in the bloodstream changes all the time.

Other scientists worked out a different system. They put tiny amounts of the drug in separate 'beads'. Then they put the beads in a capsule. The coating on some of the beads dissolves quickly. The drug from these beads gets into the bloodstream quickly. The coating on the other beads dissolves slowly. These beads deliver the drug to the bloodstream during the whole school day.

