

**Pain Therapies**  
**Intrathecal Drug Delivery**  
**ELE282 Biomedical Engineering Seminar 1, February 19, 2002**  
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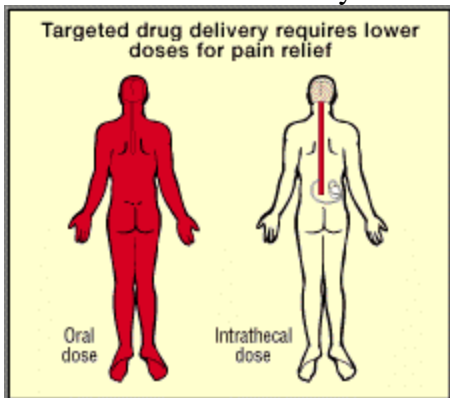
For years patients suffering from chronic pain due to cancer, arthritis, or pain from old injuries have had to deal with inefficient ways of managing the pain.

Intrathecal Drug Delivery System is a way of getting medication to the source of pain. To understand how the system works we have to understand how our bodies register pain.

When you feel pain, it is actually signals from the source of pain that travel up the spinal cord to your brain where the sensation of pain is registered. By preventing the pain signals to reach the brain in essence you feel no pain.

The Intrathecal Drug Delivery Systems delivers the medication to the intrathecal space, area of fluids that surround the spinal cord. By delivering medication straight to the pathway of pain signals to the brain you can effectively stop the signals before they reach the brain.

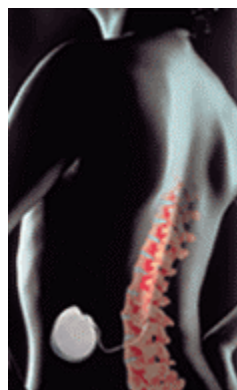
One of the advantages of using this system is that unlike taking oral medication you don't have unnecessary amounts of medication in your body.



The device used to administer the medication is essentially an implantable pump. That in conjunction with an implanted catheter delivers the drug to the spinal cord. It is usually about the size of a hockey puck.



The pump is filled with the medication and implanted under the skin of the abdomen. The catheter connects to the pump and the intrathecal space of the spinal cord.



The doctor can then program the device's memory so that it administers the correct dosage at the right time. He can also monitor the treatment and make changes as necessary simply by programming the device again.