The body has its own opiates which are called endorphins. These act on opiate receptors predominantly affecting the central nervous system and the smooth muscles of the gut. Opiate receptors responsible for pain are divided into ?1, ?2(mu 1 and 2) , d (delta)and k (kappa) types. Genes encoding for these receptors have been cloned. More recently other types have been found (sigma and epsilon).

Type	**Effects**
mu	supraspinal analgesia, pupil constriction, respiratory depression, decreased gut motility, slow heart rate,
kappa	spinal analgesia, pupil constriction(less pronounced than in mu receptors), sedation
sigma	Dysphoria(altered mood), hallucinations, stimulation of the circulatory and respiratory system, hyperther
delta	spinal analgesia
epsilon	hormonal?

Opioid drugs differ in their affinity for opiate receptors:

Because different actions of opioids are mediated via different receptor subtypes, there is research into "designer" drugs that produce analgesia without some of the adverse effects.

Opioids can be classified as agonists, antagonists, partial agonists or mixed agonists/antagonists:

Agonists -- are agents that can combine with receptors and initiate events.

Antagonists -- are agents that combine with receptors and inhibit the effect of agonists

Partial agonists -- have characteristics of both agonists and antagonists -- at times appearing to cause actions and other times to decrease the effect of agonists with greater intrinsic activity

1. Full Opioid Agonists: Morphine, Heroin, Methadone, Meperidine, Fentanyl, Hydromorphone

2. Agonists of Lesser Potency: Codeine, Oxycodone and Propoxphene

3.Mixed Agonist/Antagonists and Partial Agonists :Pentazocine, Nalbuphine and Buphrenorphine

The third category are important to remember because if you are on one of the stronger agonists such as morphine, and then changed to buprenorphine, you may experience some withdrawal symptoms(including pain) because buprenorphine partly works against (antagonises) morphine.

Similarly, if you were to be given a drug called naloxone, you might be precipitated into withdrawal as this drug is a full antagonist which opposes the action of morphine and other opiates.

METABOLITES:

Morphine is broken down by the liver ("first pass metabolism") into metabolites morphine-6-glucuronide(M-6-G) and morphine-3-glucuronide. M-6-G is considered to be the active metabolite (i.e. the one that acts on the receptors)

The metabolites are excreted from the body via the kidneys into the urine. It is possible that M-3-G may be implicated in hyperalgesia.