



**Glucuronide
and sulfate
conjugates**

Normorphine

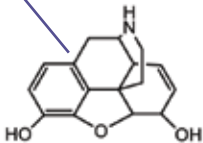


Figure 3-3. Metabolic pathways of morphine. Morphine is primarily excreted in the urine as glucuronide and sulfate conjugates. Small amounts of hydromorphone (<5% of the total morphine concentration) have been observed after administration of morphine in high doses (typically >150 mg/day for females and >200 mg/day for males).¹⁹