

## Chapter 47

### Evolutionary Aside 47.2--Evolution of Snake Venom

Snake venom is composed of proteins, enzymes, and other types of molecules. Venom is a highly modified type of saliva, and one hypothesis is that venom originally evolved as a way of hastening digestion. By injecting digestive enzymes and other molecules into a prey organism, the snake could begin the digestive process even before the animal had been completely ingested. This might be particularly important for snakes, such as vipers, that eat very large prey, because it is important that the snake be able to digest the prey before it begins to rot in its stomach. Because snakes swallow their prey whole, they otherwise have to digest their way through the skin before the internal parts of its food can be digested—by injecting digestive enzymes into the prey, digestion could begin simultaneously both inside and out.

According to this hypothesis, the use of venom as a means of killing prey, as well as fighting off predators, evolved only secondarily. Once snakes had evolved the ability to inject a potent brew of molecules into another organism for digestive purposes, natural selection may have acted to enhance its properties so as to debilitate and kill the prey, as well as to begin digestion.