

Chapter 52

Evolutionary Aside 52.2--Adaptive Benefit of Live Birth

One advantage of live birth is that the developing young are not exposed to the environment, but rather are protected from it by being within the female's body (of course, this comes with the disadvantage of making the female more vulnerable to predators as she is burdened by the growing embryo).

In lizards, live birth has evolved independently many times in species that live at high altitudes. The reason is that the rate at which an embryo develops is related to temperature: the colder it is, the slower the embryo develops. Thus, eggs laid at high altitudes might take a very long time to hatch, increasing the risk that they would fall prey to predators or infections, or that they might not hatch at all before winter, and thus freeze to death. In contrast, many reptiles—and particularly those that live in cool habitats—are very effective thermoregulators (see chapter 42): by basking in the Sun, the lizard can raise its body temperature far above that of the air. By doing so, a female with developing embryos would also raise the temperature of her young, and thus hasten their development. For this reason, live birth is strongly favored by natural selection and has evolved in many different species.