Schick Test Encyclopedia Article

Schick Test

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During the late 1800s, diphtheria swept through western Europe and the United States killing thousands of children. Diphtheria is a serious contagious disease of the respiratory system that causes membranes to grow on the inner throat. The infection can spread through the blood to the heart and kidneys.

During the epidemic, an enormous effort was launched to find effective treatments and immunizations for the disease. One of the first findings that came out of this period was the diphtheria test developed by Béla Schick (1877-1967), a Hungarian pediatrician who specialized in childhood diseases. The *Schick test*, as the procedure came to be known, was based on the toxin-antitoxin research of Emil von Behring (1854-1917). Behring's research revealed that when a toxin (produced, for example by an invading bacteria) enters the body, the body naturally produces substances called *antitoxins* or *antibodies* capable of neutralizing the invading substance.

The test works by injecting a small amount of specially-prepared diphtheria toxin beneath the skin. This causes a red swollen rash to appear around the injection if the person is susceptible to the disease, in which case the person should receive the diphtheria vaccine, a serum containing diphtheria toxoids which stimulate the production of diphtheria antibodies to ward off disease.

Used in concert with diphtheria vaccine, Schick's test dramatically reduced the incidence of diphtheria worldwide. Until the 1920s, there were 150,000 to 200,000 cases of diphtheria in the United States each year. The number dropped to less than 10 cases per year by the 1970s. Other scientists using Schick's approach developed similar tests for diseases such as measles, tuberculosis, pertussis, gonorrhea, and syphilis, saving thousands of lives in the process.