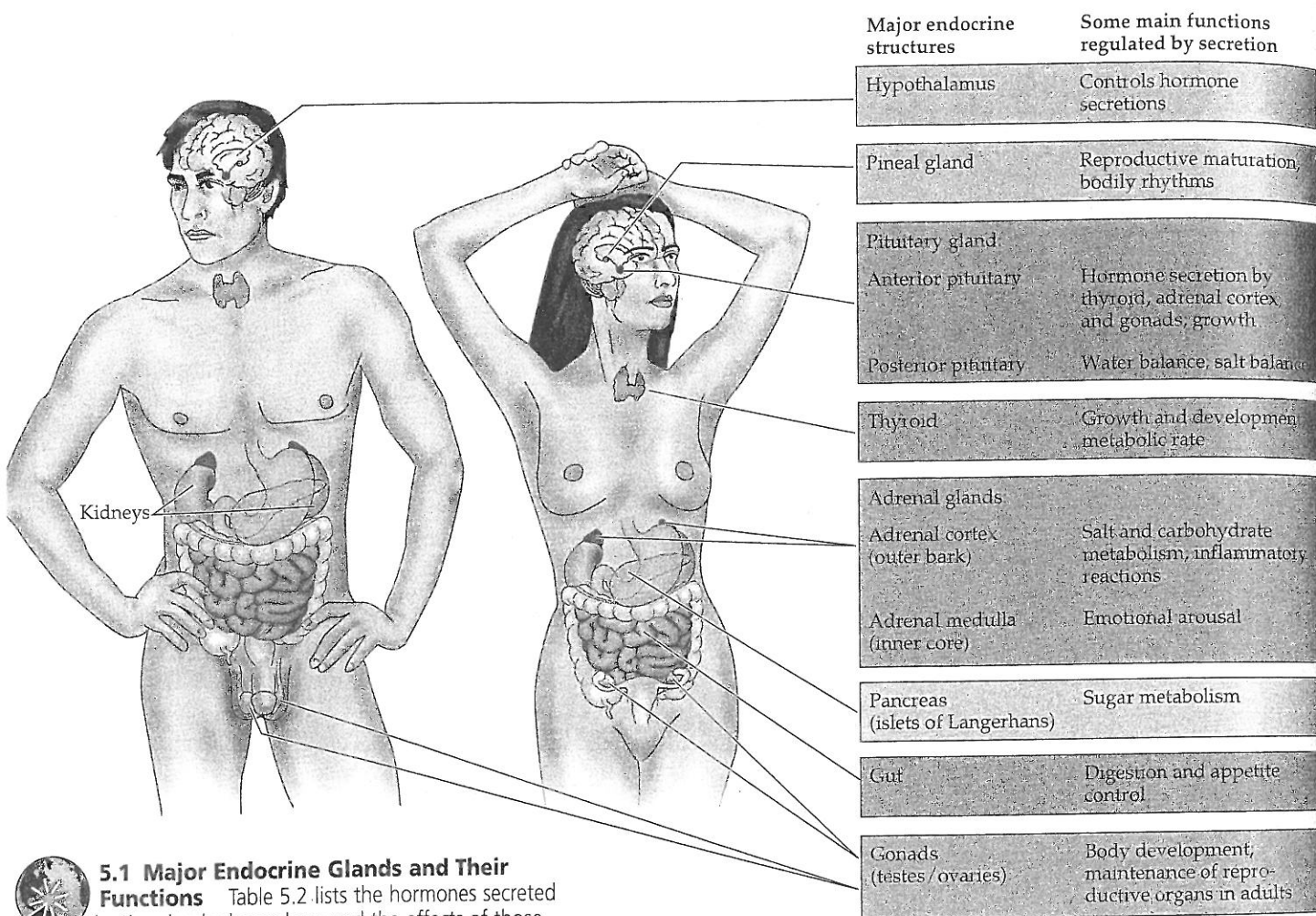




5.1 Major Endocrine Glands and Their Functions

Table 5.2 lists the hormones secreted by the glands shown here and the effects of those hormones in the body.

bodily effects with those seen in eunuchs (castrated men). Some cultures considered endocrine glands to have special medicinal properties: by 100 ACE, Chinese scholars recommended eating dog testes to combat impotence. Perhaps this practice built on prehistoric agricultural knowledge of the physiological and behavioral changes that result from the castration of domestic livestock. Although no one knew what mechanism was involved, clearly the testes were important for the reproductive capacity and sexual characteristics of males.

The ancient Greeks emphasized body *humors*, or fluids, as an explanation of temperament and emotions. It was believed that these fluids—phlegm, blood, black bile, and yellow bile (also known as *choler*)—all interacted to produce health or disease. The notion of body fluids as the basis of human temperament lingers in our language in many now seldom used terms, such as *phlegmatic* (“sluggish”), *sanguine* (“cheerful”; *sanguis* is Latin for “blood”), *bilious* (“irritable”), and *choleric* (“hot-tempered”) to describe personalities. We routinely refer to other people as *good-humored* or *ill-humored*.

Today we know there are many more than four hormones. Endocrine glands come in a variety of sizes, shapes, and locations in the body (Figure 5.1). Although the endocrine glands and their hormones are important, the definition of *hormone* is more inclusive than it used to be, in the recognition that other tissues, such as the heart and kidneys, secrete hormones too. Even plants, which have no endocrine glands, use chemical signals that are considered to be hormones.

The first major endocrine experiment was carried out in 1849 by German physician Arnold Adolph Berthold (1803–1861), most likely replicating unpublished studies per-