Classical statistical tests cannot confirm the equality of two parameters traditionally stated in the null hypothesis, they can only fail to reject it. However, in practice, it is often necessary to demonstrate that two quantities do not differ by more than a pre-specified margin – in other words, that they are equivalent. This bachelor thesis focuses on tests of equivalence, which are designed to address this issue. The thesis describes the principles of these tests and discusses the TOST procedure, which is then applied to selected two-sample problems. The thesis also includes a simulation study analyzing values of the power functions of equivalence tests for binary data. Thus, the thesis contributes to the understanding of an important but often overlooked topic in statistical hypothesis testing.