The main topic addressed in the thesis is modernization of production materials and its impact on speed of rowing-boat sets, and comparison of different parts of the rowing equipment according to the stages of development. The first part of the thesis is devoted to a brief historic overview of the sport, explanation of basic terminology, description of functions and particularly the development of various segments of rowing equipment. The second part deals with the comparison of time and speed achieved in different types of boat sets according to selected criteria, as well as the evaluation of driving qualities of the equipment by individual rowers.