Background: Bilateral training is an intervention used in patients with hemiparesis. This training is based on the movement of both (bi) sides (lateral) of the body simultaneously. There exist a lot of articles focused on specific methods of bilateral training. However, the used terminology is inconsistent. The aim of this thesis is to describe the neurophysiological background of bimanual and bilateral methods, review and clear out the used terminology, and describe the different techniques included in bilateral training.

Methods: Relevant literature was searched in PubMed, ScienceDirect and OVID Evidence Based Reviews. The inclusion criteria were the availability of fulltext, publication date after 1980, English language and a connection with medicine. The searched keywords were bimanual or bilateral training, metod and therapy.

Results: From 1021 articles, only 132 articles meet the inclusion criteria. Five main rehabilitation interventions are used in practice: a) cooperative activity of both arms, b) synchronous movement of both arms c) Mirror therapy, d) an activity, where the impaired hand assists the paretic hand and d) robotic therapy or therapy with mechanical devices. The neurophysiological background is based on a) modulation of interhemispherical inhibition, b) increased motor control of impaired upper limb and c) activation of lesioned hemisphere.

Conclusion: Our review found that all the bimanual or bilateral methods share a common neurophysiological background. Training based on the movement of both arms simultaneously was categorized into five groups and the used terminology was cleared out. The work contains a table with the properties of identified methods. However, it is necessary to extend the research to shed more light on their use in practice.