The Effect of Blood Flow Restriction on the Knee Rehabilitation

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Abstract : Introduction: The blood flow restriction training (BFR) is a method of muscle training that allows increasing the stress of muscle tissue to enhance the muscle cross-section and strength. This type of training has clear benefits in the rehabilitation field since it can improve muscle strength using low mechanical loads. The aim of this study is to know in which knee pathologies BFR has been used, what methodology was used and what were the obtained results. Study design: We performed a systematic literature search using strategies for the concepts of "blood flow restriction OR blood flow restriction training AND knee" in Medline. Articles were screened by authors and included if they used the blood flow restriction training in pathology of the knee. Results: The pathology more frequently treated by BFR was knee osteoarthritis and the variables most analyzed were strength and pain. The vascular occlusion used was 80% in the major part of studies. The groups of BFR obtained an increase of strength with less pain but not always the results are statistically significant. The evidence levels are poor in the high number of studies because in some cases there is not a control group or the evaluators were not blinded. Conclusion: The use of BFR is useful to improve muscle strength in knee pathology since it does not increase the pain, but more studies are needed to see (comprehend) if this type of treatment obtains better results than a conventional therapy. No studies have been found that compare the different occlusion effects in both the strength improvement and the pain reduction. Neither studies that analyse the effects of BFR on the muscle contractile parameters have been found.