Low Back Pain (LBP) is the most common musculoskeletal condition affecting the quality of life of individuals, especially if persistent. Over the decades, a lot of work has been done in an attempt to reduce the negative impact of back pain, and help patients recover and maintain a better quality of life. New insights are coming from different fields of research, with a lot of work being done in searching for the aetiology of LBP, describing the different phenotypes of symptomatic spines, and identifying factors involved in the persistence of the disease. Nevertheless, still a lot remains to be done to fully understand the problem of back pain and its causes. Even today, there appears to be a wide gap between basic science and applied rehabilitation research on LBP. The first is still searching in many different ways for the “holy grail” of the pain generator and providing very interesting results with particular relevance to surgical, drug-related and other biological approaches, while the second is pragmatically focusing on modifiable factors that may influence back pain outcomes. Yet personalized, effective spine care has not been fully realized. While we recognize the potential of basic science advances, there is an immediate need for more translational rehabilitation research, as well as studies focused on the effectiveness of rehabilitation approaches.