# Opinion on In-depth Analysis of App-based Back Pain Rehabilitation

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## Introduction

Patients and healthcare professionals alike frequently use mobile devices and the apps that come with them. Despite its widespread availability, the technology has not yet been applied to rehabilitation. The SARS/CoV-2 pandemic has given us a chance to get patients in sooner, which is important given how difficult it is for them to get healthcare right now. The study's primary objective was to conduct a comprehensive literature review comparing smartphone rehabilitation apps to standard physiotherapy for back pain. We searched the Medline/PubMed and Google databases using the search terms "APP" and "Orthopaedic" or "Neurosurgery" in accordance with the PRISMA guidelines.

## Description

Nine studies included 7636 patients and met the inclusion criteria. Among those, 92.4% (n=7055/7636) were enrolled in the interventional group for a four- to six-month follow-up. All included data on patients who had back pain for an average of 19.6 to 11.6 months, with the exception of one study. The VAS-pain score did not significantly differ between the intervention and control groups in any of the studies (p=0.399 prior to intervention and p=0.277 post intervention). Only one research group found that the application group improved PROMs significantly more than the control group, while the other groups produced results that were comparable.

Application-based rehabilitation programs can easily supplement or replace traditional physiotherapy for back pain patients. Due to the widespread use of smartphones in everyday activities, rehabilitation will benefit self-dedicated and obedient patients. Rehabilitation is frequently required for spinal surgery patients and those with chronic back pain. In the past, patients had in-person consultations with these rehabilitation services providers. Since the emergence of SARS-CoV2, the digitalization of healthcare delivery has accelerated rapidly. The benefits of smartphone-based remote rehabilitation programs have been made clear by the pandemic. The number of smartphone owners worldwide will surpass 6 billion in July 2022. In 2021, smartphones will account for 72.3% of the media time spent by Americans, accounting for over a third of that time. The widespread use of smartphones and their apps presents an opportunity to incorporate their use into clinical practice and aid in the elimination of patient obstacles to health care access.

Apps are increasingly being utilized in healthcare to enhance communication, record patient outcome data, and occasionally measure outcome data. In a neurosurgical waiting room, 146 patients were surveyed and 81 percent indicated an interest in using a postoperative communication and monitoring app. These patients had never had surgery before. A 2015 study found that there were 72 distinct apps focused on spine surgery, 45 of which were free to download; However, only 56% of respondents had identified medical professionals who had contributed to the development or content of the material. In orthopaedics as a whole, evidence supports telerehabilitation; However, there is a lack of specific references to app-based rehabilitation for back pain and spine surgery in the literature. This systematic review's objective is to provide a summary of the existing data and literature on the outcomes of app-based rehabilitation programs for back pain and spine surgery.

Application-based rehabilitation and standard physiotherapy (the control group) do not significantly differ in patients who have been experiencing back pain for a median of 19.6 to 11.6 months. The method of rehabilitation did not significantly reduce pain in the majority of studies. Due to the diversity of the data, a genuine meta-analysis was impossible. Diabetes, weight loss, emotional well-being, communication issues, and cardiovascular diseases are among the current applications in medical services. These applications should be evaluated by substance quality and compared to best practice guidelines. Adherence to a postoperative rehabilitation program is one of the main barriers to app-based rehabilitation success. Most of the time, students don't follow the rules, and up to 30% of them miss classes. Program engagement must be consistent in order to achieve a satisfying outcome. Self-motivated and highly observant patients have demonstrated that app-based rehabilitation reduces pain effectively. Instead of demonstrating a variety of exercises, a sensor could be used to provide patients with live feedback, such as measuring their muscle strength [1-5].

In community healthcare, app-based rehabilitation programs require additional considerations. The cost of downloading the app was not mentioned; A single payment is required to download some apps, while others use a subscription model. Additionally, the app's interface and usability must consider the intended audience despite the widespread use of smartphones. Last but not least, despite the exciting development of app-based rehabilitation in digital healthcare, the safety of individuals participating in unsupervised activities must take precedence. An app would need to account for the possibility of falls when performing certain exercises on its own.

## Conclusion

There are a few limitations to this study. We didn't use the search term "physical therapy" because we thought it would bring up articles about nutritional apps or back pain in general. Because of the disparity in the data and the low quality of the individual studies (bias range: A meta-analysis was not conducted (1–3/5). However, these studies contain the most significant examples in this area. The studies all used the same visual analog scale for measuring pain. In addition, the follow-up process took anywhere from four weeks to six months. As patient-reported outcome measures, the SF-36, Likert, Oswestry Disability Index, current symptoms, PHQ-9, and Korff score were also utilized. Last but not least, it should be mentioned that chronic back pain may eventually resolve on its own, regardless of the rehabilitation activities performed. However, we anticipate a significant difference between the two groups due to the fact that rehabilitation activities may accelerate rehabilitation.

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**How to cite this article**: Curran, Beckett. "Opinion on In-depth Analysis of App-based Back Pain Rehabilitation." *Physiother Rehabil* 8 (2023): 318.