



Editorial

Looking for the future: Gaps in research and clinical rehabilitation for chronic chikungunya arthralgia

According to the local Health Minister, Brazil has emerged as an epicenter of arboviruses in the Americas in 2024. This scenario likely represents the most severe arbovirus pandemic of the century, highlighting deficiencies in public policy investment, educational outreach, and sanitary conditions.¹ The pandemic has seen an expansion in transmission zones, and controlling the vector appears to be extremely difficult.² The problem extends beyond Brazilian territory, as the pandemic occurs with varying intensity throughout South and Central America.³ Some cases have been reported in the southern states of the USA and in Europe. Several socio-environmental factors are directly implicated in these new pandemics, and it is suggested that climate changes, driven by long-term temperature increases, will expand the transmission area.¹

In addition to the acute manifestations of arboviruses, long-term manifestations can occur following a chikungunya infection.⁴ More than 3.7 million laboratory-confirmed chikungunya cases have been reported in the Americas, with up to 50% of individuals developing chronic chikungunya arthritis lasting for >12 weeks.^{2,5} These conditions are marked by musculoskeletal disorders, chronic inflammatory joint disorders, tenosynovitis, and polyarthralgia, which are often severely incapacitating.³ Despite its prevalence, there are no vaccines for chikungunya, and there is a lack of consensus on strategies for managing chronic pain and rehabilitation.^{2,6} According to epidemiological findings, it is possible that even this year, health systems will experience a considerable number of individuals affected by chronic chikungunya arthralgia.⁷ Additionally, moderate-to-severe disability can have considerable social and economic implications, including high levels of absenteeism, psychosocial stress, and elevated public healthcare costs.³ Costa et al.⁸ suggested that there are no data regarding direct costs of chikungunya in Brazil, but the loss in productivity could be estimated around 2.13 billion dollars.⁸

Chikungunya is often viewed as a neglected health issue, and rehabilitation treatment has a lower level of evidence.³ A significant gap in long-term clinical management for the rehabilitation process of these individuals still exists.² Despite Brazil being a protagonist in chikungunya cases worldwide, the Brazilian Platform of Clinical Trials has reported only three ongoing recruiting studies using Dexamethasone/Methotrexate, Osteopathic Manipulation, and Pilates exercise. Moreover, no validated assessments, such as physical tests or questionnaires, are currently available to investigate individuals affected by chikungunya in scientific research. The scarcity of scientific data on chikungunya extends from basic science to clinical research, and a call to action is needed. The pathophysiology of chronic pain and its underlying causes remain unclear, as well as the related functional

impairments.⁹ New research is essential to clarify the risks of chronicity, disease progression, and their impact on physical function.

Chronic disability is set to become a significant issue in the public health landscape of countries impacted by pandemics.⁷ Beyond the acute and subacute phases of the disease, both private and public healthcare systems must gear up to support individuals with chronic chikungunya arthralgia and associated functional impairments. Early intervention by physical therapists and rehabilitation professionals in primary care is crucial, involving the identification and mapping of cases presenting with physical dysfunction due to chronic chikungunya arthralgia. Consistent monitoring of these cases is essential, focusing on enhancing access to rehabilitation services.

Few rehabilitation interventions are cited in the literature to improve pain and physical function in individuals affected by chronic chikungunya arthralgia. The few that exist are primarily Phase I clinical trials, characterized by a small number of participants and a high to moderate risk of bias.¹⁰⁻¹³ According to these studies, rehabilitation for individuals affected by chronic chikungunya arthralgia could involve a combination of pharmacological approaches with physical therapy interventions.^{3,12} However, the optimal parameters for exercise prescription are still unknown.^{3,12} Fig. 1 synthesizes previously published randomized clinical trials (RCT) studying physical therapy interventions aimed at improving pain and physical function. Interventions such as kinesiotherapy,¹³ Pilates,¹³ auriculotherapy,¹³ and neuromodulation^{11,14,15} show promise, but more definitive evidence is needed to recommend them confidently. All RCT were done in Brazil and suggest a reduction in pain and improvement of functional capacity and quality of life.^{11,13-15} All these studies evaluate only the short and medium-term effect of these interventions. And it is worth noting that no intervention studies have been conducted in primary care.

In 2017, Marti-Carvajal et al.¹⁶ suggested insufficient evidence for the efficacy or safety of chikungunya intervention and advised caution for prescribing and policymakers.¹⁶ Today, this recommendation still holds true for new systematic reviews and meta-analysis, which suggest a lack of high-quality studies to support guidance for care and treatment.^{13,16} Despite being an important public health problem, it appears that little has been done in the field of rehabilitation.

For chronic chikungunya arthralgia, our primary objectives must focus on alleviating pain, enhancing physical function, and improving quality of life. To achieve these goals, it is imperative that governments, research institutions, universities, and healthcare systems collaboratively create robust opportunities and develop infrastructure that supports advanced research in this domain. Clinicians and family medicine doctors are often the first healthcare professionals to assist patients with

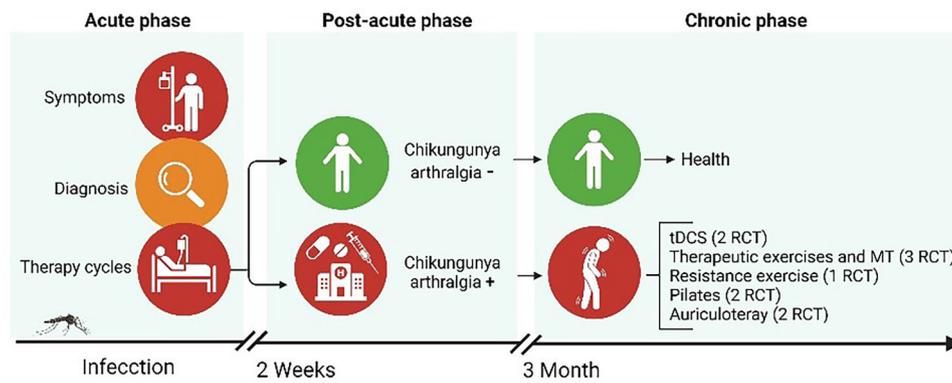


Fig. 1. Interventions for chronic chikungunya arthralgia. MT, manual therapy; RCT, randomized clinical trials; tDCS, transcranial direct current stimulation; therapeutic exercise: mobilization of joints, stretching, aerobic exercises, active-resisted and active-free exercises, and electrophysical agents.

chikungunya in the earliest stages of the disease, and some continue their follow-up after its chronicity with only analgesics use because, in many regions of Latin America, there are not enough physical therapists or other healthcare providers to give support. Consequently, tele-rehabilitation and home-based approaches hold significant promise for managing chronic chikungunya arthralgia, especially in endemic regions lacking rehabilitation infrastructure and specialists. These methods can provide accessible, cost-effective care, allowing patients to receive education and therapy remotely. Utilizing technology can bridge gaps in service delivery, offering personalized, continuous rehabilitation to improve patient outcomes. However, the lack of appropriate studies leads to a lack of guidelines for treating those patients.

To improve chronic chikungunya care, researchers in Latin America, particularly those specializing in physical therapy and rehabilitation, should prioritize investigating the long-term effects of arboviruses on human function. Moreover, partnerships are urgently needed across international borders to facilitate knowledge exchange and innovation. Consequently, guidelines must be continually updated and refined to provide precise, evidence-based treatment protocols for individuals suffering from chronic chikungunya arthralgia. This strategic approach will ensure that treatment methodologies not only keep pace with evolving scientific insights but also effectively address the complexities of recovery and rehabilitation in affected populations.

Declaration of competing interest

The authors declare no competing interest.

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Rodrigo Pegado^{a,b,*}, Nilson N.Mendes Neto^{b,c}, Lucas Camargo^b, Kevin Pacheco-Barrios^{b,d}, Felipe Fregni^b

^a Department of Physical Therapy, Federal University of Rio Grande do Norte, Natal, RN, Brazil

^b Neuromodulation Center, Spaulding Rehabilitation Hospital, Massachusetts General Hospital, Harvard Medical School, Boston, MA, USA

^c Clinical Investigation, Harvard Medical School, USA

^d Universidad San Ignacio de Loyola, Vicerrectorado de Investigación, Unidad de Investigación para la Generación y Síntesis de Evidencias en Salud, Lima, Peru

* Corresponding author.

E-mail address: rodrigo.pegado@ufrn.br (R. Pegado).