

# Dermatological rehabilitation in burned children: an integrative review

## Reabilitação dermatológica em crianças queimadas, uma revisão integrativa

**DOI: 10.56238/isevjhv3n1-022** Receipt of originals: 01/02/2024 Publication Acceptance: 02/19/2024

Marcos Aurélio Silva Oliveira<sup>1</sup>, Maria Victória Silva Moraes<sup>2</sup>, Ana Beatriz do Nascimento Barros<sup>3</sup>, Talicya Renata Oliveira Ruiz<sup>4</sup>, Thalita Sargi Montedor<sup>5</sup>, Roger William Savio<sup>6</sup>, Maria Clara Vilaça Santos<sup>7</sup>, Luna D'Angelis Barbosa de Albuquerque<sup>8</sup>, Lohana Vidaurre Salvatierra<sup>9</sup>, Rodrigo Daniel Zanoni<sup>10</sup>.

## ABSTRACT

Introduction: Dermatological rehabilitation in burn children plays a crucial role in restoring skin function and aesthetics after burn injuries. This integrative literature review aims to understand the methods and results related to this practice, exploring relevant studies in the area. Methods: To conduct this integrative review, the PubMed, Scielo and Virtual Health Library databases were used. We used specific keywords such as "dermatological rehabilitation", "burn children"

<sup>1</sup> Author

ORCID: 0009-0009-4258-6402 Medical Scholar Afya Standard Integrated Colleges E-mail: ms.aureliofacul@gmail.com <sup>2</sup> ORCID: 0009-0005-2613-5207 Medical Student at the University Center of Adamantina E-mail: mariazinhasm13@hotmail.com 3 ORCID: 0009-0009-3726-2470 Medical Student at the Federal University of the State of Rio de Janeiro (UNIRIO) Intern at the School of Medicine and Surgery (EMC - UNIRIO) E-mail: barros.ab@edu.unirio.br 4 ORCID: 0009-0000-0485-2014 Medical Student of the Union of Colleges of the Great Lakes (UNILAGO) E-mail: talicya25renata@hotmail.com <sup>5</sup> ORCID: 0009-0006-8204-8308 Medical Student at Universidade Brasil (UB) E-mail: thalitasmontedor@hotmail.com <sup>6</sup> ORCID: 0009-0006-2005-5078 Medical Student at the University Center of Belo Horizonte (UNIBH) E-mail: med.rogersavio@gmail.com 7 ORCID: 0009-0004-0731-6929 Medical Student at the University Center of Belo Horizonte (UNIBH) E-mail: vilaca.mariac@gmail.com <sup>8</sup> Co-supervisor ORCID:0009-0004-9698-6296 Physician at Hospital Pronto Socorro Mário Pinotti - HPSM E-mail: lunadba@hotmail.com / lunadba@gmail.com <sup>9</sup> Co-supervisor ORCID: 0000-0003-3155-2142 General Surgeon from the Hospital do Servidor Público Municipal De São Paulo E-mail: loohana36@gmail.com <sup>10</sup> Advisor ORCID: 0000-0001-7641-2851 Doctor from the Pontifical Catholic University of Campinas - SP Master's Degree in Public Health from Faculdade São Leopoldo Mandic Campinas E-mail: drzanoni@gmail.com



and "paediatric burns" to locate the relevant articles. The selection of articles was based on criteria of relevance and quality of the research. Results: This integrative review encompassed several studies related to dermatological rehabilitation in burn children. Some studies have focused on negative pressure therapy and its role in recovery from electrical burn injuries. Others have explored the use of dermal regeneration matrix in burn patients. In addition, epidemiological studies were included that provided information on the profile of burned children treated in hospitals. The review also addressed the importance of physical therapy in the rehabilitation of burn patients and the factors associated with physical sequelae in burn children. Kinesiotherapy strategies and the dermatologist's approach to the first burn care were also discussed. Conclusion: Dermatological rehabilitation in burned children is a multidisciplinary field that requires diverse and individualized approaches. The integrative review highlighted the importance of innovative techniques and treatment strategies to improve outcomes and quality of life for children burned. The knowledge gained from these studies may contribute to the improvement of dermatological rehabilitation practices in burned children in the future.

Keywords: Dermatological rehabilitation, Burnt children, Pediatric burns.

## INTRODUCTION

Dermatological rehabilitation plays a crucial role in the recovery and improvement of the quality of life of burned children. Treating burns in children is a major challenge for the medical field, as it can result in serious injuries and long-lasting dermatological problems (Yoda, et al., 2013). Several studies and case reports have addressed different aspects of this situation, from initial treatment to the analysis of the epidemiological profile (Dassie & Alves, 2011), the use of innovative therapeutic techniques (Bustillo & Ohana, 2016), and the importance of physiotherapy and kinesiotherapy in the rehabilitation process (Prestes et al., 2019).

Dermatological rehabilitation in burned children is essential for their full recovery and overall well-being. Burns in children are a significant challenge for medical professionals because they can cause serious injuries and long-lasting skin problems (Yoda et al., 2013). Varied studies and case reports have explored different aspects of this area, including from initial treatment to the analysis of the epidemiological profile of these occurrences (Dassie & Alves, 2011), the use of innovative therapeutic techniques (Bustillo & Ohana, 2016), and the importance of physiotherapy and kinesiotherapy in the rehabilitation process (Prestes et al., 2019).

The maturation analysis of dermal regeneration matrix implants using negative pressure dressings has also stood out as an effective approach in the rehabilitation process (Goulart et al., 2020). It is important to emphasize that the multidisciplinary approach, which involves dermatologists, plastic surgeons, physiotherapists, and other healthcare professionals, is widely recommended to provide complete care to burn patients (Santana et al., 2012).



Continuous research has contributed to a better understanding and improvement of dermatological rehabilitation in burned children, allowing the development of more effective strategies to meet the needs of these patients (Machado et al., 2009), reduce the impact of sequelae, and promote a complete recovery.

In this context, this study aims to explore the main aspects and findings related to dermatological rehabilitation in burned children, highlighting the importance of these studies to continuously improve the dermatological care of this vulnerable population.

Through understanding and applying the knowledge gained through these surveys and case reports, healthcare professionals play a vital role in improving the quality of life of children suffering burns by providing effective treatments, preventing complications, and helping these patients overcome the challenges faced after injuries caused by electrical burns (Baggio et al., 2020).

This study aims to explore the main aspects and findings related to dermatological rehabilitation in children with burns, highlighting the importance of this research for the continuous improvement of dermatological care for this vulnerable population (Vale, 2021).

#### MATERIALS AND METHODS

To conduct this integrative review of the literature on dermatological rehabilitation in burn children, the following databases were used: PubMed, Scielo and Virtual Health Library. Specific keywords were used to locate articles, such as "dermatological rehabilitation", "burned children", and "pediatric burns".

For advanced search, aiming at greater data variability, additional keywords were used, such as: "Treatment of burn injuries", "Rehabilitation of burns in children", "Epidemiological profile of pediatric burns". These keywords were combined in various ways to ensure the comprehensiveness of the searches and to address the different aspects of dermatological rehabilitation in burned children. In addition, filters were applied to include only studies published in the last ten years, ensuring the relevance of the information obtained for the integrative literature review.

The following inclusion criteria were established for the selection of articles and papers to be considered in this integrative literature review: Relevance to dermatological rehabilitation in burn children. Articles and papers written in Portuguese, English, and Spanish were considered for inclusion in this review. Only studies published in recent years, from 2008 to 2023, were included, ensuring that the information was up-to-date.



The following criteria were established for the exclusion of articles and studies that did not meet the objectives of this integrative literature review: Articles and studies that do not directly address dermatological rehabilitation in burned children or do not provide relevant information on the topic. Studies that focus exclusively on adult patients or do not make a clear distinction between the paediatric and adult population were excluded. Articles written in languages other than Portuguese, English or Spanish were not considered. Studies published before 2008 were excluded to ensure that the information was up-to-date.

The application of these inclusion and exclusion criteria aimed to select articles and studies that offer relevant and up-to-date information on dermatological rehabilitation in burn children, allowing a comprehensive and informed integrative review of the available literature.

## **RESULTS AND DISCUSSION**

The results of this review revealed a variety of valuable information from the selected articles. The studies analyzed addressed different aspects of rehabilitation in burned children, including innovative dermatological treatments, epidemiological profile, physiotherapy interventions, use of dermal regeneration matrix, and other related topics.

Table 1 of results will present the specific details of each article, including authors, title, year of publication, methods, results, and conclusions. This table will allow for a concise overview of the findings of each study, making it easier to analyze and synthesize the results.

TITLE	AUTHOR, YEAR	OBJECTIVES	RESULTS	CONCLUSIONS
Kinesiotherapy applied to burned children and adults: An integrative review of the literature	PRESTES, et al. 2019	The objective of this study was to identify, present and discuss the findings of the literature regarding clinical trials that show the application of kinesiotherapy in burned children and adults. It was questioned which are the most effective therapeutic exercise programs for the clinical practice of the physical therapist in these patients.	The studies found applied kinesiotherapy with isometric, isokinetic, isotonic, aerobic and resistance exercise programs in children and adults with burns between the age group of 6 and 65 years of age, which aimed to facilitate the recovery of the injured according to the degree and depth of the burn, classified as acute and chronic from 2nd to 3rd degree. with 23.87% to 45% of the total body surface area burned.	Due to the scarcity of studies on the subject, it is concluded that physical therapy with resistance, isometric and aerobic exercises after hospital discharge 5 times a week, for 6 to 12 weeks, provides better results for burned children. And 3 times a week for 12 weeks, physical therapy with aquatic and land-based aerobic and resistance exercises is effective for adults with burns.

#### Table 1 - Dermatological rehabilitation in burn children.



Burn treatment center: epidemiological profile of children admitted to a teaching hospital	DASSIE, et al. 2011	OBJECTIVE: To characterize the epidemiological profile of the pediatric population hospitalized at the Burn Treatment Center of the University Hospital of the State University of Londrina and its characteristics.	A total of 145 medical records were analyzed, and the mean age was $4.54 \pm$ 3.41 years, and most of the children were male. The remarkable characteristic was the length of hospital stay (16.32 days) and almost 100% of the cases required surgical procedures (84.83%) for a better resolution, especially dermatological in these children.	The results obtained help in the epidemiological knowledge of the population served by the CTQ/HU/UEL and reinforce the importance of preventive policies aimed at reducing the incidence of childhood burns.
Physiotherapy in burn patients: the process of childhood rehabilitation	RODRIGUES. 2021	OBJECTIVE: To review the scientific literature on the means of the physical therapy rehabilitation process in child patients with burns.	The recovery of the aesthetic appearance of the skin, as well as the restoration of the function of a limb or anatomical area lost due to a deep burn, has shown hopeful results with the use of laser technologies. With the use of laser, post-traumatic or pathological scars can be noticed the improvement of the texture, tone and appearance of the skin, with a low incidence of dyschromia, being a safe and effective technology for the treatment of these scars.	It is concluded that, although burns in children are an important aspect of physical, psychological and social health problems, there are still few studies that address the subject. It is important to intervene early in the healing process of burn patients, in order to avoid complications related to prolonged hospitalization, reducing aesthetic and functional impairment.
First care for burns: the dermatologist's approach	VALLEY. 2005.	To review the pathophysiological basis of burns and the principles of evaluation of burns, with a view to providing adequate first medical care to the patient. It does not aim to address the subsequent treatment of the burned area with dressings or the repair of destroyed tissues and the treatment of sequelae resulting from burns.	The fire flame caused by the manipulation of liquid ethyl alcohol is still a common cause of burns in Brazil, responsible for the majority of cases in adolescents and the second leading cause in children treated at an emergency referral hospital in Minas Gerais, and for 40% of burns in children between 7 and 11 years of age in a teaching hospital in the State of São Paulo. The elderly and children tend to have more critical systemic repercussions and have a disproportion of body surface area in relation to weight. In this age group, complications are therefore more common and more severe.	Educational prevention measures consist of guiding children from an early age to avoid situations of risk for burns in the domestic environment, including in school curricula the teaching of accident prevention, including burns, in addition to general preventive campaigns aimed at the entire population. <sup>14</sup> To be more effective, particular educational campaigns should be based on reliable epidemiological data that identify specific causes of burns and their respective risk populations, to which they should be periodically addressed. <sup>10</sup>



Epidemiological study of burned children aged 0-15 years treated at the Andaraí General Hospital from 1997 to 2007	MACHADO, et al. 2009	Analyze the epidemiological profile of burned children and collaborate with information for the development of prevention campaigns and educational programs.	Most of the consultations occurred between 10-15 years of age; The highest hospitalization rate in the sector was between 0-4 years. Heated liquid was the most frequent agent responsible for burns in the three age groups studied. The mortality rate among hospitalized patients was 5.83%.	The results demonstrate the need to develop awareness and guidance actions for parents, as well as for the general population, through educational programs and prevention campaigns.
Pediatric burns: factors associated with physical sequelae in burned children treated at the Joana de Gusmão Children's Hospital	YODA, et al. 2013	OBJECTIVE: To identify the factors associated with physical sequelae in burned children treated at the Joana de Gusmão Children's Hospital.	Of the sample obtained, 56% of the patients were preschoolers and 58.07% were male. Scalded liquid contributed to 64% of cases and alcohol 27%. Patients with burns in special areas accounted for 61% of the victims and most patients had up to 10% of their body surface burned. Of the 186 medical records analyzed, 38% had a 3rd degree injury and 39% had pathological scarring. The antibiotic was prescribed for 59% of the patients and referral to other specialists was necessary in 26% of the cases for better treatment, aiming at dermatological rehabilitation in child patients.	Factors such as the burned body area, the depth of the injury, the use of compression mesh, the prescription of antibiotics and the type of discharge are statistically significantly associated with the development of physical sequelae.
Epidemiological profile of children aged 0-18 years with burns treated at the Plastic Surgery Service and burned at a University Hospital in Southern Brazil	NIGRO, et al. 2019	OBJECTIVE: To outline the epidemiological profile of children aged 0-18 years treated at a teaching hospital in Curitiba, Paraná, Brazil.	Most of the sample consisted of infants (43%), with a mean age of 12.6 years. The most affected sex was male, and the patients remained hospitalized for about 14.5 days. In the study, 98% of the burns were caused by the thermal agent, mainly due to hot liquids. Regarding the degree of depth, most of the burns were 2nd degree (61.3%), reaching up to 25% of the burned body surface, with the trunk being the most affected. Among the treatment modalities, 44% of the patients required surgical intervention with debridement and grafting.	Younger children are more likely to suffer burns, especially in the home environment and, in addition, a prepared and trained team is of crucial importance in the prognosis of these patients.



Importance of physical therapy in the rehabilitation of burn patients	SANTANA, et al. 2012	OBJECTIVE: To analyze the importance of physical therapy in the rehabilitation of burn patients, through the application of an evaluation protocol before and after physical therapy, with patients of the Sergipe Emergency Hospital (HUSE), in the city of Aracaju, SE, from March to May 2012.	It was higher in the age group of 1 to 5.9 years There was a predominance of 2nd degree burns. It was evidenced that, before physical therapy, the predominant phase was inflammatory, and after physical therapy, it was remodeling. Edema regressed in all patients after therapy. There was presence of local edema to the lesion before physical therapy treatment in all patients evaluated, both in children and adults. Generally speaking, younger children suffer more burns compared to older children.	The clinical parameters compared, before and after physical therapy, showed significant predictive value for all variables, confirming the importance of this service in rehabilitation.
Analysis of the maturation time of dermal regeneration matrix implants using negative pressure dressings	GOULART, et al. 2010	OBJECTIVE: To analyze the use of Negative Pressure Dressing (BC) as an adjuvant in the treatment with Dermal Regeneration Matrix (DRM) in the treatment of wounds in general, in children treated at the Pediatric Surgery Service of the Joana de Gusmão Children's Hospital (HIJG).	Prepubertal age and male gender predominated. Trauma was the most frequent indication for the use of MRD and BC. The lower limbs were the main MRD implantation sites. The most common initial complication was hematoma, and the mean latch of the mother was 90.56%. The mean time of maturation of the MRD with the use of the BC was 15.88 days. The average number of dressing changes was 3.06 procedures. The final outcome was skin grafting in 100% of the cases, with a mean latch of 93.62%.	BC offers advantages in adjuvant treatment of MRD, such as a lower number of dressing changes, reduction in MRD maturation time, and reduced length of hospital stay.
Use of dermal regeneration matrix in burn patients in a referral children's hospital in Santa Catarina: nine years of experience	MAES, et al. 2012	Analysis of the use of the dermal regeneration matrix (MRD) in the treatment of acute burns and sequelae in children treated at the Pediatric Surgery Service of the Joana de Gusmão Children's Hospital (HIJG), and evaluation of aesthetic and functional results with the Vancouver Cicatricial Scale (CVS).	School age and male gender predominated. Alcohol was the most frequent aggressor agent. The mean body surface area burned was 32.31%, with a predominance of full- thickness burns (67.11%). The most common initial complications after MRD implantation were hematomas and infections, with a mean matrix latch of 91.56%. Among the most frequent complications after epidermal autografting, infections, epidermolysis	The results obtained were excellent in 45.07% of the patients, with a mean CVS score of 2 points, which ensures the efficacy of MRD in the treatment of burn patients.



			and displacement stand out. The dermal graft reached a mean grip of 87.61%.	
Negative Pressure Therapy in Electrical Burn Injuries in the Pediatric Patient	BAGGIO, et al. 2020	To report the use of Negative Pressure Therapy (NPT) in a pediatric patient with an electrical burn and to provide fundamental support for the best treatment, thus enabling other patients to benefit from this therapy.	It can be considered that the initial conduct of a multidisciplinary team was fundamental for the patient's prognosis. In addition, the right upper limb affected by the electrical burn presented satisfactory and significant results when the NPT was instituted.	The case report revealed that TPN was essential for the recovery of the pediatric patient's injury, being a comfortable alternative for children who were victims of burns, in addition to allowing the adherence of skin grafts and faster healing of the lesions.
Use of Omiderm in severe burns: a case report	BUSTILLO, et al. 2016	It presents the experience in the treatment with Omiderm in a child with severe burns, in terms of the evolution of the healing process until epithelialization.	Excellent clinical evolution, without complications, with a hospital stay of 15 days and complete epithelialization in 22 days, increase in dressing change intervals and satisfactory aesthetic result.	Omiderm is an important therapeutic option in cases of partial-thickness burns in children. Its transparency made it possible to evaluate the evolution of the wound, reducing the frequency of dressing changes, reducing the need for analgesia and accelerating healing.

Own authorship.

The aim of this review was to collect and examine relevant information on the treatment of children who have suffered skin burns. The analysis of these studies highlighted important concepts related to the form of management used, demographic characteristics of the patients, physical therapy interventions, use of a matrix for skin regeneration, and the importance of the role played by the dermatologist in this context.

Dermatological rehabilitation in children who have suffered burns is extremely important for the treatment and long-term care of these children. Several studies and surveys have explored the relevance of this subject, providing valuable information for healthcare professionals, caregivers, and families. Within this context, an integrative review is a valuable tool that compiles and synthesizes the findings of existing research, offering a broader view on the topic (Prestes, Leão, Lopes et al., 2019).

The goal of dermatological rehabilitation in burned children is to restore the affected skin to its original integrity, improve its function, and minimize long-term complications such as scarring or deformities. This approach encompasses different interventions, from wound care to physical therapy, the use of special dressings, the application of topical medications, and even reconstructive surgeries in specific cases. The integrative review makes it possible to gather



information on all these interventions and evaluate their effectiveness in burned children (Goulart, Valentim, Pereima et al., 2020).

The studies analyzed include evaluations of the use of dermal regeneration matrices, negative pressure therapy, and specific dressings. These studies provide insights into the therapeutic options available to promote skin healing and rehabilitation. The results of these surveys can highlight best practices and approaches that healthcare professionals can take when treating children with burns.

That said, the integrative review may also address the importance of physical therapy in the rehabilitation of patients who have suffered burns. Physical therapy plays a crucial role in recovering motor function, preventing contractures, and improving the mobility of burn patients. The review can highlight how physiotherapy is an essential part of the dermatological rehabilitation process (Santana, Brito, Costa, 2012).

Another aspect to be discussed is the need for effective initial care in cases of burns, emphasizing the importance of the involvement of dermatologists from the beginning of treatment (Vale, 2005). Early intervention and an appropriate approach to skin lesions can minimize long-term complications and improve aesthetic outcomes.

It is crucial to discuss factors associated with physical sequelae in children with burns, as discussed in one of the studies (Yoda, Leonardi, Feijó, 2013). The identification of these factors allows for a more targeted intervention and a more careful follow-up of children who may be at higher risk of complications.

Dermatological rehabilitation in burned children is an area of medicine that requires special attention due to the complexity of skin lesions caused by burns and the challenges associated with the recovery of these pediatric patients. This comprehensive study aims to understand the different aspects of dermatological rehabilitation in burned children, building on the information and findings of previous research.

The scientific literature examined offers valuable information on the treatment and care strategies needed to optimize the recovery of burned children. Studies investigating the use of dermal regeneration matrices, negative pressure therapy, and specific dressings highlight the importance of innovative therapeutic approaches, which accelerate the healing process and improve dermatological outcomes (Prestes, Leão, Lopes et al., 2019; Goulart, Valentim, Pereima et al., 2020). This is crucial for minimizing the impact of scarring and deformities that can negatively impair children's quality of life.



Physiotherapy plays an essential role in dermatological rehabilitation in burned children (Santana, Brito, Costa, 2012). It plays a key role in recovering patients' motor function, preventing contractures and improving their mobility. Physical therapy is a crucial component of ensuring that children affected by burns develop adequate motor skills and achieve peak levels of independence.

Initial treatment is an essential element in the management of burns, and it is worth stressing the importance of early and appropriate intervention, as this plays a key role in reducing complications and initiating the rehabilitation process. It is essential to involve dermatologists early on to ensure that skin lesions are treated correctly, minimizing the risk of scarring and deformities.

The discussion on the factors related to physical sequelae in burned children highlights the importance of identifying which patients are more likely to develop complications. This allows for more targeted intervention and more careful follow-up of these children, ensuring that they receive the support they need for a full recovery.

In short, dermatological rehabilitation in burned children is a multidisciplinary area that involves doctors, physiotherapists, nurses and other health professionals. The integrative review highlights the importance of innovative approaches, such as the use of dermal regeneration matrices and negative pressure therapy. In addition, the crucial role of physiotherapy and initial care is emphasized. It is essential to recognize the factors that can affect the recovery of burned children and to adopt effective strategies to minimize complications and improve the quality of life of these patients during their dermatological rehabilitation.

#### **CONCLUSION**

The issue of dermatological rehabilitation in burned children is extremely important and complex, as it involves not only the treatment of skin lesions resulting from burns, but also the restoration of the quality of life and physical function of these children. In light of the information and findings presented in the integrative review, we can come to some essential conclusions:

Firstly, the therapeutic approach has evolved over the years, with the introduction of innovative techniques, such as the use of dermal regeneration matrices and negative pressure therapy. These approaches have been shown to be effective in accelerating healing and improving dermatological outcomes while minimizing long-term complications.



Physical therapy is an indispensable component of dermatological rehabilitation in burned children. It plays a crucial role in the recovery of motor function, the prevention of contractures, and the improvement of patients' mobility. Physical therapy intervention contributes to children developing adequate motor skills and achieving higher levels of independence.

First care is a critical element in burn management, as early intervention is essential to minimize the impact of skin lesions. The involvement of dermatologists from the beginning of treatment plays a key role in ensuring that lesions are treated appropriately, reducing the risk of scarring and deformities.

In addition, the identification of factors associated with physical sequelae in burned children is essential for a more targeted intervention. This approach allows for more careful follow-up of children who may be at higher risk of developing complications, ensuring that they receive the support they need for a fuller recovery. By adopting effective and innovative strategies, a better quality of life and a more complete rehabilitation process can be provided for children facing the challenge of dealing with dermatological burns.



### REFERENCES

- Baggio, M. E., Penna, A. B., & Souza, G. F. (2020). Terapia por pressão negativa em lesões por queimadura elétrica no paciente pediátrico. \*Revista Brasileira de Queimaduras\*, 19(1).
- Bustillo, A. M. B., & Ohana, B. (2016). Uso de Omiderm em queimadura grave: um relato de caso. \*Revista Brasileira de Queimaduras\*, 15(1).
- Dassie, L. T. D., & Alves, E. O. N. M. (2011). Centro de tratamento de queimados: perfil epidemiológico de crianças internadas em um Hospital Escola. \*Revista Brasileira de Queimaduras\*, 10(1).
- Goulart, B. C., Valentim, L., Pereima, M. J. L., et al. (2020). Análise do tempo de maturação dos implantes de matriz de regeneração dérmica utilizando curativos sob pressão negativa.
  \*Revista Brasileira de Queimaduras\*, 9(4).
- Machado, T. H. S., Lobo, J. de A., Pimentel, P. C. M., et al. (2009). Estudo epidemiológico das crianças queimadas de 0-15 anos atendidas no Hospital Geral do Andaraí, durante o período de 1997 a 2007. \*Revista Brasileira de Queimaduras\*, 8(1).
- Maes, N. B., Manara, L. M., Feijo, R., et al. (2012). Uso de matriz de regeneração dérmica em pacientes vítimas de queimaduras em Hospital infantil de referência de Santa Catarina: nove anos de experiência. \*Revista Brasileira de Queimaduras\*, 11(1).
- Nigro, M. V. de A. S., Maschietto, S. M., Damin, R., et al. (2019). Perfil epidemiológico de crianças de 0-18 anos vítimas de queimaduras atendidas no Serviço de Cirurgia Plástica e queimados de um Hospital Universitário no Sul do Brasil. \*Revista Brasileira de Cirurgia Plástica\*, 34(4).
- Prestes, Y. A., Leão, L. F., Lopes, H. da S., et al. (2019). Cinesioterapia aplicada em crianças e adultos queimados: Uma revisão integrativa da literatura. \*Revista Brasileira de Queimaduras\*, 18(1).
- Rodrigues, M. M. de O. (2021). \*Fisioterapia no paciente queimado: o processo de reabilitação infantil\*. Faculdade Pitágoras.
- Santana, C. M. L., Brito, C. F., & Costa, A. C. S. M. (2012). Importância da fisioterapia na reabilitação do paciente queimado. \*Revista Brasileira de Queimaduras\*, 11(4).
- Vale, E. C. D. (2005). Primeiro atendimento em queimaduras: a abordagem do dermatologista. \*Anais Brasileiros de Dermatologia\*, 80(1), 9-19.
- Yoda, C. N., Leonardi, D. F., & Feijó, R. (2013). Queimadura pediátrica: fatores associados a sequelas físicas em crianças queimadas atendidas no Hospital Infantil Joana de Gusmão. \*Revista Brasileira de Queimaduras\*, 12(2).