# SILICONE TAPES FOR PATIENTS WITH FRAGILE SKIN: A SYSTEMATIC REVIEW

**André Soares Santos, PhD[1,2]; Aline Cunha Terra, BSc[3]; José Luiz dos Santos Nogueira, MD[2]; Lélia Maria de Almeida Carvalho, MSc[2]; Kenya Valéria Micaela de Souza Noronha, PhD[1]; Mônica Viegas Andrade, PhD[1].**

[1]Department of Economical Sciences – School of Economical Sciences – Universidade Federal de Minas Gerais (UFMG) – Av. Presidente Antônio Carlos, 6627 – Pampulha – CEP/Zipcode 31.270-901 – Belo Horizonte, Brazil.

[2]Centre for Health Technology Assessment of the UFMG Teaching Hospital – Universidade Federal de Minas Gerais – Av. Prof. Alfredo Balena, 110 – Santa Efigênia, Belo Horizonte – MG, 30130-100 – Belo Horizonte, Brazil.

[3]School of Nursing – Universidade Federal de Minas Gerais - Av. Alfredo Balena, 190 – Santa Efigênia – CEP/Zipcode 30130-100 – Belo Horizonte, Brazil.

E-mail: andresantos111@ufmg.br

## INTRODUCTION

Medical adhesives are used to affix external components to patient skin in procedures of all medical specialties. They comprise a variety of products, such as tapes, dressings, electrodes and others [1,2]. However, cutaneous trauma related to its repetitive application and removal are prevalent and underestimated. These injuries are associated with pain, risk of infections, delayed healing, decreased quality of life, and increased treatment costs [1,3–5].

## OBJECTIVE

To conduct a systematic review with meta-analysis in order to evaluate the effectiveness and safety of silicone tapes compared to microporous tapes in patients with fragile skin.

## METHODS

A systematic search in the Medline, Cochrane Library and Lilacs databases, and a complementary search in references of included studies and Google Scholar, were performed. Head-to-head comparisons of silicone tape and microporous tapes in patients with fragile skin were included. No restrictions regarding date, language or place of study were made. Two independent researchers conducted the selection process and data collection. The methodological quality of studies was assessed with the Risk of Bias tool. The quality of evidence was assessed according to the GRADE guidelines.

## RESULTS

411 references were included in the selection process after duplicate removal. In the first phase, 398 of these were excluded by title and abstract. Of the 13 references evaluated in the second phase, only three randomized controlled trials were included [4,6,7]. The data suggest that the silicone tapes are associated to less MARSIs (RR=0.53; p-value=0.03; 1 study; **Figure 1**). No significant difference was demonstrated in terms of prevention of moderate or severe injuries, probably due to small sample sizes (RR=0.25; p-value=0.20; 1 study; **Figure 2**).

Figure 1. Forest plot of risk of injury to a single application and removal of tapes in patients with fragile skin

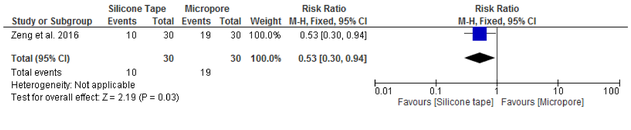
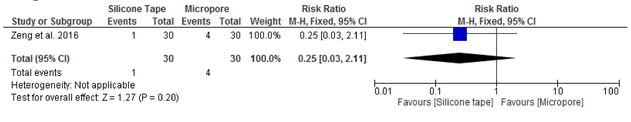
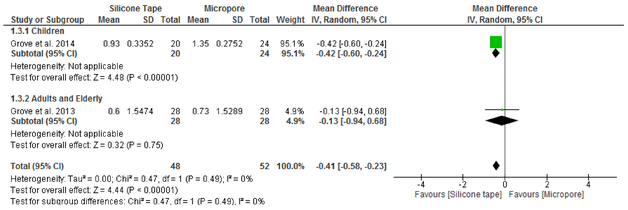



Figure 2. Forest plot of risk of moderate or severe injury to a single application and removal of tapes in patients with fragile skin



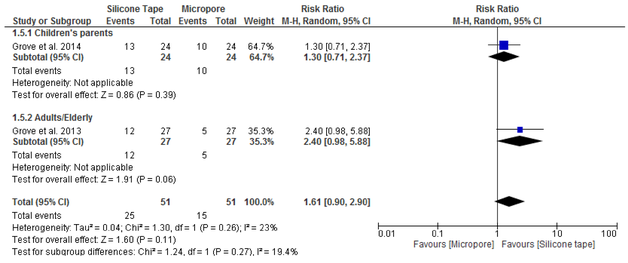

The analysis of skin-stripping favored the silicone tape in all studies (p-value<0.05; 3 studies). The risk of skin-stripping or erythema/edema were low in both groups, but significantly favoring silicone tapes (RR=0.53; p-value=0.0286; 1 study). Silicone tapes produce significantly less edema/erythema response than microporous tapes (MD=-0.41; p-value<0.0001; **Figure 2**).

Figure 1. Forest plot of erythema and edema response to a single application and removal of tapes in patients with fragile skin




The silicone tape was associated with less keratin removal (1 study; p-value<0.001) and loss of transdermic water (1 study; p-value<0.001). All three studies suggest lower adhesion of the silicone tape, but they did not include this data in the analysis. One study reported less tape edge lift with the paper tape. No significant difference in patient's preference for each tape were demonstrated (RR=1.61; p-value=0.11; Figure 2).

Figure 2. Forest plot of preference between silicone tape and microporous tape




The risk of injuries or severe injuries were not reported in two of the three studies. There was a high risk of performance, detection and reporting bias. The evidence was considered of very low quality.

## CONCLUSION

The evidence suggests that silicone tapes may be gentler to patients' skin than microporous tapes. However, the studies were not conducted with the population of interest and the outcomes are not ideal for decision making. There is insufficient information to allow the recommendation of silicone tapes to prevent skin injuries compared to microporous tapes. Larger, longer and methodologically better studies are necessary to demonstrate the suggested advantage.

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