

## Diphoterine® for chemical burns of the skin; a systematic review

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**Background:** Chemical burns represent a small part of burn injuries, but the incidence seems to increase. Traditionally a chemical burn is rinsed

with water or water and soap. Diphoterine is an amphoteric, chelating, polyvalent, slightly hypertonic solution made for decontamination of chemical splashes proposing one treatment suitable for most kinds of chemical burns. Objective: In this systematic review we aimed to assess the effect of Diphoterine on chemical burns compared with water or no treatment. The primary endpoint was depth of burn and secondary outcomes included pain, duration of hospitalization, time to return to work, need for surgery, pH, and complications associated with using Diphoterine.

**Methods:** PubMed, Embase, Cochrane Library, Web of Science, and Google Scholar were systematically searched on March 22, 2021 using the term "Diphoterine". Interventional, observational, and cohort studies were included. No language restrictions were applied. Risk of bias was assessed using the Cochrane Risk of Bias assessment tool for randomized trials and the Newcastle-Ottawa Scale (NOS 0-9) for non-randomized studies.

**Results:** A total of 8 studies were included. Only 1 retrospective study evaluated the depth of a chemical burn and found no difference between the Diphoterine group and the control group. Three studies reported on pain and found a more pronounced decrease in pain when using Diphoterine compared to the control groups. Two studies found significant improvement of pH when using Diphoterine. No studies found a difference in time to return to work or duration of hospitalization. No studies addressed the need for surgery. No studies found any complications associated to the use of Diphoterine. Risk of bias was judged high in the included RCT and the rest of the studies was awarded between 3 and 7 stars on NOS.

**Conclusion:** This systematic review found no difference between Diphoterine compared with water or no treatment on depth of a chemical burn. Diphoterine seems to be associated with less pain compared to water or no treatment, and Diphoterine seems to have a neutralizing effect of chemical burns.