

# Zinc Paste Wrap Used as the Base Layer in a Four Layer Compression Dressing Reduces Skin Irritation and Maintains Dressing Placement

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## ABSTRACT

Four-layer compression wraps provide treatment-dose compression and are standard in management of venous leg ulcers and edema-related leg ulcers. However, we have found these wraps tend to slide causing skin irritation and increase the risk of secondary wound development. Current four-layer wraps are supplied with a fluffy rayon fiber base layer which can promote skin dryness leading to itching and skin flaking. In addition, this layer appears to have poor adherence to patient's skin causing the compression dressing to slide reducing its efficacy and increasing the risk for secondary wound development.

## METHOD

Patients treated in our wound care center who were experiencing skin irritation as well as compression dressing migration were changed from the standard cotton wrap base layer to a zinc or calamine paste wrap followed by the standard layers 2-4 compression. Patients were monitored over the next week for improvement in skin irritation and for any wrap sliding as well as new wound development.



Representative patient leg

### Case 1

58-year-old male, history of venous insufficiency status post saphenous ablation. Recurrent venous leg ulcerations requiring compression wraps. He developed significant wrap sliding as well as dermatitis when wrapped with the fluffy rayon-fiber-based layer. He was then switched to a zinc paste layer followed by the standard 2<sup>nd</sup>, 3<sup>rd</sup>, and 4<sup>th</sup> layers of a four-layer compression wrap. With this change, he developed significantly less dressing migration as well as reduced itching and skin irritation.



### Case 2

28-year-old male with a history of severe lymphedema. Initially treated with a standard 4-layer compression wrap with the fluffy rayon fiber based first layer. However, he developed recurrent dermatitis as well as wrap sliding resulting in reduced compression efficacy. He was changed to a zinc paste wrap for the initial layer followed by layers 2 through 4. The hybrid four-layer compression wrap led to reduced wrap migration improving treatment adherence and edema management.

## RESULTS

Patients who were treated with the zinc or calamine paste layer had improved compression dressing adherence to the leg with less sliding as well as less skin dryness and irritation. There were less instances of dressing migration leading to improved edema reduction throughout the calf and foot.

## DISCUSSION

Four-layer wraps are widely used to treat lower extremity wounds. In our clinical experience, these wraps may cause skin irritation and slide down the treated leg. This can lead to additional skin damage and reduces treatment efficacy, as evidenced by recurrent edema proximal to the wrap. By changing from the provided cotton base layer to a zinc- or calamine-based wrap, the four-layer wraps showed reduced migration with typical wear times and reduced skin irritation in select patients. This has allowed our clinic to improve treatment adherence and reduce adverse events in our patients undergoing treatment for edema-related leg ulcers and venous leg ulcers.

## REFERENCES

1. Shi C, Dumville JC, Cullum N, Connaughton E, Norman G. Compression bandages or stockings versus no compression for treating venous leg ulcers. *Cochrane Database Syst Rev*. 2021 Jul 26;7(7):CD013397. doi: 10.1002/14651858.CD013397.pub2. PMID: 34308565; PMCID: PMC8407020.