

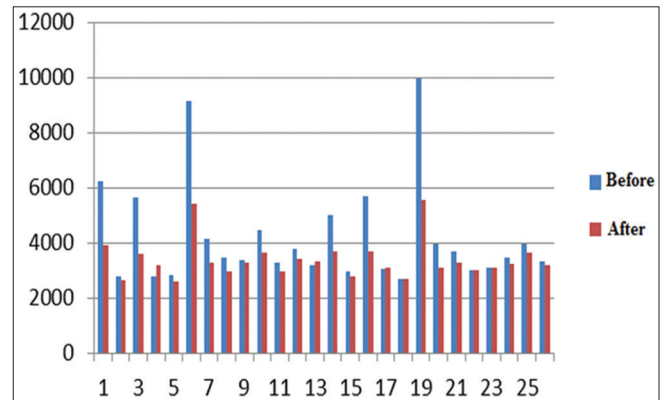
# Nonelastic Compression Stockings for the Reduction of Lymphedema and the Maintenance of the Results for 2–3 years

Dear Sir,

Bandage compression mechanisms and elastic stockings are the main forms of treatment for lymphedema. The functioning of stockings depends on the pressure exerted, the gradient of decreasing pressure from distal to proximal, and muscle activity.<sup>[1,2]</sup> The mechanism of action is intermittent pumping during muscle activity, leading to a reduction in edema.<sup>[2]</sup> The stockings exert constant pressure on the tissues, denominated resting pressure, and varied pressure during muscle activity and denominated working pressure.<sup>[3]</sup> New materials have emerged in recent years and grosgrain has become a therapeutic option for cases of lymphedema. Godoy and Godoy evaluated this nonelastic fabric for the treatment of lymphedema of the upper limbs, lower limbs, trunk, and penis, which proved to be effective at reducing the edema and the maintenance of the results.<sup>[4-7]</sup> The results are even better when these stockings and sleeves are used in combination with manual and/or mechanical lymphatic therapy and intensive treatment enables a faster reduction in the edema.<sup>[8]</sup> As monotherapy, grosgrain stockings lead to the normalization or near normalization of edema in cases of lymphedema in 82% of patients within 6 months and 92% of patients within 1 year of treatment.<sup>[9]</sup> After normalization, it is possible to alternate grosgrain stockings with elastic stockings properly adjusted to each patient.

A clinical trial was conducted to demonstrate the therapeutic evolution of grosgrain stockings as monotherapy for bilateral primary lymphedema of the lower limbs for a period of 24–36 months among 13 patients (11 women and 2 men; 25–72 years of age; mean: 44.72 years). The patients wore grosgrain stockings as monotherapy for more 2–3 years. The participants received instructions on how to place and adjust the stockings. All patients returned to the clinic after 1 week for the evaluation of the initial results and verification of the correct placement of the stockings. After this learning phase, the patients were instructed to return every 1–3 months within the realm of their possibilities considering the distance to the treatment center. The patients were submitted to volumetric analyses at each evaluation. The mean follow-up period was 28.83 months. A significant overall reduction was found ( $P = 0.002$ , paired  $t$ -test), thereby demonstrating that this form of monotherapy was effective at reducing edema and maintaining the results. Figure 1 displays the changes in volume before and after treatment. Four (15.38%) did not experience a reduction in volume. Figure 1 shows volumetric readings at baseline and after treatment.

Constant adjustment is fundamental to achieving the best result. Moreover, weekly control is better than control performed



**Figure 1:** Volumetric readings at baseline and after treatment

every 2 weeks or more. Thus, a set of strategies has been used to determine the effectiveness of this method and ensure adaptation to each patient. In the present study, the stockings were used with greater flexibility of control depending on the situation of each patient for a period of 2–3 years. Analyzing the patients separately, we see that those with higher initial volumes had the largest reductions. This suggests that patients with greater deformities may have a poorer quality of life and therefore adhere better to treatment when given control over the process.

Grosgrain stockings are important in both the reduction phase and for the maintenance of the results, offering hope to thousands of patients with lymphedema who are unable to afford more expensive treatments. The greatest difficulties with these stockings regard their placement and removal as well as the esthetic aspect. Alternating the grosgrain stockings with elastic stockings after normalization is a viable option for maintaining the results, as elastic stockings are easier to wear and offer better esthetics. Alternating between these two types of stocking enables maintaining the reduction for long periods of time. Elastic stockings are indicated for lymphovenous diseases but are more difficult to use in cases of large volumes of edema due to the need for personalized sizes. However, the normalization or near normalization of edema facilitates the use of standard elastic stockings. Patient control is fundamental to ensuring better adherence and adaptation to treatment in each phase of the edema.

Grosgrain stockings as monotherapy enable the reduction of edema in cases of lymphedema as well as the long-term maintenance of the results.

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Nil.

## Conflicts of interest

There are no conflicts of interest.

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