

VenoTrain® soft S

EVALUATION OF MEDICAL COMPRESSION STOCKINGS POST-OPERATIVE USE AT THE KNEE

INTRODUCTION

After minimally invasive orthopedic procedures, follow-up care is key during the post-operative stage. Compression plays an important role during this stage because it reduces edema, thus contributing to the healing process. Medical compression stockings (MCS) which are characterized by easy donning have particular post-operative value.

The VenoTrain soft S features an anatomically shaped 90° heel, allowing for easier donning, and the material is skin-friendly as well as comfortable to wear. For edema management, during the stockings' defined compression around the ankle and the steady pressure reduction from distal to proximal are crucial.

The aim of the study was to describe and assess wearing comfort, functionality, and edema management the post-operative use of these special medical compression stockings during practical application following minimally invasive knee procedures.

METHOD

From June to August 2025, patients of an orthopedics practice were treated with the VenoTrain soft S following minimally invasive knee surgery. Overall 15 patients, eight female and seven male, gave their approval to be included in this observational study. Their average age was 46.2 (18 to 70).

During the first check-up appointment after surgery, all details were gathered using a questionnaire completed by the physician and the patient. On the one hand, the treating physician documented information about the indication and treatment as well as about achieving the treatment goals. On the other hand, patients recorded wearing duration, handling, comfort, and fit of the medical compression stockings. An evaluation relating to feelings of tensions, swelling, mobility, and pain was also requested.

RESULTS

Predominantly, indications for surgery were meniscus injuries or meniscus damage (eleven times) as well as damage to the cruciate ligament (four times). Ruptured medial ligaments, damage to the patella, and a ganglion were also detected. In all cases, the VenoTrain soft S was donned perioperatively and prescribed with an initial wearing duration of 10 to 14 days, ideally for 24 hours per day. In three cases, this duration was extended by three weeks following medical review. Donning aids were not needed. All patients received supporting treatment in the form of physiotherapy, walking aids, and analgesics. In six cases, an orthosis to immobilize the knee was prescribed in addition.

ACHIEVEMENT OF TREATMENT GOALS – PHYSICIANS' ASSESSMENT

The physicians' treatment goals included: reducing post-operative joint swelling/tendency to develop edema, promote healing/preventing additional drainage, reducing pain, and increasing mobility. The achievement of these goals was assessed with 1 (very good) to 4 (poor) (Fig. 1).

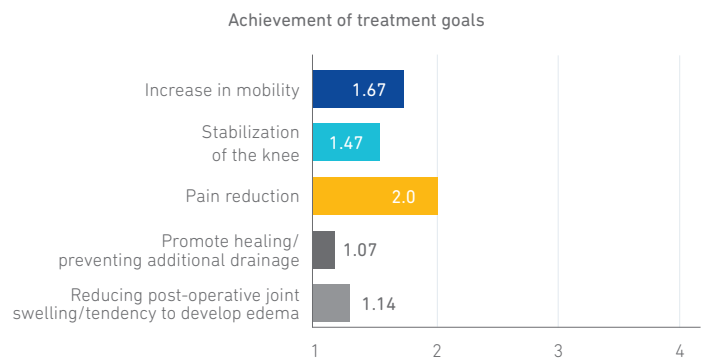


Fig. 1: Rating: 1 = Very good ... 4 = Poor

For reducing post-operative joint swelling/tendency to develop edema as well as for supporting healing/preventing additional drainage, the rating was very good on average (1.14 and 1.04, respectively). The reduction in pain was given an average assessment of 2.

No negative impact caused by wearing the compression stockings was documented.

PATIENT ASSESSMENT

The majority of patients reported wearing the medical compression stockings for more than 8 hours every day during the treatment period. 60 percent even wore them for over 12 hours per day (Fig. 2).

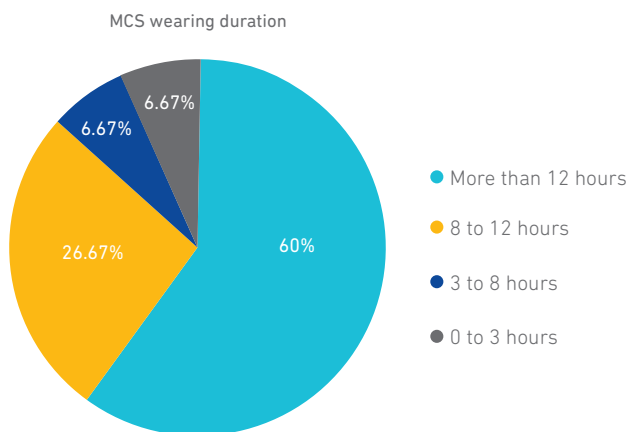


Fig. 2: MCS wearing duration

Wearing the Venotrain soft S significantly mitigated the feeling of tension as well as the development of swelling in the knee joint (Fig. 3). The compression stockings had a minor impact on pain levels, though reduction was reported.

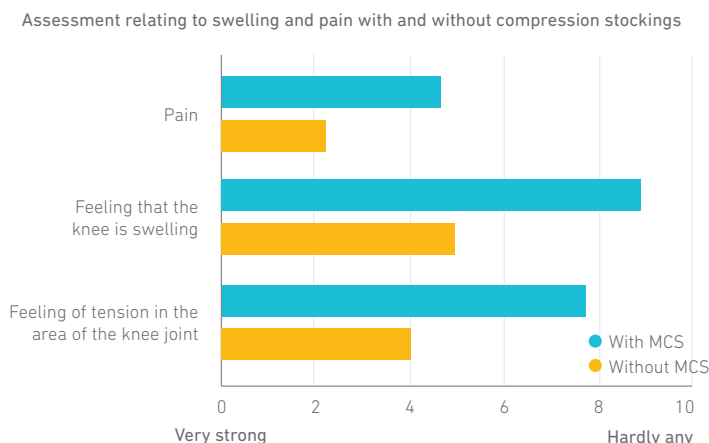


Fig. 3: Subjective assessment of feelings of tension, swelling, and pain with and without MCS: 1 = Very strong ... 10 = Hardly any

64 percent of participants fully agreed with the statement that the Venotrain soft S provides support and a feeling of confidence during movement. 14 percent agreed. Only one patient could not agree to the statement (Fig. 4).

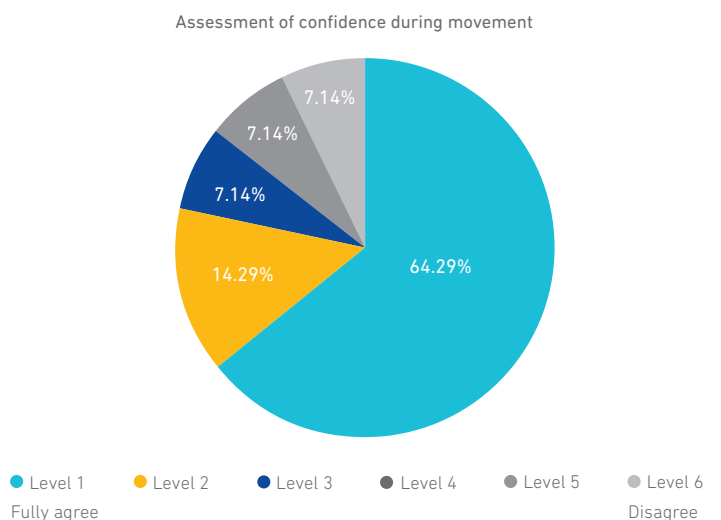


Fig. 4: Assessment "Wearing the compression stockings supported me during movement and provided me with confidence"
Agreement level: 1 = Fully agree ... 6 = Disagree

Wearing comfort – based on fit, non-slip behavior, breathability, and skin-friendliness – was rated as "Good" throughout, using the German school grade system where 1 is the best and 6 the worst (range from 1.5 to 2.0) (Fig. 5). Handling, i.e. donning and doffing, was rated as "Very easy" to "Without difficulty" by the vast majority (no fig.).

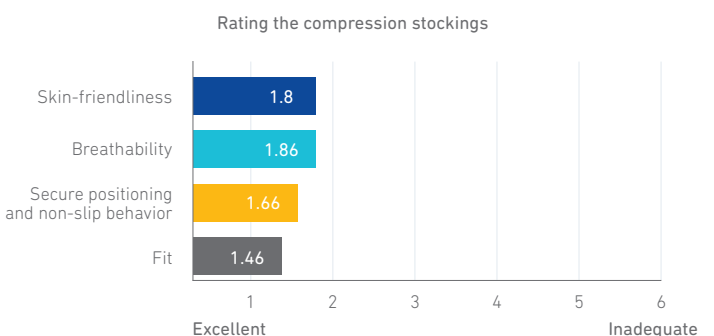


Fig. 5: Assessment based on German school grades: 1 = Excellent ... 6 = Inadequate

PATIENT ASSESSMENT

Mobility when wearing the product was rated as an average of 9 to 10 points on the scale (Fig. 6).

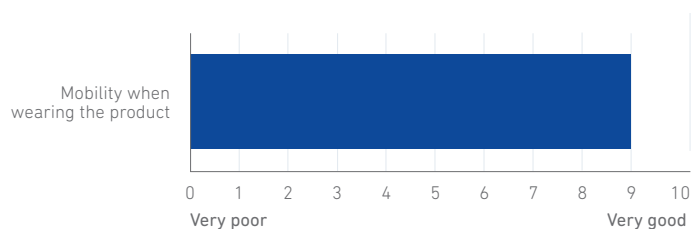


Fig. 6: Assessment of mobility when wearing the MCS: 1 = Very poor ... 10 = Very good

Considering all "Pros" and "Cons", overall satisfaction with the compression stockings was rated with the German school grade "Good" 1.6 on average (Fig. 7).

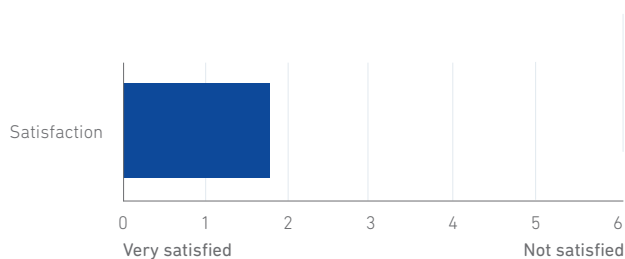


Fig. 7: Rating of overall satisfaction based on the German school grade system: 1 = Very satisfied ... 6 = Not satisfied

CONCLUDING OBSERVATION

The VenoTrain soft S medical compression stocking is highly suitable during post-operative care for the prevention of swelling. In this observational study, the use of VenoTrain soft S also made it possible to avoid the placement of a drain during minimally invasive knee joint procedures. Improvement in stabilization and mobility were also some of the treatment goals that were achieved.

On average, the participating patients were 46.2 years old, ranging from 18 to 70 years. The majority was "Satisfied" to "Very satisfied" with the compression stockings. Adherence over the observational period was very high, in part with a wearing time of over 12 hours. Overall, the VenoTrain soft S stood out with its excellent wearing comfort.

Handling, in the sense of donning and doffing, resulted in a more differentiated assessment. However, two thirds of those surveyed rated this factor as "Very easy", "Easy", or "Without difficulty". This is a particularly positive outcome because donning and doffing of compression stockings is often perceived as difficult. But the VenoTrain soft S, with its specially designed larger heel, offers noticeable relief for exactly this issue. When the compression stockings were worn, the feeling of tension and swelling reduced significantly in the knee that had undergone surgery. This effect was less strong when perceived pain was queried but still noticeable in a mid range.

Furthermore, 64 percent of participants stated that wearing the compression stockings supported movement and provided them with a sense of security.

CONCLUSIONS

- Reduction of post-operative swelling with the VenoTrain soft S
- Prevention of drainage, thanks to wearing the VenoTrain soft S
- 64 percent confirm that the VenoTrain soft S supports movement and provides a sense of security when it is being worn
- The VenoTrain soft S offers a very high level of wearing comfort