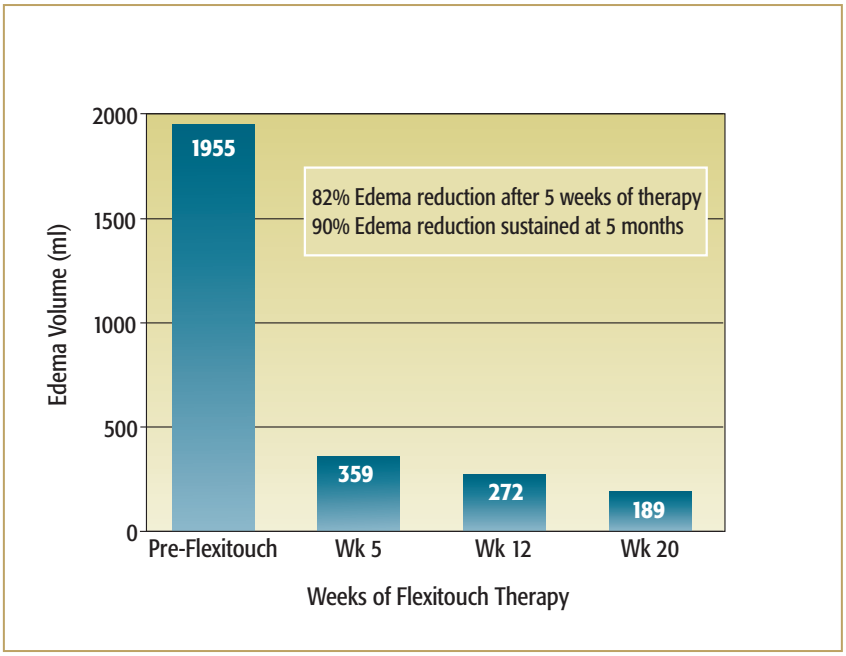
CASE STUDY

# BF– Moderate Right Lower Extremity Lymphedema Following Knee Replacement Surgery





## ABSTRACT

BF developed moderate right lower extremity lymphedema at the age of 51 following knee replacement surgery performed in 2002.[1,2] The patient tried a range of therapies, including compression stockings, in-clinic manual lymph drainage (MLD) therapy, self-MLD therapy, compression pumps, and therapeutic exercise.[3,4,5] None of these interventions were effective in controlling her lymphedema. In 2006, after exhausting all other options, she initiated use of the Flexitouch® Lymphedema System. After five months of therapy, her edema was reduced from an initial edema-related limb volume of 1,955 ml to a volume of 189 ml – a 90% improvement. The patient also experienced complete alleviation of pain, improved mobility, and an increased range of motion in her knee.



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## CASE SUMMARY

In July, 2002, BF underwent a total right knee replacement procedure. Over the course of recovery, she noticed an unusual amount of swelling in her right knee and thigh that did not improve over time. Initially, lymphedema was not suspected.

During her post-surgical physical therapy sessions, the range of motion in her knee did not significantly improve. At three months post-operatively, she could straighten her leg no more than 10°. She was able to bend her knee to 95°, but only with considerable pressure and severe pain.

She returned to work as an administrative assistant three months following surgery. However, she continued to struggle with the swelling in her leg. Getting to work required walking about a mile, and once at work, she was on her feet much of the time.

By the end of each work day, BF's right leg swelled to twice the size of her left leg. She experienced tingling, sensations of heat and numbness, and severe pain. At one point, BF suffered from a cellulitis infection that required treatment with antibiotics.

In an effort to identify a cause for her persistent swelling, she underwent extensive vascular testing. However, the results were within normal limits. Over time, BF's leg complications began to exacerbate pre-existing back problems. With a history of two herniated discs, she developed two additional herniated discs. At that time, she was ordered by her physician to be off of her feet. As a result, she left her job on long-term disability. By June 2004, BF's condition had worsened to the extent that she was unable to walk without using a cane or wheelchair.

In August of 2004, after researching her symptoms online, the patient requested a consultation with a lymphedema specialist and a diagnosis of lymphedema was established.

Following her diagnosis, BF received professional therapy for lymphedema that included 20 consecutive days of in-clinic MLD therapy and bandaging. She was taught self-MLD and exercise therapy, and was fitted with a compression stocking. BF was diligent about using the at-home maintenance techniques, but her debilitating swelling persisted.

Although BF's pain level was reduced following professional therapy, she continued to experience periodic exacerbations. While she was able to participate in water aerobics three times a week, she still frequently used a cane for short walks and a wheelchair for longer distances.

In August 2005, after disappointing results with her self MLD maintenance regimen, BF began using the Flexitouch Lymphedema System. Therapeutic goals of therapy were to reduce edema, increase function, reduce infections, and increase the range of motion in her knee.

## METHOD

The Flexitouch Lymphedema System is designed for use in the home as part of continued lymphedema maintenance therapy. Equipment consists of an electronic controller unit and garments designed to accommodate the affected areas. The Flexitouch system uses a two phase preparation and drainage sequence. This sequence, along with other design characteristics such as the narrow curved garment chambers to direct fluid along lymphatic pathways and the 1-3 second timing of the application of light pressure, follow the principles of MLD therapy.[6,7] MLD techniques are based on the anatomy and physiology of the lymphatic system.[5]

BF began home treatment with the Flexitouch device with a one-hour session on her right leg twice daily using the standard lower extremity protocol for one month. Following the first 30 days of therapy, she reduced her sessions to once daily.

## RESULTS

Throughout Flexitouch therapy, BF experienced consistent limb volume reduction. Five weeks after initiating Flexitouch therapy, BF's edema volume was reduced by 82%. After five months of daily therapy with the Flexitouch device, she was able to sustain her results long term with a 90% reduction in edema volume.

Additionally, the range of motion in her knee improved significantly. A visit to her orthopedic specialist confirmed that her range of motion had increased to a normal 0° for straightening, and to 100° to 108° for bending. She gained the ability to walk without a cane and without the unsteadiness and wavering that had occurred previously. She reported being able to do water aerobics without increased post-exercise swelling, as well as complete resolution of her leg pain. Under the direction of her therapist, BF was able to reduce use of the compression stocking she had been wearing on a daily basis to control her lymphedema.*

Flexitouch therapy provided this patient with a consistent and clinically effective method for significant edema reduction and ongoing lymphedema maintenance in the home environment.**

* The Flexitouch System is not intended to replace the use of compression bandages or garments. Please consult your treating clinician before making any changes to your lymphedema treatment regimen.

** Individual results will vary.

## REFERENCE


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