



Case History: Results of Juzo Silver Used on a Patient with Lymphedema

August 2004

Desne Roe, PT, CLT

Tidewater Physical Therapy

Centerville, MD

Ms. D presented with a diagnosis of chronic bilateral lower extremity lymphostatic edema with compromised skin integrity and multiple venous ulcers for approximately a 2-year period. Initially, elevation assisted in decreasing lower extremity edema, however gradually became ineffective. Traditional physical therapy treatment was initiated July 2004 consisting of whirlpool and "Unaboot" wraps. Minimal improvement in decreased edema was noted in the left lower extremity with continuation of significantly compromised skin integrity and evidence of on-going multiple venous ulcers.

August 2004 she was evaluated by a lymphedema therapist and started on decongestive treatment. Patient's hypersensitivity and allergic reaction to a variety of skin products resulted in delayed progress secondary to on-going compromised skin integrity and non-healing venous ulcers. Upon completion of decongestive treatment, a 5.8-cm decrease was noted in the left lower leg and foot circumferential measurements with closure of all venous ulcers and healthy skin integrity.

Secondary to patient's hypersensitivity and allergic reaction to conventional materials and skin products, JUZO Silver anti-microbial compression stockings were selected and fitted. Patient has now utilized the JUZO Silver compression stocking for approximately 8 weeks with excellent management of achieved circumferential measurements and consistent healthy skin integrity. Ms. D is independent with her self-management and pleased with her successful outcome.



Case History: Results of Juzo Silver Used in Conjunction with Wound Healing

September 2004
Deborah Schrodi, PT
Lancaster General Hospital
Lancaster, PA

Patient has severe venous stasis with diffuse ulcerations. He greatly benefited from the silver garments – decreased edema, wound healing (smaller measurements of wound) and improved tissue appearance.

Case History: Results of Juzo Silver Used With Chronic Skin Irritation

July 2004
Susan M. Cleveland, Director of Nursing
Institutional Care Pharmacy, Inc.
Tiffin, Ohio

Having a skin rash bilaterally, intermittently for the past two years of unknown origin that was treated many ways. Success was fleeting and often failed. I wore Juzo Silver stockings for two days and the itch subsided, and after four days there were no new blisters. All the swelling was gone and redness was diminished. It has not returned, and it has been 30 days since I began with the stockings.



Case History: Results of Juzo Silver Used on a Patient with Lymphedema

August, 2004

**Erin Hamilton, RMT, CMLDT
Lymphedema & Wound Care Institute
Houston TX**

Patient was a 59 year old white female with severe Stage II Chronic Intractable Lymphedema to Bilateral lower extremities. LLE>RLE. Patient has been coming into our clinic for Complete Decongestive Therapy (CDT) consisting of manual lymphatic drainage, vaso-pneumatic peristaltic gradient sequential pumping & bandaging since 6/5/02.

The patient went through her initial phase of CDT 3 times a week for 3 months. When her edema plateaued, the patient was discharged with vaso-pneumatic compression pump and compression stockings with 20-30 mmhg. The patient returned a week later with a significant increase in edema & a wound that developed as a result of the stocking rubbing in the crease of her ankle. The patient had to resume CDT treatments at that time to reduce her edema back to a maintainable size. Her CDT continued 2 times a week consistently until 6/9/04.

In June 2004 I received information on the Juzo Silver stockings. The patient was measured on 6/9/04. The stockings were received approximately one week later and the patient was fitted on 6/11/04.

The patient has now been wearing the Juzo Silver stockings daily with no increase in edema. The patient is extremely excited about maintaining her edema without the use of compression bandaging. In addition she has had no problems with her skin breaking down as in the past.

Thank you again for the Juzo Silver compression stockings. They were well appreciated.



Testimonial: Juzo Silver Stump Shrinker Used on an Amputee

February 2004

Mike Larson

Salt Lake City, Utah

"An auto accident in 1987 resulted in the amputation of my left leg. Since that time I have had numerous revisions of the surgery and have suffered constantly with regular episodes of phantom pain, which are sometimes very severe.

About six months ago, I was fitted with a Juzo Silver stump sock and have found to my surprise that the phantom pain is almost completely absent when wearing the silver stump sock. In addition I am amazed how well it stays in place. I now wear the silver sock whenever I am not using my prosthesis. After all these years of suffering, I am thankful to finally have found a simple way to relieve this most aggravating condition."



Silver Research References

What follows is a list of articles and independent studies that are central to the proven therapeutic benefits of silver and its logical application in compression garments. The references below are categorized in such a manner as to illustrate the broad potential benefits of silver compression garments. These references are in no way exhaustive of the subject at hand, but represent a cursory listing of articles and studies pertinent to the claimed therapeutic benefits of Silver.

Silver as a topical anti-microbial agent

1. Wright JB, Lam K, Burrell RE Wound management in an era of increasing bacterial antibiotic resistance: a role for topical silver treatment. *Am J Infection Control* 1998, 26:572-577
Topical silver applications significantly reduce both Gram-positive and Gram-negative-resistant bacterial species.
2. Ovington LG, The value of Silver in Wound Management. *Podiatry Today* December 1999, 59-62
A. Silver currently used in water storage facilities to eliminate both bacteria and fungi, including Legionnaires Disease.
B. Silver ions bind to bacterial DNA, disrupting replication
3. Rogers RS, Patel M, Alvarez OM, University Wound Healing Centers, Bronx, NY-- "Effect of a Silver Ion Containing Wound Dressing on the Bacterial Burden of Chronic Venous Ulcers." Presented at the 13th Annual Symposium on Advanced Wound Care, Dallas, Texas, April 1-4, 2000
Topical application of silver significantly reduces the bacterial burden of chronic venous ulcers.
4. Independent Third Party Testing, United States
NAMSA testing institute demonstrates antimicrobial effect of X-Static, silver-coated thread against multiple strains of bacteria and fungi.
5. Tokai University, May 1997 Independent Third Party Testing Dr. Seiki Tazume and Dr. Takahiko Yoshida
Testing in 20 subjects reveals that nylon hosiery with imbedded X-static, silver-coated thread reduces bacterial and fungal count.

Silver as an anti-inflammatory agent

6. Burrell RE A Scientific Perspective on the Use of Topical Silver Preparations. *Ostomy Wound Management* 2003, 5A:19-24
 - A. **Silver is effective against a broad range of aerobic, anaerobic, Gram-negative and Gram-positive bacteria, yeast, filamentous fungi, and viruses.**
 - B. **Silver appears to be an anti-inflammatory agent in wound care**
 - C. **Silver demonstrates little risk for toxicity or allergic reaction**
7. Cornell University, 1987 Newly Made Antibacterial Braided Sutures: In Vitro and In Vivo Biocompatibility Study. *Journal of Biomedical Materials Research*
The silver-coated material not only proved effective as an anti-microbial agent, but demonstrated an anti-inflammatory effect as well.
8. United States Army Institute of Surgical Research, 1995 Direct Current Reduces Wound Edema after Full Thickness Burn Injury in Rats. *The Journal of Trauma, Injury, Infection and Critical Care*
Silver/nylon dressings with applied direct current effectively reduced edema when applied to full-thickness burns in Rats.

Silver as a healing agent

9. Lansdown ABG, Sampson B, Laupattarakasem P, Vuttivirojana A. Silver aids healing in the sterile skin wound: experimental studies in the laboratory rat. *Brit J Dermatol* 1997, 137:728-735
Silver ions may replace calcium and zinc ions in the wound, thus releasing them for absorption in wound healing.
10. United States Army Institute of Surgical Research, 1995 Enhanced Survival of Autoepidermal-Allodermal Composite Grafts. *The Journal of Trauma, Injury, Infection and Critical Care*
Silver/nylon dressings shorten the time of re-epithelization when applied over burns and grafts.
11. Cornell University, 1987 In Vitro Quantitative Study of Newly Made Antibacterial Braided Nylon Sutures. *Surgery, Gynecology & Obstetrics*
The silver ions were shown to migrate into the wound site.

Silver as an odor reducing agent

12. Pennsylvania State University, 1987 Series of three studies conducted on the application of silver-coated thread (X-static) when used in different media, including hosiery, shoes and carpet.

The presence of silver-coated thread in the various media reduced the local bacterial count and the detection of odor.

Silver as a shield for impulses of phantom pain

13. Case Study Salt Lake City, Utah -- 2003 -- Preliminary Report "Reduction in Perceived Phantom Pain by Five Chronic Phantom Pain Sufferers.

Five individual patients with varying degrees of chronic phantom pain, consistently reported reduced incidence and severity of phantom pain when wearing Juzo Silver stump shrinkers.

Ongoing Research

Juzo is committed to scientific research and the advancement of technology. We are currently supporting efforts by credible institutions and researchers to continue the collection of pertinent data relative to the therapeutic benefits of silver in the application of compression garments.

Please feel free to contact Juzo for a more comprehensive list of related research articles or to discuss potential research projects.

