INCREDIWEAR

Studies

Dr. Jackon Corley, CEO

I know first-hand how pain and injury can slow you down—but I firmly believe that it doesn't have to.

In 2009, a mountain biking accident left me with three herniated spinal disks, a lot of pain, and not a lot of mobility. Refusing to accept defeat, and determined to return to my active lifestyle, I pursued innovative healing alternatives. When I didn't find what I was looking for—I made it. By incorporating semiconductors into fabric, I was able to create a bioactive back-brace prototype, that I tested on: myself.

It worked.

And so, iNCREDIWEAR was born.
We exist to help you heal, better and faster—because you deserve to keep moving.

INCREDIWEAR®

Patents Issued to Incrediwear Further Validate Product Efficacy

In 2024 the USPTO has issued four patents to Incrediwear® that use specific language substantiating product claims for keys areas of therapeutic use:

- *Patent No. 12096809:* Treats Arthritis
- *Patent No. 12102145:* Emits Infrared Waves
- *Patent No. 12102825:* Increases Cellular Movement (circulation)
- *Patent No. 12144985:* Speeds Healing Time (recovery)
- *Patent No. 12179017:* Decreases Muscle Load
- *Patent No. 12186552:* Accelerates Wound Healing

In support, the patents cite Incrediwear's published research findings asserting product efficacy claims that no other brands of sleeves or braces can offer.

Patented technology. Backed by clinical research. Proven effective. That's the Incrediwear difference.

INCREDIWEAR®

24/7 WEARABLE THERAPY

INCREDIWEAR®

Increased Blood Flow Leads to Faster Healing and Recovery

The Effect of Therapeutic Garments on Blood Flow as Measured by a Laser Doppler Blood Flow Monitor

Study Design

19 participants were tested after acclimating for 10 minutes to the ambient testing conditions. Then, they donned the garment for 20 minutes. Measurements of blood flow and blood speed were then taken for each participant in 8 different types of garments and 2 controls, for a total of 29 tests. Control garments were also measures for comparison.

Garments Tested:


Shoulder Brace


Wrist Sleeve


Calf Sleeve


Knee Sleeve


Performance Pants


Circulation Socks


Trek Socks

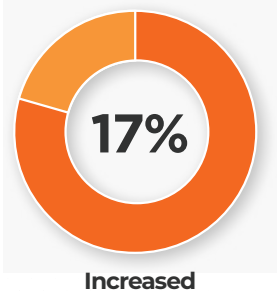

Brandage Wrap

Measurement Technique: how does it work?

Laser doppler is a technique to measure blood flow and the speed that blood travels through microvasculature in the tissue. Laser doppler works by determining the shift in light that is scattered by moving red blood cells within the blood vessels. The signal of light emitted vs light returned is used to determine a relative measure of blood flow. Laser doppler is a non-invasive, continuous measurement technique that is extremely useful in the clinical setting.

Results:

Increased blood speed and flow observed for all garments tested for all participants. An average increase of 17% in blood flow compared to the control garments was observed.



Increased Blood Flow

iNCREDIWEAR®

Combined Rehab Protocol Reduces OA Knee Pain and Improves Outcomes

Background

Clinical OA is believed to be highly prevalent today because of recent increases in life expectancy and body mass index and remains the most challenging arthritic disorder, with an estimated 32.5 million US adults diagnosed with clinical OA as well as a high burden of disease and no available disease-modifying treatment. Current treatments are limited by small effect sizes and adverse side effects. A multidisciplinary and sustained international effort involving all major stakeholders is needed.

The Limfa machine sends a dedicated pattern of ultra-weak complex electromagnetic sequences and has been shown to promote cartilage regeneration and reduce fracture healing time.

In this study, extremely low frequency (ELF) electromagnetic field therapy was combined with the Incrediwear non-compressive, soft knee brace in a comparative protocol to determine the effect of ELF alone and in combination with Incrediwear on pain and function for Knee OA.

Methods

35 patients were assigned to either Group 1: Limfa therapy or Group 2: Limfa therapy and Incrediwear knee sleeve. All patients participated in ten sessions of Limfa therapy with antiphlogistic and antiedema programs for 2 weeks, 5 days/week, followed by, without interruption, twelve sessions of bone and connective tissue repair programs for 4 weeks, 3 days/week. Patients in Group 2 wore the Incrediwear knee sleeve during rest and daily activity for at least 6-8 hr a day, every day, for 6 consecutive weeks.

VAS, KOOS and Lysholm scores were collected at baseline (T=0), after 2 weeks of treatment (T=1), after 4 weeks of treatment ((T=2), and 6 weeks following completion of all treatment sessions (T=3). 22 patients per group were included, based on power calculations of 90% power, alpha of 0.05, difference of 2 cm (VAS) and standard deviation of 1.5 factoring in a 20% dropout rate.

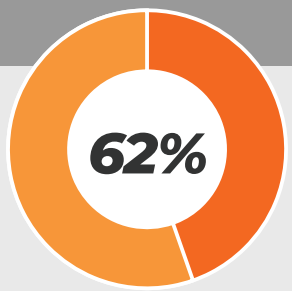
Combined Rehabilitation Protocol in the Treatment of Osteoarthritis of the Knee: Comparative Study of Extremely Low-Frequency Magnetic Fields and Soft Elastic Knee Brace Effect
Healthcare (Basel), April 2023

Limfa Treatment Device

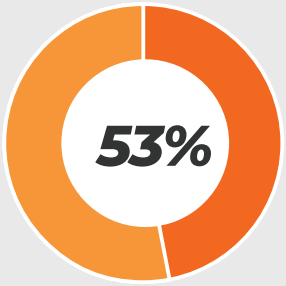
Incrediwear non-compressive germanium embedded knee brace

Results:

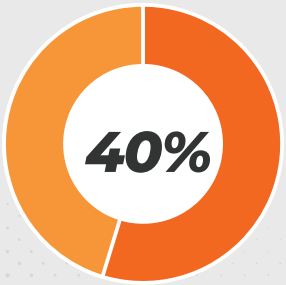
- The results showed that pain at rest, pain in motion, KOOS, and Lysholm Scores were significantly affected by ELF over time.
- Group 2 had a better response in terms of pain resolution at rest ($p < 0.05$) and a concurrent better response at the post-treatment follow up in terms of functional recovery ($p < 0.05$).
- Group 2 (Limfa and Incrediwear) showed 62% reduction in pain 6 weeks after completing all treatments and a 53% reduction in pain after just 2 weeks of treatment.
- Group 2 showed a 40% improvement in Lysholm Score and 29% improvement in KOOS 6 weeks after completing all treatments, and a 39% improvement in Lysholm after just 2 weeks of treatment.
- The combination of ELF and the Incrediwear non-compressive knee sleeve significantly reduced pain and improved outcomes for pain and function in patients with acute Knee OA



Reduction in pain 6 weeks after completing treatment



Reduction in pain after just 2 weeks of treatment



Improvement in Lysholm Score after 6 weeks

Authors

Paolucci T, Porto D, Pellegrino R, Sina O, Fero A, D'Astolfo S, Franceschelli S, Patruno A, Fusco A, Pesce M.

iNCREDIWEAR®

New Research Affirms Therapeutic Benefits of Infrared Waves Emitted by Incrediwear®

Background

A 2024 independent review paper published in the journal of Pharmacological Research synthesizes the existing literature to provide a comprehensive overview of infrared therapy. This not only validates Incrediwear's patented technology, but also reinforces the growing body of scientific evidence supporting infrared therapy and the underlying mechanisms to explain its myriad therapeutic applications.

Far-infrared radiation and its therapeutic parameters: A superior alternative for future regenerative medicine?

Pharmalogical Research, October 2024

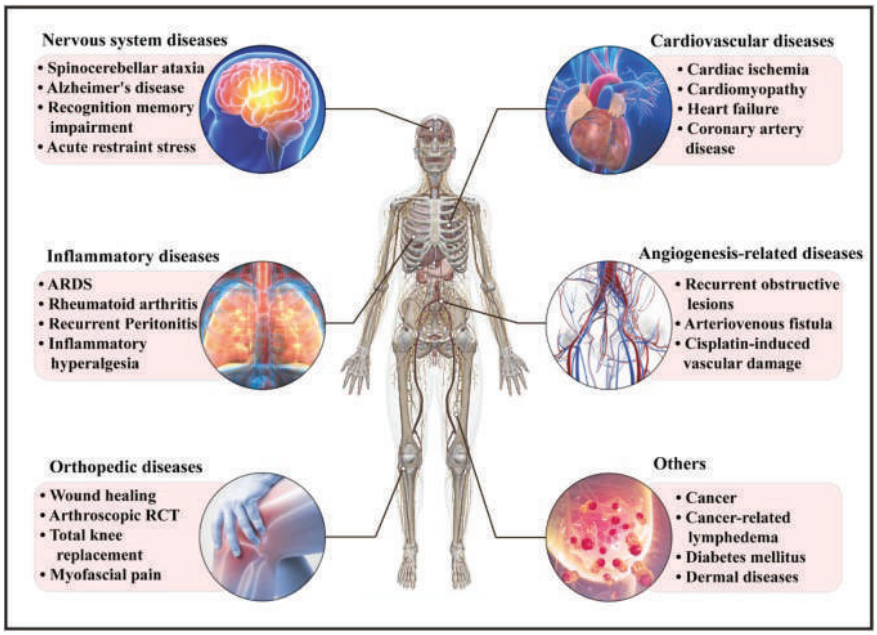
View Full Study Here

Key Takeaways

1. Far Infrared (FIR) is uniquely effective because it is biologically active.
   a. Infrared waves fall on the electromagnetic spectrum, between microwaves and visible light. The energy range emitted by Incrediwear products is precisely the same as the infrared therapy discussed in this review paper, referred to as Far Infrared (FIR).
   b. The mechanism underlying Far Infrared (FIR) therapy is the energy transfer from infrared waves to biomolecules within the body – predominantly biological water – which leads to vibration within molecules and cells.

2. Influence on Cellular Activity:
   a. Infrared therapy can alter cell membrane potential, increase mRNA expression, modify mitochondrial metabolism, and regulate cellular proteins.
   b. This impacts cellular proliferation, function and regulation of a cell's lifespan.
   c. Infrared can modulate levels of pro-and anti- inflammatory cytokines, enhance endothelial function, and reduce oxidative stress.

3. Impact on Cellular Differentiation and Gut Microbiota:
   a. Infrared therapy activates G-protein coupled receptors (GPCRs), influences gut microbiota, and impacts cellular differentiation, inhibiting adipogenic (fat cell) and promoting osteogenic (bone cell) differentiation in stem cells.
   b. Infrared therapy also facilitates angiogenesis and promotes vasodilation through nitric oxide regulation.
   c. Infrared therapy facilitates angiogenesis and reduces pain by regulating nitric oxide production.



Qin B, et.al. Far-infrared radiation and its therapeutic parameters: A superior alternative for future regenerative medicine? *Pharmalogical Research, Volume 208. 2024 Aug.*

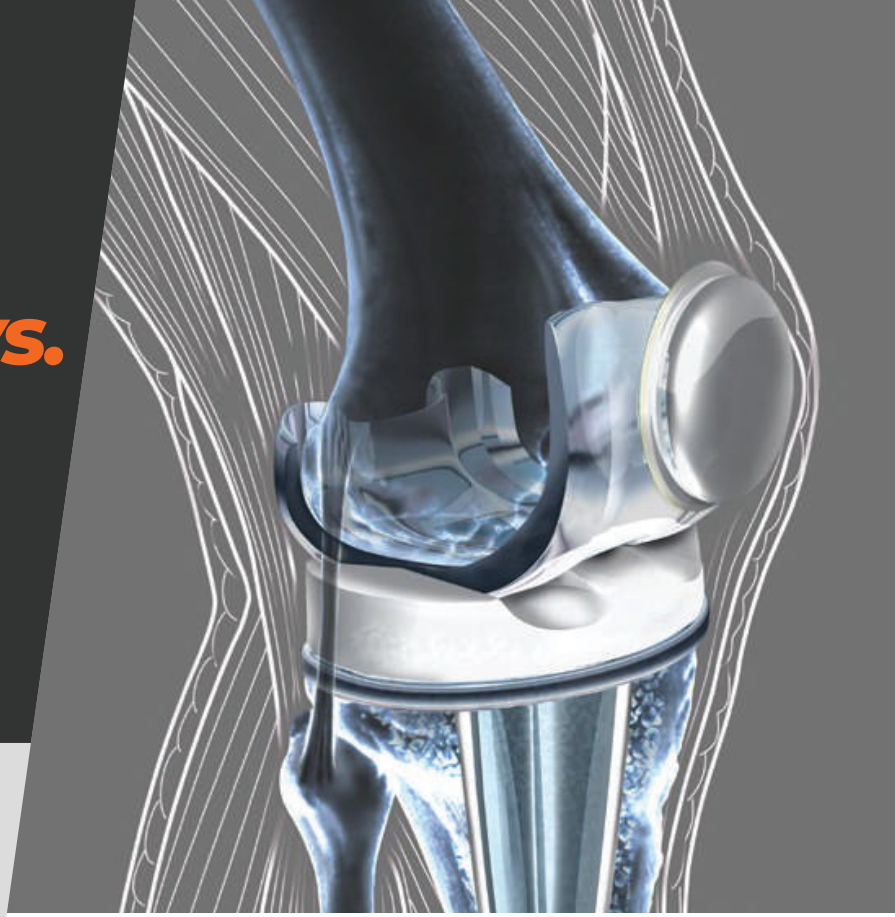
Key Takeaways - Continued

4. The literature supports the use of FIR treatment for a growing number of diseases and conditions:

- Arthritis
- Hyperalgesia
- Peritonitis
- Osteoarthritis
- Alzheimer's
- Spinocerebellar ataxia
- Heart failure
- Diabetic kidney disease
- Wound healing
- Diabetes
- COPD
- Skin photoaging
- Lymphedema
- Cancer
- Post-operative recovery

INCREDIWEAR®

Less Swelling vs. Compression Following Total Knee Replacement



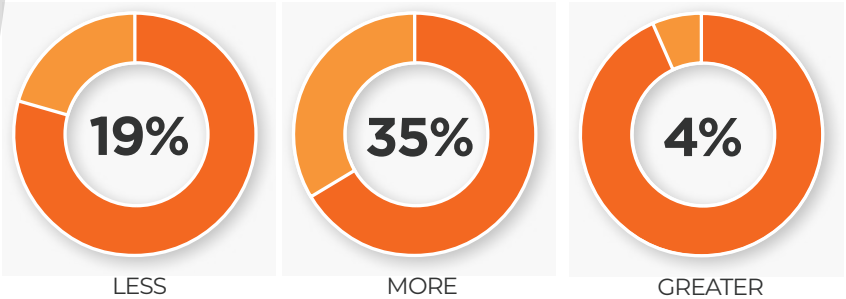
Background

Compression stockings are routinely prescribed after total knee arthroplasty (TKA). Non-compressive sleeves embedded with semiconductor elements (Incrediwear) are designed to enhance blood flow. The objective of this investigation is to compare compression stockings and Incrediwear on post-TKA measures.

Methods

In this single-center prospective clinical study, patients undergoing TKA were assigned to either the compression stocking (control) or Incrediwear (experimental) group. Subjects were evaluated preoperatively and postoperative at 3 weeks for pain, knee effusion, knee range of motion (ROM), thigh and calf circumferences.

TOTAL KNEE ARTHROPLASTY STUDY



LESS Swelling with Incrediwear

MORE Swelling with TED Hose

GREATER R.O.M. with Incrediwear

Key Findings

- At Day 21 post-op, subjects who received Incrediwear had 19% LESS swelling
- At Day 21 post-op, subjects who received TED Hose (compression, standard of care) had 35% INCREASED swelling
- Subjects who received Incrediwear had less pain and had 4% better Range of Motion compared to the standard of care (compression) group.

Non-Compressive Sleeves vs. Compression Stocking After Total Knee Arthroplasty: A Prospective Pilot Study
March 2024 Journal of Orthopeadics

INCREDIWEAR®

24/7 WEARABLE THERAPY

Results:

Incrediwear subjects had slightly higher preoperative effusion than controls (mean effusion 1.38 vs. 1.16,p = .28); however, by week 3, Incrediwear subjects had lower levels of effusion than controls (1.12 vs. 1.56, p =.015).

At week 3, when compared to pre-op, Incrediwear subjects experienced a 19% decrease in effusion while controls experienced a 35% increase in effusion (p = .003).

Preoperatively, there were no differences observed between Incrediwear subjects and controls flexion ROM (mean ROM 117 vs. 116, p = .67); however, by week 3, Incrediwear subjects had greater flexion ROM than controls (113 vs. 108, p = .02).

Incrediwear subjects experienced only a 3% decrease in flexion ROM while controls experienced a 7% decrease in ROM (p = .07).

Incrediwear subjects reported higher preoperative pain than controls (mean pain 4.2 vs. 3.2, p = .051); however, by week 3, there was no difference observed between these groups (2.9 vs. 3.0, p = .440).

Discussion:

Non-compressive sleeves embedded with semiconductor elements (Incrediwear) appeared to reduce effusion and improve knee flexion better than traditional compression stockings 3 weeks after total knee arthroplasty.

Credit authorship contribution statement
T. Elaine Justice: Funding acquisition, Writing, Investigation, Data curation, Validation, Formal analysis. Paul B. Jacob: Conceptualization, Methodology, Project administration, Investigation, Supervision, Visualization.

iNCREDIWEAR®

Fewer Muscle and Lower Extremity Injuries for FC Cologne Players

Introduction

In each Bundesliga season, clubs have to contend with downtime of injured players, which does not always result from direct contact with opponents, but rather from a lack of physical regeneration. The number of muscular injuries, especially in the lower extremities, is growing steadily. More than 1500 times Bundesliga players were forced to take a break in the season of 2017/2018, with injuries mainly affecting the thighs / calves (36.3%), knees (15.1%) and ankles (13.8%).

In order to achieve an improved regeneration, the players of the FC Cologne pro team wore Incrediwear Recovery clothing in the season of 2018/19. They wore these products both in the rest/sleep phases as well as in the training units.

Investigation of the Effects of Wearing Incrediwear® Products for Improved Recovery and Reduction in Player Downtime
Researcher: FC Köln GmbH & Co. KGaA, Mr. Klaus Maierstein, Head of Physiotherapy

Technology Overview

Incrediwear technology incorporates the semiconductors germanium and carbonized charcoal into the fabric. When activated by body heat, the elements release therapeutic negative ions and infrared waves. Unlike restrictive compression products, Incrediwear increases blood flow through contact with the skin and facilitates healing, pain relief and reduced swelling through generation of a micro electromagnetic field which drives an increase in circulation.

Purpose

To investigate the effects of wearing Incrediwear sleeves and braces for improved recovery and reduction in player downtime.

Methods

Design: The professional team (25 players) were equipped with Incrediwear braces and sleeves.

For the rest, travel and sleep phase:

- Performance Pants (leggings), Circulation Shorts, Sport Socks, and Circulation Socks

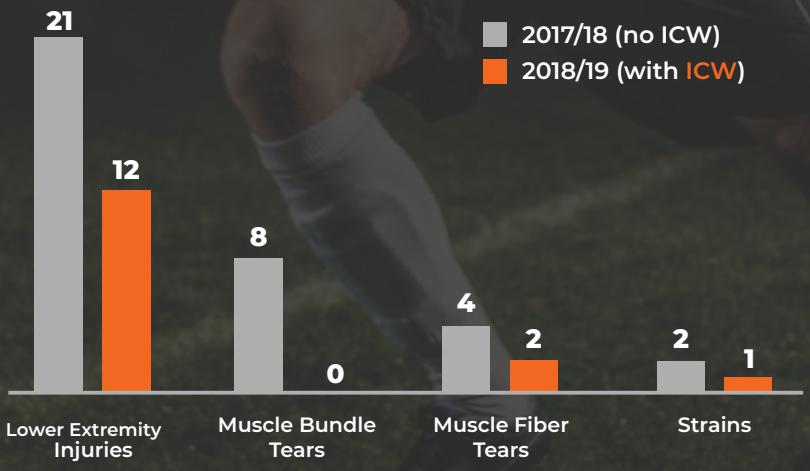
For acute injuries, chronic complaints, rehabilitation, pre- / postoperative:

- Leg Sleeve, Ankle Sleeve, Knee Sleeve - Body Sleeve, Calf Sleeve, Back Brace, and Hip Brace

At the end of the season, a questionnaire was handed out to the players by the medical department for subjective evaluation. In addition, the injury statistics were evaluated in comparison to the previous season.

Injuries to the Lower Extremities

Season 2017/18 vs. 2018/19



For chronic symptoms, especially after wearing at night, there was a significant reduction in pain and improvement in range of motion. Incrediwear products are supportive of regeneration for the professional players throughout the season.

Results

The questionnaire survey gave the following results:

1) Higher Quality and Comfort

The Incrediwear products were reported to have a very high quality and comfort when worn by the players. The products can be used without restriction in the active or passive phase by the players and showed high acceptance and adherence among players.

2) Subjectively Improved Regeneration and Recovery

After a longer sleep phase (overnight), the players experienced subjectively improved regeneration of stressed muscles. After intense training sessions, this was reported by "lighter legs" and "less muscle pain". In the case of acute injuries (ligament distension, stowage), a rapid, optically visible swelling of the affected area is observed. Incrediwear helped to optimize the effects after therapeutic treatments and to increase range of motion.

3) Improvement of Symptoms

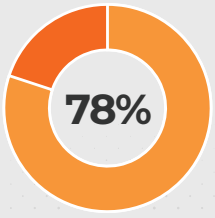
Players with chronic discomfort reported a noticeable reduction in pain, coupled with improved mobility in the affected area. Players with groin discomfort reported significantly less local pain after getting up and improved gait after wearing an Incrediwear Hip Brace overnight.

Conclusion

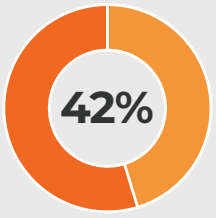
The Incrediwear products help to improve players' recovery, provide effective regenerative supplementation on travel days and generally reduce muscular issues and were reported to have high ease of use and comfort.

When using the Incrediwear Sleeves (Ankle, Knee, Calf or Elbow Sleeve), researchers found faster edema absorption and pain improvement in the case of acute injuries. Incrediwear was found to be essential as a complementary product after therapeutic treatments and for healing and recovery.

Key Findings



Fewer Muscle Injuries



Fewer Lower Extremity Injuries

Researchers found high comfort, ease of use and quality of products, improved muscle regeneration, less muscle pain, reduction in chronic symptoms and improved mobility of the injured or painful area, and less player downtime.

iNCREDIWEAR®

Empowering Quicker Recovery for Athletes

Research Aim

Identify and understand changes in muscular load and fatigue in elite athletes who used Incrediwear® for recovery following training sessions.

Study Design

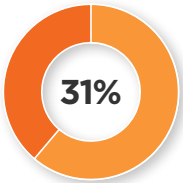
Twenty subjects, 6 professional hockey players and 14 professional soccer players, were enrolled in a double blinded, placebo-controlled 3-arm study. Following informed consent, subjects were asked to perform a cycling or running test, then recover by sleeping overnight wearing Incrediwear leg sleeves, and then perform the same cycling or running test again the following day. Real-time measurements were taken with surface electromyography (sEMG) to record muscular loading and recovery using the Myontec Ltd. EMG-embedded textile shorts.

Technology Background

sEMG is a non-invasive technique used to measure and analyze the electrical activity of muscles. The sEMG shorts enable accurate, validated measurement of gluteal, hamstring and quadriceps muscle activity.

IMPROVED RECOVERY The subjects wearing the Incrediwear® leg sleeves demonstrated dramatically improved recovery compared to placebo subjects and the subjects who did not receive any recovery garment.

REDUCED MUSCLE LOAD A reduction in muscular activity measured by surface EMG is a positive indicator of muscular recovery.



IMPROVED RECOVERY

In hockey players (n=6), normalized improvement in recovery was 31% compared to -1.1% for subjects who received placebo sleeves and in soccer players (n=14), normalized improvement in recovery was 16.8% compared to 6.9% for subjects who received placebo sleeves.

INCREASED BLOOD FLOW Mechanism of improved recovery is the Incrediwear® technology, which reduces inflammation and increases blood flow.

Conclusion:

Real-time, accurate surface electromyography (sEMG) data was gathered using Myontec technology, whose sEMG embedded shorts are changing sports research capabilities by enabling non-invasive measurements of muscle signaling and load during strenuous activity. The Myontec sEMG shorts measure the load of each muscle group separately, meaning an athlete's musculoskeletal status can be analyzed specifically to look for injury propensity and imbalance. Myontec shorts present the potential as a valuable tool for muscle evaluation and monitoring during activity, while **Incrediwear® should be used to improve the ability of each athlete to recover optimally, achieve the greatest training benefit and improve performance.**

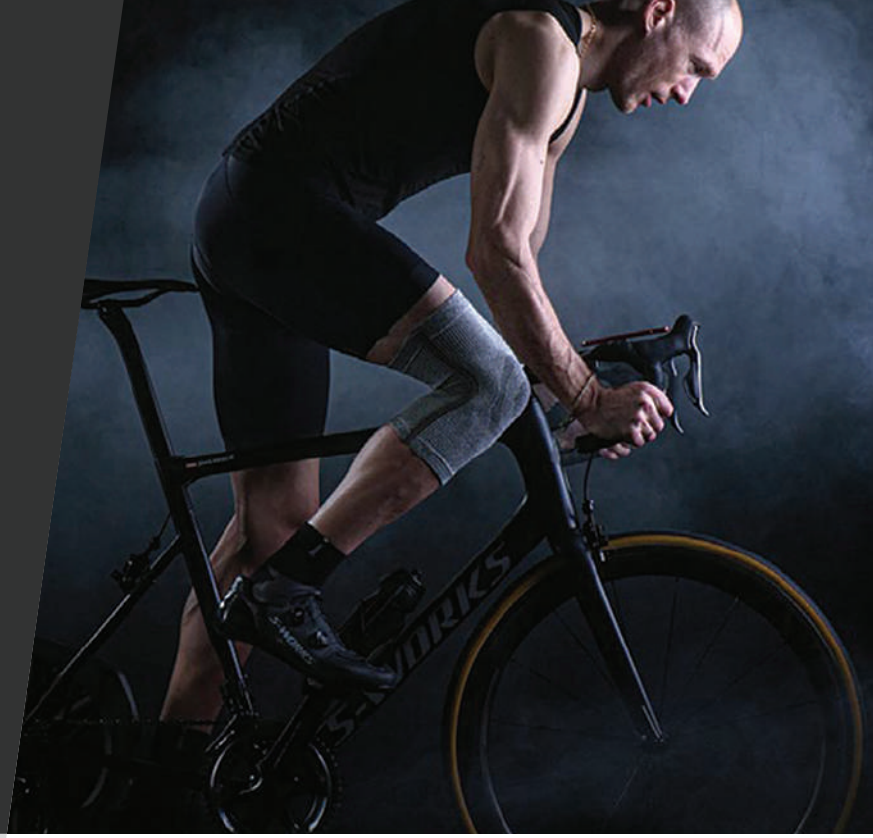
Results

The evidence from this double blinded, placebo controlled experimental research trial demonstrates improvement in muscular recovery among professional athletes. Subjects who wore Incrediwear® showed improved recovery by an average of 21.1% compared to placebo.

Empowering Recovery: Surface Electromyography Shows How Incrediwear® Helps Professional Athletes Recover

iNCREDIWEAR®

Less Muscle Soreness and Fatigue for Triathletes



Leg Sleeve Self-Reported Fatigue Evaluation in Elite Triathletes

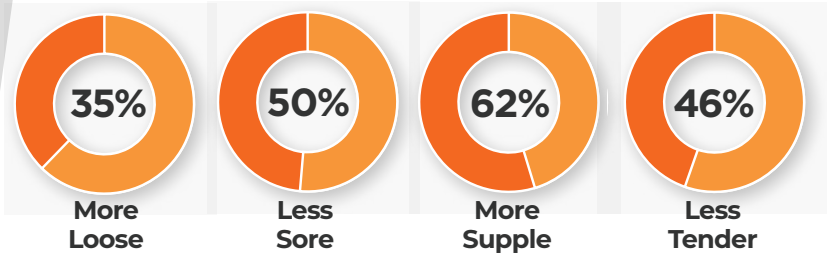
Study Design

A group of 20 elite triathletes completed questionnaires at the start and end of an intensive 5-day training period. After the first questionnaire was completed, the triathletes were provided with an Incrediwear leg sleeve and instructed to wear it only on one leg throughout the recovery periods for 5 days. The questionnaires asked the athletes to report the fatigue and recovery of each leg, specifically comparing the soreness, suppleness, looseness and tenderness of the muscles.

Athletes completed the following training volume during the study period:

ACTIVITY	DISTANCE
Swim	12,092 m / 7.51 mi
Bike	158.7 km / 98.6 mi
Run	43.6 km / 27.1 mi

Results: The leg on which athletes wore Incrediwear® was...



...than the leg without Incrediwear®.

This demonstrates a significant improvement in muscle recovery on the leg with Incrediwear, and is likely a result of the increased blood flow, reduction in inflammation, and improved healing ability of cells and tissues resulting from the Incrediwear non-compressive technology.

Conclusion:

The Incrediwear® leg sleeve provided statistically significant benefits in muscle recovery for the group of triathletes in this study, with improved muscle soreness, tone, looseness and tenderness after a 5-day intense training period.

PROTOCOLS

ACUTE INJURY

Utilize sleeve as soon as possible to reduce pain and swelling. Sleeve should be worn 24 hours to promote blood flow and reduced edema (up to 4-6 weeks).* Sleeve may be worn as needed post recovery.

CHRONIC CONDITION

Utilize product A during the day to alleviate pain and swelling associated with any activity. Utilize product B at rest and while sleeping.

PRE-OPERATIVE

Utilize appropriate sleeve one week prior to surgery day and night to manage any localized swelling and pain.

POST-OPERATIVE

Day 1-10: Product A

Chosen product can be worn over a surgical dressing and applied immediately post-operatively. Patients should wear the product until the swelling has resolved (up to 4-6 weeks).

Day 11-30: Alternate products A / B

Utilize product A during the day to alleviate pain and swelling associated with any activity. Utilize product B at rest and while sleeping.

BANDAGE WRAP

Utilize if sizing or extreme swelling is an issue. May be used in conjunction with or separate from sleeves if preferred

**Sleeves may be worn in conjunction with physical therapy sessions to promote full range of motion*

INCREDIWEAR

FULL PRODUCT LIST

KNEE SLEEVE

LEG SLEEVE (S)

CALF SLEEVE

ANKLE SLEEVE

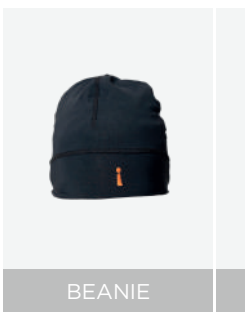
ARM SLEEVE

ELBOW SLEEVE

WRIST SLEEVE

CIRCULATION GLOVES

BANDAGE WRAPS



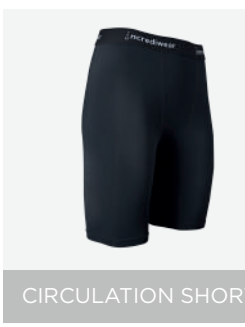
BEANIE

BACK BRACE

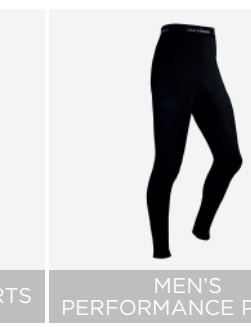
BODY SLEEVE

SHOULDER BRACE

HIP BRACE

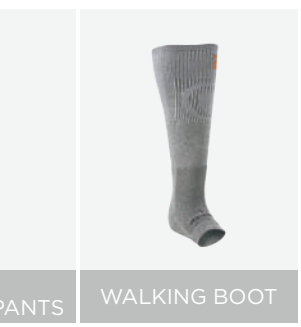


CIRCULATION SHORTS



MEN'S PERFORMANCE PANTS

WOMEN'S PERFORMANCE PANTS



WALKING BOOT

THERAPEUTIC SOCKS

ACTIVE SOCKS

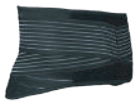
CIRCULATION SOCKS

TREK SOCKS

SPORT SOCKS

SPORT SOCKS THIN

INCREDIWEAR INDICATIONS

	DAY PRODUCT A		NIGHT PRODUCT B
• Herniated Disc • Sciatica	 BACK BRACE	+	 BODY SLEEVE
• Total Knee Replacement • ACL Reconstruction • Meniscal Repair (post arthroscopic)	 KNEE SLEEVE	+	 LEG SLEEVE
• "Tommy John" Surgery • Carpal Tunnel Syndrome • Tennis/Golfers Elbow	 ARM SLEEVE	+	 ELBOW SLEEVE
• Total ankle replacement • Achilles tendon repair • Neuropathy • Poor Circulation (Cold Feet) • Plantar Fasciitis	 ANKLE OR BOOT SLEEVE	+	CIRCULATION SOCKS 
• Carpal Tunnel • CMC • Raynaud's Syndrome	 WRIST SLEEVE	+	CIRCULATION GLOVES 
• Total Hip Replacement • Sciatica • Groin injury • Hamstring Injury	 HIP SLEEVE	+	 LEG SLEEVE
• Total shoulder replacement • Bursitis • Ligament Repair	 SHOULDER SLEEVE	+	 ARM SLEEVE