

PHYSIOLAB® | C¹ |

A SINGLE SOLUTION FOR COOLING,
WARMING AND COMPRESSION

PERFORM - RECOVER - REPAIR



BESPOKE TISSUE MANAGEMENT



THERAPEUTIC BENEFITS

- Accelerate soft tissue repair
- Reduce pain
- Maximise body performance
- Improve recovery rates

PRECISELY DELIVERED

PHYSIOLAB® C1 is a toolkit for delivering thermal energy and compression to the body with maximum efficiency.

Control

All the variables are intelligently controlled with precision and accuracy to respond to the body's requirements. We sense and control to $\pm 1^{\circ}\text{C}$ and $\pm 10\text{ mmHg}$.

Contrast

With this level of control we can deliver temperatures to the body between 6°C and 40°C , either intermittently or continuously over a period of 30 minutes.

Compression

Our patented Therapy Packs provide true clinical compression with unrivalled conformability across the entire treatment area. The multi layered design ensures pressure can be actively adjusted every second, either continuously or intermittently within a range of 20 mmHg to 75 mmHg. This is independently controlled and ensures thermal delivery is not impacted during therapy.

Consistent

We can provide temperature, compression and fit consistently and accurately time after time. This repeatability means we can quantify and measure recovery.

NFC Cards

- Five access levels with different permissions
- Colour coded

Tablet Control

- Intuitive and ergonomic

Thermal Compression Unit (TCU)

- Minimal maintenance and easy setup
- Numerous safety features

Therapy Packs

- Wide range of anatomical packs in different sizes
- Patented design



THE RIGHT THERAPY AT THE RIGHT TIME

Many studies have demonstrated that cooling, warming and compression can help to accelerate soft tissue repair and recovery if applied at the correct points during the healing / recovery process¹⁻³:

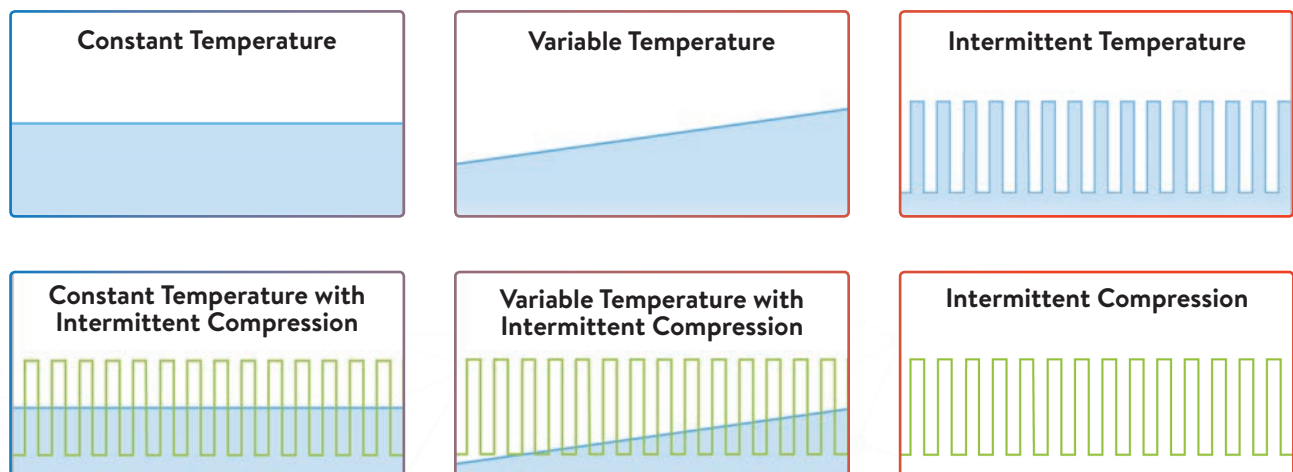
	Cold	Heat	Contrast	Compression*
Soft tissue repair (following injury or surgery)				
• Immediate post-injury phase	✓			✓
• Inflammation phase	✓			✓
• Proliferation phase		✓	✓	✓
• Remodelling phase		✓	✓	✓
Body performance and recovery				
• Pre activity		✓	✓	✓
• Post activity	✓	✓	✓	✓
Pain reduction	✓	✓	✓	✓

* Intermittent pneumatic compression (IPC) is more beneficial than static as it increases blood flow and aids lymphatic return. This helps to reduce pain and swelling and stimulates tissue healing by bringing oxygen and nutrients to the treatment site.^{1,3}

ONE SOLUTION, FOUR THERAPIES

PHYSIOLAB® C¹ provides cooling, warming, contrast therapy and intermittent pneumatic compression (IPC) via a toolkit of templates:

SIX TEMPLATES, INFINITE FLEXIBILITY



THE ADVANTAGE

PHYSIOLAB® C¹ allows the clinician to select and easily set up an appropriate and effective therapeutic mode and tailor it to each user's needs.

Metabolism, BMI, stage and rate of healing, type and severity of injury, age, pain threshold and fitness are just some of the factors to consider for each patient.

“The unique thing about PHYSIOLAB® is that you can use it on almost every body part and at every stage of an injury or niggle including acute and ongoing chronic injuries. It gives us the technology and access to set up pre-programmed treatments for each individual player and helps with the reduction of injury days missed by targeting physiological processes such as reducing swelling and blood flow regulation.”

Barry Goudriaan

Head Physiotherapist / Science and Medicine Lead,
Northamptonshire County Cricket Club

BODY RESPONSIVE TECHNOLOGY

PHYSIOLAB® C¹ continually monitors the thermal energy flowing between the therapy pack and the user, with real time feedback and communication, meaning it:

- Responds to the physiological requirements of the user to deliver a safe and effective treatment
- Gives the clinician a detailed understanding of the state, condition and recovery speed of the treatment area

TAKE CONTROL

Most methods using cold, heat and compression cannot be measured accurately, if at all. The result: the applied therapy may be of limited benefit or even detrimental. PHYSIOLAB® C¹ delivers cooling, warming and compression that is:

- Accurate
- Reproducible
- Measurable
- Precisely controlled

This eliminates this 'no control' approach, which is so common with many soft tissue therapies, as well as the associated risks.

SAFETY FIRST

Therapy should be effective but must also be safe. PHYSIOLAB® C¹ has many built-in safety features:

Delivery temperature 6 - 40°C – Why?

6°C: Low enough for effective deep tissue cooling without causing numbness, cold burns and other complications^{2,4,5}

40°C: High enough for effective deep tissue warming without causing ulceration, heat burns and other complications²



Thermal Compression Unit (TCU)

Continuous temperature and pressure monitoring

Stops automatically if:

- Pressure > 180 mmHg
- Pressure > 50 mmHg for more than 2 minutes
- Delivered thermofluid < 2°C or > 43.6°C

Thermofluid is:

- FDA approved
- GRAS (Generally Recognised as Safe)



Therapy Packs

Every therapy pack has a unique Near Field Communication (NFC) chip

The chip tells the TCU:

- Anatomical type of pack
- Pack size
- Exact amount of pressure and fluid required

It's therefore impossible to accidentally over or underfill the pack



NFC Cards

Colour coded Near Field Communication (NFC) cards

Five different permission levels:

- For setup and maintenance, prescribing and running therapies
- Determines exactly what each user can / cannot do

Ensures only trained professionals can prescribe or modify therapy regimes

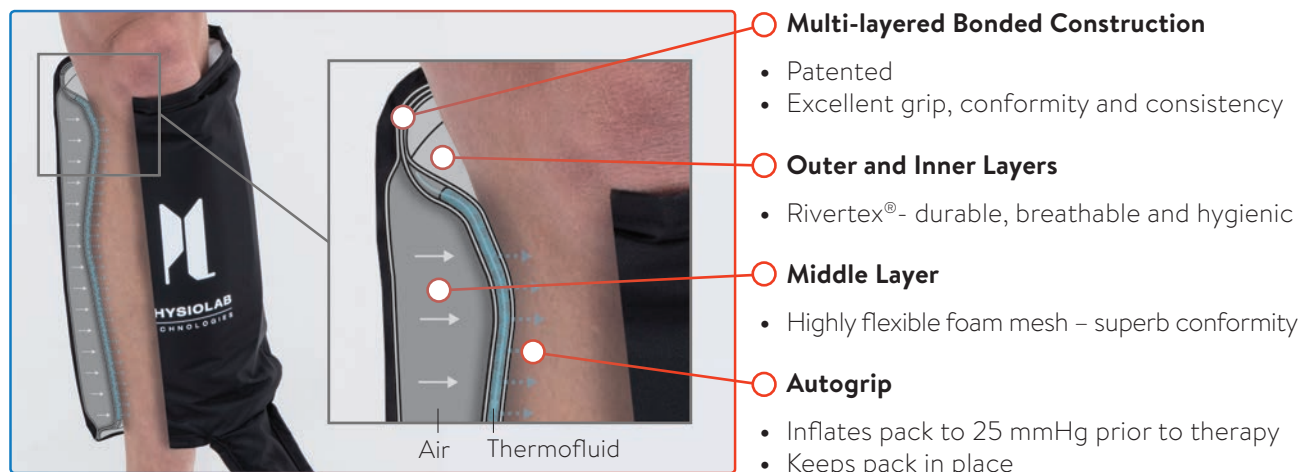
SHAPING THE FUTURE – NOW

All clinicians using PHYSIOLAB® C1 have the ability to record and anonymously share their users' treatment data. Hundreds of thousands of treatments from all over the world are pooled, segmented and analysed. The results are then disseminated back to the contributing clinicians.

This resource has enormous potential to drive the future of soft tissue repair and recovery therapy in a way that has never been possible, until now.

THERAPY PACKS: OUTSTANDING PERFORMANCE - TIME AFTER TIME

The PHYSIOLAB® therapy packs deliver precise, reproducible, quantifiable and safe therapy every time they are used.



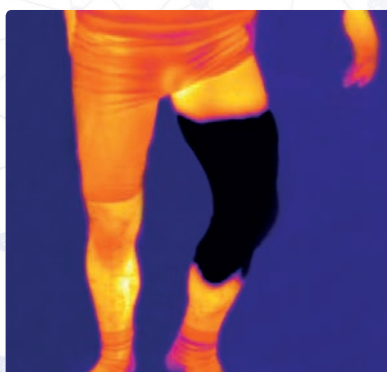
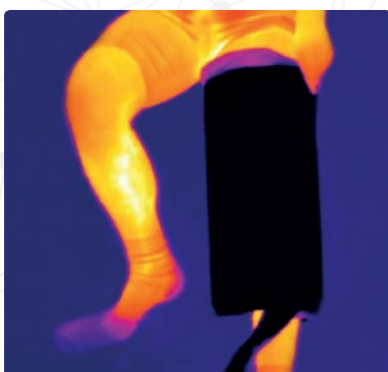
Autogrip 25 mmHg - Why?

High enough to grip the treatment area to prevent slippage.
Low enough not to occlude capillaries.

PERFORMANCE: THE PROOF

The thermal images below were captured immediately before and after removal of a tubular Therapy Pack at the end of a PHYSIOLAB® C1 treatment. They show that the thermal energy was delivered consistently and uniformly over the entire treatment area.

Treatment Protocol: 6°C and 25 mmHg static compression for 30 minutes

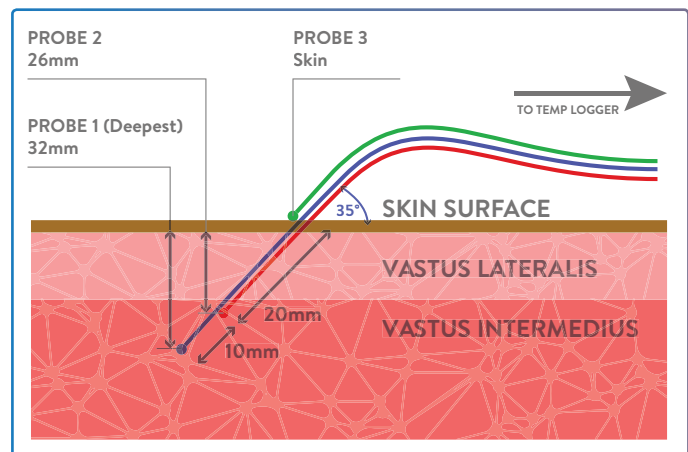


PROVEN SKIN AND DEEP MUSCLE COOLING

The cooling effect of PHYSIOLAB® C¹ was measured in the thigh of a healthy subject using highly sensitive temperature probes ($\pm 0.1^\circ\text{C}$).⁵

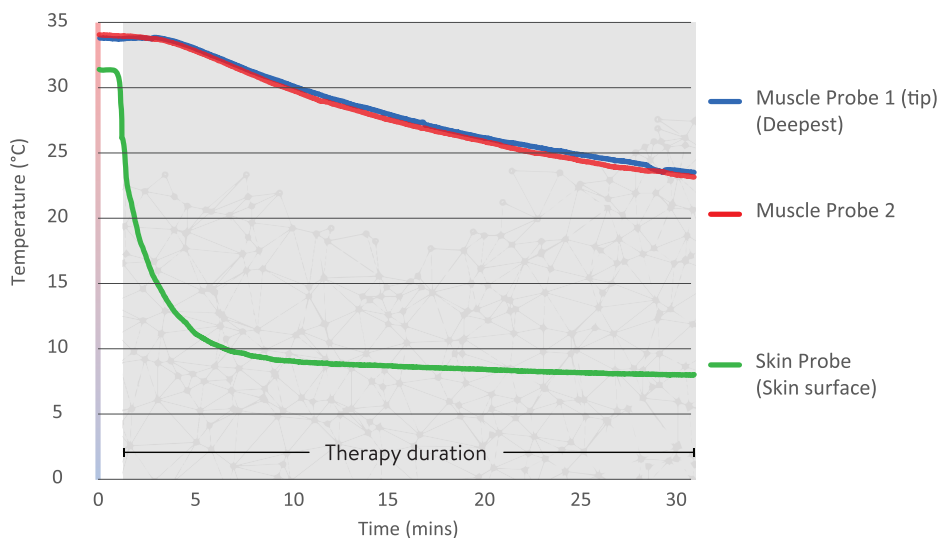
The following measurements were taken during the purge sequence and then over a 30 minute treatment period of 6°C :

- Vastus intermedius – 32 mm and 26 mm depths
- Skin surface



RESULTS

PHYSIOLAB® Skin and Muscle Cooling
Thigh / 6°C for 30 Minutes



Observations

Rapid skin cooling, with a temperature of 13°C (required to induce analgesia¹) achieved less than 3 minutes after the start of treatment

Steady, swift and controlled muscle cooling at depths of both 26 and 32 mm

Temperature decrease of $> 10^\circ\text{C}$ and $> 22^\circ\text{C}$ in deep muscle and skin respectively over the treatment period

References

1. Bleakley, C. M., Glasgow, P. D., Phillips, N., Hanna, L., Callaghan, M. J. and Davison, G. W. (2012). Acute Management of Soft Tissue Injuries. Protection, Rest, Ice, Compression and Elevation Guidelines. Purchased from the Association of Chartered Physiotherapists in Sports Medicine (ACPSM) website: <http://www.physiosinsport.org/acute-management-of-soft-tissue-injuries-price-guidelines-full-version.html>
2. Nadler, S. F., Weingand, K. & Kruse, R. J. (2004). The Physiologic Basis and Clinical Applications of Cryotherapy and Thermotherapy for the Pain Practitioner. Pain Physician, 7, 395-39.
3. Capps, S. G. & Mayberry, B. (2009). Cryotherapy and Intermittent Pneumatic Compression for Soft Tissue Trauma. Athl Ther Today, 14(1), 2-4.
4. Ungar, E. & Stroud, K. (2009). A New Approach to Defining Human Touch Temperature Standards. Retrieved from the NASA Technical Reports Server Web Site on 7th March 2017: http://ntrs.nasa.gov/archive/nasa/casi.ntrs.nasa.gov/20100020960_2010020520.pdf
5. PHYSIOLAB® Technologies Ltd. Data on file.

THERAPY PACKS

TUBULAR			
Code	Description	Length (mm)	*Limb (mm)
S450	Short	250	410
S540	Short	250	500
M450	Medium	330	410
M630	Medium	330	610
M725	Medium	330	725
M775	Medium	330	760
L540	Long	490	500
L630	Long	490	610
L690	Long	490	660
L750	Long	490	720
L825	Long	490	795

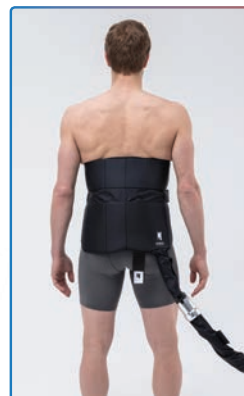
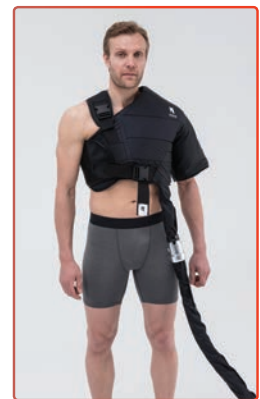
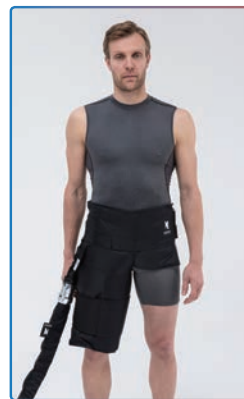
GROIN			
Code	Description	*Hip (mm)	*Inner Thigh (mm)
GNRTM	Groin Right Medium	1250	760
GNLTM	Groin Left Medium	1250	760

SHOULDER			
Code	Description	*Bicep (mm)	*Chest (mm)
SHRTM	Shoulder Right Medium	430	1100
SHLTM	Shoulder Left Medium	430	1100

LOWER BACK		
Code	Description	*Hip (mm)
LBM	Lower Back Medium	1250

BOOT		
Code	Description	Maximum UK Foot Size
BTM	Boot Medium	14

*Maximum circumference



“PHYSIOLAB® is unlike other cryotherapy and thermotherapy systems because it has the ability to provide consistent treatments time after time. It also provides treatments ranging from six to forty degrees centigrade over a number of body parts. The unit can be set up to provide treatments designed by our physiotherapy team but accessed by the players. The smart cards make the system tamper-proof by the players, which is a great resource.”

Simon Parsell
Physiotherapist / Head of Medical Services
Luton Town Football Club

PHYSIOLAB® C¹ TECHNICAL SPECIFICATION

Therapy Options

A toolkit with complete flexibility plus six template options for temperature and compression

Thermo Fluid Temperature	6 °C to 40 °C (Selectable in 1 °C increments)
Therapy Pack Inflation Pressure	20 mmHg to 75 mmHg
Treatment Period	10 minutes to 30 minutes
Configurable Therapy Profiles	1) Constant Temperature 2) Variable Temperature 3) Intermittent Temperature 4) Constant Temperature / Intermittent Compression 5) Variable Temperature / Intermittent Compression 6) Intermittent Compression
Dimensions	Base unit 452 x 427 x 332 mm Tablet 205 x 264 x 32 mm Power Supply Unit 393 x 178 x 113 mm
Weight	Base unit empty 21.9 kg
Power Supply	110-240 V 50-60 HZ 755 VA Class 1 – Earth required
Thermo Fluid Coolant	ISO 10993-1:2009 tested propylene glycol based proprietary coolant
Medical Device Class	C ¹ Device: Class 2a, type B applied part Therapy Pack : Class 1
Medical Standards Applied	EN IEC 60601-1 ed 3.1 EN IEC 60601-1-2 ed 3.0
CE	Medical Device Directive 93/42/EEC Material and Parts RoHS Directive 2011/65/EU Radio Equipment Directive 2014/53/EU

THERAPY PACKS

Multi Layered Therapy Packs

Materials	Polyurethane (PU) coated Nylon with Durable Water Repellent (DWR)
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