



CET CryoSpas

RESEARCH | DESIGN | PERFORMANCE

Brochure



"The CET CryoSpas were the right choice & a huge success, allowing us to provide the best possible support to Team GB in London."

Dave Reddin
Director of Performance Services Team GB 2012

The Professional's Choice



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Introduction

All those involved in sport whether as coaches, participants or members of the medical team know the increasing demand of 21st century sport requires ever more sophisticated approaches to enable participants to successfully compete at current levels.

Professional training and coaching must be backed up with the correct facilities to enable optimum recovery strategies to be performed. And when an injury occurs, the recovery time must be minimised using the best of currently available techniques.

Although the principles of Cryotherapy have been known for centuries it is still one of the most favoured modern day options due to its low side effect profile.

History of Cryotherapy

The use of cold therapy (cryotherapy) dates back to the Ancient Greeks. Hippocrates, Aristotle and Galen all mention the use of cold treatments for acute injury. Cold drinks and baths and natural ice and snow were used as the first forms of cold therapy before the introduction of artificial ice in 1755.

Since the 1940's, cold has been used extensively for the treatment of acute and sub-acute injuries and for rehabilitation

Therapeutic Modalities

The body loses heat through radiation, conduction, convection and evaporation. Today, cryotherapy techniques mostly use conduction and convection as a means of cooling injured tissues.

Intramuscular temperatures can be reduced significantly, which aids in the reduction of local metabolism, inflammation and pain. The cost, sophistication and availability of superficial cold modalities vary enormously including ice, cold packs, compression devices, sprays etc.

Preventative Modalities

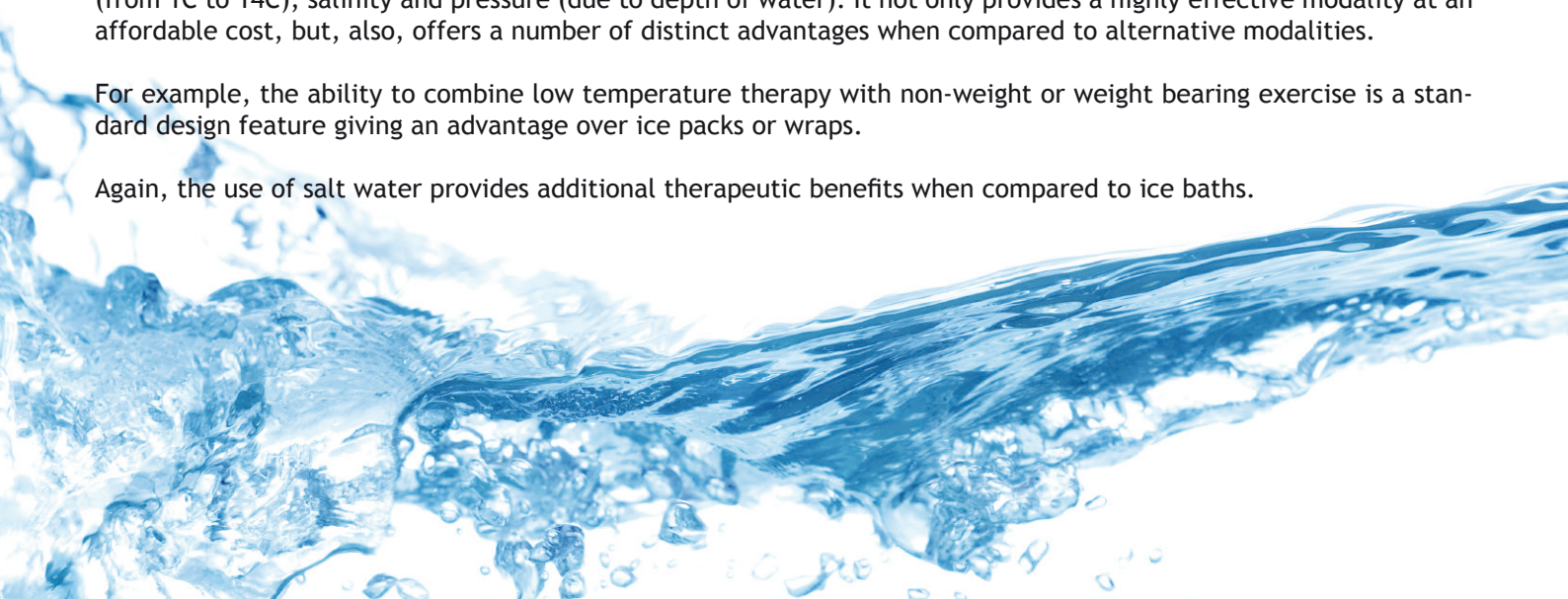
Cryotherapy has, also, gained a place in many sports as a standard workout recovery protocol. In particular, ice baths and plunge pools (hot as well as cold) have been commonly used as a recovery strategy and to help prevent post-exercise complications.

CET Cryotherapy

The CET Cryotherapy Spa has the optimum combination of turbulence, thermostatically controlled temperature (from 1C to 14C), salinity and pressure (due to depth of water). It not only provides a highly effective modality at an affordable cost, but, also, offers a number of distinct advantages when compared to alternative modalities.

For example, the ability to combine low temperature therapy with non-weight or weight bearing exercise is a standard design feature giving an advantage over ice packs or wraps.

Again, the use of salt water provides additional therapeutic benefits when compared to ice baths.



CET CryoSpa

Four Basic Factors

CET Cryotherapy relies on four basic factors to achieve a therapeutic effect, namely **Turbulence, Temperature, Pressure and Salinity**.

Turbulence

Aeration of the water has a two fold effect. When the body loses heat through convection as well as conduction the temperature drop will be much greater and be achieved much faster. Wind chill is a good example.

Secondly, the massage effect influences dispersal of fluids and can also stimulate the muscle which is particularly beneficial for certain conditions such as quadriceps contusion.

Temperature

The application of cold decreases pain and muscle spasm and, also, reduces tissue metabolism, blood flow (initially), inflammation, edema, and connective tissue extensibility.

Low temperature (1 C to 14 C) hydrotherapy is a relatively new concept in therapeutic modalities and can provide significant pain relief with a low side-effect profile.

Pressure

The greater the depth of the water the greater is the physical pressure exerted on the tissues which, again, aids in the dispersal of accumulated fluids.

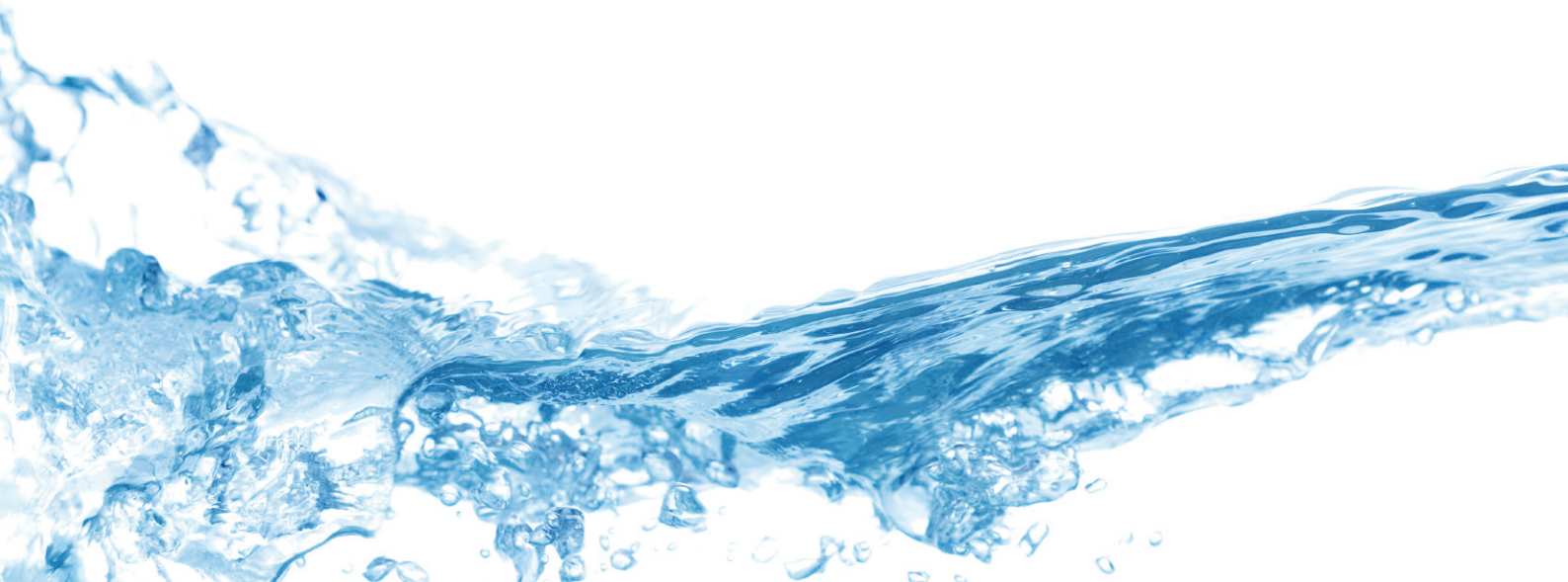
Salinity

The salinity of water has an impact on the healing process. Higher concentrations of salt have a greater drawing effect thereby influencing the dispersal of fluids accumulated around the injury.

Additionally, salt has a positive effect in helping to cleanse cuts and wounds by aiding in the control of infection.

References:

1. The Uses of Cryotherapy in Sports Injuries; Meeusen R., Lievens P. 1986
2. Cryotherapy in Sports Medicine; Swenson C., Sward L., Karlsson J. 1996
3. Cryotherapy for Acute Ankle Sprains; Bleakley CM., McDonough SM., MacAuley DC., Bjordal J. 2006
4. Cryotherapy Theory: Technique and Physiology; Knight K. 1985





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Research Abstract

A Randomised Controlled Study of the Physiological Effect of Cold Water Immersion using Healthy Human Subjects.

Dr. C.M Bleakley; Prof. S.M McDonough

Health and Rehabilitation Sciences Research Institute, University of Ulster

Objectives:

1. To study the effects of cold water immersion on heart rate, blood pressure, skin temperature, core temperature and subjective tolerance.
2. To compare the effects of cold water immersion in two different water temperatures, applied with and without turbulence.

Study design:

A double blind randomized controlled trial design was used. N=20 healthy subjects were recruited from the staff and student population at the University of Ulster. Group allocation was concealed using sequentially numbered opaque sealed envelopes.

Intervention:

After a period of acclimatization, all participants were immersed in a cryotherapy bath (CET Cryo Spa) for a 5 minute period up to waist level. They were randomized to one of the following conditions:

1. Immersion in CET Cryo Spa (2°C) with no turbulence (n=5) and with turbulence (n=5)
2. Immersion in CET Cryo Spa (10°C) with no turbulence (n=5) and with turbulence (n=5)

Outcomes:

Heart rates (HR), blood pressure (BP), subjective pain response (McGill) were recorded. In addition, the Vital Sense telemetric physiological monitoring system (Minimitter Co. Inc,) were used to assess skin temperature (foot dorsum, anterior thigh) and core temperature.

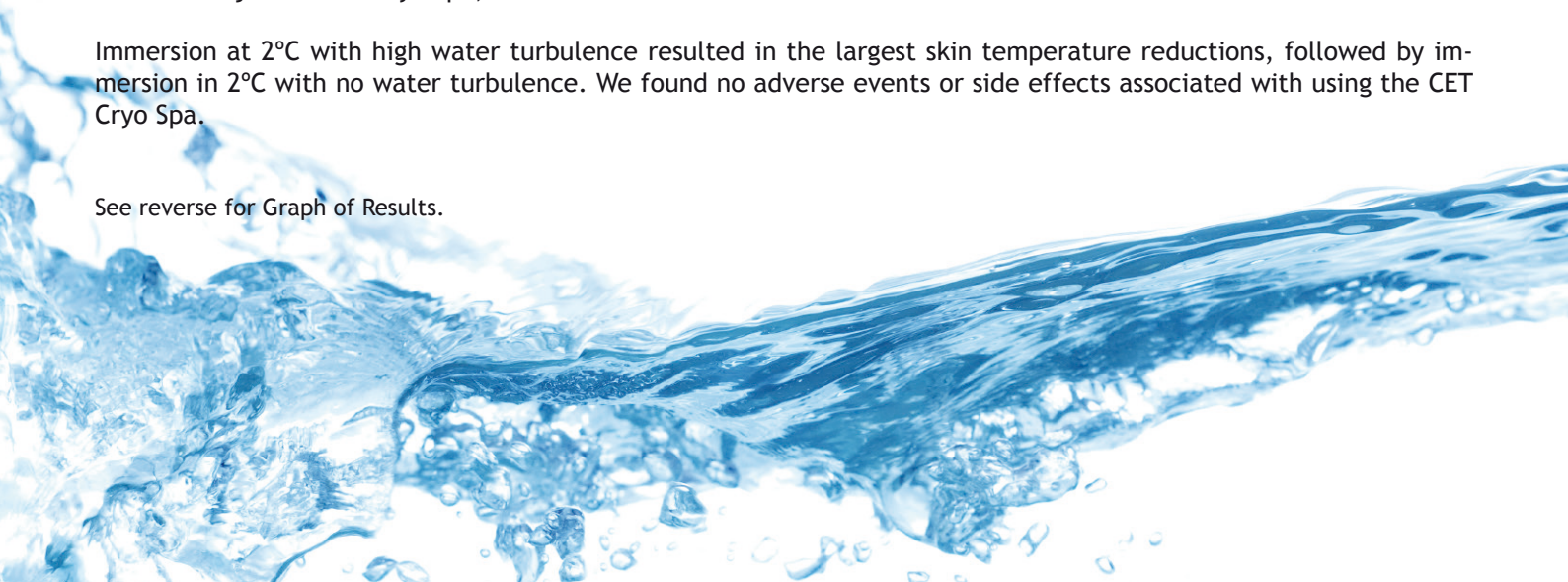
Executive summary of results:

Our initial review of the evidence base in this area showed that few research studies have adequately measured changes to skin temperature during cold water immersion. Based on the most up to date clinical evidence, the optimal recommended skin temperature for treating soft tissue injuries is between 10°C and 14°C.

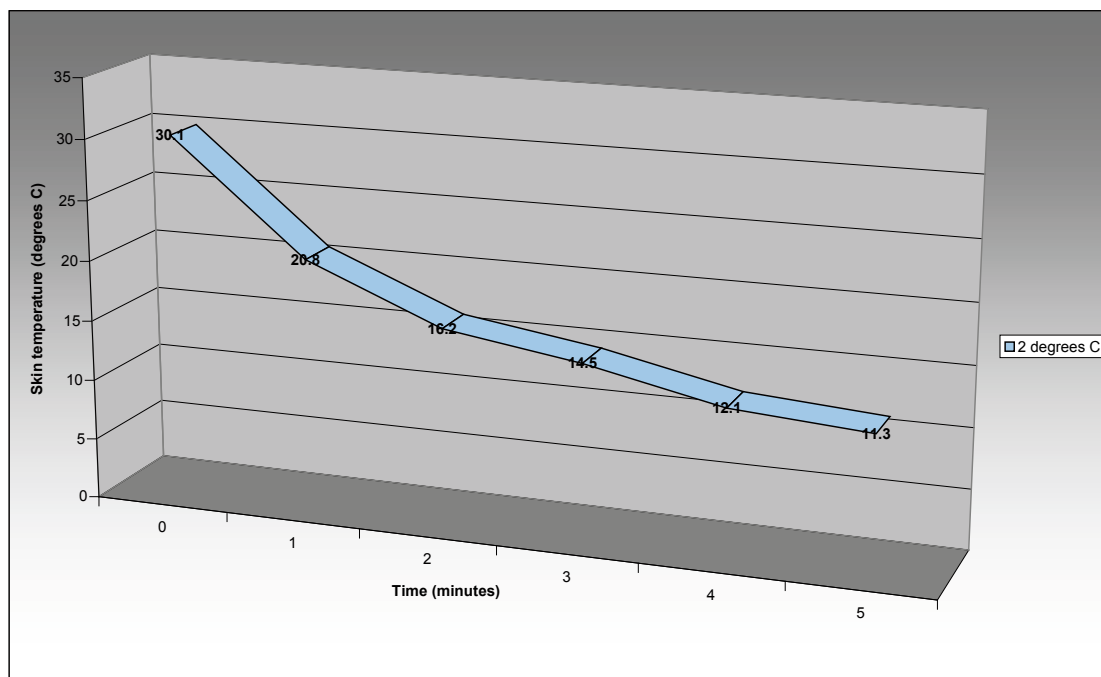
Our research noted that these temperature reductions could be readily achieved after a 5 minute immersion (to waist level) in the CET Cryotherapy Spa [Cryo Spa]. Furthermore, skin cooling to therapeutic levels was enhanced by using the in-built jets on the Cryo Spa, to create water turbulence.

Immersion at 2°C with high water turbulence resulted in the largest skin temperature reductions, followed by immersion in 2°C with no water turbulence. We found no adverse events or side effects associated with using the CET Cryo Spa.

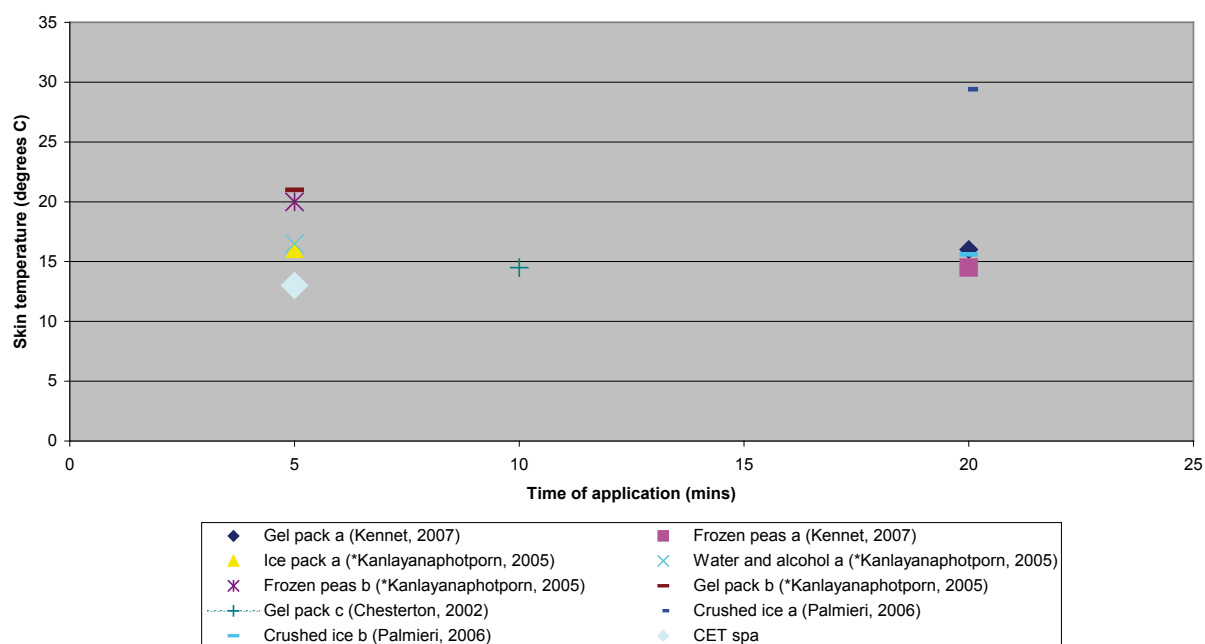
See reverse for Graph of Results.



CET Cryotherapy Spa - Typical skin temperature reduction (each minute) during immersion at 2 °C



Skin temperature reduction recorded using CET Cryotherapy Spa in comparison to other forms of cryotherapy



CET: values for 2°C with turbulence. *Approximate value extracted from original study graph.

References:

- Chesterton LS et al. Skin temperature response to cryotherapy. Arch Phys Med Rehabil. 2002; 83(4): 543-9.
- Kanlayanaphotorn R & Janwantanakul P. Comparison of skin surface temperature during the application of various cryotherapy modalities. Arch Phys Med Rehabil. 2005; 86(7): 1411-5.
- Kennet J et al. Cooling efficiency of 4 common cryotherapeutic agents. J Athl Train. 2007; 42(3): 343-8.
- Palmieri R et al. Peripheral ankle cooling and core body temperature. J Athl Train. 2006; 41(2): 185-8.



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Technical Specification

Standard CryoSpa (3 / 4 Person)

Power: 230v / 1 / 50 hz (EU)
230v / 1 / 60 hz (US)
115v / 1 / 60 hz (US)

Dimensions (L x W x H): c. 1.55m x 0.8m x 1.2m
c. 61" x 32" x 48"

Steps: c. 0.55m wide (c. 22")

Weight: Empty: c. 200 kg / 440 lbs
Full: c. 750 kg / 1650 lbs

- Over 40 Hi Flo Jets
- 1.5kw Jet Pumps
- Stainless Steel Safety Rails & Steps
- Low noise low temperature chiller
- Wall Mounting Brackets [Optional]

Team CryoSpa (6 Person)

Power: 230v / 1 / 50 hz (EU)
230v / 1 / 60 hz (US)
115v / 1 / 60 hz (US)

Dimensions (L x W x H): c. 1.87m x 0.75m x 1.36m
c. 74" x 30" x 54"

Steps: c. 0.55m wide (c. 22")

Weight: Empty: c. 250 kg / 550 lbs
Full: c. 1050 kg / 2310 lbs

- Over 60 Hi Flo Jets
- 2 x 1.5kw Jet Pumps
- Glassfibre Steps & Stainless Steel Safety Rail
- Single larger chiller or two smaller chillers
- Wall Mounting Brackets [Optional]

Larger team baths manufactured to customers specification.



CET CryoSpas Testimonials

Widnes Vikings (English Super League)

"The CET CryoSpa... has been **invaluable in helping the management of fatigue and recovery** in our squad of players. Colin was able to provide us with a high quality product that was fitted into a difficult space - the solutions that he provided were much better than the concept that we had originally planned!"

The product was installed very quickly. The daily maintenance is minimal and fits easily into our busy schedules. All the players use the spa at least twice a week, and feel that **it really aids their recovery** - when you consider the performance demands that are placed upon the squad, it can be seen why this is so important!

I would happily recommend Colin and the CET CryoSpa to anyone who is working with performance athletes."
Clive Brewer, Head Strength & Conditioning Coach, Widnes Vikings

Hull FC (English Super League)

"The CET Cryospa is not just an ice bath but a **whole new therapy**. It's brilliant, **absolutely brilliant!**" reports Paul Devlin, Strength & Conditioning Coach for Hull FC. "I am really pleased to have one. The players love it."

Fulham Football Club (English Premier League)

The CET CryoSpa formed an integral part of the recovery strategy for Fulham Football Club (English Premier League Soccer Club) in their run up to the 2010 Europa League Final in Hamburg.

"When used in conjunction with our standard modalities we observed a **positive effect on player recovery both physically and mentally**." Martin O'Connell, Physiotherapist and Mark Taylor, Head of Sports Medicine and Exercise Science, Fulham Football Club. May 2010

Since May, Fulham have acquired **two additional CET CryoSpas**: a second for the training facility and one for Craven Cottage [the stadium] confirming their view that the CET CryoSpa is the best on the market.

Celtic Crusaders Rugby League Club (English Super League)

When Celtic Crusaders first came across the CET CryoSpa, both the medical team and the players immediately recognised it was a vast improvement on their ice baths and swiftly acquired a unit for their own training facility.

"The CET CryoSpa has become an **integral part of our daily and match day recovery protocols** at Crusaders. Players are reporting reduced sensations of delayed onset muscle soreness and feelings of increased energy the next day. In addition, I have found the spa to be **extremely beneficial in the rehabilitation** of the many injuries sustained in a collision sport like rugby league. **An essential in any professional sports medicine department.**"

Ben Stirling, MCSP, MAACP, MSMA; Physiotherapist for Celtic Crusaders and Wales Rugby League. June 2010.





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Clients

CET CryoSpa Clients include renowned sports clubs, facilities and educational establishments:

Football / Soccer



Rugby



NFL



Olympic Sports



NBA



Universities / Schools / Colleges



Health Clubs



Plus many sports rehabilitation clinics, sports therapists and physiotherapists.



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