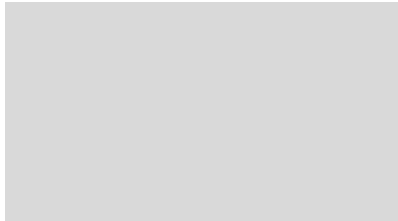




CRYOCELL

Pain Control
Combination Therapy System

01 Brief of Cryocell



CryoCell

➤ Functions

Cryotherapy(-10°C)

Thermotherapy(45°C)

Mid-frequency therapy

Interference wave therapy



Cryo/Thermal + Microcurrent stimulation

Mode 1~4

Cryo + Iontophoresis

Cryo + Electrophoresis

Thermal + Electrophoresis

Mode 5~6

Cryo/thermo + Mid Frequency

Brief

Acute contusion

Strains

Muscular relaxation

Promote metabolism

Bathyessthesia stimulation

Deep penetration

Percutaneous stimulation

Pain relief

Percutaneous absorption

Transcutaneous electric nerve stimulation

Transdermal administration

nutrition

Intradermal/muscular administration

Sedation, pain control

Deep administration

Promote metabolism

Pain control

Acute/Chronic sprain

Inflammation/Swelling relief

Cryolipolysis

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01 Brief of Cryocell

CRYOCELL

is based on Cryo electrophoresis, implemented Combination therapy that potentially usable coupled Cryotherapy and thermotherapy with Iontophoresis, Electrophoresis, Medium Frequency Therapy.

Cryocell is built as the final one on research and development for three years, establish a prominent effect as a new idea of medical instrument for pain control.

It is a patented article and has applied for a international patent.

Improve blood circulation, muscular contraction and relaxation, and pain control
Homogenous infiltration, preventing inflammation, and suppress thermoeffect in tissue.



CryoCell (Painzer0) = Cryo/thermotherapy + Middle frequency

CRYOCELL PROGRAM

ESWT + **Cryocell**

PRP/Intraacrticular injection + **Cryocell**

Skin care/Post Laser Treatment + **Cryocell**

Post operations/Acute Pain/Kinetic trauma + **Cryocell**

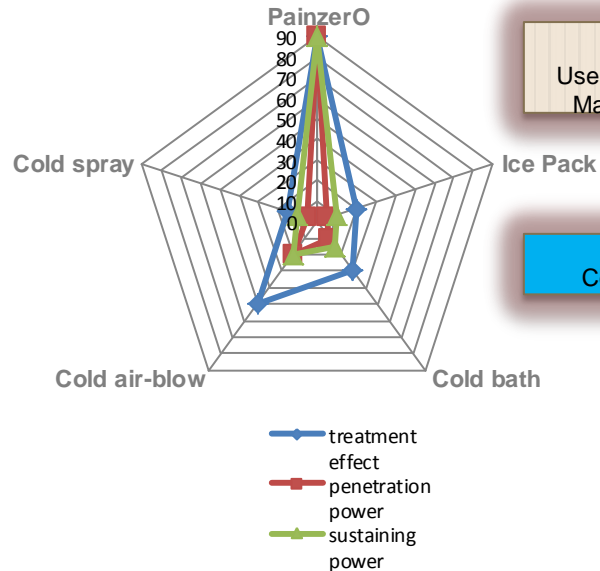
01

Cooling type comparison

CRYOCELL

Brief

COOLING TYPE COMPARISON



Cooling depth
Users convenience
Maintenance cost

Ice Pack

Cold penetrate
Cold sustenance

Cooling type

- Surface
- Simple
- Mid cost

- Low cold penetration
- Low cold sustenance

ICE PACK

- SURFACE(epithelium)
- Inconvenient
- low cost

- Low cold penetration
- Low cold sustenance

AIR BLOW

- SURFACE(epithelium)
- Unable focal cooling
- CO2 gas recharge – high cost
- Noise
- Frostbite risky

- low cold penetration
- low cold sustenance
- Need resume for electrical treatment

CRYOCELL

- DEEP(muscle layer)
- Simple, focal cooling
- Low cost
- Treat inflammatory tissue
- Combination therapy after operation
- Very high cold penetration
- Very high cold sustenance
- Multi-combination therapy

Cryocell(PainzerO) is higher price than other products however, have higher penetration and sustaining power of cold



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02 Cryoelectrophoresis

CRYOCELL

COMBINATION THERAPY SYSTEM

Cryoelectrophoresis

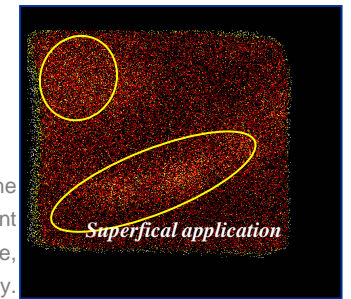
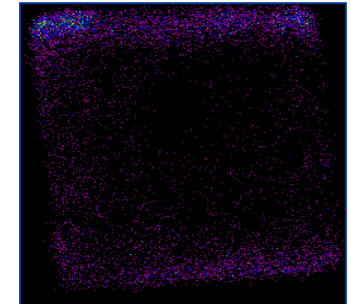
CRYOCELL

Methodology

In the term *cryoelectrophoresis*, 'cryo-' stands for cooling, and 'electrophoresis' stands for the method also called as the cataphoresis. The electrophoresis was first observed and described by the Russian physicist A. Beuss in 1807 in the clay suspension, and the phenomenon was established as the 6 practical method after the moving boundary electrophoresis apparatus (Tiselius electrophoresis apparatus) was developed by the Swedish biochemist A.W.K. Tiselius in 1930s.

Cryoelectrophoresis, is the method of penetrating vitamin and other agents via the power of the electric current by cooling down the skin surface. In the traditional **electrophoresis** therapy, it was hard to send out the electric current higher than certain level because of the danger of burning. Also, the efficiency of the agents used in the electrophoresis therapy was decreased by applying the agents on the cotton and decreasing the amount that directly reaches to the skin. On the other hand, the **Cryoelectrophoresis** prevents burning even under the strong electric current by cooling down the skin surface, which enhances the penetrance compared to the traditional electrophoresis treatment. Moreover, it contracts the blood vessel, thereby having the penetrated agent to be remained in the treated area rather than absorbed by the blood vessels.

The cryoelectrophoresis was established by a Spanish scientist, and now it is well known based on many clinical and experimental studies. According to his research, the 'Iontophoresis' and cryoelectrophoresis show significant differences in the efficacy and effectiveness of the treatment.

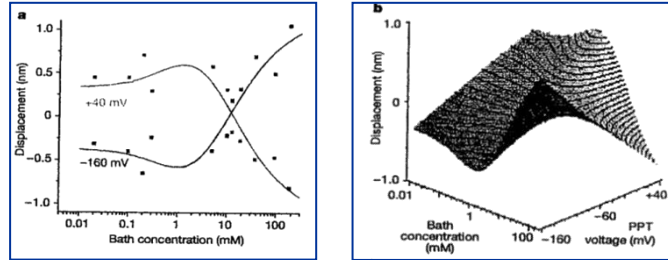


As the figures right show, in the treatment the cryoelectrophoresis was used, the agent is not concentrated in one place, but distributed homogeneously.

02 Cryoelectrophoresis

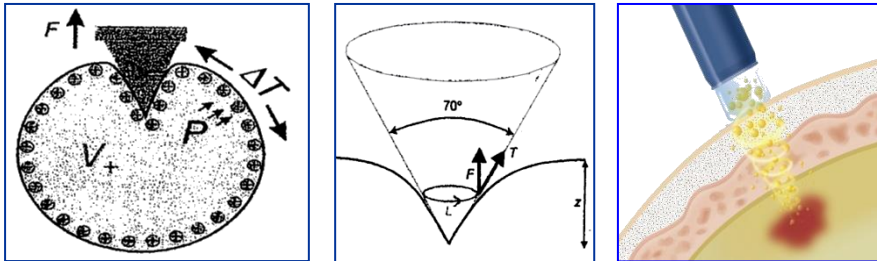
CRYOCELL

Theory

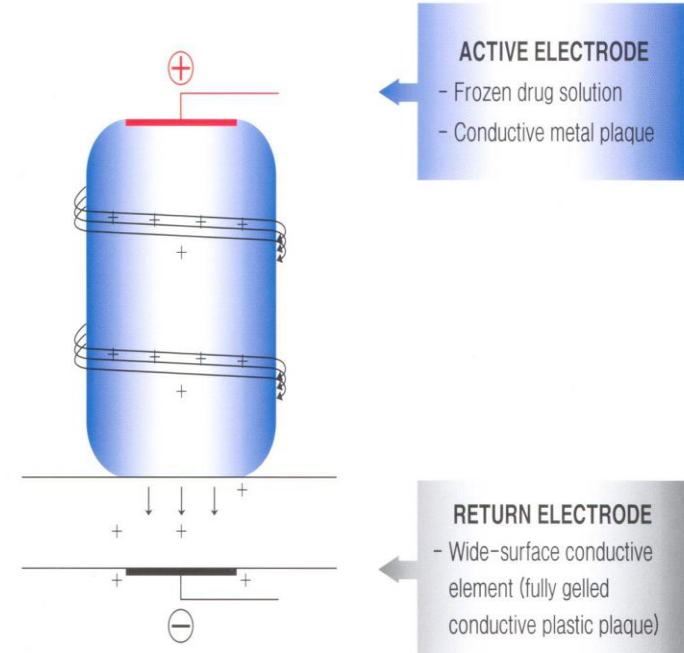


DRUG TRANSFERRED TECHNOLOGY

Methodology



a theory information file : Nature - 2001. 9 / number.413



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02 Cryoelectrophoresis

Theory

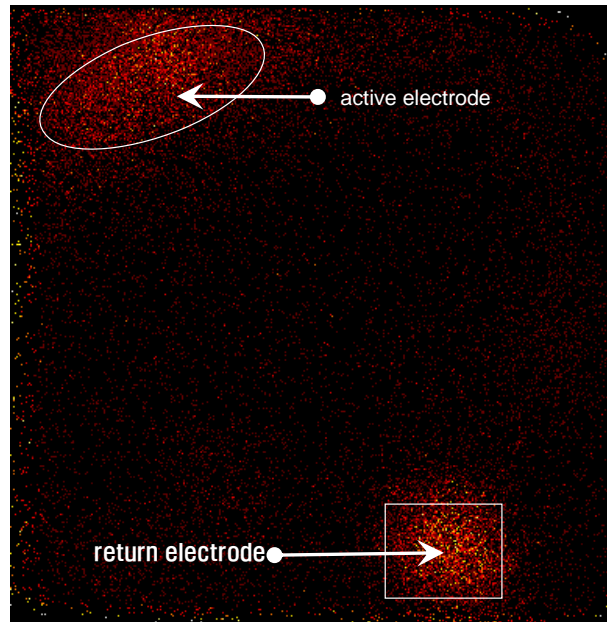
Experiment

ELECTROPHORESIS.

3 ml of purified ^{99m}Tc -CS frozen solution (XX MBq)

1.5 mA/ cm^2 current density

30 min application time on rat leg



30 min acquisition

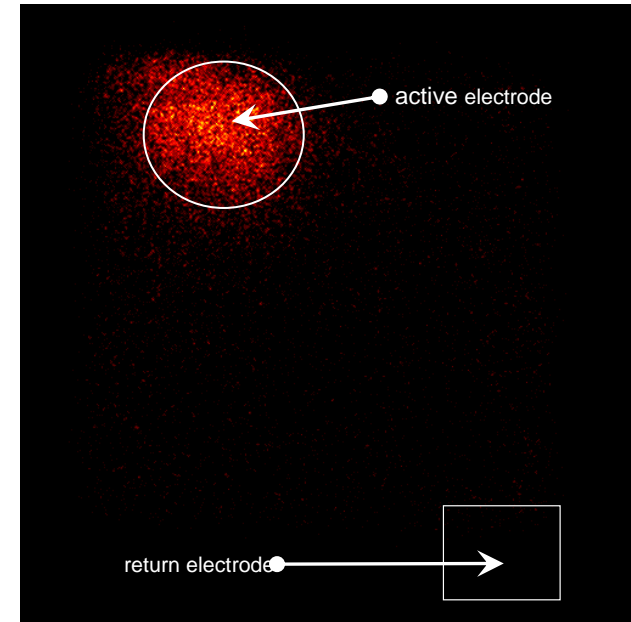
DEEP PENETRATION OF THE DRUG

IONTOPHORESIS

3 ml of purified ^{99m}Tc -CS frozen solution (XX MBq)

1.5 mA/ cm^2 current density

30 min application time on rat leg



30 min acquisition

ACCUMULATION OF ^{99m}Tc -CS ONLY NEARBY
THE ACTIVE ELECTRODE

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03 Cryotherapy efficacy

Cryotherapy is said to be utilized ice generally, thereby cooling the topical therapeutic purposes. Physiological effect lasts longer than that of the thermal treatment in general.

This has the advantages and disadvantages of both cryotherapy and thermotherapy, it is not possible to determine which is better, but cryotherapy decreases the blood flow, reduce the metabolic activity of the body and muscle tension, and suppress convulsions and clonus. Also increase gastrointestinal mobility, make slower nerve conduction velocity, and shows the

The therapeutic effect of cryotherapy consist of reduction of acute inflammation, contractile response of the skin blood vessels, and reduction of growth rate of sintered body tissue.

It is believed pain control effects of cryotherapy include reflective muscle relaxation, act as a stimulant to the skin and reduction of nerve conduction velocity of the pain transmission nerve fibers.

It is used reduce swelling, bleeding and pain when acute musculoskeletal trauma, also much more effective than thermal treatment when parallel liberation movement for muscle relaxation.

Improve pain control to decrease swelling indirectly, it relieves pain to act to nerve fibers directly. no feel of pain in 13 °C or less as nerve is paralyzed.

When joint of pain being cooled sufficiently, pain to be reduced as pain threshold goes up.

03

Mid frequency efficacy

- Middle frequency is domain band between 4,000 Hz ~ 10,000 Hz, and unlike the low-frequency, it have a waveform suitable for the management of muscle tissue layer depth.
- By the mid-frequency on the human body, it reduce joint stiffness and proximal spasms, relieve pain and make smooth metabolism to drive enzyme reaction acts help decomposition of the exudate.
- Different from the low-frequency stimulating cutaneous nerve of epidermis only, Mid frequency penetrates deep into the muscles, with feeling soft, no discomfort electrical feelings during the course of treatment.
- Improve metabolism and blood circulation resulting in an increase of blood flow inside. Also can be used in obesity and circulatory diseases of the lymphatic system.
- Mid frequency is basic wave form to control "pain", that's why Mid frequency stimulator is to be a basic medical equipment in physiotherapy
- It is also effective to increase muscle strength.
- Smoothest waveform of 4,000hz being used on our products.

03 Thermotherapy efficacy

In recent years, there are many people who suffer simply from pain of spine muscles and ligaments, which means they lose the vitality of life, and due to those of pain, seriously being constrained on social activities than thought. In such cases, usually folded massage and acupressure are used, but it do not end well as they had massages and acupressure inappropriately.

It is strengthening of the muscle that is thought to be important for the patient. Their muscles might be weakened relatively as no exercise, hardly force them to do exercise.

It's thermotherapy making muscle stretched and relaxed softly that needed for the patients. And hot pack or ultrasound are used for physiotherapy, but these treatment could not improve muscular cell itself or have poor effects as thermal energy do not reach to aiming depth.

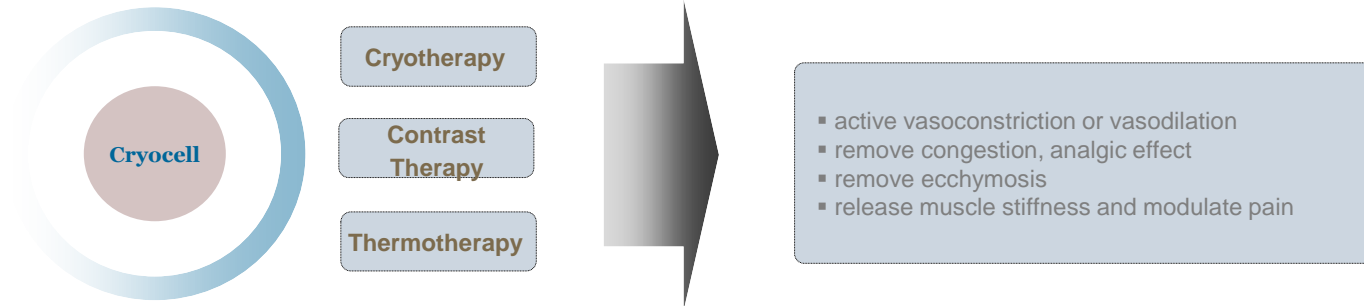
Thermal energy improve circulation of blood onto muscular tissue to increase metabolism of muscular cell, to extrude the wastes, to make cells healthy and finally strengthen muscular function.

For chronic disease, thermotherapy is one of highly effective treatment.

04 Application CRYOCELL

Application

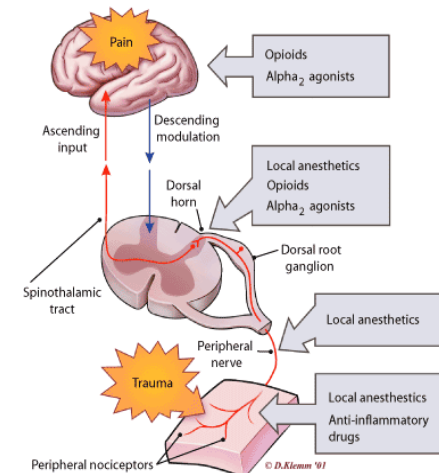
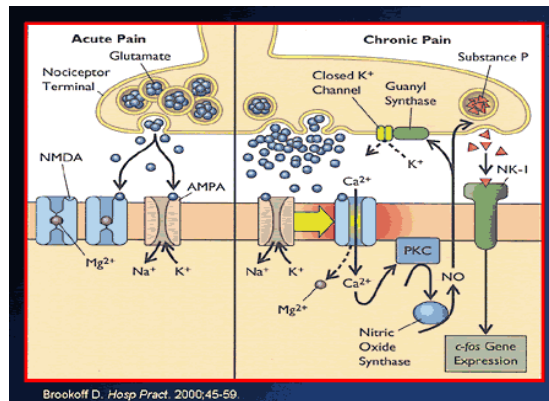
1. Cryocell(PainzerO) penetrates medicine effectively and deeply per cryoelectrophoresis theory
2. **Cryocell facilitate circulation of blood**, increase metabolism, and homeostasis under the cover of theory of contrastive therapy. so, it improve the condition of local area peripheral blood flow, circulation, metabolism and nutrition supply



3. Cryocell modulate pain.

pain with sprain, strain and inflammation modulate through activation of central inhibition of pain transmission (Gate therapy) and local analgesic effect by cooling apparatus (transducer).

Also, Free pain nerve ending depress the release of substance which induce pain or the awareness of pain on cerebral cortex.



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04 Application CRYOCELL

Application

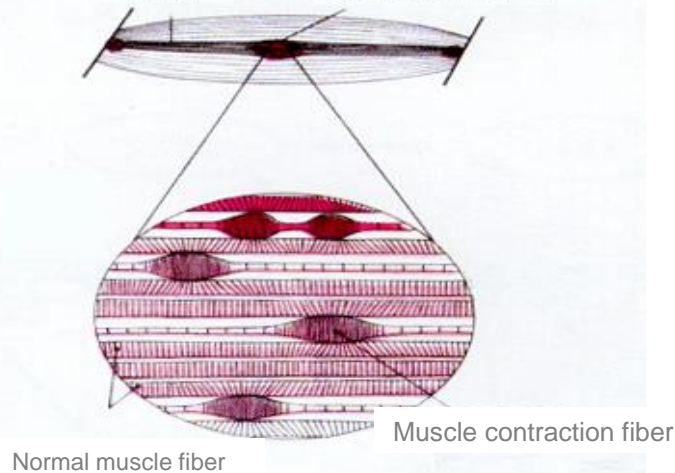
4. Cryocell release muscle spasm.

In over use syndrome patients, they have malposture and Myofascial Pain Syndrome (MPS) that is a painful musculoskeletal condition, a common cause of musculoskeletal pain. MPS is characterized by the development of Myofascial trigger points (TrPs) that are locally tender when active, and refer pain through specific patterns to other areas of the body. A trigger point or sensitive, painful area in the muscle or the junction of the muscle and fascia (hence, myofascial pain) develops due to any number of causes (e.g.. poor posture, headache, work station, Generalize fatigue)

from of muscle tissue in myofascial trigger points

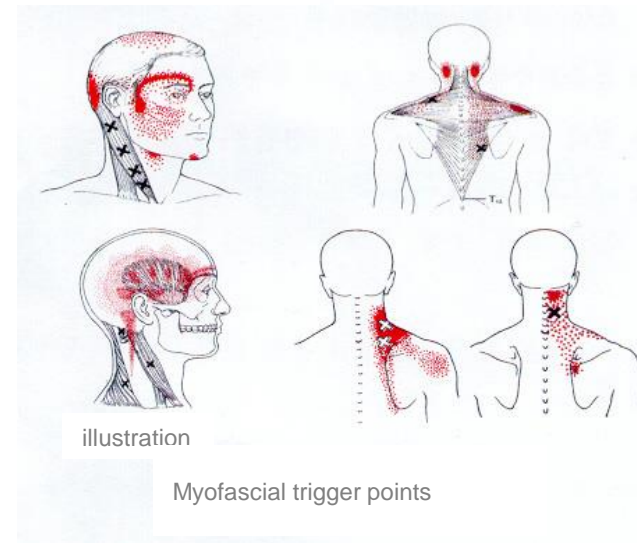
Solid band

Hand tissue in myofascial trigger points



1) Myofascial pain syndrome and headache

2) Myofascial pain syndrome and neck shoulder pain



04

Application

CRYOCELL

5. Cryocell combination therapy.

Application

PainzerO Therapy Unit

*Cryo Combination
Therapy System*

Cryoelectrophoresis

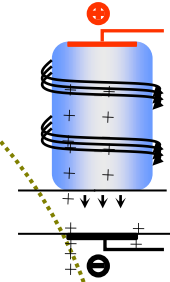


Pain & Muscle Therapy

Circulation



Cryotherapy



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05

Indication

CRYOCELL

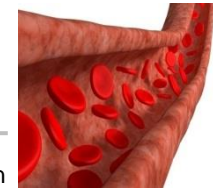
Indication



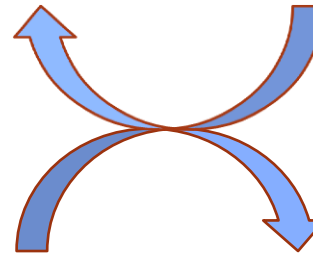
Cryotherapy

Acute contusion
Muscle cramps, convulsion
Tachycardia, arrhythmia functional
myofascitis, fascia failure
Sprains, muscle pain
Pain relief
Reduction in bleeding

Thermotherapy



Muscular relaxation
promote blood flow
Muscular relaxation
promote metabolism
relieve the pain
Strengthening of viscoelastic issue
expansion of pores



MF therapy

Pain Control
Muscular contraction
Muscular relaxation
promote blood flow
Edema, hematoma absorption
Inflammation relief
Promoting wound healing
Improvement of urinary incontinence (diuretic)

Chronic pain and
acute inflammation

- Shoulder bruise
- Rib contusion
- Sprain of slight foot
- Acute spinal cord pain
- Acute toothache
- Fascia pain of temporomandibular joint
- Acute inflammation of the tendon sheath
- Patellofemoral pain
- Chronic rheumatoid arthritis
- Chronic degenerative joint disease
- Chronic causalgia
- Peripheral nerve damage



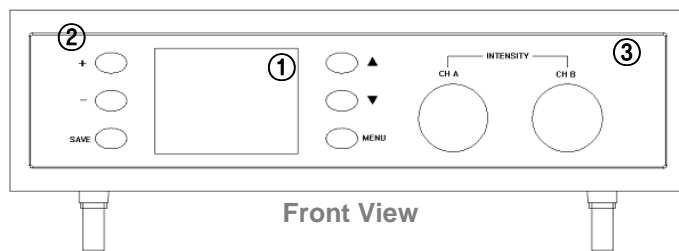
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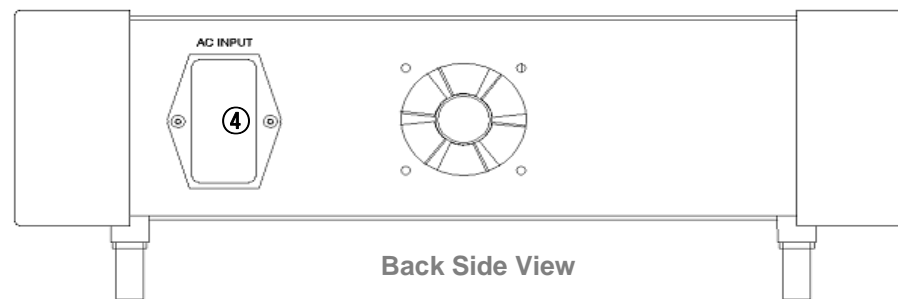
06 Instruction

CRYOCELL

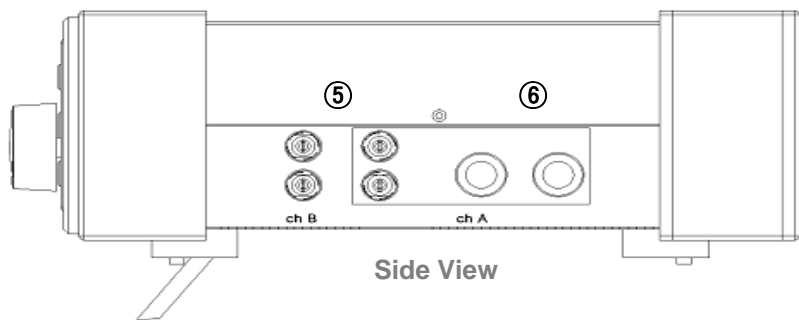
User manual



Front View



Back Side View



Side View

- ① LCD Display
- ② Push Button
- ③ Intensity Rotary knob ChA, ChB
- ④ Main Voltage, Switch
- ⑤ Output connectors
- ⑥ Electrode Large, Small

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06 Instruction

CRYOCELL

① **LCD Display** : color LCD monitor, Displaying mimetic diagram

② **Push Button** : selecting a menu option

+ : increase a set temperature point

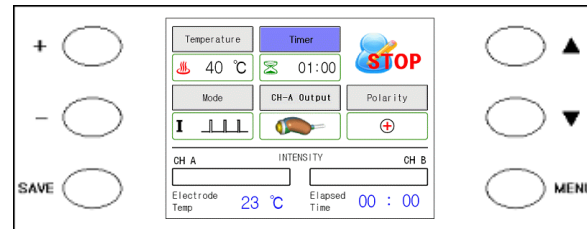
- : decrease a set temperature point

SAVE : press the button for 3 second

▲ : increase set point

▼ : decrease a set point

MENU : Clicking this will take you to the Options menu



③ **Intensity Rotary knob ChA, ChB** : start switch and modulate output of electro stimulation Ch A and Ch B

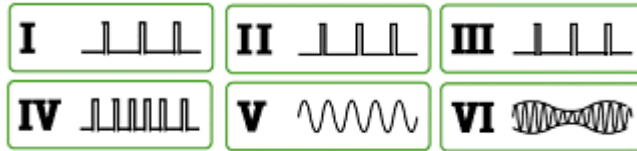
④ **Main Voltage, Switch** : the exterior a main source of electric power service

⑤ **Output connectors** : connect each electro stimulation pad

⑥ **Electrode Large, Small** : electrode for both Hot/cold , transmit low frequency from Ch A to body.

CRYOCELL

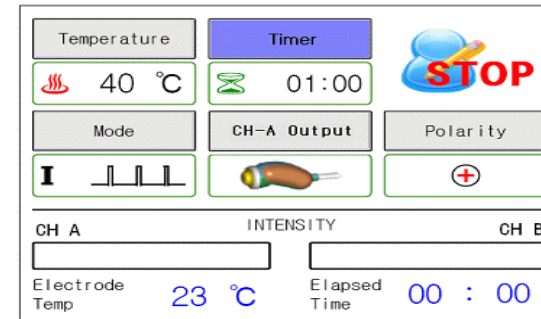
- ① Temperature : a set temperature point on cooling/warming apparatus (transducer)
cryotherapy (-10℃~10℃), thermotherapy(40℃~45℃)
set a standard point by 1℃ unit
- ② Timer : set output time. 1~60minutes , set a standard point
by 1minute unit
- ③ Mode : 1~4 - iontophoresis mode / 5~6 - medium frequency mode



- ④ CH-A Output : set Ch-A output direction. select between cooling / warming apparatus (transducer) (small), cooling/
warming apparatus (transducer) large and electrode pad



- ⑤ Polarity : set electrode of low frequency mode in 1~4. set +, -
 - ⑥ Click Menu Button goes activated screen to the next .
- ** “ please Turn off Zero !” is displayed in the lower right the screen if tune on the machine,
Turn off the machine, then key button is activated.



06 Specification

CRYOCELL



- 1) an electric impact of preservation :
Class I Equipment, Type BF Applied Part
- 2) Device of power
 - (1) Input voltage and power consumption : 110 ~ 220VAC/60Hz, 150VA below
 - (2) output voltage : 12V, 8A MAX.
- 3) DSP (Main Controller) :
TMS320F2812-176PinPGFA, TI
- 4) Electro stimulation output
 - (1) Frequency : MODE 1, 2, 3, 4 Pulse wave
MODE 5 4KHz Sine wave
MODE 6 4KHz Sine wave
(Modulation)
 - (2) output voltage : 40Vp-p, 28mA at 500Ω load
- 5) Temperature
 - a set temperature point
cryotherapy (-10℃~10℃),
thermotherapy(40℃~45℃)
set a standard point by 1℃ unit
- 6) set output time.
1~60minutes ,
set a standard point by 1minute unit
- 7) Display & User Inter Face : 4.0" Color TFT
QVGA LCD Panel(240*RGB*320) with Back
Light



