

Cool Hand Luke

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Nondisclosure agreement

 NDA Body Cooling Sy...

Publications
 DeGroot, MAJ David W., et al., "Impact of Arm Immersion Cooling During Ranger Training on Exertional Heat Illness and Treatment Costs" *Military Medicine*, Vol. 180, 2015: 1178-1183
 DeGroot, David W., et al., "Extreme cooling for heat stress mitigation in military and occupational settings" *Journal of Thermal Biology*, Vol. 38, 2013: 305-310

Press

The Inventors
 - David W. DeGroot
 - Richard Gallimore
 - Gary Proulx
 - Karen Buehler

The Lab
[U.S. Army Research Institute of Environmental Medicine](#) (USARIEM) is internationally recognized as the DoD's premier laboratory for Warfighter health and performance research and focuses on environmental medicine, physiology, physical and cognitive performance, and nutrition research. Military guidance has been published for operations in heat, cold, and high-altitude environments and nutrition for health and performance.
[U.S. Army Medical Materiel Development Activity](#) (USAMMDA) is the DOD's advanced development activity for products designed to protect and preserve the lives of Warfighters. It develops new drugs, vaccines and medical support equipment that enhance readiness, ensures the provision of the highest quality medical care to the DOD and maximizes survival of medical casualties on the battlefield.

BLUF (*Bottom Line Upfront*)
 U.S. Medical Research and Development Command seeks additional licensees for the Body Cooling System; a lightweight portable apparatus that reduces a person's core temperature by transferring heat through the hands and forearm into cold water.

Introduction
 The Body Cooling System (BCS) was co-invented and developed by MAJ David W. DeGroot, PhD, Physiologist, Tripler Army Medical Command and Richard Gallimore, PhD, Gary Proulx, PhD and Karen Buehler, PhD, research engineers from the US Army Natick Soldier Research Development and Engineering Center.

Focus
 Prevention of exertional heatstroke; maximizing performance and safety by reducing body core temperature through heat transfer from the hands and forearms into cold water.

Market Opportunity
 The sports medicine market for the Body Cooling System includes military training, community, high school, university and professional sports programs and fire and rescue services.

Competitors
 Sports equipment companies and product including: Athletic Stuff: Sports Cool Portable Cooling System, Health Products For You: Polar CoolOR Body Cooling, Auto Anything: Champion Electric Cooling Fan, Gibson and Barnes: KRYO® Body Cooling System

Technology
 The Body Cooling System can be used in high risk heat environments to decrease the incidence of heat-related illnesses by reducing the body's core temperature, therefore extending heat tolerance and increasing total work time. It is ideal for local and professional sports teams, athletic/endurance events such as marathons, training situations, firefighting, and any strenuous activity commonly performed in hot environments.

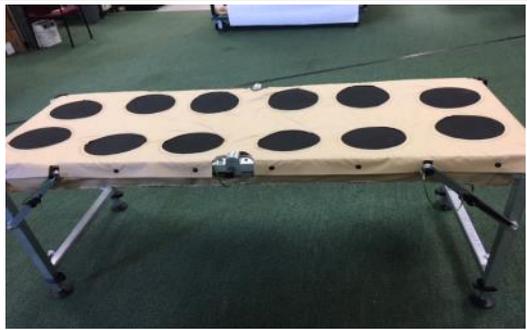


Advantages

- Reduces core body temperature 1.0°C in 3-10 minutes
- Minimizes heat-related illnesses (Exertional Heat Stroke is usually among the top 3 causes of death in athletes)
- Allows for easy transportation, setup, and storage
- Accommodates 6 adults at a time
- Integrated thermometer monitors water temperature
- Assembly and use instructions stenciled on the waterproof, flexible fabric
- Holds up to 48 gallons of water, equaling 6 inches of water in the reservoir
- Legs adjust to provide ideal height for users
- Inexpensive to manufacture
- Successfully implemented in military settings

Transportable:
 Lightweight portable apparatus with storage kit.

Assembly:
 Quick assembly at the point of use.



Note: Can be used in whole body immersion for exertional heat stroke

Commercial Opportunities

1. License as a manufacturer
2. License as a distributor/seller
3. Sublicense as an event coordinator
4. License for advertising purposes

You may be interested in one or more of the above. Please contact us to discuss.



Collaborators & Partners

Mark Brown, USAMMDA:
design and prototyping
Kenneth Rice, RDECOM,
NSRDEC: Insulated Fabric
Body Cooling Systems

Licensee:
Actively Seeking Licensees

Awards



Intellectual Property
Issued US Patent 10,058,448, August 28, 2018
 Referred to as "Arm Immersion Cooling Apparatus And Method"



United States Patent
 Degroot et al. (10) Patent No.: **US 10,058,448 B2**
 (45) Date of Patent: **Aug. 28, 2018**

(54) **ARM IMMERSION COOLING APPARATUS AND METHOD**
 (57) **Field of Classification Search**
 CPC A61H 33/00; A61H 2035/00; A61H 33/02; A61H 2203/02; A61H 33/0095; (Continued)

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Assistant Examiner Yasutlin Kramo
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 William F. Schuman

(57) **ABSTRACT**
 A two person portable apparatus (10) for reducing the core temperature of one or more human beings includes a trough (14) made of a waterproof, flexible fabric (56) and a generally rectangular frame (12). Portion (6K, 70, 72, 74) of the fabric (56) are looped over sides (24, 26, 28, 30) of the frame (12) so that the trough is supported by and suspended from the frame. The apparatus includes four legs (16, 18, 20, 22) hinged to corners of the frame and pivotable inwardly under the trough. Cooling water is placed in the trough and the hands and forearms of human beings are immersed in the cooling water.

17 Claims, 11 Drawing Sheets

