

Original Article

Effect of 41°C deep heat formed by vacuum heating on various pain: *Dr.Pakk* (Dr. 팩) for pain care

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ABSTRACT

Treatment of patients with pain is directed at relieving pain and restoring function. Heat therapy has been used as a pain treatment. The mean temperatures were 40°C and 41°C. Our device, *Dr.Pakk* heats special silicone to 41°C with far-infrared rays and attaches it to the painful knee using a vacuum to show the effect. The core technology of the *Dr.Pakk* is that deep heat is generated when the heat is transmitted deeply by attaching it to the skin. In our experience, *Dr.Pakk* can be especially effective for knee pain.

Keywords *Dr.Pakk*, special silicone, 41°C with far-infrared rays, deep heat, knee pain

INTRODUCTION

Pain is a major cause of affliction in knee osteoarthritis. Most counsels for the exploit of heat therapy are based on more empirical experience, with limited evidence to keep the efficacy. Osteoarthritis is a degenerative knee joint disease that affects generally the weight-bearing joints. As the affected joint falls pain and restriction of movement frequently occur. Inflammation can also show sometimes deriving in edema of the joint. Care focuses on decreasing pain and innovating movement (Brosseau L et al, 2003). Pain may work as a protective mechanism may reduce their levels of activity or turn the manner in which they conduct activities in reaction to pain. Pain attenuation may result in increased charges on the joints during various activities, which may result in more rapid pain progression (Hurwitz DE et al 1999). Deep heating therapy has shown to promote pain and function in patients with knee osteoarthritis (Rabini A et al. 2012). Here, we introduce a pain therapy machine using deep heat for the first time.

RESULT AND DISCUSSION

Do you know this? Heat penetration is important above all.

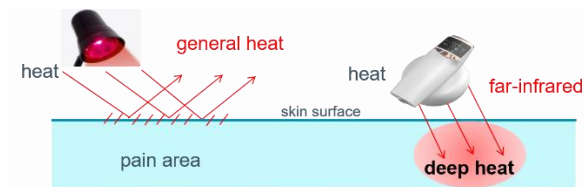


Fig. 1. Principle of the deep heat generation.

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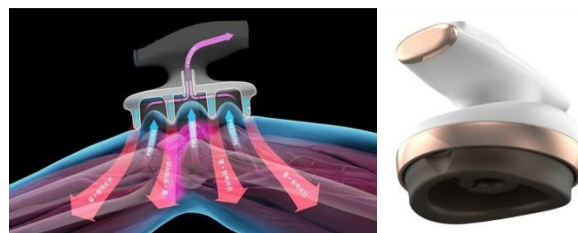


Fig. 2. Utilization of unique special silicone cups for deep heat creation

Dr.Pakk is a special silicone double cup that generates heat in close contact with the skin in a vacuum, and delivers it to the painful area deep inside the skin rather than the outer surface of the skin. That is, it creates a lump of heat (deep heat), not a simple feeling of heat.



Fig. 3. Development of special materials to maximize heat transfer.

- Double structure round cup that maximizes heat transfer power by mixing special composite material with silicone. (First development of heat-generating silicone material for massage)
- Silicon has the advantage of being more elastic than metal: excellent adhesion and optimized for far-infrared heat

penetration. Easily adheres to curved areas such as knees available

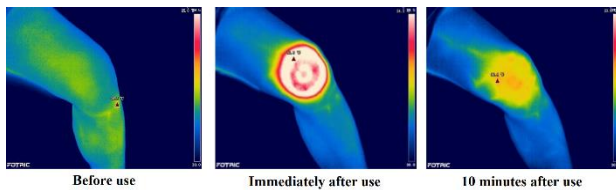


Fig. 4. Deep fever that can be seen 'instantly' with a thermal imaging camera. The above picture can be viewed realistically on YouTube: <https://youtu.be/1Isdx1MrR2o>

Hippocrates, the father of medicine, said, 'if medicine and surgery do not work, treat it with heat!' said that. The use of fire in modern medicine uses far-infrared rays, high-frequency radiation, neutrons, protons, and microwaves, etc. *Dr.Pakk* core technology is to quickly recover by creating deep heat (heat mass) in the knee area. Check immediately after use. The feature is that this is possible. Homeostasis is maintained only when the body temperature is maintained at 36.5°C, and the skin protects the human body by blocking the external temperature higher or lower than 36.5°C. However, in the uncomfortable area, the temperature is relatively low and the function deteriorates, and in severe cases, it is difficult to maintain life. *Dr.Pakk* was developed with reference to international papers that pain is improved as substances that cause problems in the human body are reduced at 40~41°C. If you attach a special silicone at 41°C heated by far-infrared rays to the uncomfortable knee using a vacuum, a lump of heat is created under the skin at 36.5°C, and the heat induces discomfort.

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None

CONFLICT OF INTEREST

None

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