04-1 Fangotherapy, a body-friendly treatment to use hot spring water for health promotion

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Fangotherapy is one of four medical treatments used under a medical doctor’s supervision at a hot spring. This treatment is conducted in Europe, especially in Italy, using peloids maturated with natural hot spring water. The maturated peloids have factors of concentrated hot spring and biological extract -glycolipids- from thermophilic algae.

There are many kinds of hot springs in Japan, but they are almost always used for “taking a bath” only. Our research focused on Fango found in Abano Italy, and modified into “Japanese style Fango” made with maturated peloids by hot spring water.

Methods: The original Japanese Fango, which we made in a hot spring in Japan, has been named Biofango®. The original and first Biofango® was made from the Sanrakuen Hotel’s hot spring water in Toyama, and treated in the hotel as in the Abano style. The benefits of Biofango® were checked using the following methods;
1. Hyperthermia and some medical effects were checked under treatment with maturated peloids, and the effects were compared with hot spring water only and with boiled tap water.
2. The double-blind method was used comparing Biofango® (True Fango) and imitation Fango. Two kinds of Fango were made using either hot spring water or hot tap water, and some medical effects were checked. After treatment of Fangotherapy, a medical questionnaire was provided for each test subject.

Results: Fango (Biofango®) is the best treatment among three bathing methods for keeping normal responses of blood flow and blood pressure at the thigh, and for keeping good thermal effects on the body, especially for the back of the body after 50 min.

The results of the double-blind method, deep body temperature increase and diastolic blood pressure decrease in True Fango showed a significant difference. Pulse increase and SIV decrease in True Fango shows a reduced load on the vessel, while still showing a high thermal effect. Functions of the body showed an improved friend in True Fango, according to the questionnaire survey.

Conclusion: Traditional use of hot spring water in Japan was hot spring bathing in the mainstream. But, according to these results, Fango is the best method for a body-friendly treatment by hot spring water. Further, the questionnaire about body functions after Fango treatment shows that the hot spring Fango (True Fango) is more effective than hot tap water Fango (imitation Fango).

In Italy, glycolipids from thermophilic algae are an important factor for reducing inflammation by Fango therapy. Growth of thermophilic algae also has been confirmed in Fango maturation.
in Japan, and was cultured in the laboratory. We also found such glycolipids from Japanese algae, and have evidence, *in situ*, of the glycolipids remaining between particles of peloids. In the future, Biofango® should have a useful biological factor similar to Abano Fango for treatment.

**Keywords:** Fangotherapy, Hot spring, Thermophilic Microorganisms, Biofango®