



I would like to express special thanks to the director of Siberian Technologies V.A.S. Mr Semenov V.A. - the manufacturer of the Rapan product range - who provided me with the materials for this book, as well as a lot of moral support and encouragement.

BEAUTY THROUGH HEALING

**RAPAN® - THERAPEUTIC MUDDS, SALT, BLUE & YELLOW CLAYS
FROM THE SIBERIAN “DEAD SEA”**

Galina St George

Based on the scientific research information presented in a number of publications about peloids of Western Siberia. The research conducted by the scientists of the Siberian Branch of the Russian Academy of Sciences and was headed by Professor Y. V. Kulikov

Rapan is one of the most interesting discoveries in the field of pelotherapy, thalassotherapy, balneology, beauty therapy and therapeutic cosmetics, but the best kept secret so far, which I have made my goal to uncover to the world.

PART I

INTRODUCTION

People all over the world have been enjoying and appreciating numerous therapeutic benefits of salts, muds and clays. Ancient records show that people travelled many miles to bathe in salt waters. Mineral-rich, salty waters have been known to help alleviate skin disorders, stimulate circulation, hydrate the skin, increase moisture retention, promote cellular regeneration, detoxify the skin, and help heal dry, scaly, irritated skin. They also reduce inflammation of the muscles and joints, relax muscles and relieve pain and soreness. Important minerals are readily absorbed into the skin when we bathe in a warm sea salt bath.

Muds and clays have also been used since times immemorial. People have been smothering themselves in muds to get relief from itchy skin, aches and pains and just for the pure enjoyment of it. Animals are instinctively drawn to mud, with many species enjoying mud baths at every opportunity. People have also learned to understand and use the many benefits of various muds. Their popularity has grown immensely in the past few decades. If in the past, their use was based on a belief that they were good for us. Now we can rely on science to explain the benefits we get from applying mud on our body.

The popularity of clays has also increased immensely in the recent years. People have been using clays both on their bodies and internally. As a matter of fact, there are many edible types of clay which both people and animals have been eating since ancient times. Clays are extremely rich in minerals and are widely used in cosmetics and complementary medicine, as well as in spas and resorts to treat a large number of problems.

Few people haven't heard about Dead Sea and the miraculous results obtained by using the Dead Sea muds, salts and clays to treat such conditions as psoriasis, eczema, acne, dermatitis, as well as arthritis, rheumatism, other musculo-skeletal problems and disorders of the genito-urinary and other body systems. The therapeutic effects of bathing in the the salt waters of Dead Sea were well known even in times of antiquity. Galenus, for instance, stated that the salt water of the Dead Sea was good for the treatment of arthritis, eczema, muscle aches, rheumatism, arthritis, psoriasis, nervous tension, relaxation, and maintaining healthy skin. According to the book of Samuel, King Solomon presented the Queen of Sheba with Dead Sea salts upon her visit to the Holy Land. The Empress Cleopatra, who was an ardent user of Dead Sea beauty potions, was presented the entire region by Mark Anthony after he had conquered it.

The use of Dead Sea products brings excellent results. For many years, salts of the Dead Sea have been used as an alternative method for treating psoriasis, eczema and other skin disorders. The effectiveness of Dead Sea salts is so obvious that many natural health clinics have been using them to treat their patients with various problems.

Rapan products are harvested naturally in the frosty Western Siberia, from a vast but shallow ancient salt lake – the Russian answer to the Dead Sea - and packed, after being drained of water, in their natural form, with the only preservative being the salt water of the lake they come from. The products have been researched by Scientific Research Institutes of Siberia, in particular by the Siberian branch of the Russian Academy of Sciences. The results of this ongoing research have

shown that Rapan products contain up to 5 times more antioxidants, carotenoids, retinoids, vitamins and minerals than Dead Sea products, which makes them exceed various therapeutic effect of Dead Sea products many times. This is the biggest discovery in the field of pelotherapy, thalassotherapy, balneology, beauty therapy and therapeutic cosmetics, but the best kept secret so far, which I have made my goal to uncover to the world.

RAPAN RANGE – GENERAL INFORMATION

The Rapan range is manufactured by a Russian company Siberian Technologies V.A.S. It includes **natural products** derived from an ancient Siberian Arctic salt lake Ostrovnoye. It is a vast shallow lake, with an average depth of 0.25m (max 0.9m) and the total area of the water surface at 11933 m². The deposits are represented in black silt (average thickness of the layer of black silt at 0.12m, max at 0.2m). Below the black silt lies dark-grey silt (average thickness at 0.05m). Both silts have similar physico-chemical characteristics and are variations of the same type of silt. The environmental biological data allows us to classify the lake as ecologically clean.

The lake brine (or 'rapah' in Russian, hence the name of the product) is a complex solution of various salts which covers the silt deposits. The brine is a by-product of the biological activity of numerous micro-organisms, algae and the animal world. They are what the Russian Academician V.I.Vernadskiy called “the living matter” of our planet which reflects its evolutionary processes and regional geochemical specifics. It contains ions of Na, K, Mg, Ca, N, carbonate, hydrocarbonate, sulphate, chloride, bromide, phenols, micro-elements (P, As, Zn, Sn, Cu, Ni, Pb, Ag), silica acid, vitamins, hormones, biostimulators, amino acids, fatty acids, polysaccharides, etc.). The presence of these biologically active components, as well as hydrogen sulphate, determine the medicinal properties of the Rapan products.

The peloids have been formed as a result of crustacean and micro-organic activity in the most unusual circumstances - an **over-saturated salt solution**. Their survival itself was due to a development of specific mechanisms which allowed them to survive in such extreme conditions. As a result, the evolution of “the living matter” in extreme environment was accompanied by an appearance of certain biologically active compounds which possessed adaptogenic and, possibly, medicinal qualities. It seems that this combination of biologically active compounds both in peloids and in brine achieved a maximum therapeutic effect.

Peloids and brine form a basis for treatments at a number of West Siberian resorts. The resorts treat various health conditions - from musculo-skeletal to genito-urinary. The products have been and are still being thoroughly researched by the Siberian branch of the Russian Scientific Academy. The studies are headed by Professor V.Kulikov.

It must be pointed out here that in Russia balneology, thalassotherapy and peloid therapy have a very long history of use. During the Soviet era, a large number of health resorts were built on the basis of natural therapeutic resources so abundant in Russia. Because Russia, as part of the USSR, used to be such an isolated society, with few going on holidays abroad, most people planned their yearly holidays around resorts, thanks to the fact that their stay and treatment was heavily subsidised by trade unions, so most people could afford it. Courses of treatments lasted on average between 14 and 24 days. Because of this, resorts flourished in the Soviet times, with vast sums of money allocated to scientific research and development of new treatments.

In Russia, resorts/spas have a solid medical foundation, with medical staff assessing and treating

patients for a variety of conditions. All resorts are specialist establishments, depending on the resources available. For example, some would specialise in treating digestive disorders thanks to the particular properties of mineral waters they are using for treatments, others would treat predominantly musculo-skeletal problems thanks to a specific mineral content and qualities of muds and clays in their disposal, etc.

Due to their powerful anti-oxidant properties, natural salts and peloids (muds and clays) have an analgesic and anti-inflammatory action, regulating the endocrine system and improving micro-circulation, increasing body immunity and acting as adaptogens. Apart from all this, peloid therapy has a powerful stress relieving effect on the body and mind. This is helped by the presence of bromide, high levels of magnesium and other “calming” substances.

COMPETITIVE ADVANTAGES OF RAPAN PRODUCTS

1. **Solid scientific base** at the site of manufacture, in the form of Scientific Research Institutes, as well as a number of **health resorts** where the products are used for treatment of various health problems, has allowed substantial research of the composition and therapeutic properties of Rapan products.
2. The products are **100% natural**, with no additives at all.
3. The comparative spectral analysis of the Rapan range with the Dead Sea products has shown that the levels of carotenoids and retinoids, as well as biologically active compounds with prominent antioxidant and antihypoxant characteristics are **5 times higher in the Rapan range than in the Dead Sea products and that the Rapan range is more efficient in stimulating and activating the body's immune system.**
4. The comparative scientific evaluation of the biological activity of the Rapan and the Dead Sea products on the skin and blood has demonstrated that the **therapeutic effects of the Rapan range is up to 20 times stronger those of the Dead Sea products.**
5. The products are **new to the Western market**, and like any new product they cause curiosity and excitement.
6. The products come from the **ecologically clean** West Siberian salt lake Ostrovnoye.
7. The products have been through a thorough assessment process both in Russian and in British laboratories, and have been certified as **completely safe for use** by an approved UK laboratory.
8. Rapan products can be used both **in their natural state** and as **ingredients** for various products in cosmetic industry.
9. Rapan products are **versatile** - they can be safely used in spas, by complementary practitioners and naturopaths, as well as at home - to promote relaxation, reduce stress, fatigue, promote metabolism, increase immunity, improve skin condition, help with skin disorders, arthritis, get rid of muscle/joint aches/pains, promote circulation and help detoxify the body, and for prevention of disease.
10. **More economical.** Unlike Dead Sea mud, Rapan mud and clays are better drained, of thicker consistency, so you get more of the product from the same amount. Also, thicker consistency allows for thicker layers to be applied on the body - very useful for poultices and body wraps, since thicker consistency is better at retaining heat.

GENERAL BENEFITS OF RAPAN PRODUCT USE

- Increased blood circulation and lymph drainage.
- Increased metabolism.
- The immune system gets stimulated, promoting healing of infections.
- Increased removal of toxic waste and reduction in cellulite appearance.
- Noticeable improvement in skin appearance and texture - the skin becomes pink, smooth, warm, fresh-looking, moist.
- Reduced pores, removal of excessive oil, blackheads, spots, impurities, eruptions.
- Removal of excessive water from the body - reduced puffiness.
- Reduced weight due to the effects listed above.
- Reduction in muscle & joint aches and pains.
- Re-mineralisation of the body.
- Even if you choose not to follow the nutritional detox, you will still get the benefits through various applications of Rapan products (baths, body wraps, compresses). With the dietary detox it will of course work much more effectively.
- Rapan works on the body holistically, so all the body systems benefit from its use.
- Free radicals get bound by the anti-oxidants in the Rapan range, which helps to rid the body of them. Free radicals are one of the causes of cancer.
- Increased energy.
- Improvement in sleep patterns due to the products' calming effect.
- Reduced fatigue.
- Relaxation of the body and mind.
- Increased sense of well-being

DIFFERENCES BETWEEN RAPAN PRODUCTS

While all the products come from the same salt lake and have similar properties, they have certain differences. Rapan Mud has the strongest effect on the body and skin, stimulating them into healing in the most powerful way. In beauty, it is a very powerful anti-ageing product, due to it being packed with antioxidants, carotenoids, retinoids, vitamins and minerals. However, it has to be used with care by people with certain health conditions (e.g. heart problems) and is contraindicated in serious cases, such as aggravated heart condition, epilepsy, cancer, undiagnosed tumours, etc. - read further information.

Rapan Yellow clay is milder in action, and works very well in detoxification treatments, where blood circulation and lymph drainage is poor. In beauty treatments it is used to great effect with sallow, porous, greasy, lifeless skin. It has a pronounced **drying and purifying effect**.

Rapan Blue Clay is the mildest of all the Rapan products, which makes it popular with treatments where special care should be used - e.g. with children, people weakened by disease, people with sensitive, mature skin, etc. I have not been able to come across a similar clay among Dead Sea products or other peloids. The reason for its uniqueness is that blue clays are quite rarely

found in nature in their pure form. A combination of blue clay with the salt brine of the lake it comes from makes this product truly unique.

Blue clays are considered some of the most powerful in detoxification treatments, due to their very high absorptive and adsorptive capacity. Rapan Blue clay has a high level of montmorillonite (a mineral substance with a very high expansion capacity when hydrated, which increases the sorption area of the clay particles many fold), and is very rich in minerals, including virtually all the minerals found in the human body.

Due to the above mentioned facts, **Rapan clays work on the body on an ionic exchange level, by taking away the toxic waste and delivering the chemical elements the body needs.** One of the functions of the skin is absorption, which means that the skin can take in various substances, including minerals.

Rapan products act through the skin on the whole body, thus stimulating all the body systems into healing the whole body, rather than just trying to suppress symptoms of a disease.

DESEASES TREATED WITH RAPAN AT RUSSIAN SANATORIA

Rapan products are used in Russian sanatoria mostly due to their medicinal properties, to treat the following problems:

- **Musculo-skeletal system:** arthritis, traumas, osteoarthritis, scoliosis, rheumatoid arthritis, disorders of the spinal column, etc.
- **Nervous System:** chronic pain connected with certain changes in the Central and Peripheral Nervous System, neuropathology, depression, etc.
- **Skin:** psoriasis, eczema, dermatitis, etc.
- **Genito-Urinary system:** prostatitis, inflammation of the ovaries, endometriosis, etc.
- **Circulatory system:** Angina, HBP, and many others.

The Rapan range can be used as both as *independent products*, due to their antioxidant and natural adaptogenic qualities, as well as inexpensive *raw materials* for cosmetics and toiletries, skin care, spa and fitness, beauty industry, as well as for home treatments.

WHAT YOU CAN EXPECT TO FEEL AFTER USING RAPAN

Rapan spa creates a sense of being born again – it revives and regenerates the body and soul, bringing both in a state of harmony with nature, because Rapan is nature itself. It restores the skin, nourishes it with micro-elements and other useful substances. Many people report a tingling sensation – either during or after a treatment/ application/ bath.

There are numerous problems that can be addressed with the Rapan range. Therapeutic properties of Rapan are explained by the products' anti-inflammatory, analgesic, effects, their ability to improve circulation and lymph drainage in areas of pathology, desensitizing action, and stimulating effect on

the body metabolism.

Rapan has an analgesic, bactericidal, healing effect. It restores blood circulation in the skin and internal organs. The laboratory analysis of Rapan products has shown a presence of peptides. Peptides have an ability to reduce pain, stimulate anti-oxidant and adaptogenic regulatory body systems, as well as regeneration of the body cells, thus slowing down the body ageing processes. They are used to relieve rheumatic, joint and muscle aches/pains.

Rapan products relieve fatigue, reduce anxiety, neurosis, insomnia, promoting circulation and alleviate muscle tension, aches and pains. They help restore energy, emotional and physical health. On a beauty level, they work much deeper than most other beauty products, penetrating through the skin into the deepest body organs and tissues, healing and restoring their health and through that – general body balance. Once the internal health is restored, beauty and rejuvenation follows naturally. Healthy people need little effort to look beautiful.

RAPAN® NATURAL SALT



Rapan Natural Salt is produced on the basis of ecologically clean, certified deposit of the Ostrovnoye Lake in the Novosibirsk region. The estimated volume of the deposits of the raw material in the lake is around 986,000 m³.

The original raw material, brine (or “rapah” in Russian) has **a number of microelements diluted in the lake, with practically no harmful bacteria**. Natural antiseptic properties of the water and mud represent a natural health enhancing complex.

In autumn, October-November, when the temperature of the lake goes down, the surface of the lake becomes smaller, which means that the concentration of salt in the lake rises. Natural crystallisation and sedimentation of naturally clean large salt crystals occurs. Immediately, Rapan salt is harvested, tested for safety and packaged. Because of the non-thermal method of crystallisation, all the natural ingredients are preserved in the resulting product.

The mineral content of the Ostrovnoye lake is similar to the Dead Sea salt. It contains such chemical elements and substances as Na, K, Mg, Ca, N, carbonate, hydrocarbonate, sulphate, chloride, bromide, phenols, microelements (P, As, Zn, Sn, Cu, Ni, Pb, Ag), silica acid, vitamins, hormones, biostimulators, amino acids, fatty acids, polysaccharides, etc.).

Rapan® Natural Salt ingredients:

Metals	Mg /100g of dry substance
Zinc	104,3
Manganese	0,15
Copper	0,53
Iron	1,40
Phosphorus	0,32

Magnesium	27,8
Calcium	529,9
Selenium	0,12
Sodium	114,42

Immediately, Rapan salt is harvested, tested for safety and packaged. Because of the non-thermal method of crystallisation, all the natural ingredients are preserved in the resulting product.

The mineral content of the Ostrovnoye lake is similar to the Dead Sea salt. It contains such chemical elements and substances as Na, K, Mg, Ca, N, carbonate, hydrocarbonate, sulphate, chloride, bromide, phenols, microelements (P, As, Zn, Sn, Cu, Ni, Pb, Ag), silica acid, vitamins, hormones, biostimulators, amino acids, fatty acids, polysaccharides, etc.).

Following is the chemical composition of the lake water which is used for salt production:

M 56-58 Cl (59-66) SO₄ (32-40) / (Na + K) (79-80) Mg (19-20) pH (7,9-8,5)

Rapan Natural Salt ingredients:

Metals	Mg /100g of dry substance
Zinc	104,3
Manganese	0,15
Copper	0,53
Iron	1,40
Phosphorus	0,32
Magnesium	27,8
Calcium	529,9
Selenium	0,12
Sodium	114,42

The chemical formula of Rapan Salt:

M 182,8 $\frac{\text{Cl } 84 \text{ SO}_4 \text{ 15}}{(\text{Na} + \text{K}) \text{ 65 Mg } 35}$ Ph8,0

Product characteristics:

Appearance: clear homogeneous large-sized salt crystals.

Colour and odour: characteristic of a product of this type.

pH of 1% water solution: 7.9-9.0

Mass share of dry matter: not less than 98%.

Main chemical elements contained in Rapan salt:

In mg per 100g of dry matter: **Fe** - 1.40 (± 0.17); **P** - 0.32 (± 0.03); **Zn** - 104.3 (± 30.7); **Cu** - 0.53 (± 0.13); **Mn** - 0.15 (± 0.02); **Mg** - 27.8 (± 3.3); **Ca** - 529.9 (± 47.3); **Se** - 0.12 (± 0.01);

In g per kg of dry matter: **Na** - 114.42 (± 16.31).

In mg per kg of dry matter: **Protein** - 110.4 mg/kg

These elements are the main ones. There are also numerous trace elements as encountered in the natural environment of the salt lake. Generally, most of the Periodic Table is represented in the products.

Crystallohydrate in the salt

Rapan salt crystallises in the lake, and the crystals can be of different sizes. The salt also appears wet due to a high content of what is called 'crystallohydrate' - the product of the binding of water by inorganic substances in the cold conditions of Siberia. The water in this 'bound' state plays a very important role as far as therapeutic properties of the salt are concerned, and here is why:

1. It acts as a moisturiser for skin cells
2. It stimulates skin cell growth and regeneration
3. It promotes regeneration of skin collagen
4. The water in the crystals is '**living**' water, since it **forms the basis of life of the peptides**.
5. The therapeutic properties of the peptides in Rapan salt result in pain relief, stimulation of antioxidant and adaptogenic regulatory systems, and general cell regeneration (anti-ageing properties).

Therapeutic applications of Rapan Salt:

1. Bath: dilute 500g of dry Rapan salt in a bathful of water (about 50 litres), at 36-38°C. Stay in a bath 10-15 minutes. Take every other day, 8-10 baths total. At night time do not take it later than 1½-2 hours before bedtime. Use when you suffer from chronic fatigue, stress, or to help with chronic conditions, such as osteoarthritis, psoriasis, eczema, dermatitis, etc. Baths with Rapan salts are a wonderful way to soothe aches and pains, revitalise the body and restore homeostasis.
2. Rinse: dilute 100g of dry salt in 1 litre of warm water. Use as a foot/hand bath, to rinse the face and the body. Use a massage brush to rub the body after rinsing in order to stimulate circulation. This is a very effective and economical way to use the product for prophylactic and cosmetic purposes.
3. Body scrub - crush Rapan salt to fine consistency – it is an easy thing to do. Either use on its own or mix with olive or other oil for a body scrub. Can also be used for face, hands and feet.
4. Compress: dilute 15-20g of salt (1tbsp) in 200ml of warm water (37-38°C) soak a piece of cloth in the solution and apply to an affected area. Cover with cling film and wrap up with a warm cloth and leave on for 30-60 minutes. Number of procedures: 10-15, daily, or every other day. Use to help with eczema, psoriasis, backache, muscle pains, arthritis, ulcers, sprains/strains, etc.
5. Mouthwash - dilute 15-20g of Rapan salt (1tbsp) in 200 ml of water, filter through a fine sieve and rinse the mouth every hour. Use to treat tonsillitis, mouth ulcers, gingivitis, etc.

Baths and compresses can be used to help with dermatitis, psoriasis, eczema, acne, other skin

conditions, muscle aches and pains, backache, arthritis, osteoarthritis, HBP, etc.

Contra-indications: *malignant tumours, undiagnosed lumps, pregnancy, tuberculosis, feverish conditions, individual intolerances, infectious diseases, exhaustion of any origin, severe disorders of the blood vessels, consequences of traumas accompanied by seizures/fits. Please consult your doctor if you suffer from any health condition. Do not resort to self-treatment.*

RAPAN® NATURAL MUD

Muds can be divided into several groups, depending on their structure and origin:



- Low moor peats
- High moor peats
- Sapropel muds
- Sulphide silt muds - mineral peloids

The main characteristic that subdivides muds into different sub-groups is the **percentage of the organic matter as opposed to the percentage of mineral substances** in them. For example, moor peats are very high in organic matter and low in minerals, while sulphide silts are very high in mineral substances but comparatively low in organic matter. While both groups are extensively used in balneology and cosmetic industry, their different structure determines differences in their properties and use.

Rapan Natural Mud is a low-sulphide mineral-saturated silt mud. Sulphide silt muds - mineral peloids - are silts of salt water origin. They are relatively poor in organic matter (less than 10%) and, as a rule, are rich in iron sulphide (FeS) and water-soluble salts. They can be subdivided into low-sulphide (FeS content of 0.01-0.15%), medium-sulphide (0.15-0.5%), and high-sulphide (over 0.5%).

For mineral content, therapeutic muds are also subdivided into fresh-water muds (ash/mineral content of mud solution of up to 1g/litre), muds with low mineral content (1-15 g/l), muds with medium mineral content (15-35g/l), high mineral content muds (35-150g/l), saturated muds (150-300g/l), and over-saturated muds (over 300g/l).

Peloid acidity also varies - from ultra-acidic (with pH of 1.5-2, as in organic moor peats), to alkaline (pH over 9, as in sulphide silt muds).

The most frequently used in therapeutic practice in Russia are **Sulphide silt muds**, followed by sapropels. This may be explained, on the one hand, by their abundance, and on the other hand, by more research data on them.

Rapan Natural Mud is extracted from an ancient Siberian lake Ostrovnoye, where the weather conditions together with salty waters, have encouraged the formation of mud with therapeutic effects. It is deposited under 20-50cm of brine (rapah). Part of the lake is drained of water, and a layer of mud is taken off the resultant surface, which is immediately placed into 30-kg vessels and is covered with 20-50mm of concentrated brine for preservation, hermetically sealed and is preserved this way until it is ready for packaging. During packaging, the mud undergoes triple filtration, after which it is homogenised and vacuum-sealed into polyethylene packaging.

Product characteristics:

Appearance: homogeneous soft pliable mass

Colour: black

Odour: hydrogen sulphide

pH: 7.6-7.7

Ash content: 82.8-88.7%

Weight: 1.4-1.8 g/dm³

Humidity: 22.46 -48.15%

Additional data: non-irritating, non-sensitizing. Due to its saline base which has anti-bacterial properties, the Rapan® Mud preserves its qualities and is suitable for use for 12 months after harvesting.

Chemical composition:

Crystalline skeleton of the hard phase of the mud (drained to 33.7% of raw mud) is represented mainly by Silica compounds (43.26%) with the particle size under 0.1mm, Calcium carbonate (2.93%) and Magnesium (0.64%) and hydro-sulphide colloidal complex comprising iron and hydrogen sulphide, organic matter, etc. Mineral content of the chloride-sulphide-sodium solution is 245 g/ litre.

Other elements in dry mud:

Zinc - 103.1 mg/kg; Manganese - 378.01 mg/kg; Copper- 20.20 mg/kg; Mercury - 0.59mg/kg; Cobalt - 5.45mg/kg; Lead - 29.51mg/kg; Cadmium - 0.47mg/kg; Iron - 10852.0 mg/kg.

The hydrophile colloidal complex of raw mud includes FeS (0.224-0.371%); Al₂O₃ (0.77%); Fe₂O₃ (0.64%); SO₃ (2.03%). The content of the organic matter is 2.28% in raw mud, with carbon content at 1.32%.

Balneologically valuable components found in drained mud:

Bromine - 30-87mg/dm³; **Boric acid** - 28.8-34.7 mg/dm³; **Meta-silicic acid** - 44.6-111.6 mg/dm³.

The chemical formula of the saline solution of the drained Rapan® mud:

M 185,5 $\frac{\text{Cl } 63 \text{ SO}_4 \text{ } 34}{(\text{Na} + \text{K}) 100}$ Ph8,7

Competitive advantages of Rapan Natural Mud:

100% natural - no additives.

- Comes from **ecologically clean environment** of Western Siberia.
- The comparative spectral analysis of the Rapan range with the Dead Sea products has shown that the **levels of carotenoids and retinoids, as well as biologically active compounds with prominent antioxidant and antihypoxant properties are 5 times higher in the Rapan range than in the Dead Sea products.** Carotenoids (e.g. beta-carotene) and retinoids take part in

stimulating and activating the body's immune system, protective mechanisms against the harmful effects of the environment, improving micro-circulation and physico-chemical properties of the cellular membranes and other body processes.

- The comparative scientific evaluation of the biological activity of the Rapan and the Dead Sea products on the skin and blood has demonstrated that the **therapeutic effects of the Rapan range are many times stronger than that of the Dead Sea products.**
- **High level of vitamins, minerals, hormones, anti-antibiotics, analgesics, organic acids and biostimulators.** According to the “chemical theory” of peloid action, these substances are said to get thorough the skin into the body and have a therapeutic effect on various body systems.
- Hydrogen sulphate is a biologically active component in the Rapan mud. It has properties similar to those of acetyl-choline, stimulating blood circulation and biochemical processes in the skin, raising the activity of the enzyme production, levels of the ascorbic acid in the tissues, which in turn helps increase metabolism.
- **As a therapeutic treatment,** Rapan Natural Mud is used in Siberian resorts to provide an effective relief from eczema, psoriasis, neuro-dermatitis, seborrhoea, headaches, acne, chronic rheumatism, neuralgia, osteoarthritis, muscular pain and stress, arthritis, stress, muscle aches, etc.
- **As a beauty treatment,** Rapan Mud helps deep cleanse the skin minimizing the appearance of wrinkles and revitalize the complexion. Mud deep cleans, purifies, and restores radiance to your skin.
- **Economical:** since the product is well-drained, it goes further than many of the Dead Sea brands, so you will need less product for an application. The product may need to be diluted.

Therapeutic applications of Rapan Natural Mud:

- **Body wrap (for large areas):** Warm up some Rapan Mud over a water bath (previously mixed with water to soft consistency) to 38-40°C, apply to an affected area in a thick layer over the area to be treated. Cover with cotton tissue or cling film, wrap the area with a wool blanket. Leave on for 30 minutes (may increase to 60-90 minutes for follow-up applications). Can be done every day or every other day, 8 times total. For feet and hands fill a plastic bag with warmed up softened mud and put hands/feet in it. A 10% Rapan salt solution can be used instead of water for stronger effect.
- **Mud compress (local applications):** Warm up some Rapan Mud (mixed with water to soft consistency) to 38-40°C, over a water bath. Apply the mud in a layer 1-2cm thick over an affected area. Cover with cling film or compress paper and a wool or cotton blanket. Leave on 30-60 minutes and rinse with warm water. 10-12 applications, every day or every other day, preferably before bed time. Add some Rapan Salt to the mud (a 10% water solution) to increase the effect.
- **Poultice:** Spread 150-250g of softened Rapan Mud over a piece of cotton material, tie it up at the top. Warm it up to 45-55°C. Apply to affected area for 15-20 minutes, 10-15 applications, once every day or every other day. Very good for small areas, e.g. joints, muscle aches, etc. A 10% Rapan Salt solution can be used instead of water to soften the mud.
- **Face mask:** Dilute mud as above. Apply to face in a thin layer for 15 minutes or until dry.

Add a little Rapan Salt to increase the effect. Use for acne, dermatitis, eczema and to improve general skin condition.

- **Bath:** Add 2 kg of Rapan mud to warm bath water (38-40°C). Add 0.5 kg of Rapan Salt. Stir the solution. Stay in the bath for 20-30 minutes, depending on your level of tolerance and health condition. Make sure you feel comfortable with the water temperature and during taking the bath. For health maintenance - take once a week. To relieve aches/pains - when needed.

N.B. Muds and clays can block drains, so make sure you stir the water properly when draining the bath.

- **Rheumatism, arthritis, muscle aches:** Warm up Rapan Mud to 38-40°C and spread over the affected joints, spine, knees, feet, hands and elbows. Cover with a blanket, so that the body can absorb the mud's properties. Have a warm bath (with Rapan salt) or shower, which has relaxing, analgesic and anti-inflammatory effects and which also provide the cartilages with salts.
- Health resorts and spas in the Novosibirsk region successfully use Rapan Mud for medicinal purposes. The mud is being sold all over Russia, including Moscow and sanatoria of the Moscow region.

Following are some of the procedures Russian health resorts use with Rapan® Mud:

“Pelophonotherapy” - combines the effects of an ultrasound and therapeutic muds. The procedure involves application of a softened mud at 38-40°C, 1-2cm thick, which is spread over a piece of gauze. An ultrasonic device is placed over an affected area (in the intermittent or impulse-type regime). The device is slowly moved over the area (good contact is important). The procedure lasts 6-15 minutes. Rest is recommended after the procedure.

Combination of the galvanic and mud therapy - a type of therapy which involves therapeutic muds (moor peats or sulphide silts) and direct current use at the same time. Galvanic current is used to introduce various ions (anions and cations) from the mud into the body. Gauze bags are filled with mud and placed on an affected area. The temperature of the mud should be 38-42°C. The electrodes are covered with cling film. The electrodes are connected with the main galvanic device. The density of current is between 0.04-0.06mA/cm². The procedures take 20-30 minutes, every day or every other day, 10-15 procedures for a course of treatments.

Electrophoresis with a mud solution - the mud solution is prepared by a centrifuge method, without addition of any other substances. Water, vaseline, spirit or peach oil can be added to mud, with a further centrifuge extraction of the solution. The electrodes are placed over and under the area of treatment. The hydrophilic layers of both electrodes are covered with the solution. The density of current is 0.05-0.1 mA/ cm². The duration of the procedure is normally 15 minutes at the start of the course of treatments, which is increased to 30 minutes in the middle and is slowly brought back to 15 minutes by the end of a course of treatments. The first 10 procedures take place every day, the following 10 - every other day.

Contra-indications: malignant tumours, undiagnosed lumps, pregnancy, tuberculosis, feverish

conditions, individual intolerances, infectious diseases, exhaustion of any origin, severe disorders of the blood vessels, consequences of traumas accompanied by seizures/fits. Please consult your doctor if you suffer from any health condition. Do not resort to self-treatment.

RAPAN® BLUE & YELLOW CAMBRIAN CLAYS

Clays occupy a very special place in the peloid group. It is a substance extremely rich in minerals, and because of this clays have been used by humans and animals for as long as they have existed. Animals are instinctively drawn to clay - they cover themselves in it, they eat it. Humans have been busy doing the same thing to keep themselves healthy and free from disease and parasites.



There are many therapeutic uses attributed to clay, most of them connected to its ability to expand and absorb, as well as absorb harmful substances from the body (detoxifying effect). Another very important quality of clay is ionic exchange. To put it simply, clay has the ability to take from the body the elements it does not need replacing them with the ones it does need. Another very important property of clay is its ability to retain heat.



All these and other properties of clays lead to them being widely used in the Health and Beauty industry, to manufacture cosmetics, in treatments of skin disorders, and as beauty product on their own - to make masks, body wraps, as well as an important component of various health and beauty products. Clays are widely used in health spas and sanatoria in peloid therapy - to treat a variety of conditions, such as psoriasis, dermatitis, eczema, arthritis, muscle aches and pains, disorders of the nervous system, to promote relaxation and relieve stress. In the Beauty industry it is also widely used as a slimming product and to reduce cellulite. The uses of clay are countless.

Manufacturing process:

A unique deposit of Blue and Yellow Rapan clays has been explored and researched by Siberian scientists. The deposit is located in Novosibirsk region, Siberia. It lies under the layer of black and grey muds and is covered by brine ("rapah").

Rapan Clays (Blue and Yellow Cambrian) are extracted from the Lake Ostrovnoye where they are deposited under 20-50cm of brine (rapah). Part of the lake is drained of water, and a layer of mud is taken off the surface, under which clays are based. The clay (blue and yellow clays are harvested separately) is immediately placed into 30-kg vessels and is covered with 20-50mm of concentrated brine, hermetically sealed and is preserved this way until it is ready for packaging. During packaging, the clays undergo triple filtration, after which they are homogenised and vacuum-sealed into polyethylene packaging.

What is the difference between the Blue and Yellow Rapan clays?

Both clays are very similar in structure and are from the same peloid group – smectites. They are both of Cambrian origin, and both have developed their unique therapeutic properties in similar conditions. The difference is in mineral content variations – Rapan yellow clay owes its colour to a high level of iron oxide.

The difference in applications are that the effects of Rapan Blue Clay are milder than those of the Rapan Yellow clay. Rapan Blue clay is used more often for older people, children and people weakened by disease, while Rapan Yellow clay has a much stronger effect and is used where stronger action is required and permitted.

Both clays work very well in detoxification treatments, where blood circulation and lymph drainage is poor. Yellow clay is used in beauty treatments for sallow, porous, greasy, lifeless skin. It has a **strong drying and purifying effect**.

Since Rapan Blue Clay is the mildest of all the Rapan products, it is very popular in treatments where special care should be used - e.g. with children, people weakened by disease, people with sensitive, mature skin, etc. It is also **the most highly prized of all the Rapan products in health and beauty care due to its gentle all-round action**. I have not been able to come across a similar clay among Dead Sea products or other peloids. The reason for its uniqueness is that blue clays are quite rarely found in nature in their pure form. A combination of blue clay with the salt brine of the lake it comes from makes this product truly unusual.

Blue clays are considered some of the most powerful in detox treatments, due to their very high absorptive and adsorptive capacity. Rapan Blue clay has a high level of montmorillonite (a mineral substance with a very high expansion capacity when hydrated, which increases the surface area of the clay particles many fold), and is very rich in minerals, including virtually all the minerals found in the human body. Due to the above mentioned facts, **Rapan clays work on the body on an ionic exchange level, by taking away the toxic waste and delivering the chemical elements the body needs.** One of the functions of the skin is absorption, which means that the skin can take in various substances, including minerals. From this we can conclude that Rapan products act through the skin on the whole body, thus stimulating all the body systems into healing the whole body, rather than just trying to suppress symptoms of a disease.

Product characteristics:

Appearance: homogeneous soft pliable mass

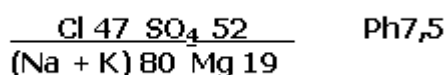
Colour: blue-green/grey for Blue Clay or ochre for Yellow Clay

Odour: slight odour of hydrogen sulphide

Hydrated clay expands in volume up to 45 %

pH: 7.59

The chemical formula of the saline solution of Rapan® Clay:



Chemical composition:

Crystalline skeleton of the hard phase of Blue Cambrian Clay is represented mainly by Silica compounds (silicon of 50,6 %), oxides of aluminium (5,77 %), carbonates of calcium (2,93 %) and magnesium (2,64 %).

Other elements in dry Clay: kaolinite, hydro micas, montmorillonite, and also minerals chloride groups.

Macro and microelements in the active ionic form. Cations: sodium + potassium 80 %, magnesium 19 %. Anions: chlorine of 47 %, sulphate of 52 %, hydrocarbonate 1 %.

Competitive advantages of Rapan Natural Cambrian Clays:

- 100% natural - no additives.
- Come from the ecologically clean environment of Western Siberia.
- A comparative spectral analysis of the Rapan range with the Dead Sea products has shown that levels of carotenoids and retinoids, as well as biologically active compounds with prominent antioxidant and antihypoxant properties are 5 times higher in the Rapan range than in the Dead Sea products. Carotenoids (e.g. beta-carotene) and retinoids take part in stimulating and activating the body's immune system, protective mechanisms against harmful effects of the environment, improving micro-circulation and physico-chemical properties of cellular membranes and stimulating many body processes.
- A comparative scientific evaluation of the biological activity of the Rapan and the Dead Sea products on the skin and blood has demonstrated that the therapeutic effects of the Rapan range are many times stronger than those of the Dead Sea products.
- High level of vitamins, minerals, hormones, anti-antibiotics, analgesics, organic acids and bio-stimulators. According to the “chemical theory” of peloid action, these substances are said to get thorough the skin into the body and have a therapeutic effect on various body systems.
- Hydrogen sulphate is a biologically active component in the Rapan products. It has properties similar to those of acetylcholine, stimulating blood circulation and biochemical processes in the skin, raising the activity of the enzyme production, levels of the ascorbic acid in the tissues, which in turn helps increase metabolism.
- Therapeutically, Rapan Natural clays are used in Siberian resorts to provide effective relief from eczema, psoriasis, neuro-dermatitis, seborrhoea, headaches, acne, chronic rheumatism, neuralgia, osteoarthritis, muscle/ joint aches and pains, arthritis, stress, insomnia, etc.
- As part of beauty treatments, Rapan clays help to deep cleanse the skin, minimising the appearance of wrinkles and revitalising the complexion. They are also used with great results in weight loss programmes. Body wraps with Rapan clays work on the body holistically - they help to detoxify, re-mineralise the body and increase metabolism, thus promoting weight loss.
- No allergic reactions to Rapan clays have been recorded throughout the long history of their use.
- Rapan blue clay is particularly rare in the world of peloids. The combination of blue clay and mineral salt is what makes this product especially interesting. Blue Cambrian clays are especially active as far as ionic exchange is concerned. This is most relevant for detox and re-mineralisation of the body.

Recorded benefits of Rapan clays:

According to the research conducted in the Scientific Research Institutes of Siberia, Rapan clays have the following effects on the body:

- Increase peripheral circulation, promoting redistribution of blood
- According to the “chemical” theory, salts, micro- and macro-elements in their active ionic form penetrate through the skin into the body, providing therapeutic action.
- Increase lymph drainage and blood circulation, as well as metabolism and oxygen exchange in the body tissues.
- Stimulate the functions of the Autonomic Nervous System.
- Due to the content of biologically active substances, activate immune reactions of the body systems, tone the body systems and increase immunity.
- Increase metabolism.
- Increase removal of toxic waste and reduce cellulite appearance.
- Improve skin appearance and texture - the skin looks younger, smoother, more toned.
- Tighten pores, remove excessive oil, blackheads, spots, impurities, eruptions.
- Improve sleep patterns due to the products' calming effect.
- Remove excessive water from the body, reducing puffiness.
- Reduce weight due to the effects listed above.
- Increase energy.
- Stimulate the immune system, promoting healing of infections.
- Relax mind and body.
- Promote the sense of well-being.
- Reduce muscle & joint aches and pains.
- Re-mineralise the body.
- It is a lazy man's detox. Even if you choose not to follow the nutritional detox, you will still get the benefits through various applications of Rapan products (baths, body wraps, compresses). With the dietary detox it will of course work much more effectively.
- Rapan works on the body holistically, so all the body systems benefit from its use.
- Free radicals get bound by the anti-oxidants in the Rapan clays, which helps to rid the body of them. Free radicals are one of the main causes of cancer.

Health problems treated with Blue and Yellow Rapan clays at West Siberian resorts:

Disorders of the Musculo-skeletal system:

- Inflammatory arthritis in an inactive phase, rheumatic and psoriatic forms of arthritis, etc.
- Degenerative diseases: osteoarthritis, spondylitis, cervical (neck area) osteoarthritis
- Periostitis (infectious and traumatic nature)
- Chronic myalgia, myositis, bursitis, tendovaginitis, epicondylitis.

Disorders of the Nervous system:

- Spinal defects: osteoarthritis of the spine, etc.
- Defects of the nerve roots and cranio-cerebral nerves
- Neuritis and neuralgia, carpal tunnel syndrome, neurasthenia
- Consequences of cranio-cerebral and spinal traumas, fracture of the spinal column.

Skin disorders:

- Psoriasis and neuro-dermatitis
- Skin irritation accompanied by itching, seborrhoea, limited scleroderma.

Diseases of the Genito-Urinary system (women and men):

- Inflammatory diseases of the uterus, ovaries, prostate (non-aggravated);
- Pelvic commissure peritoneum (post-operative);
- Sterility as a result of inflammatory diseases;
- Post-operative infiltration upon termination of pregnancy in a critical period (after 2 months).

Digestive disorders:

Chronic gastro-enteritis, duodenitis, cholecystitis, hepatitis, colitis, IBS, etc.

Lymphatic system:

As a result of a specifically conducted research, it has also been established that Blue Cambrian clay (montmorillonite clay) stimulates lymphatic node activity and lymphatic drainage, thus promoting detoxification of the body.

Home applications of the Rapan Blue and Yellow clays:

- Bath - mix 3-4lbs (1.5-2kg) of Rapan clay with just enough water to fully submerge the body, at 37-38°C. Let the clay hydrate for 15 minutes. Stir the water before getting into the bath. Start by staying in the bath for 10-15 minutes. Increase up to 30-40 minutes. Use for detox (the pores dilate in warm temperatures helping ionic exchange between clay and the body), when stressed, tired, recovering from an illness, to help with muscle aches, arthritis, skin problems, etc. For better effect, add Rapan salt (200-300g) to increase ionic exchange capability of clay in a clay bath.
- Fill with a 10 % solution of Rapan salt and knead to get a homogeneous mass. Warm it up on a water bath to 50-60 °C. For applications and compresses, use clay mixture at 42-45 °C, layer thickness 1-1,5 cm. Duration of procedure: 30-90 min. Procedures should be carried out for 1-2 days, with a break on the third. On one day, clay therapy could be combined with a massage or inhalation.
- Brush Teeth: Use Rapan clay to remove tartar, control bleeding gums, pyorrhoea.
- Facial Pack: Mix Rapan clay with water to a smooth paste (using approximately 50% water) and spread evenly over the face; let dry for 20 minutes, then remove with warm water. Use moisturiser to nourish the skin afterwards.
- Acne: Mix Rapan clay (2 tsp) with warm water and Rapan salt (1tsp) to make a facial pack. Apply daily. Skin disorders: apply above mixture to an affected area. Can be used for warts, athletes foot, yeast fungus, ringworm, sunburns, scalp, pimples, cuts,boils, cold sores, and shingles, etc.

- Foot bath - use 200g of Rapan clay in a foot bath (warm water) to help soothe aching and tired feet. Add 50g of Rapan salt to multiply the effect and promote ionic exchange.
- Compress - mix Rapan clay with 10% Rapan salt dissolved in warm water, to form a semi-liquid paste, spread over a clean cloth and apply to an affected area (normally an area of localised problem, e.g. arthritis, strain, sprain, back problem, etc.). Cover the area with warm cloth. Leave on for 30 minutes -1 hour.
- Poultice - use Rapan clay and salt (10% water solution) mix with enough very warm water (50-60°C) to form spreadable mass. Apply a thin layer directly to the skin. Cover with cling film and wrap up with warm cloth. Leave on for up to 1 hour. Use where the affected area is large

ADDRESSING HEALTH PROBLEMS WITH RAPAN – THE NATURAL OPTIONS

Due to their numerous therapeutic properties thanks to the abundance of minerals, antioxidants, carotenoids, retinoids, hormones, vitamins and other biologically active substances, Rapan products are being used in Russian clinics and spas to address various medical problems – musculo-skeletal (e.g. arthritis, traumas, osteoarthritis, scoliosis, rheumatoid arthritis, disorders of the spinal column, etc.), disorders of the nervous system (e.g. chronic pain connected with certain changes in the central and peripheral nervous system, neuropathology, anxiety, depression, neuritis, etc.), skin disorders (psoriasis, eczema, dermatitis, acne, etc.), genito-urinary disorders (prostatitis, inflammation of the ovaries, cystitis, endometriosis, etc.), circulatory system: angina, high blood pressure, varicose veins, poor peripheral circulation, oedema connected with circulatory problems, etc.), digestive disorders (colitis, gastro-enteritis, ulcers, IBS, etc.), respiratory disorders (including asthma, bronchitis, etc.), immune system disorders (susceptibility to colds, flu, infections, allergies), endocrine diseases, etc. The list is long. The procedures are prescribed and patients are supervised by medical doctors, since pelotherapy (the use of muds and clays for therapeutic purposes) is an integral part of conventional medicine there.

In the EU, especially in the Western block, there is no such long-rooted tradition, so peloids are mostly used as part of beauty treatments in beauty spas, especially in the UK, which has no known resorts where peloids would be used for medical purposes.

Rapan products have been allowed for marketing as cosmetic products. However, these products are being used with great results at Russian spas, resorts and clinics to help people with various conditions, and you can make your own choices. These recipes are non-prescriptive. They are just ideas. If you suffer from any medical problems, please consult your doctor, and certainly do not stop taking medication/treatment you are taking, nor resort to self-treatment.

Rapan products are holistic by nature, since they benefit the body and mind as a whole, relying on the body's ability to use its internal intelligence and self-healing mechanisms. They supply the body with the building blocks in the form of minerals so it can heal, rebuild what has been damaged, and restore internal balance – homeostasis.

I will not give you a recipe for this or that condition, since it will be a very narrow approach. Instead, I will give you general ideas on how the products can be used, and what conditions can be addressed by these methods.

Remember to drink plenty of water before and after the treatments – it will hydrate you and promote removal of toxins.

THERAPEUTIC COMPESSES/POULTICES

Compresses are a good old remedy for a number of problems. In temperature terms, there are hot, cold and contrasting compresses.

Please remember two rules as far as compresses are concerned:

- Always seek medical advice if not sure. Do not resort to self-treatment.
- Never use hot/warming compresses on parts of the body which have been injured within the last 3 days, are inflamed, acutely painful. Avoid any undiagnosed formations (lumps, moles, etc.).

Hot compresses will attract blood to an area of application, relax muscles, widen pores, promote removal of toxins, dead cells, thus regenerating the skin. On a deeper level, they also attract blood to the underlying organs and structures promoting healing in them and restoring homeostasis. They relieve spasms, nagging aches/pains, relax tight muscles, etc.

Cold compresses are tightening, cooling and refreshing for the skin and pain relieving for the area of application. They are used on inflamed areas, contusions, sprains, strains, especially within the first 24 hours after an injury (cold is essential to stop further bleeding into the tissues).

Contrasting compresses promote good skin tone, stimulate and tighten the skin, improve its colour, texture and help keep it young and fresh. They are especially beneficial for ageing skin, but all skin types will benefit.

On the therapeutic level, they stimulate the area into healing. Do not use on inflamed areas, recent traumas (within the first 72 hours), tumours and undiagnosed lumps.

Mineral compresses improve circulation, skin tone, speed up metabolic processes in the skin and muscles, reduce puffiness, irritation, are anti-inflammatory, soothing and have the added benefit of controlling mineral balance of the skin. For this purpose, Rapan products have been researched and proved to be effective for numerous conditions.

How to Prepare & Apply a Compress / Poultice

Compresses are very easy to prepare and apply both in a clinic and at home. For body compresses, you will need some gauze or thin cloth folded to create 4-8 layers (depending on the cloth thickness), compress/greaseproof paper, and an elastic bandage. For a hot compress – an extra piece of thick cloth to wrap the area around for extra warmth.

Soak the cloth in the prepared liquid, apply quickly on an affected area, cover with the greaseproof paper, wrap around with the bandage, and another piece of material for warmth. Leave it on for the recommended amount of time – from 15-30 minutes to 8 hours (depending on the condition treated). In case you would like to use a poultice, apply the mixture straight on the skin in a thick layer, cover with greaseproof paper, bandage well and wrap up with a warm cloth. Poultices have a benefit of a direct contact between the skin and the product. This gives an extra benefit of heat retention and a more intense ionic exchange between the products and the skin.

RECIPES FOR COMPRESSES & POULTICES

Recipe No 1

Warming or cooling: take some Rapan mud or clay (the amount depends on an area treated), add 20% Rapan salt solution to make the clay easier to apply. If a thick layer is preferred, no salt solution is needed, but in this case the product can be applied directly on the skin, as a poultice. Use it as a cold or warm compress – depending on the condition (remember – cold compresses are used to relieve acute pain, inflammation, reduce bruising, while hot/warm ones are used to relived spasms, chronic aches/pains not accompanied by inflammations). This compress can be prepared with any of the Rapan products. Rapan mud is the strongest, then comes the Yellow clay, than the blue clay, which is the mildest and can be used even on children and the infirm. Make your own choice.

Recipe No 2

Warming: Take 5 parts of Rapan mud (or Blue/Yellow clay), 2 parts of honey, add 20% Rapan salt solution to form a semi-liquid mass (not necessary in case of poultice applications). This recipe is more suitable for warm applications, since honey adds to the heat retention property of the products. The mixture should be warmer than the skin temperature – about 45-50°C. Apply for 1-2 hours. If comfortable, leave on overnight.

Recipe No 3

Warming: mix 5 parts of Rapan mud/clay with 5 parts of vodka, 1 part of honey, warm up to 45-50°C. This is a warming compress, excellent for tense, aching muscles/tendons/joints, as well as for persistent coughs resulting from a cold/flu. Do not use if the person is running a raised temperature, or on inflamed areas. Apply for 1-2 hours. If comfortable, leave on overnight.

Recipe No 4

Cooling: Keep some of the Rapan products (clays are best for this) in the fridge/freezer. Use for cold applications in cases of traumas. The cold applications will have the added benefits of the healing properties of the products. Apply for no longer than 15 minutes at a time. If frozen, use a gauze/ material to prevent skin damage.

Recipe No 5

Cooling: 5 parts of Rapan mud/clay, 2 parts of Aloe Vera juice, apply cold or at body temperature on inflamed areas. Leave on overnight or as long as comfortable.

Recipe No 6

Cooling: 5 parts of Rapan mud/clay, 5 parts of apple vinegar (normal vinegar is suitable too - diluted). Mix well, apply cold on inflamed areas.

Recipe No 7

Arthritis: Mix 250g of Rapan mud/clay with 50g of Turmeric powder. Add a little warm water, mix well. Apply on inflamed areas, especially joints. Wrap up the area in cling film, then layers of warm material. Best applied before bed time. Turmeric is traditionally used in India to treat arthritis. Not to be used on inflamed areas.

Recipe No 8

Back/muscle pain: Mix 250g of Rapan mud, 250g of Rapan blue clay, some 20% of Rapan salt solution (to form a spreadable mass). Warm it all up to about 50°C, apply in thick layer on the whole back and buttocks (avoid the heart area). Wrap the trunk with cling film, cover with 2-3 layers of blankets to keep the heat in. Let the person rest on the stomach for about 30 minutes. Wash off the product with warm water and do deep tissue massage. The same treatment may be performed for sore muscles.

BATHS: HEALTH & BEAUTY

Rapan products are excellent for relaxation, skin care and general detoxification of the body, which makes them an excellent choice for beauty baths. When the mind is relaxed and the body is cleansed of toxic waste, the body systems start working to their full potential. The body takes care of the organs and systems which have been crying for help because of being overloaded with the toxic products resulting from stress, poor lifestyle, environment and nutrition. I must say here that although they will help you relax, detoxify and promote health restoration like no other product, Rapan products are not a magic wand. It is you who has to take care of the changes in your lifestyle, nutrition and physical and psychological environment you work/ live in. I shall talk about it later. In the meantime, enjoy your bath!

Recipe No 1

Mix 500g – 1000g of Rapan salt in very warm bath water (use the temperature you normally use for a bath or warmer if your heart allows). Stay in it for 20-40 minutes, or as long as you feel comfortable. Use this bath to **relax, relieve back / muscle / joint pain, tiredness, eczema, dermatitis, psoriasis, acne, ulcers, or if your immune system is letting you down**. Add some lavender & geranium oils for extra relaxation (6-10 drops total per bath).

Recipe No 2

Mix 500g of Rapan salt and 500 of Rapan Blue/yellow clay in warm water (use the temperature you normally use for a bath or warmer if your heart allows). Make sure the clay is dissolved properly by running your fingers through the bottom of the bath. It is thick, so you may need to keep stirring and using your hands to make sure there are no clumps left for maximum benefit. Stay in it for 20-40 minutes, or as long as you feel comfortable. For stronger action, use 1kg of salt and 1kg of clay, or more if desired. In world spas where such clay/mud is abundant it is common practice for visitors to take communal mud / clay baths (mud pools). Of course, there are drawbacks here (some people think it is unhygienic and counter-productive, since the eliminated toxins are reabsorbed into the body from the repeated product use), but I am mentioning this fact in order to say that high concentration of products is not harmful (except in cases where such procedures are generally contra-indicated).

The Blue clay has a softer action on the body systems, so can be used by almost everyone. However, being soft, it is a very potent detoxifying product. It is also excellent in those cases where the body is deficient in minerals, and for various health conditions – see Rapan for Health.

Use this bath to **relieve stress, sleeping problems, general toxicity, lethargy, to re-energise and promote health and vitality**. It is also excellent for **aching muscles & joints**, as well as **skin problems**.

Recipe No 3

This recipe is designed to be used for **sleep problems and stress**. Dissolve 500-1000g of mud in a bathful of very warm water. Be careful if you are suffering from a high blood pressure, cancer, benign tumours, undiagnosed lumps, epilepsy, and anything else that does need any stimulation. Use the Rapan blue clay instead if in doubt.

The high bromide content in the mud is a natural relaxant, and will send you to sleep very soon, so the best time to take a mud bath is in the evening before going to sleep. Add some Rapan salt (500g) to the bath for stronger action.

This is also a very good recipe for **skin problems and detox, as well as for muscle tension, back pain and fatigue**.

Recipe No 4

Mix all of the Rapan products in a bathful of water – 250g each, or 500g for stronger effect. The products will work on the body in harmony, since they come from the same source, and you will benefit from all of them at the same time. Be easy on the mud if you have any heart problems or tumours.

This recipe is excellent for almost every problem, and for general health. It will **stimulate the body's defense systems and prompt it into healing itself**.

Recipe No 5

“**Wake-me-up**” recipe: 500g of Rapan mud/clay + 500g of Rapan salt + 8 drops of Rosemary oil diluted in vegetable oil before being added to the bath.

Recipe No 6

“**Quiet night**” recipe: 500g of Rapan salt, 5 drops of pine needle + 5 drops of sandalwood oil diluted in 5ml of vegetable oil before being mixed with the bath water. The water should be very warm. This is also an excellent recipe for respiratory conditions (cough, general congestion of the airways).

Recipe No 7

Immune system booster: 500-1000g of Rapan salt, 5 drops of tea tree + 5 drops of eucalyptus oils diluted in 5ml of vegetable oil before being mixed in with the bath water. The bath water should be warm, but not too hot. Stay in it as long as comfortable. Have a drink of hot lemon & ginger tea with honey (and a bit of brandy if you like!).

Recipe No 8

The “Beauty” recipe: 500g of Rapan blue clay, 500g of Rapan salt, 50g of powdered seaweed, 5 drops of juniper berry + 5 silver birch essential oils diluted in 10ml of jojoba oil. **Soothing for the skin, stimulating and detoxifying for the body.**

BODY WRAPS - RECIPES

Body wraps are being used by many spas and beauty salons these days, as well as at home. They are quite simple to apply, but you will need help if you decide to do it at home. If you do not have a professional body wrap kit, do not despair. A good roll of cling film, an old spacious fleecy track suit and a warm blanket or two will do the trick just as well.

The principle behind a body wrap is simple – get the body covered with the prepared substance (you will need a fairly generous coating for a better effect, so consider using up to 1000g per treatment. For myself, I use only 500g, since I use it for health purposes rather than weight loss/cellulite reduction.). The product may need some water added to it for a smoother and more effective coverage. Normally 1-2 hours will be enough, but rely on the person's feedback. If they start feeling uncomfortable, too hot, itchy, etc. - it is time to remove the products. Like with any other procedures with Rapan, I recommend having a patch test done 24 hours before a treatment. And finally, all the mixtures described here should be warmed up to comfortably warm temperatures before use. Mind the contra-indications.

Recipe No 1

500g-1000g of Rapan Blue clay, add 20% Rapan salt solution to form a soft spreadable mass. Good for **detoxification/ body re-mineralisation**.

Recipe No 2

500-600g of Rapan mud, add some water. Spread over the body. Excellent for **skin problems, poor circulation, joint/muscle aches/pains, stress**. Also **speeds up weight loss/ cellulite reduction** due to the mud's ability to stimulate metabolism and retain heat.

Recipe No 3

500 of Rapan clay (blue or yellow) + 500g of Rapan mud + 20% Rapan salt solution + 5tbsp of honey. Mix everything together, spread over the body. This is a very good recipe for weight loss, but should not be used if there are contra-indications (heart problems, tumours, inflammations, etc). It will make you lose a lot of water if you wrap up well, so make sure you rehydrate yourself by drinking enough water afterwards. This is also a good recipe for those suffering from after-effects of cold & flu (but should not be used during acute periods).

Recipe No 4

Crush 100g of Rapan salt to fine consistency, add 200g of honey, mix well. Spread over the body evenly, wrap it up well with cling film and bandages, then cover with a warm blanket or two. This recipe has properties similar to the one above, but the honey will make the person lose more water

through perspiration.

Recipe No 5

Mix 500g of Rapan mud with 200g of seaweed powder. Add 20% solution of Rapan salt. This body wrap is very stimulating, and contains a lot of minerals thanks to both Rapan mud and the seaweed. It is also excellent for the skin. However, check for skin reaction to both products before using them, especially if you have known allergies.

Recipe No 6

Mix 500-1000g of any of the Rapan products (mud or clays) with 100g of warm vodka and 5tbsp of honey. This is a very warming recipe, will speed up removal of toxins, boost circulation and will help to get rid of the remains of a stubborn cold / cough.

Recipe No 7

This recipe is suitable for dry, sensitive skin. 500-1000g of Blue clay, 100g of jojoba or wheatgerm oil, 4 capsules of vitamin E, 4 capsules of vitamin A. Mix well, apply everywhere, even to the face if desired. It will condition the skin, leaving it soft and glowing.

Recipe No 8

Mix 250g each of Rapan mud, blue and yellow clay together, add 20% Rapan salt solution. Use it as a wrap to get the benefits of all the Rapan products. All-round treatment for any purpose.

Recipe No 9

Mix 500g of Rapan mud with 50g of ginger powder and 100g of honey, add some warm water. This is a stimulating, detoxifying, circulation boosting body wrap which promotes weight loss and cellulite reduction.

Recipe No 10

Mix 500g of Rapan clay (any) with 100g of coffee lees (the thick mass that is left in a jug after coffee has been strained). Warm it up. Use as a body wrap to stimulate circulation, for cellulite reduction & weight loss. When removing, rub the skin with it using it as a body scrub (especially the stomach and thigh areas). It will also leave you feeling fresh and re-energised. Like with all procedures, drink plenty of water afterwards.

GARGLES / MOUTHWASHES

Gargles are an effective way to relieve a sore throat, gingivitis, sore gums, mouth ulcers, halitosis. The recipes would involve Rapan salt and clays. The high salt content of the Rapan products helps kill bacteria and other infection, thus promoting healing.

Recipe No 1

Mix 1 tbsp of Rapan salt with 200ml of warm water. Use as a mouth wash or a gargle for mouth/throat infections.

Recipe No 2

Mix 1tsp of Rapan salt with 1tsp of bicarbonate of soda in 200ml of warm water. Use as above.

Recipe No 3

Mix 1 tbsp of Rapan blue clay, 1tsp of Rapan salt in 200ml of warm water. Let the mixture stand for a few minutes. Gargle/rinse the mouth.

Recipe No 4

Mix 1 tbsp of Rapan salt in 200ml warm chamomile tea. Use as above. Soothing, antibacterial.

Recipe No 5

Mix 1tsp of Rapan salt with 200ml of warm water and 3 drops of tea tree oil. Use as a gargle/mouthwash.

NOSE WASHES

Rapan salt is an excellent for nose washes – it neutralises the bacteria/viruses in the nasal passages, restores the mucous membrane, and draws out the mucus from the sinuses, and relieves inflammation, thus helping to prevent sinusitis. Excellent both for new and chronic infections. It is also a good natural remedy to relieve excessive sneezing and inflamed mucous membranes in cases of allergies and hay fever.

Recipe No 1

Dilute 1 heaped tbsp of Rapan salt in 0.5 litres of warm water. Take some of it into the hand and draw in slowly with the nose while bending forward. Alternatively, use a pipette, but it will not get the solution into all the important parts of the nose.

Recipe No 2

Dilute 1 tbsp of Rapan salt and 1 tbsp of Rapan blue clay with warm water. Shake well and let it stand for about 15 minutes. Follow the same procedure as above. The clay has added benefits of extra minerals and healing substances.

VAGINAL DOUCHES/ APPLICATIONS

Recipe No 1

Dilute 1 tsp of Rapan salt with 1 litre of warm water. Can be used occasionally as a vaginal douche – for hygiene and as a natural remedy against common infections. Always make sure to see the doctor in cases of uncommon vaginal discharge / pain. The same proportion can be used for stiz baths (where one sits in a large bowl of war water which contains various therapeutic substances). Sitz baths with Rapan are also being used in Russia for cystitis.

Recipe No 2

Dilute 1 tbsp of Rapan salt, 1 tbsp of Rapan clay (blue or yellow) in 1 litre of warm water. Use as above.

Recipe No 2

Rapan is being used to treat minor infections of the reproductive organs. For vaginal applications, clay poultices wrapped in muslin, or even direct insertions of small amounts of clay into the vagina are used. For male infections, compresses or poultices are used on an affected area. High salt content helps to neutralise the infection. However, this is not to be used without doctor's diagnosis and consultation, since genital infections can be of dangerous nature and may require immediate medical intervention and treatment.

ENEMAS

Recipe No 1

Dilute 2 tbsp of Rapan salt in 4 litres of warm water. Use in enemas to treat constipation, for colon cleansing, piles, etc. Always consult the doctor in cases of bleeding and pain from the rectum – it can be more serious than piles.

Recipe No 2

Dilute 2 tbsp of Rapan salt and 2 tbsp of Rapan clay in 4 litres of warm water. Use in enemas to treat constipation, for colon cleansing, piles, etc.

FOOT BATHS

Rapan products are excellent for foot baths. They relieve fatigue, burning feet sensation, promote relaxation, help deal with bad odour, excessive perspiration, muscle/tendon tension, poor circulation and resulting cold feet, water retention, cramps. They also promote detoxification and re-mineralisation of the body through the feet.

Recipe No 1

Mix 250g of Rapan mud or clay, 100g of Rapan salt and 5 litres of water. The water temperature depends on what you want to achieve. If the feet are burning, tired and sweaty, then a cool foot bath is more appropriate. If the feet are cold, or you are suffering from a cold/cough/poor circulation, then you may want to choose a warm temperature. Generally, listen to what your body asks for.

Recipe No 2

Mix 250g of Rapan blue clay, 100g of Rapan salt in 5 litres of cool water. Add 5 drops of peppermint essential oil. This is a very refreshing foot bath for those tired aching feet which have been walking all day long. Especially helpful on hot summer days. The clay also helps to draw out the toxic waste.

Recipe No 3

Mix 250g of Rapan yellow clay, 200g of Rapan clay with 5 litres of warm water, add 6 drops of tea tree and 3 drops of lemon essential oils. This foot bath is good for those predisposed to foot infections, as well as sweaty feet accompanied by bad odour. Water can be cool if you want.

Recipe No 4

Mix 250g of Rapan salt, 200g of cider vinegar with 5 litres of water. Use in the same way as above. This foot bath will help to deal with sweaty feet & minor foot infections, as well as bad odour.

Recipe No 5

Mix 250g of Rapan clay, 5tbsp of ginger powder (check for skin irritation before using ginger powder) in very warm water (about 50°C). This foot bath is very good for difficult to fix colds & chest infections. Pull on warm socks and cover yourself with warm blanket. Drink warm ginger, honey and lemon tea.

MASSAGE / EXFOLIATION

Rapan products can be used in massage to help exfoliate, detoxify the body, increase circulation and reduce bumpy appearance of the skin due to uneven fat distribution, as well as reduce unwanted fat.

Make sure the products are soft and warm (warm them on a water bath). Add water and oil if necessary to prevent micro-traumas. Use slow movements, speak to your client. And **do not over-massage them** with Rapan – remember its sandy consistency. You do not want to strip their skin and leave blisters and sores. I would say that using the product as you would use an exfoliator/body scrub would be a good guide. Keep the room temperature very warm. Cover the client with a protective plastic sheet and a warm blanket or two when you finish the massage, and leave the product on for 20-30 minutes. It serves as a great body mask (so you get 2 products in 1 – an exfoliator/body scrub and a body mask).

I find that letting my client use a warm shower to wash the product off is most appropriate and enjoyable. However, you may want to take it off with a very warm wet cloth, in which case you will need to use protection for the couch in the form of a plastic sheet. All done with due care, this can

be the most heavenly experience, leaving the client with the sense of being thoroughly cleansed, relaxed, and with the aches and pains been dealt with. Ask the client to eat fruit and vegetables and drink just juice/water 24-48 hours beforehand, in order to promote even a deeper sense of internal and external detoxification.

When using Rapan products to exfoliate the face, be gentle. Regular exfoliation with Rapan (once a week for normal to dry skin and twice a week for oily, porous skin) will help get rid of dead cells, visibly improve skin tone, improve circulation, reduce puffiness, improve underlying muscle tone, reduce blackheads, remove impurities, deal with bacteria, restore the natural skin pH. This in turn will help rejuvenate the skin, reducing wrinkles, blemishes, spots, leaving it feel and look refreshed, younger and with a healthy glow to it.

Recipe No 1

Mix 150g of Rapan mud with 150 blue clay, add some warm water to form a soft paste. Exfoliating, detoxifying, relaxing.

Recipe No 2

Mix 150g of Rapan mud with 150g of Rapan salt (finely crushed), add 2tbsp of honey and some warm water to form a soft paste. Use very slow movements to exfoliate the body. This is a thoroughly cleansing, relaxing and circulation boosting massage medium which will help exfoliate the skin, promote cellulite reduction and weight loss.

Recipe No 3

Mix 250g of Rapan Blue clay with 3sbsp of ginger powder, add 2 tbsp of sunflower oil and a little warm water. Stimulating, invigorating, circulation boosting, weight reducing.

Recipe No 4

Mix 250g of Rapan clay with 10 drops of lavender essential oil, 3 tbsp of sweet almond oil (or any vegetable oil) and a little water. Very relaxing, cleansing, circulation boosting.

Recipe No 5

Mix 250g of Rapan mud with 5tbsp of dried seaweed. Add some warm water, 2 tbsp of vegetable oil. This is a nourishing, exfoliating, re-mineralising and stimulating massage medium.

Recipe No 6

Mix 250g of Rapan mud/clay with 50g of vodka, add 5 drops of peppermint oil. This is a thoroughly relaxing and cooling massage medium. Good for hot summer days.

Recipe No 7

Mix 200g of Rapan mud/clay with 200g of sour cream or Greek yogurt. This massage medium is also cooling and refreshing.

Recipe No 8

Mix 250g of Rapan mud with 50g of spirulina, 2tbsp of vegetable oil and a little water. Stimulating, nourishing, cleansing.

Essential oils can be added if appropriate and desired. All these recipes are holistic and will work on the whole body, stimulating all the body systems into healing. They can also be used to maintain good health, nourish, detoxify and re-mineralise the skin and body.

THERAPEUTIC COSMETIC PRODUCTS WITH RAPAN - masks, toners, face/body sprays, exfoliators, body washes, body wraps, bath recipes...

***Disclaimer:** All these recipes are for guidance only, and are not to be viewed as prescriptions for any health conditions. Please have a skin patch test done 24 hours before using the products described here. Do not use any of these products if you are allergic to them, and if the patch test reveals an irritation, itchiness or discomfort. Also avoid using them if you have a heart condition, high blood pressure, cancerous tumours, undiagnosed lumps, acute inflammations or acute conditions of any kind. Please consult your doctor if in doubt.*

There are various mask packs that can be prepared with Rapan products. Depending on the ingredients, they can be cleansing, detoxifying, whitening/ blemish reducing, drying, toning, helping to bring oxygen and nutrients to the skin and remove carbon dioxide and toxic waste. They will make the skin look younger, improve complexion, skin tone and smooth out wrinkles. Rapan products are excellent for eczema, psoriasis, dermatitis, acne sufferers, so masks containing them may help people with such problems.

All masks should be used as part of a normal facial routine, both in salons and at home: remove make up/cleanse the skin, steam for better effect (not obligatory), tone (best with the solution of Rapan salt), add some of the solution to the clay if too thick, apply the clay mask to the face, lie down and let it dry (if the skin begins to feel uncomfortable, wash it off). Wash off the mask with warm water, using slow light movements (the clay contains fine sand which acts as an exfoliator when you wash off the mask). After removing the mask, apply toner and moisturiser you normally use for your skin type.

In general, don't apply masks more often than about twice a week, and try to vary the ingredients.

Although Rapan products are hypoallergenic, we recommend you test the product first. Apply a small amount behind your ear or on the inner side of the elbow, wait 20 minutes, then wash off. Wait 24 hours. If the skin remains normal, i.e. there is no unusual irritation, itchiness, rash or redness, then the product should be ok to use.

These products are suitable for both women and men. For children it is best to use Rapan Blue clay only, since it is the mildest of all the Rapan products. Do not worry if you do not have some of the ingredients - improvise with what you have. And if you make products for multiple use, keep them in a cool dark place (a fridge is ideal).

RAPAN FOR OILY / ACNE PRONE SKIN

Rapan clay/mud masks are excellent for oily, acne prone skin types with enlarged pores. The clays absorb the dirt and oil from the skin surface, close open pores, dry the skin and regulate oil secretion and pH of the skin, thus helping to fight bacteria which causes eruptions.

They make the skin look fresh, improve texture, have a gentle drying up effect cleansing blackheads and reducing spots. The masks dry up on the skin within 5-15 minutes (depending on the thickness of the mask), after which the mask should be removed with warm water as described above.

The clays also act as gentle exfoliators, removing dead skin cells and regenerating the skin. Although both Rapan blue and yellow clays are excellent products for skin masks, Rapan Yellow clay has a stronger effect with oily skin types. Test them both and decide which one is more suitable for you. Following are the masks for oily skin with enlarged pores, prone to acne and blackheads.

MASKS FOR OILY/ACNE PRONE SKIN

Abbreviations: tbsp – table spoonful, tsp – tea spoonful

Recipe No 1

Mix 1tbsp each of Rapan Yellow & Blue clay with some 10% Rapan salt solution to form a spreadable mass. Spread on the problem area. Let it dry and wash off after 10-15 minutes with warm water.

Recipe No 2

Mix 1 tsp of Rapan mud with 1 tsp of Yellow clay. Add some 10% Rapan salt solution to form a soft spreadable mass. Apply. Wash off after 10 - 15 minutes. This mask is especially good for acne-prone skin, due to a higher sulphur content in the mud.

Recipe No3

Add a 10% Rapan salt solution to 2 tbsp of Rapan clay, mix to form a spreadable mixture. Add 1 egg white, 1tsp of lemon juice. Mix well. Apply to the face.

Recipe No 4

Mix 1 tbsp each of Rapan Blue & Yellow clays with 10% solution of Rapan salt to form a spreadable mass. Add a small pinch of ginger powder (or juice) and a few drops of lemon. Spread and leave for 10-15 minutes. Revives dull, sallow skin, improves circulation, removes excess oil.

Recipe No5

Mix together 2 tbsp of Rapan clay, 1 tsp of talk, ½ tsp zink oxide. Add some 10% Rapan salt solution to form a spreadable mass. Apply to the face for no more than 15 minutes. Excellent for porous, oily, acne prone skin.

Recipe No 6

Mix 1tsp of Rapan clay, ½ tps of talk, and ¼tsp of boric acid powder. Add 3% hydrogen peroxide to form spreadable consistency. Apply to face and problem areas. Remove with dry cotton pads. This mask is especially good if it follows a herbal compress.

Recipe No 7

Mix 1tbsp of Yellow clay with the juice of lime and 3 drops of Tea tree essential oil. Leave on the skin for 10-15 minutes. Wash off with warm water. This mask is good for oily blemished skin and has dual effect - purifying and whitening. It will leave your skin looking fresh and radiant.

Recipe No 8

Mix 2tbsp of Rapan mud with 3% hydrogen peroxide to form spreadable consistency. This mask is good for oily blemished skin and has dual effect - purifying and whitening. It will leave your skin looking fresh and radiant.

Recipe No 9

Mix 1tsp of Rapan mud with 1tsp of Rapan yellow clay. Add some Rapan salt solution (about 10%). Excellent drying & purifying mask.

Recipe No 10

1tbsp of Rapan yellow clay, 1/2tsp of zinc oxide, 1tsp of kaolin, mix with water to form spreadable consistency. Apply to face, leave on for 10 minutes. This is a drying mask to be used with acne-prone skin.

Recipe No 11

Drying / purifying mask - for acne prone, oily skin. Mix 1 tbsp of Rapan blue clay, 1 tsp of Fuller's earth (bentonite clay powder), 1 tsp of lemon juice and 10% Rapan salt solution. Apply to face. Remove after 15 minutes.

Recipe No 12

Mix 1tbsp of Rapan Yellow clay with some witch hazel, egg white and 1tsp of lemon juice. Apply to problem areas (spots, acne, open pores). Leave on for 15 minutes. Wash off. This mask will cleanse and close open pores and have a whitening effect on the skin.

Recipe No 13

Mix 2 tbsp of Rapan mud with 1 tsp of sulphur powder. Add 10% Rapan salt solution to form spreadable consistency. Add a 15 drops of 3% hydrogen peroxide. Use for bad acne outbreak.

Recipe No 14

Mix 2 tbsp of Rapan yellow clay with 3 drops of peppermint essential oil. Add a little cucumber and

lemon juice. Excellent mask for hot summer days. Use cucumber rounds on eyes to soothe them after a tiring day, before going to a party or the following morning.

FACE / BODY WASHES/ SPRAYS WITH RAPAN FOR OILY/ ACNE PRONE SKIN

Recipe No1

Mix 2tbsp of Rapan salt with 200ml of warm water. Wash/spray the face/body.

Recipe No 2

Mix 1tbsp of Rapan salt with 200 of warm water. Add ½ of lemon or lime. Wash/spray the face/body.

Recipe No 3

Mix 1tbsp of Rapan salt with 200 of warm water. Add ½ of lemon or lime, 3 drops of tea tree. Wash/spray the face/body.

Recipe No 4

Mix 1tbsp of Rapan salt, 1tbsp of Rapan yellow clay, 1tbsp of Rapan mud with 1 litre of water. Shake well before use. Rinse the face/body after a shower/bath. Let dry on the skin. This recipe is a quick and economical way of using the products, although not as effective as baths and compresses.

EXFOLIATORS / BODY SCRUBS WITH RAPAN FOR OILY/ ACNE PRONE SKIN

Rapan products can be used in massage to help exfoliate, detoxify the face and body, increase circulation, reduce bumpy appearance of the skin due to uneven fat distribution, as well as reduce unwanted fat.

Remember to make sure the products are soft enough. Add water and oil if necessary to prevent micro-traumas. Use slow motions, but quite deep movements, and always ask for the client's feedback. This can be the most heavenly experience, leaving the client with the sense of being thoroughly cleansed, relaxed, and with the aches and pains been dealt with. Ask the client to eat fruit and vegetables and drink just juice/water 24-48 hours beforehand, in order to promote even a deeper sense of internal and external detoxification.

When using Rapan products to exfoliate the face, be gentle. Regular exfoliation with Rapan (once a week for normal to dry skin and twice a week for oily, porous skin) will help get rid of dead cells, visibly improve skin tone, improve circulation, reduce puffiness, improve underlying muscle tone, reduce blackheads, remove impurities, deal with bacteria, restore the natural skin pH. This in turn will help rejuvenate the skin, reducing wrinkles, blemishes, spots, leaving it feel and look refreshed, younger and with a healthy glow to it.

Recipe No 1

Mix 5tbsp of Rapan Yellow Clay with 5tbsp of Rapan Mud. Grind 5tbsp of Rapan salt (it grinds very well, forming humid soft consistency), add to the mixture of clay/mud. Use as an exfoliator/ body scrub as required. Can be prepared in advance. A little bit of water can be added for softness.

Recipe No 2

Mix 5tbsp of Rapan Yellow Clay with 5tbsp of Rapan Mud. Grind 5tbsp of Rapan salt, add to the mixture. Add ½ of lemon juice. Use as an exfoliator/ body scrub as required.

Recipe No 3

Mix 2tbsp of Rapan Yellow Clay with 2tbsp of Rapan Mud. Grind 2tbsp of Rapan salt, add to the mixture. Add 2tbsp of finely ground coffee. Add some water. This body scrub is excellent to stimulate detox, and for cellulite treatment, especially as part of a body wrap.

Recipe No 4

Mix 3 tbsp of finely ground Rapan salt with 3tbsp of Rapan Yellow clay, add some ginger powder and a little water. Use as a body scrub, especially for problem areas. Excellent for thighs and stomach areas – it stimulates blood circulation and cellulite / fat removal.

TONERS WITH RAPAN FOR OILY / ACNE PRONE SKIN

Recipe No 1

Mix 1 tbsp of Rapan salt with 1ml of water. Add 2tsp of lemon juice and 2 tbsp of salicylic spirit. Place in a spray bottle. Use to tone oily, acne prone skin. Avoid the eyes. This toner has a drying and purifying action.

Recipe No 2

This is a more gentle recipe for inflamed acne. Mix 1tbsp of Rapan salt with 1ml of water and 5 tbsp of Aloe Vera juice. Add 2tbsp of salicylic spirit. Place in a spray bottle. Use as required.

Recipe No 3

This is another gentle recipe for acne prone, inflamed skin. Mix 1tbsp of Rapan salt with 100ml of water and the juice of ½ lemon. Add 1tsp of Jojoba oil. Jojoba oil is very good for oily, acne prone skin, since it restores its acid mantle which forms a barrier against bacteria. Always shake the bottle (if using a spray bottle) before use.

Recipe No 4

Mix 1tbsp of Rapan salt with 100ml of water. Add 1tsp of zinc oxide. Add 1tbsp of salicylic spirit. Mix and place in a spray bottle. Use as a toner for acne prone skin.

Recipe No 5

Mix 100ml of witch hazel with 1tsp of Rapan salt. Spray on the face when required, or use as a make-up remover (do not use on eyes).

Recipe No 6

Mix 100ml of water with 1tsp of Rapan salt & 1tbsp of apple vinegar, 1tsp of calendula tincture. Gentle drying, purifying, healing action.

RAPAN FOR DRY/MATURE/ SENSITIVE SKIN

MASKS WITH RAPAN FOR DRY/MATURE/ SENSITIVE SKIN

Recipe No 1

Mix 2tsp of Rapan blue clay, 1 egg yolk, 1tsp of olive oil, 1tsp of glycerin, 3 drops of lavender essential oil. Apply to face. Leave on for 15-20 minutes, wash off with warm water. Tone the skin with Rapan rose water (see below for recipe).

Recipe No 2

Mix 2tbsp of Rapan mud, 1tsp of Jojoba oil, 1 tsp of glycerin, 1tsp of honey, 3 drops of Clary sage & 2 drops of geranium essential oils. Apply to face. Leave on for 15-20 minutes, wash off with warm water.

Recipe No 3

Mix 2tsp of Rapan blue clay with rose water to form spreadable consistency. Apply to face for 15 minutes. Wash off with warm water.

Recipe No 4

Mix 1tsp of Rapan mud, 1tsp of Rapan blue clay, 1tbsp of chamomile soaked in boiling water for 30 minutes and ½ tsp of extra virgin olive oil. Apply to face. Leave on for 15-20 minutes. This mask is excellent for sensitive skin because of its soothing nourishing effect.

Recipe No 5

Mix 2tbsp of Rapan mud with ½ avocado. Apply to face. Remove gently after 15 minutes. Excellent for problem, itchy skin.

Recipe No 6

Mix 2tbsp of Rapan Blue clay with 1tsp of oat meal or rolled oats and 1 tsp of honey, 1 capsule of vitamin E. Add some water. Apply on the skin for 15 minutes. Rinse with warm water.

Recipe No 7

Mix 2 tbsp of Rapan mud with 1tsp of dried powdered seaweed. Add ¼ of olive oil and some warm water to form a spreadable mass. This is an excellent nourishing mask full of minerals both from Rapan mud and the seaweed. For sensitive skin please do a patch test first.

Recipe No 8

Mix 2tbsp of Rapan blue clay with 1tsp of spirulina powder and 1tsp of honey. This is a nice detoxifying, stimulating and nourishing mask.

FACE/ BODY WASHES/ SPRAYS WITH RAPAN FOR DRY/ MATURE/ SENSITIVE SKIN

Recipe No 1

Mix 1tsp of Rapan salt with 200ml of water. Add 1tsp of jojoba or almond oil and 3 drops of rose or geranium oil. Mix well before use. Wash/spray the body when required.

Recipe No 2

Mix 1tbsp of Rapan blue clay, 1tbsp of Rapan mud & 1tbsp of Rapan salt with 1 litre of warm water. Wash/rinse the body after a shower/bath, let it dry. Excellent for problem skin. A quick and economical way to use the products, but not as effective as baths/compresses.

Recipe No 3

Mix 1tbsp of Rapan blue clay with 200ml of warm water. Add ½ tsp of jojoba oil and 3 drops of rose essential oil. Shake well before use. Use as a face wash/ compress.

EXFOLIATORS / BODY SCRUBS WITH RAPAN FOR DRY/ MATURE/ SENSITIVE SKIN

Recipe No 1

Cleansing: Mix 100g each of Rapan mud & blue clay with 2tbsp of finely ground Rapan salt. Add 100ml of extra virgin olive oil and 10 drops of lavender essential oil. Use as an exfoliator/ body scrub. Rinse off afterwards.

Recipe No 2

Mix 200g of Rapan blue clay with 50ml of rose water. Use as an exfoliator/ body scrub. Rinse off afterwards.

Recipe No 3

Balancing: Mix 200g of Rapan mud with 3 tbsp of chamomile water and 1tbsp of jojoba or almond oil. Rinse off afterwards.

Recipe No 4

Mix 100g of Rapan blue clay with 3tbsp of 10% Rapan salt solution.

TONERS WITH RAPAN FOR DRY/MATURE/SENSITIVE SKIN

Recipe No 1

Balancing: mix 1tsp of Rapan salt with 200ml of water. Add 2 drops each of Clary sage, Lavender and Geranium essential oils and 1tsp of jojoba oil. This is a very good soothing/balancing toner for dry, flaky, ageing skin. Shake the bottle well before use.

Recipe No 2

Greasy, acne-prone skin: mix 1tsp of Rapan salt with 100ml of water. Add 5 drops of tea tree oil. Spray as required.

Recipe No 3

Soothing: Mix 1tsp of Rapan salt with 200ml of water. Add 3 tbsp of Aloe Vera juice, 1tsp of jojoba oil and 1tsp of honey. For sensitive skin.

RAPAN FOR NORMAL SKIN

MASKS WITH RAPAN FOR NORMAL SKIN

Recipe No 1

Mix 1tsp each of Rapan blue and yellow clays with 10% Rapan salt solution to form a spreadable mass. Apply on the skin, leave on for 15 minutes.

Recipe No 2

Cleansing: Mix 1tbsp of Rapan mud, 1tsp of cider vinegar, 1tsp of honey and 1tsp of oat meal. Add some water to form a spreadable mass. Apply to face for 15 minutes.

Recipe No 3

Stimulating: Mix 1tbsp of Rapan blue clay with 1tsp of freshwater algae powder.

Recipe No 4

Nourishing, purifying: Mix 1tbsp of Rapan mud, 1tsp of honey, 2tbsp of rose water.

Recipe No 5

Slightly drying, purifying: 1tbsp of Rapan yellow clay plus 1/5 tsp of jojoba or almond oil.

FACE / BODY WASHES / SPRAYS WITH RAPAN FOR NORMAL SKIN

Recipe No 1

Soothing: Mix 1tbsp of Rapan salt with 200ml of warm water, 6 drops of Lavender oil.

Recipe No 2

Invigorating: Mix 1tbsp of Rapan salt with 200ml of warm water, 3 drops of Rosemary & 3 drops of Peppermint oil.

Recipe No 3

Circulation-boosting: 1tbsp of Rapan salt, 1 tsp of ginger juice, 1tsp of Aloe Vera juice, add to 200ml of warm water.

EXFOLIATORS / BODY SCRUBS WITH RAPAN FOR NORMAL SKIN

Recipe No 1

1tbsp of Rapan blue clay, 1 tsp of caster sugar, 1tsp of olive oil. Use as an exfoliator/ body scrub. To use as a body scrub, increase the quantities proportionately.

Recipe No 2

1 tsp of Blue & 1tsp of Yellow clays mix with 1tsp of olive oil. Use as an exfoliator. For a body scrub increase the quantities of the ingredients proportionately.

Recipe No 3

1tbsp of Rapan mud & 1tsp of honey mix together, add a little cider vinegar and water. Purifying/soothing exfoliator/ body scrub.

TONERS WITH RAPAN FOR NORMAL SKIN

Recipe No 1

Soothing, moisturising: Mix 1 tsp of Rapan salt with 1 tsp of glycerin, add 100ml of water & 6 drops of geranium oil.

RAPAN FOR PROBLEM SKIN - ECZEMA, DERMATITIS, PSORIASIS, DANDRUFF, ETC.

MASKS WITH RAPAN FOR PROBLEM SKIN

Recipe No 1

Mix 2tbsp of Rapan mud & with ½ tsp of Rapan finely ground salt, add some warm water to form spreadable mass. Apply to problem areas – including scalp. This is a very effective mask for any of the above listed problems, and also acne.

Recipe No 2

Mix 2 tbsp of Rapan Blue clay with 1tsp of freshly squeezed Aloe Vera juice and a little water. Apply to problem areas. Healing product. Do a patch test first, as with all the recipes.

Recipe No 3

Mix 1tbsp of Rapan mud & 1tbs blue clay, add ½ of Rapan salt diluted in 2tbsp of water. Apply to problem areas. This mask is also good for acne.

Recipe No 4

Mix 1tbsp of both Rapan blue & yellow clays, squeeze vitamin A & E into it – 1 capsule each, plus 1 crushed tablet of Vitamin C (500mg) or if you can find it in powdered form -1/4 tsp, add 1tsp of olive oil and water to form a spreadable mass. Apply to problem areas. This is a healing mask for many skin problems.

Recipe No 5

Mix 1tbsp of Rapan mud with 10% Rapan salt solution, one capsule each of Vitamin A, E, ¼ tsp of

zinc oxide powder. If you cannot find the powder, use 2 capsules of Zinc supplement, add 1tsp of kaolin powder and tsp of wheatgerm oil. This is suitable for various skin problems. Zinc oxide has a drying and healing action.

Recipe No 6

Mix 1tbsp of Rapan mud, blue and yellow clays, add 20% Rapan salt solution. Apply to problem areas. This mask has the potency of the whole Rapan product range.

Recipe No 7

Mix 2tbsp of Rapan blue clay with 1 egg yolk, 1tsp of honey, 1tsp of extra virgin olive oil. Apply to problem areas. This is a nourishing and healing mask.

Recipe No 8

Mix 1 tbsp each of Rapan blue clay & mud, add ½ tsp of sulphur powder and 1tsp of Fuller's earth (bentonite clay). Add some 10% Rapan salt solution. Drying mask, very good for problem areas, including acne and eruptions.

Recipe No 9

Mix 2tbsp of Rapan mud with 1tsp of jojoba & wheatgerm oil and some water. Add 3 drops each of lavender and chamomile essential oils. Healing, soothing mask.

Recipe No 10

Mix 2 tbsp of Rapan mud with 1 tbsp of cabbage juice. Healing mask – good for weeping wounds, eruptions, acne.

Recipe No 11

Mix 2tbsp of Rapan clay or mud with 3 drops of silver birch and 3 drops of marigold essential oils diluted in 10ml of sweet almond oil. Apply to problem areas.

FACE / BODY WASHES / SPRAYS WITH RAPAN FOR PROBELM SKIN

Recipe No 1

Mix 2tbsp of Rapan salt with 1 litre of warm water. Add 2tbsp of Rapan blue clay. Use as a wash after a bath/shower, or a compress (warm it up, soak a cloth and apply to problem areas. Cover with cling film and wrap around with a flannel or other material to keep the area warm. Leave on for as long as desired – even overnight. Remove if it makes the skin itchy/uncomfortable).

Recipe No 2

Mix 2 tbsp of Rapan salt with 6 drops of Chamomile & 6 drops of Lavender oil diluted in 1tsp of jojoba or olive oil. Add 1 litre of warm water, mix well before use. Soothing body wash/spray for itchy, inflamed skin.

Recipe No 3

Mix 2 tbsp of Rapan salt, 1tbsp each of Rapan mud, blue and yellow clays with 1 litre of warm water. Use as a wash or a compress.

Recipe No 4

Mix 1tsp of Rapan salt with 50 ml of Rose water and 100ml of warm water. Add 3 drops of Rose essential oil. Spray on problem areas (shake the bottle well before use).

Recipe No 5

Mix 200ml of fresh cabbage juice with 1 tbsp of Rapan salt (process cabbage in a food processor with the salt for easier extraction of juice). Squeeze the juice through a cloth, use at once. **Cabbage** has been known for a long time to **heal ulcers and various skin disorders**. Use the solution for compresses on problem areas. It also makes a good facial mask (soak a cloth and apply on the face for 15 minutes).

Recipe No 6

Mix 1tsp of Rapan salt, 1tbsp of Rapan blue clay, add 200ml of warm whole milk. Use as a body wash or a compress on **sensitive, problem skin**.

Recipe No 7

Mix 1tbsp of Rapan salt, 1tbsp of cider (apple) vinegar and 1tbp of honey with 1 litre of warm water. Use as a wash for **problem skin**.

EXFOLIATORS / BODY SCRUBS WITH RAPAN FOR PROBLEM SKIN

Be careful when exfoliating problem skin to avoid damage which can be followed by ulcers. However, gentle exfoliation can be beneficial, especially with conditions such as psoriasis, where skin formation process is accompanied by excessive flakiness. Here are a few recipes for such conditions. Please use common sense when following these recipes, test them on a small area first.

Recipe No 1

Grind 100g of Rapan salt to fine consistency. Add 50ml of olive or grape seed oil, and 10 drops of lavender oil. Lavender is an all-round healer.

Recipe No 2

Mix 2 tbsp of all of the Rapan products with 5tbsp of finely ground Rapan salt. Add 50ml of olive,

grape seed or sunflower oil. Mix well. Add 5 drops of Chamomile essential oil. Chamomile is soothing & healing for the skin.

Recipe No 3

Mix 100g of Rapan salt with 50ml of one of the above vegetable oils, add 1tsp of wheatgerm oil, 1 vitamin E & 1 vitamin A capsule. **Skin healing recipe.**

Recipe No 4

Mix 100g of Rapan blue clay with 50g of Rapan salt (finely ground). Add the contents of soaked chamomile tea bags (2). **Gently exfoliates and soothes the skin.**

TONERS WITH RAPAN FOR PROBLEM SKIN

Recipe No1

Mix 1tsp of Rapan salt with 50ml of water & 50ml of Rose water. Add 3 drops of Rose essential oil and 1tsp of Rose hip oil. Mix well before use. **Rejuvenating, soothing.**

Recipe No 2

Mix 1tbsp of Rapan blue clay with 1tbsp of Rapan salt. Add 100ml cucumber juice and 100ml of water, plus 10 drops of peppermint oil. This is a very nice **refreshing, skin whitening** toner. Shake the bottle before use.

Recipe No 3

Mix 1tsp of Rapan salt with 1tbsp of glycerin, add 100ml of water and 10 drops of chamomile essential oil diluted in 10ml of sweet almond oil. Shake well before use. Spray as required, or use as a compress. **Moisturising, soothing.**

Recipe No 4

Mix 1tbsp of Rapan salt, 1tbsp of Rapan blue clay and 200ml of chamomile infusion (tea). Spray on the body as required. Use as a compress if preferred. **Soothing, re-mineralising.**

Recipe No 5

Mix 1tbsp of Rapan salt with 1tsp of jojoba & 1tsp wheatgerm oil. Add 100 of water and 10 drops of juniper berry essential oil (diluted in one of the above oils). **Healing.**

Recipe No 6

Mix 1tbsp of Rapan salt with 100ml of water. Add 1tbsp of Aloe Vera juice, 10 drops of carrot seed and 10 drops lavender essential oils. Mix well before use. **Healing, soothing.**

Slimmer Body and Better Skin with Rapan Clays, Salt, Mud

Body Wraps with Rapan Products

There are a lot of body wrap products on the market. Many of them include Dead Sea products. Body wraps are most often used for cosmetic purposes to tone up the skin, soften it, improve its condition, and even more often - for quick weight loss without having to sweat it out in a gym.

Why use Rapan

Rapan Blue and Yellow Clays and Rapan Mud are an exceptional choice for body wraps and face masks, and here's why:

- The products are 100% pure and natural - there are no additives in them at all.
- They have been obtained from an area of clean ecology.
- They have all the therapeutic properties of Dead Sea products, since they close to Dead Sea products in chemical composition.
- In fact, their therapeutic properties are up to 20 times stronger than those of Dead Sea products, due to a higher content of anti-oxidants and other substances (see Information about Rapan products).
- Rapan products are obtained from an ancient salt lake with high concentration of all the essential minerals, vitamins and hormones the body needs.
- The high content of salts makes the Rapan clays more effective than normal clays. For the skin it means they are more effective in drawing toxic waste, excessive water out of the skin and reducing puffiness and cellulite.
- In fact, Rapan products are so good they are used with exceptional results at Russian resorts mainly for treatment of various health conditions.
- Rapan products are versatile and can be combined with each other for stronger effect (e.g. the clays and mud can be mixed with salt, the Blue and Yellow clays can be mixed together, the clays can be mixed with the mud).
- They are very popular with spas due to their effect on the skin. Spas use Rapan products for body wraps and face masks with good results.
- There have been no allergic side-effects recorded as a result of using any of the Rapan products.
- With all these benefits Rapan products are affordable.

Here is brief information to help you make a choice on which products to use:

- Rapan Mud has the strongest action on the skin and body.

- It is followed by Rapan Yellow Clay - it is in the middle between the Mud and Blue Clay in its effect.
- The mildest action is attributed to Rapan Blue Clay. It is universal in its applications and can be used even by children and the infirm.
- Rapan Salt can be used as an ingredient in the body wrap to enhance the effect.
- All the four products can be mixed with each other in various proportions, depending on the desired effect. Just experiment and see which combination suits you or your clients best.

Suggested combinations

- Rapan Mud (or Yellow / Blue Clay) 1kg + Rapan Salt 50g;
- Rapan Mud 500g + Rapan Yellow Clay 500g + Rapan Salt 50g
- Rapan Mud 500g + Rapan Blue Clay 500g + Rapan Salt 50g
- Rapan Yellow Clay 500g + Rapan Blue Clay 500g + Rapan Salt 50g.

For more recipes of body wraps see above.

Body Wraps

Use any of the chosen Rapan products, either on their own, or in combination with each other. Choose the combination you find suitable for the client.

Experiment with the recipes suggested above or your own combinations. Test the mixed product on your client. Although the products are non-allergenic, do a skin test by applying the product to be used to a small area and leaving it on for 1 hour (let the client do it at home).

If there has been no adverse effect, for the first application use shorter time - 30 minutes and limited area of application (e.g. the back). Cover with cling film and warm blanket. Remove after 30 minutes by washing it off with warm water. Record the effect.

For the 2nd application:

Spread the product all over the body, wrap the body with cling film and cover with a warm blanket. Leave the product on for 1 hour. Wash it off with warm water afterwards. Let the client rest under a warm blanket for 15 minutes.

For the 3rd and follow-up applications the duration of the procedure can be increased to 1½ - 2 hours.

For home use - follow the procedures above.

Benefits

- Increased circulation and lymph drainage.
- Increased metabolism – weight loss.
- Increased removal of toxic waste and reduction in cellulite appearance.
- Noticeable improvement in skin appearance and texture - the skin becomes pink, smooth, warm, fresh-looking, moist.
- Removal of excessive water from the body - reduced puffiness.
- Reduced weight due to the effects listed above.

- Increased energy.
- Reduced fatigue.
- Relaxation of the body and mind. Increased sense of well-being.

DETOX WITH CLAYS

Clays and muds have been used for medicinal purposes for millions of years. In this article, I will pay special attention to clays and their role in body detoxification. I wrote this article separately, and it is mostly about clays in general, although there is a short chapter on the use of Rapan for detox.

SMECTITE CLAYS – WHAT MAKES THEM SPECIAL?

There are **seven main groups of clay** – kaoline, illite, chlorite, smectite, vermiculite, mixed-layer group which consists of all the above groups, and lath-form group. The group which is of interest to us for clay therapy is the **smectite** one.

The type of clay is determined by its crystalline structure. The following extract explains this in detail: “In a clay mineral the elements (oxygen, silicon, potassium, etc.) are spheres arranged in a regular three-dimensional pattern. The spheres are the building blocks of the clay mineral, and the arrangement of the spheres determines the type of mineral. The character of the clay mineral group determines the type of clay and its eventual use. In other words, the clay mineral structure gives us an understanding of its specific properties.

The three-dimensional pattern of the clay mineral. Whatever sits in the middle, in this case the silica element, determines the type of clay and what it will do. The name of this mineral structure is *single silica tetrahedron*, and it is the building block of montmorillonite clay (the best for eating). Among the clays suitable for eating, montmorillonite is the most common and most sought after. It has been the subject of many research studies and has long been recognized by scientist and laypersons for its unusual properties”. <http://www.calearthminerals.com/claytypes.htm>

Montmorillonite belongs to the group of silicates with the following chemistry: $(\text{Na}, \text{Ca})(\text{Al}, \text{Mg})_6(\text{Si}_4\text{O}_{10})_3(\text{OH})_6 \cdot n\text{H}_2\text{O}$, Hydrated Sodium Calcium Aluminum Magnesium Silicate Hydroxide.

“Montmorillonite clay was named after the town of Montmorillon, France, where it was first identified. The mineral clay belongs to a group of clays known as smectite, a word that describes its layered structure. The smectites are one of seven clay mineral groups. Each group contains a certain number of species, variations on the layered structure. Clay minerals come in many different shapes and sizes to produce a wide variety of clays. Because there are so many types of clay, not all of them share the same function. Some are more suited for industrial use whereas others are suited for dietary use.” <http://www.calearthminerals.com/claytypes.htm>

Following are the major aspects to montmorillonite which make it so valuable in detoxification:

- Its ability to expand when hydrated. This increases its surface area many fold.
- Its negative electrical charge between the crystals. Once hydrated, the distances between the credit-card shaped clay particles expand. A negative charge is created between the particles, and this negative potential attracts the mostly positively-charged heavy metals and other toxins. Also, the spaces between the particles attract organic and complex toxins as well. According to the Canadian Journal of Microbiology (31 [1985], 50-53), montmorillonite can absorb pathogenic viruses, aflatoxin (a mold), pesticides and herbicides. The clay is eventually eliminated from the body with the toxins bound to its multiple surfaces.
- Its ionic exchange capacity (it removes the elements the body has excess of and replaces them with the ones from its own structure the body needs). This ability enables it to re-mineralise the body.

The following extract explains the structure of montmorillonite and how it works:

“The montmorillonite minerals occur in very small micron sized particles. They are extremely fine-grained and thin-layered, more than any of the other clay minerals. The layers contain ions that are very loosely bound to one another and easily exchangeable. Not only will the toxins stick to its outside surface, but numerous elements and organic matter will enter the space between the layers.

In addition to its already unique structure, montmorillonite has a particularly large surface area when properly hydrated in water, which further boosts its adsorptive and absorptive properties. Chemically and structurally, it is shaped like a credit card, with negative charges on the flat surface and positive charges on the edges. Therefore, the negative charge (the good one) is many times more powerful than the positive charge. **Montmorillonite is a more complicated clay and has a higher exchange capacity than the simpler species of clay, such as kaolinite. Its ability to adsorb and absorb toxins is greater than that of the clays in the other groups.**

According to one article on clay (Lei 1996), a mineralogist at Massachusetts Institute of Technology, Robert T. Marin, stated that one gram of this clay has a surface area of 800 square meters. To give that some serious perspective, that's about ten football fields! The greater the surface area of the clay, the greater the power to pick up the positively charged particles or toxins many times its own weight”. (<http://www.calearthminerals.com/claytypes.htm>)

In nature, smectite clays are very rarely found as pure montmorillonite (like with all the other clay types – they are all a mixture of various mineral groups (e.g. smectite, kaolinite and illite), in various proportions. The higher montmorillonite content, the higher the ability to expand and adsorb/absorb toxins.

In conclusion, the most important properties of smectite (montmorillonite) clays are:

6. Adsorption/ absorption of toxins due to the electrical charge of the particles and ability to expand when hydrated.
7. Re-mineralisation of the body with vital minerals due to the ionic exchange capacity.

These abilities play a vital role in detoxification and re-mineralisation of the body.

SKIN – ITS ROLE IN DETOXIFICATION

The skin has **6 main functions**: sensation, heat regulation, **absorption**, protection, **excretion**, secretion. Absorption and excretion are the functions most important in the process of re-mineralisation and detoxification.

Toxins get into our bodies through the following three channels: lungs, mouth, and skin.

Toxins are eliminated via seven channels: lungs, liver, kidneys, the skin, colon, lymphatic system and the blood. If one of elimination routes is not functioning properly, then others come to assistance and work extra hard. The skin plays a vital role in this, since it can eliminate toxins without putting itself under too much strain. Liver or kidney damage due to a toxic overload is much more serious.

The skin is the **largest body organ**. It weighs around **7% of the body weight**. The skin is highly permeable, and this property is used in medicine to administer substances in small doses over a long period of time (Nicorette, HRT and other transdermal patches), as well as poultices, compresses, therapeutic baths, detox patches, etc. However, it is permeable to small particles only. Large substances, such as bacteria, organic chains, are kept well away by the skin from entering the body. Its protective function comes into play here.

The skin offers the vast exit channel for many body toxins through perspiration. **Body temperature, heat and physical activity facilitate the process of absorption and elimination**. The same substance will work much faster through the skin when heated. Also, the body will eliminate toxins faster at higher temperatures and during physical activity – due to increased sweating. Heat is the major detox and therapeutic factor in body wraps, baths, compresses, as well as sauna treatments. It opens up the pores, increases blood circulation and lymph drainage, thus speeding up metabolism. Thus, harmful substances are delivered to the skin for elimination and taken from the skin through blood circulation and the lymphatic system much faster and more efficiently.

CLAY – THE BEST DETOXIFYING AGENT?

Clays have been used both by people and animals for millions of years, on all continents – as a healing agent in compresses, poultices, baths, as a food substitute in times of starvation, as a source of minerals, as a detoxification substance. Animal and people have also been eating and bathing in clay since prehistoric times. Roman soldiers were eating clays on their long marches to satisfy hunger. In some countries it is still considered a valuable medicine for diarrhoea, various diseases, infections, etc. During the World wars, clays were used in Europe by nurses and doctors to disinfect wounds and keep infections at bay. Clays were also used to disinfect and purify drinking water, to neutralise poisons in plants used for eating, etc.

Clay eating has come back on a larger scale only recently, but still only a small bunch of enthusiasts here and there are up for it. Until recently, clay use has been limited by cosmetics and external applications at spas, resorts, beauty and health clinics.

Out of all clays used for detox and internal consumption, montmorillonite (smectite) clay is most

valuable for its properties to expand when hydrated, adsorb and absorb toxins due to its negative electrical charge, and exchange minerals with the body.

There are various clays containing varying quantities of montmorillonite: French Green montmorillonite, Blue Cambrian, Bentonite, and some others. There are also variations in names. Bentonite clay is especially popular in the world of clay eaters and detox, since it is very rich in montmorillonite.

Blue Cambrian clay is a type of smectite clays that is fairly rare. When dried, blue clay is actually grey in colour. According to some scientific sources, it is the most powerful of the smectite group, mainly due to its chemical content. I have been taking clay internally for 3 years now, ever since I went back to Russia, where my mother told me that the clay she was keeping at home was safe to drink. I was suspicious at first (they make cement out of clay, how could I put it in my mouth?!), and did nothing about it for some time. When I came back to England, I decided to try – something in me was asking for it. So I did, and was surprised by how pleasant the experience had been. It had no taste that I could describe – it has a taste of its own, with nice and mellow texture. Generally, people would say that clay is tasteless. I disagree, and advise you to try to make up your own mind. Just one caution - the clays to try for drinking/eating should not come from salt lakes – the salt content is too high, and we do not need it.

INTERNAL DETOX WITH CLAYS

Apart from dietary changes which one would make in order to get the most out of their detox programmes, I suggest taking clay – 1 heaped teaspoon of a smectite clay with a high montmorillonite content (find a reliable source – they are best found on the web, ask questions if it is suitable for internal consumption – most such clays are), diluted in about 250ml of water. Take one such dose in the morning, one in the evening. It is best to take it at least 1 hour before eating. If you are new to clay, start with a smaller dose – whichever you feel comfortable with. The dose can be increased to 1 tablespoon (it is difficult to overdose with clay – it is non-toxic. However, it can irritate the digestive system if taken in large doses).

Take for about 30 days, make a 7-day interval, start again. There is no special need for an interval. However, the body starts getting used to it, so the effects can be diminished. To boost them, a break is a good idea. It can be taken throughout the whole life, or as desired.

EXTERNAL DETOX WITH CLAYS

As I have said earlier, the skin represents a highly permeable organ through which certain substances can enter and leave the body. In this respect, it plays a very important role in detoxification, since it gets rid of many harmful substances without overloading the other excretory organs (such as kidneys and liver).

Clays work on the body through the skin in the same way they work in the internal detoxification process due to the skin's absorb and excrete. They exchange their own minerals for body toxins thanks to the ionic exchange process described above. This, and also the smectite clays' ability to expand when hydrated, as well as their high adsorption/absorption properties help the body eliminate unwanted substances and supplement itself with the minerals it needs.

This allows clays to promote body cleansing process on a deep, cellular level, since the body delivers toxins to the skin and receives good minerals from clays via the circulatory system, which are then delivered to the body cells everywhere.

For external detox, smectite clays rich in montmorillonite are recommended. Bentonite clay is excellent, and so is French Green montmorillonite. There are a number of other clays – like for example 'magnetic clay' sold on some websites, although I am not sure why it is called magnetic. If it is due to its ability to draw out toxic metals, then other smectite clays are as good.

HOW TO USE CLAYS FOR EXTERNAL DETOX

There are a number of ways to use smectite clays for external detoxification. It is a good idea to have taken clay internally for around a week prior to external detox – if you are not against the idea of taking montmorillonite clays internally. Please do not do it if you have kidney disease. Anything written here is not meant to be taken as a prescription, but as a description of various detox options. If you don't like the idea of drinking clay, other detox methods can be used. It is also important to make sure you concentrate on healthy eating – lots of fruit and vegetables, reduce consumption of mucus-forming products (bread, meat, dairy products, eggs), as well coffee, alcohol, sugary and fatty foods, and drink plenty of fluids. Clay will speed up the process of the elimination of toxins and re-mineralisation of the body.

- **Baths** are the most effective and easy way to do it. For baths use about 1kg of hydrated clay or 0.5kg of dry clay powder. For stronger effect, double the amount. Water needs to be warm, but not hot – about 37-40°C, since smectite clays are very active as they are. Use baths once a day for 10 days for thorough detoxification. For better effect, add some sea salt or Rapan salt (0.5kg per bath will be enough). You will notice that your energy levels will go up after a few days of following the programme.
- **Body wraps** – another very effective form of detoxification. It combines the therapeutic properties of clays with the temperature factor of the body wrap which raises the body temperature increasing metabolic processes in the body – absorption of nutrients and elimination of toxins.

Body wraps are also widely used in weight loss programmes. Weight loss in these cases is an accidental factor. Once toxins start to shift, the body systems (the blood and lymphatic vessels, the digestive system and channels of elimination) get cleared of the debris which has been accumulating over the years. Body cells start getting the nutrients which they have been short of before detoxification. The body goes through a regeneration process, since the body systems start working to their full capacity. This, in its turn, facilitates a further removal of toxins and helps restore overall health.

- **Body & face masks**

Masks can be applied not only on the face, but on the body too. And the body does not need to be wrapped – just smother yourself with clay or mud and let it dry on the body. Then get under a shower or in a bath if you prefer and rub the mask off. For Rapan, the masks can fulfill an additional function as a body scrub/ exfoliator – just use your hands or a brush for it. If you take a bath to wash the mask off, the clay will continue the detoxification process

in the bath.

- **Body mask + steam spa**

Same application method as above, with the only difference that after the application the person gets into a steam spa/sauna to increase the body temperature, facilitate perspiration and toxic waste removal. Use the temperature you are comfortable with, and only for 3-5 minutes at a time.

Caution: Due to its highly stimulating nature, it is not recommended for people with inflammatory conditions, heart problems, pregnant women, people suffering from HBP, diabetes, infections. As a general rule, if in doubt, do not do it.

- **Massage with clays**

Use clays in massage treatments to stimulate blood circulation and facilitate the ionic exchange between the clay and the body. The clays should be diluted with water to make them easy to use in massage. Rapan clays will be acting as mild exfoliators due to their sandy consistency. Because of this, and their salt content, they are more stimulating, so care should be taken when massaging people with sensitive skin types.

- **Clay for vaginal applications.**

Clays can be effective in vaginal cleansing. They are used by some people to help get rid of minor vaginal infections, such as thrush, vaginitis, and restore health of the vaginal walls. It is good to intersperse clay with live yogurt applications. Clay can be applied either in a form of a vaginal douche (1tsp of clay per ½ litre of water) or tampons (just dip the tampon in a clay solution quickly and leave it in the vagina for 1 hour or so).

- **Enema/ colonic irrigation with clays.**

Due to their detoxifying properties, clays are also used in colonic irrigations and enemas – weakly diluted solutions (1tbsp per 1litre of water). They will relax the stool and help cleanse the colon. Do not use if suffering from any conditions of the colon, intestinal tract or genito-urinary system.

- **Gargle/mouth wash.**

Gargle and mouthwash will help restore the health of the gums and soothe sore throat, especially salty clays like Rapan.

These procedures can be taken on a regular basis. Build up slowly, rather than have an all-out assault on your body systems with aggressive detox programmes. Not everyone's body can cope with such programmes efficiently and without major side effects. Try not to bring yourself to the need for major detox in the first place. However, if you feel like you need it, start slowly and build up gradually. For example, you may want to start by taking ½ tsp of clay in a glass of water twice a week and having a clay bath once or twice a week with 500g of clay, and then increase the frequency of the internal intake, dosage of clay to 1tsp, adding salt to your clay baths, taking clay baths every other day and then every day for 10-14 days. I will write about it separately.

It is worth keeping in mind that any detox programme is worthless unless accompanied by changes in the lifestyle and diet (if such changes need to be made on consideration). Eat healthily, exercise, find time to relax, do not get stressed over trivia or at all – deal with problems rather than fret over them, do things that make you happy and are good for you. Even a little naughtiness is good for us – as long as we enjoy it. And remember to drink plenty of water/ herbal teas/ natural juices to help eliminate toxins, whether undergoing a detox programme or not.

Contra-indications: *malignant tumours, undiagnosed lumps, pregnancy, tuberculosis, feverish conditions, individual intolerances, infectious diseases, exhaustion of any origin, severe disorders of the blood vessels, consequences of traumas accompanied by seizures/fits. Please consult your doctor if you suffer from any health condition. Do not resort to self-treatment.*

Disclaimer: All the information provided in this book is for information purposes only and should not be considered as advice/ recommendations. Rapan products are not to be used for the diagnosis, treatment, mitigation or cure of any disease. Their main purpose is to support the underlying physiological properties of basic human health through the enhancement of supportive metabolic functions essential to sound human health. They can also be used as a cosmetic product. Although no adverse reactions to the Rapan products have been recorded in its time of existence, we would still recommend you to consult your doctor before using any of the Rapan products if you are suffering from any medical condition.

DETOX WITH RAPAN

I have been working with the Rapan clays for quite some time now, and find them the best clays for detox – based both on personal experience and feedback from other people who have used them. However, this is my personal opinion which may be considered biased, since I sell them from my website. On the other hand, I would not sell any health products I did not feel passionate about – and this is the honest truth.

Rapan clays are not suitable for internal consumption due to high levels of salt in them (they come from a salt lake). They are also sandy. However, for external applications they are superb. Not only do baths with Rapan clays make you feel revitalised and relaxed, but they leave your skin smooth and silky. And they make me want to go to sleep too, especially if the water in the bath was quite hot.

I have already described how montmorillonite clays act on the body: they draw toxins out of the body due to their negative particle charge which attracts positively charged ions of toxins, such as heavy metals, radioactive particles, harmful products of body metabolism, etc. They also give the body the good minerals it needs – due to their ionic exchange ability. It happens on a physical and chemical level and benefits our bodies immensely.

Rapan products, apart from the usual effects of clays, have the added benefit of salt which forms the base of it. The salt is extremely rich in various minerals and has its own properties. **This makes Rapan clays different from all the other clays in detox treatments.** Rapan salt is similar for its chemical composition and therapeutic properties to Dead Sea salts. Moreover, it **surpasses Dead Sea salts**, due to a much higher content of antioxidants, carotenoids, retinoids and other biologically active substances (according to a comparative spectral analysis conducted by one of the laboratories at the Siberian branch of the Russian Academy of Sciences). A series of scientific experiments conducted on people suffering from various skin problems have established that the **effect from the use of Rapan was up to 20 times stronger than that of the Dead Sea products.**

All this means that Rapan clays have both detoxifying and remineralising effect on the body, due to their very high mineral content and the ionic exchange capability of smectite clays. It makes them quite unique in the clay family, since most clays have a non-saline origin.

PART II

RAPAN – SCIENTIFIC RESEARCH

The research described here was conducted in a number of experiments by the scientists of Novosibirsk Medical Academy and its allied institutions. The research has been headed by professor **Yu.V.Kulikov** and described in the books “**The Sanogenic Mechanisms of Pelotherapy**” and “**The Adaptogenic and Therapeutic Properties of Peloids**” by **professor Y.V.Kulikov et al**, Novosibirsk State Medical Academy, Scientific Centre for Clinical & Experimental Medicine of the Siberian Branch of the Academy of Sciences of Russia.

THE COMPARATIVE SPECTRAL ANALYSIS OF THE PELOIDS OF THE LAKE OSTROVNOYE (RAPAN), LAKE KARACHI AND DEAD SEA

Scientific research has shown that the lipid extracts of the muds of Lake Karachi and Lake Ostrovnoye (Rapan) have close spectral characteristics. The absorption spectra in the region of 460nm are especially interesting, which were caused by the presence of carotenoids, retinoids, and their analogues.

“**Carotenoids** are [organic pigments](#) that naturally occur in plants and some other [photosynthetic organisms](#) like [algae](#), some types of [fungus](#) and some bacteria. There are over 600 known carotenoids; they are split into two classes, [xanthophylls](#) and [carotenes](#). The un-oxidized (oxygen free) carotenoids such as alpha-carotene, beta-carotene and [lycopene](#) are known as [carotenes](#). Carotenes typically contain only carbon and hydrogen. Probably the most well-known carotenoid is the one that gives this group its name, [carotene](#), found in carrots and responsible for their bright orange colour”.

“Carotenoids have many physiological functions. Given their structure (above) carotenoids are efficient free-radical scavengers, and they enhance the vertebrate immune system. Consequently, [epidemiological](#) studies have shown that people with high beta-carotene intake and high plasma levels of beta-carotene have a significantly reduced risk of lung [cancer](#)”.
<http://encyclopedia.thefreedictionary.com/carotenoid>

They are thought to be associated with reduced risk of several chronic health disorders including some forms of cancer, heart disease and eye degeneration.

The **retinoids** are a class of chemical compounds that are related chemically to [vitamin A](#). Retinoids are used in medicine, primarily due to the way they regulate epithelial cell growth.

Retinoids have many important and diverse functions throughout the body including roles in [vision](#), **regulation of cell proliferation and differentiation**, growth of [bone](#) tissue, immune function, and activation of [tumor suppressor genes](#).

Research is also being done into their ability to treat [skin cancers](#). Currently [9-cis retinoic acid](#) may be used topically to help treat skin lesions from [Kaposi's sarcoma](#).

Retinoids are used in the treatment of many diverse diseases and are effective in the treatment of a number of [dermatological](#) conditions such as inflammatory skin disorders, [skin cancers](#), disorders of increased cell turnover (e.g. psoriasis), and photoaging. Common skin conditions treated by retinoids include [acne](#) and [psoriasis](#)". <http://encyclopedia.thefreedictionary.com/Retinoid>

Retinoids have, among others, an **immuno-modulating effect**, and this opens interesting prospects not only in the immune-modulating and non-proliferative strategy in the **treatment of advanced cancerous tumours and prevention of malignant neoplasms**, but also as effective **regulators of antioxidant status of the body in general**. Possibly because of their antioxidant properties, retinoids can **efficiently influence micro-circulation** in the body.

The presence of these biologically active compounds in peloids can explain **highly effective medicinal properties of muds in the treatment of inflammatory and conditions**. With their prominent antioxidant and anti-hypoxant properties (hypoxia – reduced concentration of dissolved oxygen in the body), **carotenoids and retinoids are very effective in regulating physico-chemical characteristics of the body membranes and the activity of the enzymes located in the membranes. This ensures strong therapeutic action of peloids.**

In the last decade, **carotenoids, and particularly beta-carotene, are being used in the prevention of cancerous tumours, Irritable Bowel Syndrome, correction of the damage caused to the body by the environment, since they stimulate protective mechanisms in the body and activate the humoral (*Humoral: Pertaining to elements in the blood or other body fluids*) and cellular immunity.**

The spectral analysis of the lipid extracts of the peloids of Lake Karachi, Dead Sea and Lake Ostrovnoye has shown that the absorption spectra of these peloids are different.

8. The lipid extracts of the Dead Sea did not absorb in the region of 460nm.
9. 2. The lipid extracts of the Lake Karachi and Ostrovnoye (Rapan) have very close absorption spectra.
10. Peloid extracts of Lake Karachi have a higher absorption factor both in the ultraviolet part, and in the area of 460nm, as compared with the lipid extracts of the Ostrovnoye Lake (Rapan).
11. Although the comparative analysis has shown a lower value in the region of 460nm for Lake Ostrovnoye (lower optical density) than lake Karachi, they have higher optical density in the adjacent areas of 395, 415 & 510nm. This can be connected with the presence of various isomers and carotenoids which have adjacent absorption spectra in the lipid extracts of the Lake Ostrovnoye.

THE COMPARATIVE SPECTRAL ANALYSIS OF THE BIOTROPIC PROPERTIES OF PELOIDS: OSTROVNOYE, KARACHI & DEAD SEA

The analysis described here was used to compare the **antioxidant content** of the above groups of peloids. The method of analysis of the biotropic properties of peloids was connected with the studies of the luminol and lucigenine-dependent chemoluminescence of the leucocytes when extracts of peloids are added. (*Chemoluminescence is the emission of [light \(luminescence\)](#) without emission of heat as the result of a chemical reaction. – Wikipedia*).

In this experiment, 0.7ml of the solution of Hanks was mixed with 0.1ml of leukocyte extract, 0.1ml of a standard concentration of luminol (*Luminol is a versatile chemical that exhibits*

chemiluminescence, with a striking blue glow, when mixed with an appropriate oxidizing agent. - Wikipedia) or lucigenine (a chemiluminescent compound which exhibits bluish green fluorescence). After a 5-minute thermostatic regulation, 0.1ml of the mud extracts were introduced, with chemiluminescence being registered immediately at 37°C. The results were expressed in the number of impulses/granulocytes/min at the peak of light emission. Having registered chemiluminescence for 15 minutes, 0.1ml of Zymosanum of 10mg/ml was introduced into the same preparation, with the registration of chemiluminescence lasting another 30 minutes. The effects of the peloid extracts were evaluated in relation to the chemiluminescence of neutrophils without the extracts. (*Neutrophils are active phagocytes, capable of ingesting microorganisms or particles.*- Wikipedia)

The experiment has shown that all the peloid extracts used in it inhibit the bactericidal function of the blood neutrophils. Since the bactericidal function of the granulocytes is determined by the speed of intracellular (inside the cell) generation of oxygen metabolites (*products of oxygen metabolism*), the obtained data can be used to conclude that peloid extracts, having antioxidant properties, also have anti-inflammatory action due to their ability to slow down the bactericidal function of the blood neutrophils. (*Granulocytes are a category of white blood cells characterised by the presence of granules in their cytoplasm.* <http://encyclopedia.thefreedictionary.com>)

The experiments have shown that **peloids of the Lake Ostrovnoye (Rapan) have the highest ability to inhibit chemoluminescence of the neutrophils of the blood**. The peloids of Lake Karachi occupy the intermediate position. The least effective were peloids of Dead Sea (5 times lower on the graphic scale than Rapan).

CONCLUSION

The obtained data enables us to make a conclusion that the **extracts of the Lake Ostrovnoye (Rapan) are biologically more active than the peloids of Lake Karachi and Dead Sea**. Since bactericidal properties of neutrophils in general are connected with intracellular production of activated oxygen metabolites which can activate reactions of peroxide oxidation of lipids, the received data can also serve to conclude that **peloids of the Lake Ostrovnoye (Rapan) have higher antioxidant and anti-inflammatory properties than other peloids**. Higher antioxidant properties of peloids ensure their more pronounced therapeutic effect.

Diagram 1 – The spectral characteristics of the lipid extracts of the peloids of the Lake Karachi, Lake Ostrovnoye (Rapan) & the Dead Sea

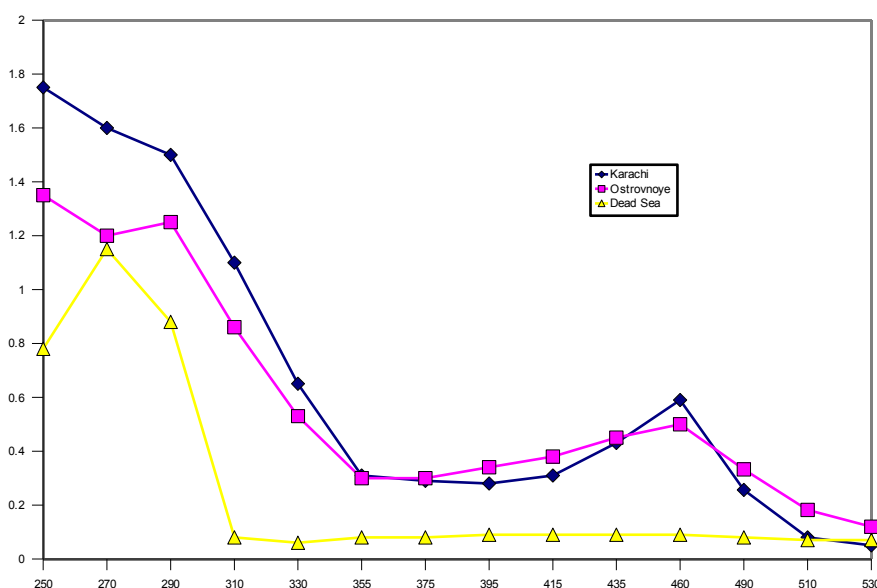


Diagram 2 – The effects of the peloid extracts on the chemiluminiscence of the blood neutrophils – dynamic development

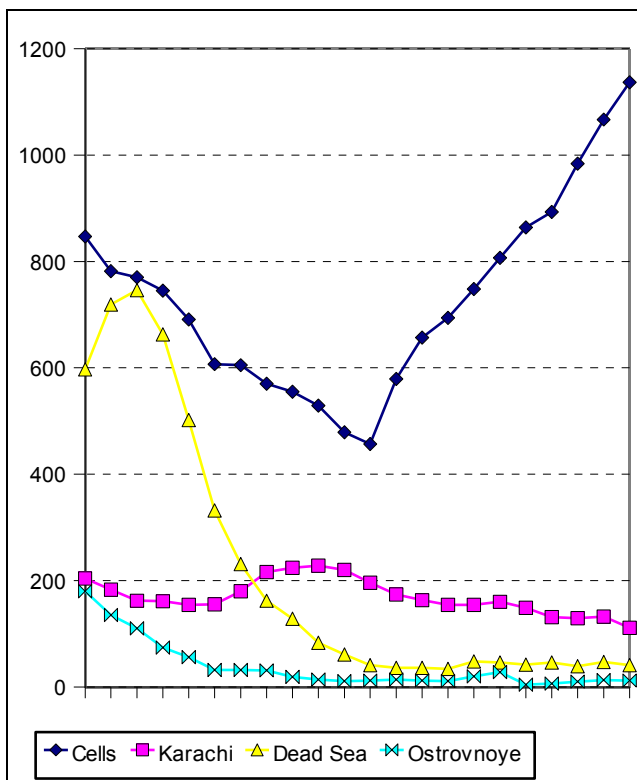
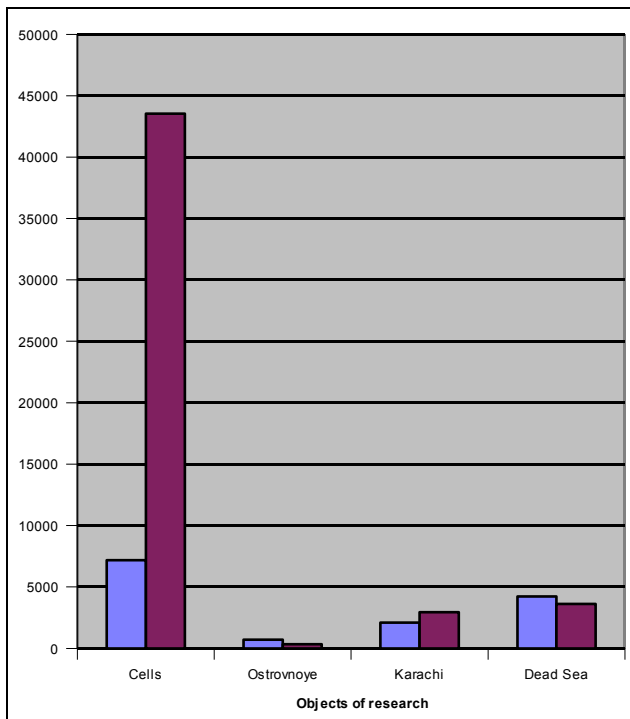


Diagram 3 – The effect of the peloid extracts on the chemiluminiscence of the blood neutrophils



ANTI-AGEING PROPERTIES OF RAPAN ON THE BASIS OF THE ISOTOPE CONTENT OF THE PELOIDS OF LAKE OSTROVNOYE

One of the unique instruments of the studies of the biosphere is the method of evaluation of stable isotopes. This method provides the necessary information of the distribution of the chemical elements in the body. It has found its uses in the studies of ecology, medicine, etc.

Fractioning of isotopes is a very sensitive indicator of the changes in the chemical environment, quantitative and qualitative ties in molecules. The biological fractioning of stable isotopes means that a live organism is enriched with the isotope of carbon – ^{13}C – in relation to the content of this isotope in carbon dioxide of the inhaled air. Its appearance is connected with the so-called kinetic isotope effect which means that the speed of chemical reactions rises with the participation of lighter atoms. V.P.Kaznacheev has proved in his works that the content of ^{13}C in the body tissues of the population of the Extreme North, which lives in the conditions of the higher speed of ageing compared with the population of the Novosibirsk area, is systematically dropping down. In the researched samples of the hair and nails the degree of the heavy carbon fractioning has grown to 27.45%, compared to the normal data of 23.55%. This means, that **the process of ageing is characterised by the decrease of the heavy isotope of carbon - ^{13}C - and the increase of the light fraction - ^{12}C .**

The evaluation of the isotope content of peloids can be used to understand the degree of their maturity, since the balance between the isotopes of carbon can show various phases of the etnogenesis (history of biological development) of peloids, and thus predict to a certain extent their biological and therapeutic effect and value. It is also necessary in understanding of one of the important factors affecting body ageing and the development of anti-ageing therapies.

This research was conducted in the Institute of Geology of the Siberian Branch of the Russian Academy of Sciences, with the participation of the Chief Scientific Advisor of the Russian Academy of Medical Sciences Yu.M.Fridman. The soils of the Yamal Peninsula were used for comparative analysis.

The organic matter was extracted from these peloids. The obtained data was recalculated according to the international standard for carbon – RDB. The table below shows that almost all the peloids have a different content of ^{13}C compared to the Yamal Peninsula. It shows the specifics of its etnogenesis which has resulted in the process of the selection of isotopes with developed bitrophic properties.

The table shows that **Lake Ostrovnoye shows the lowest decrease of the heavy fraction of carbon in its peloids.** The highest decrease was observed in the soils which are not biologically active – the soils of the Yamal Peninsula being one of them.

This means that on the basis of evaluation of the isotope content of the compared peloids a conclusion can be drawn that the **peloid of Lake Ostrovnoye are younger than the other peloids.**

Thus, on the basis of the data obtained as a result of the spectral analysis and the studies of their bactericidal properties the isotope content data can be used as criteria of biological and therapeutic properties of peloids and the evaluation of their biological age and maturity.

The high content of the heavy isotope in Rapan peloids (^{13}C) is considered to be a unique and very valuable factor in the development of anti-ageing treatments.

Table: The results of the isotope research of the peloids of Dead Sea, Lake Karachi and Lake Ostrovnoye – as compared to the peloids of the Yamal Peninsula

<i>Name of sample</i>	<i>$\delta^{13}C$ organic (content of ^{13}C)</i>
Dead Sea	-22.95
Karachi	-23.00
Ostrovnoye	-22.80
Sand of Yamal	-25.85
Soil of Yamal	-30.60

RAPAN - CLINICAL RESEARCH

CLINICAL EFFECTS OF PELOThERAPY IN THE TREATMENT OF PATIENTS WITH SYSTEMIC DISEASES

THE RESEARCH IS BASED ON THE PELOIDS OF LAKE OSTROVNOYE (RAPAN)

WHY AND HOW PELOIDS WORK

The therapeutic effect of peloids on the body systems is demonstrated by their anti-inflammatory and analgesic properties, improvement of blood circulation and lymphatic flow in areas of pathology, de-sensitising action, speeding up of the body metabolism, stabilising immunity.

There are two main theories nowadays why peloids work:

- Physical
- Chemical

The “physical” theory includes 3 factors:

- Mechanical
- Electrical
- Thermal

The thermal factor is considered to be the most important. It has been established that it activates the chemical components of peloids. Besides, warm mud improves permeability of cellular membranes of the body to biochemically active components of muds.

The “chemical” theory, on the other side, promotes the view that chemical elements in peloids play

the main role as far as their therapeutic effects are concerned. It maintains that chemical and biologically active components in peloids (hormones, antibiotics, bio-stimulants, micro-elements, organic acids, etc.), are responsible for the therapeutic action of peloids by getting into the body systems through the skin, via the blood stream – they get delivered to the affected organs.

The ability of peloid components to be absorbed by skin into the blood stream is due to the well-known property of the skin to absorb certain chemical substances, which is the basis for transdermal medications.

Out of all the mud components, **hydrogen sulphate plays a very important role**. It raises arterial blood pressure, lowers pulse rate, narrows peripheral blood vessels, which allows redistribution of blood in the body tissues and improvement in the heart activity. Besides, hydrogen sulphate affects biochemical processes in the skin by promoting the activity of enzyme systems, the level of ascorbic acid in body tissues, which results in the increase of metabolism.

The biostimulant effect of peloids is being connected lately with their anti-oxidant properties which are attributed to a majority of organic components of muds: phenols, quinones, carotene, naphthenic acids. The mechanism of biological activity of peloids works on a molecular level through the inclusion of its separate components into a chain of biological reactions taking place in body tissues.

There are 3 phases in the mechanism of pelotherapy:

- Reflex
- Humoral
- Consequential

This classification is conditional, since they are all connected and are sometimes overlapping each other.

P.G.Tsarfis suggested the following universal theory of peloid action on the body. Peloids cause the thinning of the horny and lucid layer and thickening of the granular layer of the skin. There is an increase of lymphocytes, histocytes and eosinophils in the dermal layer. With this, various chemical elements in a peloid penetrate into the dermal layer. With the increased permeability of the skin, the compounds of iron and other chemical elements of therapeutic peloids penetrate through the epidermis and dermis into the internal body tissues. An increase of local enzymatic and biochemical processes on the cellular and sub-cellular levels takes place. An area of pathology is formed, in which one can observe changes if the level of biologically active substances, an increase of general acidic mucopolysaccharides and heparin, with the level of hyaluronic acids staying unchanged. These local changes lead to an appearance of regional and distant reflex processes which include the CNS. They regulate the production of biologically active substances, neurohormones and activate the enzymatic systems. The integrative neuro-humoral processes have selective effect on the most reactive systems first of all – the systems with pathological changes which are least resistant. This leads to switching on of the compensatory mechanisms on various levels – through the peripheral nervous system. An increased production of adrenocorticosteroids stimulates production of glucocorticoids and free hormones, intracellular steroid metabolism, with the decrease of tissue permeability. This leads to a decrease of inflammation, suppression of auto-immune response, with the cessation of collagen destruction.

It must be pointed out here that the nature of reaction to pelotherapy depends, on one hand, on the initial state of the body systems, and on the other hand, on the intensity of the active factor.

The skin with its receptors plays a crucial role in securing important therapeutic effects of pelotherapy.

The immune system benefits dramatically from peloid therapy. This is explained by the effect of

peloids on the reticulo-endothelial system, on the phagocyte activity of lymphocytes, which in turn stimulates the body immune system and raises its natural immunity.

It has been established in the research headed by A.F.Leschinsky (1976) that therapeutic peloids reduce inflammation and formation of connective tissue in an area of inflammation. How does it happen? Peloid therapy causes the breakdown of macro-ergic (energy-rich) compounds, which leads to the reduction of energy supply of the inflammatory process, and as a result, to the elimination of the latter. In the case of activation of anaerobic glycolysis (oxidation of glucose without presence of oxygen. This system breaks down muscle and liver glycogen stores without the use of oxygen. The byproduct of this system is lactic acid) peloid therapy suppresses it, stimulates bioenergetic processes, increases synthesis of macroergic (energy-rich) compounds, and due to the formation of these additional energy resources, improves micro-circulation and enzyme reactions which lead to the elimination of the source of inflammation. Thus, on the basis of numerous research, a conclusion can be made that the therapeutic effectiveness of peloids is based on their ability to normalise the trophic functions of the body organs, tissues and cells.

PELOThERAPY AND DISORDERS OF THE MUSCULO-SKELETAL SYSTEM (RESEARCH MADE ON THE BASIS OF THE SANATORIUM “KRASNOZERSKY” WITH THE USE OF RAPAN PELOIDS)

Musculo-skeletal system is a complex system, both in its structure and function. A number of people suffering from various pathologies connected with it is increasing dramatically every year. Back pain is extremely common - about eight in ten people in the UK are affected at some time in their lives. Each year, close to five million working days are lost due to back pain.

All these conditions are debilitating and lead to physical and psychological distress in sufferers and their families. The burden on the society is also ever increasing, with more and more people incapacitated by chronic back pain and other musculo-skeletal problems (sciatica, frozen shoulder, lower back pain, arthritis being just a few of the numerous expressions of such pathologies). There is a drain of the medical resources, financial losses for businesses, families and the society as a whole, apart from the enormous suffering caused to sufferers themselves.

The most distressing symptom of musculo-skeletal disorders is pain. Most of us have experienced (or will – later in life) various types of back pain – from nagging discomfort of overworked muscles, to acute, shooting pain of a trapped nerve.

Peloid therapy is used with great success in the treatment of various pathologies of the musculo-skeletal system. Following information describes how peloids are used with great effect in the treatment of various degenerative and inflammatory conditions of the musculo-skeletal system. Much of the research was done on the basis of the peloids of Lake Ostrovnoye. I have worked through the information made available to me. My main goal is to try to bring this information not to the general public, rather than the scientific community. For this reason, a lot of information has been adapted for this purpose. If I have failed to make it really simple, it is because of the difficulty of the task. I have had to read and re-read many pages myself trying to understand the mechanisms of the interaction of peloids with the body systems. So if you have questions after reading it, I will be happy to try to answer them, and if I cannot answer them myself, I can always consult the scientific research community of Siberia who have done the research in the first place.

I have summarised the main points of the research in the form of conclusions about the effects of pelotherapy in the treatment of the degenerative osteoarthritis. However, it is clear that these conclusions demonstrate the effects of peloids for all the body systems.

RESEARCH CONCLUSIONS ABOUT THE THERAPEUTIC EFFECTS OF RAPAN PELOIDS

Conclusion 1 – General Improvement

Patients treated with peloids have shown both prominent local and general improvement.

The clinical effectiveness of pelotherapy was evaluated using a special questionnaire with a list of questions which enabled the research group to measure the effects of the treatment using objective and subjective data when researching two groups with osteoarthritis.

An experimental and the control groups were evaluated for the changes in the objective and subjective states (objective – the changes felt and reported by the patients; subjective – the changes observed by the doctors) before and after pelotherapy.

The results have shown a considerable improvement of the subjective factors in the experimental group. The integral data of the subjective state before the treatment in the main group was 25.7 ± 0.74 , and in the control group – 25.3 ± 0.84 ($P < 0.05$).

The clinical evaluation of the main and control group for objective clinical symptoms (in points) demonstrated that the group treated with pelotherapy showed a decrease of symptoms by the end of the treatment (before the treatment it was 9.92 ± 0.21 , and after the treatment it became 7.09 ± 0.13 , $P < 0.05$), while in the control group the data did not change much (8.39 ± 0.3 before the treatment and 7.35 ± 0.27 after the treatment, $P > 0.05$).

In more concrete terms, such **subjective factors** as **pain in the area around the spine, numbness in the arm joints, feeling of cold in the hands, headaches, excessive perspiration, weakness in the arms and general weakness, pain in the leg joints, disturbances in the organs of the lower abdomen, sleep patterns have improved considerably in the main group, while in the control group the changes were inconsiderable.**

Regarding the **objective factors** (the Laseg syndrome, tension in the back, pain in the paravertebral points, the Neri syndrome) the picture was similar – with the **considerable improvement in the main group and only a slight change in the control group.**

More detailed information is presented in the form of tables – see Appendices A & B.

Conclusion 2 – Adaptogenic effect

When the body is under stress, it mobilises its resources to ensure our survival. The systems of adaptation play a vital role in this. They include the Central and Peripheral nervous systems, as well as the endocrine system which involves the hypophyso-adrenal, sympatho-adrenal and hypophyso-thyroid systems.

Being a recognised (albeit a positive) stressor, pelotherapy stimulates sympatho-adrenal and hypophyso-adrenal systems and the functions of the adrenal cortex, especially considering the protective and anti-inflammatory role of these hormones.

The studies of the functional state of various body systems put under stress by pelotherapy have

demonstrated that the **body response** to them is of an **integral nature**, with the main components of such response being the **reaction of stress** and **reaction of adaptation** which are sometimes difficult and even impossible to separate.

The hormones of hypothyroid system act as an instrument of the body restructuring on a different level of functioning which in the conditions of the balneo-reaction are observed in the form of phase changes of metabolism as part of the process of recovery.

Balneo-reaction in pelotherapy is a complex of clinical and laboratory signs displayed by the patient during a certain period of treatment with peloids.

There are 2 types of reaction – general and local. The most common signs of a local balneo-reaction are an increase of pain, local hyperemia (red skin), oedema, increased local metabolism.

The following **classification of balneo-reaction and its effects** was introduced by V.P.Kaznacheev (1970):

- Adequate: initial period of restructuring and regeneration provides maximum body survival with maximum life expectancy.
- Inadequate: initial period of restructuring of the levels of regulation without any subsequent clinical or laboratory changes or with excessive clinical symptoms.
- Exacerbation of the condition - activation of the clinical pathogenesis of the disease. All the metabolic and structural changes developing during exacerbation of a disease lead to a clinical improvement of the condition of the inflammatory or dystrophic nature as a result of changes in the intra- and extra-cellular elements of the connective tissues.

Research of the peloids of Lake Ostrovnoye has demonstrated an absence of a stress reaction during pelotherapy with Rapan peloids. The changes had a **'soft', adaptogenic, nature**, rather than a violent stress reaction. This was supported by measuring of the hormones in the body of researched patients at various stages of pelotherapy, as well as by other factors, such as the activity of anti-oxidant systems (read information about anti-oxidant protection provided by peloids further down) and the changes in the blood formula after a course of pelotherapy.

The analysis of the blood changes has shown **an absence of a stress reaction and the presence of a reaction of adaptation to pelotherapy with Rapan**. For example, the obtained data has shown a prominent increase of lymphocytes, the speed on erythrocyte sedimentation, decrease of eosinophyl and monocyte content, which has made scientist to conclude that there was an absence of a traditional response of the blood formation processes to stress. **The changes were considered to have an adaptive nature.**

Conclusion 3 – Immune-regulating effect

The immune regulating effect is connected with the effect of peloids on the reticular-endothelial system, as well as the phagocyte activity of leucocytes which, in turn, **stimulates the protective resources of the body and raises natural immunity.**

The conclusions about the immune action of pelotherapy can be made on the basis of the phase character of the formation of immuno-globulins (Ig) and circulating immune complexes (CIC).

The phase character of the dynamics of the Ig production is reflected like this:

- The 1st phase - production of IgM is increased, formation of CICs is absent. This phase

coincides with the early signs of a start of an illness. The beginning of the formation of IgG and IgA shows the development of secondary immune response to the same antigen.

- The 2nd phase is characterised by the peak of the IgM production and an increase of the production of IgG and/or IgA, as well as the start of CIC formation – this coincides with the peak of the immune response. The levels of the production of IgG and/or IgA has diagnostic and prognostic meaning.
- The 3rd phase is characterised by the lowering of IgM below normal level, increased or slightly decreasing formation of IgG and/or IgA.
- The 4th phase is characterised by normal content of IgM and varying levels of the production of IgG and/or IgA and CIC.

The analysis of the content of main Ig groups and CICs in the blood of researched patients leads to a conclusion that the content of IgM and IgG before the treatment is raised, which from the point of view of the systemic regulation demonstrates the stage of the remission of a chronic pathology.

By the end of pelotherapy the concentration of practically all Igs and CICs go back to normal. This demonstrates the achievement of a prominent immune-modulating effect as a result of pelotherapy. On the basis of the evaluation of anti-inflammatory action of peloids a number of authors (Belometti S., Galzigma L., 1998) have made a conclusion that in the process of pelotherapy a change of content of a number of cytokines participating in the metabolic regulation of the cartilage tissue and playing a vital role in the pathogenesis of osteoarthritis. There is a reduction of IL-1 and TNF-alpha which take part in an inflammation process of the cartilage tissue and its destruction and an increase of IGF-1 which plays a protective role.

This means that pelotherapy has a prominent protective action on the cartilage tissue, reduces pain sensations and has an anti-inflammatory effect which has also been proved by other researchers who used low-temperature peloids when treating diseases of the internal organs.

Considering the phase nature of the changes in the Ig levels on different stages of the inflammatory process, a conclusion can be drawn that before the start of the treatment there was an activation of the humoral link of the immune system which is typical for the stages of remission. After the treatment was completed, the **stabilisation of the immunological factors demonstrates the therapeutic and immune-modulating effect of pelotherapy.**

Conclusion 4 – Anti-inflammatory action

The following theory of an **anti-inflammatory action** of peloid therapy was developed in 1976 by A.F.Leschinsky and Z.I.Zuza, having studied the effect of the peloid therapy on bioenergetic processes.

As has been described earlier, **peloid therapy causes the breakdown of macro-ergic (energy-rich) compounds, which leads to the reduction of energy supply of the inflammatory process, and as a result, to the elimination of the latter.** In the case of activation of anaerobic glycolysis (oxidation of glucose without the presence of oxygen. This system breaks down muscle and liver glycogen stores without the use of oxygen. The by-product of this system is lactic acid), pelotherapy suppresses it, stimulating bio-energetic processes and increasing the synthesis of macro-ergic compounds, and due to the formation of these additional energy resources, **improves micro-circulation and enzyme reactions which lead to the elimination of the source of inflammation.** Thus, on the basis of available research, a conclusion can be made that the therapeutic effectiveness of peloids is based on their ability to **normalise the trophic functions of the body organs, tissues and cells** ('trophic' - pertaining to nutrition) .

The anti-inflammatory effect of Rapan has been used by the sanatorium Krasnozersky to research and develop a range of treatments for women suffering from non-specific inflammatory conditions of the reproductive organs. The research / treatments have been proved very successful in treating these conditions and reducing the symptoms associated with them – both physical and psychological.

Research materials can be made available on request.

Conclusion 5 - Biostimulating effect

Biostimulating effect of peloids is connected with the earlier presented chemical theory of the effect of peloids on the body. Due to the history and nature of their development, **peloids contain a vast amount of biologically active compounds, such as hormones, antioxidants, antibiotics, bio-stimulators, micro-elements, organic acids, which, when entering the body, have a therapeutic effect on it.** The antioxidants and their action in the dynamics of pelotherapy is covered in further.

There is another very important **bio-stimulant factor** which is used to great effect in pelotherapy – and it is **hydrogen sulphate** – the natural component of many peloids, including Rapan. Research has shown that it gets through the skin into the body where it works by **raising the blood pressure, lowering the pulse and narrowing the peripheral blood vessels, which in turn causes redistribution of blood in the body tissues and thus improving the functioning of the heart** (V.V.Kruze, A.A.Uzbekov, 1961). Besides, hydrogen sulphate has an effect on the biochemical processes in the skin by **activating the enzyme systems, the level of ascorbic acid (vitamin C) in the tissues, which in turn raises metabolism** (V.A.Shalimov, 1967).

Conclusion 6 - Antioxidant Protection

One of the most important therapeutic factors of peloid therapy is its **antioxidant effect due to a high level of antioxidants. Rapan peloids have been compared to the peloids of Dead Sea and found to contain up to 5 times more antioxidants, such as carotenoids, retinoids, tocopherols, etc.**

To understand the antioxidant protection mechanism of peloids, one needs to know the role antioxidants play in protecting the body.

“Antioxidants are molecules that slow or prevent the **oxidation** of other chemicals...Oxidation reactions can involve the production of **free radicals**, which can form dangerous **chain reactions**. Antioxidants can terminate these chain reactions by removing radical intermediates and can inhibit other oxidation reactions by being oxidized themselves. As a result, antioxidants are often **reducing agents** such as **thiols** or **phenols**. Although oxidation reactions are critical for life, they can also be damaging; hence, **plants** and **animals** maintain complex systems of multiple types of antioxidants, such as **glutathione**, **vitamin C**, and **vitamin E** as well as **enzymes** such as **catalase**, **superoxide dismutase** and various **peroxidases**. Low levels of antioxidant molecules or **inhibition** of these antioxidant enzymes causes **oxidative stress** and may damage or kill cells”. <http://en.wikipedia.org/wiki/Antioxidant>

There are **2 main antioxidant systems** in the body:

- **Enzymatic antioxidants** which act on various links of lipids which have been turned into free radicals. They act as a powerful instrument of the defense of the body membranes against excessive peroxidation.
- Non-enzymatic antioxidants. They can be subdivided into **2 groups – water-soluble and fat-soluble**.
 - a). The fat-soluble group includes Vitamins E (tocopherols), A, K, most phospholipids, ubiquinones (Co-enzyme Q10), steroid hormones, etc.
 - b). The water-soluble ones include compounds containing SH-groups (cysteine, glutathione, methionine, etc.), ascorbic acid (Vit. C), uric acid, etc.

Among the fat-soluble antioxidants the **tocopherols (Vit.E) are the most active**, due to their **high anti-radical activity**. They stabilise lipids by forming stable compounds between their own molecules and the remainders of the polyunsaturated fatty acids.

There is another very important fact in the antioxidant activity of peloids. It has been proved that in the conditions of stress/ pathological states a reversible oxidising modification of SH-groups is observed, which leads to an increase of the number of di-sulphide connections. This is a non-specific body reaction to extreme factors. Such modification of SH-groups changes the condition of the cellular membranes, their penetrability, the activity of the enzymes and cellular mitosis.

Experiments have shown that where SH-compounds are present in the environment of peroxidation, they are oxidised first of all, which protects other groups and molecules from oxidation. Such interchangeability of the systems of regulation of peroxidation reactions can be observed during pelotherapy, when the depression of the water-soluble antioxidants (SH-compounds, ceruloplasmin) is accompanied by a considerable increase in the fat-soluble ones, which can be viewed as the second line of defense of the body membranes against the toxic action of peroxidised compounds.

A very special role in the regulation of the reactions of peroxidation of lipids has been allocated recently to ceruloplasmin which, like SH-compounds, participates in the regulation of the earliest stages of generation of peroxidised compounds. Ceruloplasmin is part of α_2 globulins, or blue proteins. It oxidises ions of iron, ascorbic acid and phenols. It is considered that ceruloplasmin, in the combination with transferrin, forms an antioxidant system which regulates the concentration of the restored ions of iron. An increase of ceruloplasmin content can serve as proof of profound changes in the process of pelotherapy of both antioxidant enzymes and the content of the main substrates of oxidation and their promoters.

Thus, the system of antioxidant protection has a multi-level and multi-component nature. It is directed towards the suppression of activated oxygen metabolites (AOM), limitation of the speed of peroxidation of lipids and the elimination of hydrogen peroxide. The evaluation of input of various components into the antioxidant protection of the blood plasma has shown that uric acid provides 58% of such protection, SH-components – 10-21%, ascorbic acid (vitamin C) – 14%, and tocopherol (vitamin E) – 7% (Wayner D.D.M., 1987).

With the reduction of antioxidant levels in the body for various reasons, the reaction of peroxidation of lipids is stimulated, which leads to the development of a specific condition called '**oxidative stress**'.

“Oxidative stress is caused by an imbalance between the production of reactive oxygen and a biological system's ability to readily detoxify the reactive intermediates or easily repair the resulting damage. All forms of [life](#) maintain a reducing environment within their cells. The cellular [redox](#) environment is preserved by [enzymes](#) that maintain the reduced state through a constant input of metabolic energy. Disturbances in this normal redox state can cause toxic effects

through the production of [peroxides](#) and [free radicals](#) that damage all components of the cell, including [proteins](#), [lipids](#), and [DNA](#).

In humans, oxidative stress is involved in many diseases, such as [atherosclerosis](#), Parkinson's disease and [Alzheimer's disease](#) and it may also be important in [ageing](#). However, reactive oxygen species can be beneficial, as they are used by the [immune system](#) as a way to attack and kill [pathogens](#) and as a form of [cell signaling](#)?

http://en.wikipedia.org/wiki/Oxidative_stress

The products of lipid peroxidation attack various body systems selectively. This can be expressed in harmful effects of the poor environment on the body systems, which in turn leads to the **development of pathological processes in the body**, both of the inflammatory and non-inflammatory nature. (Kulikov V.Y., 1986, Kulikov V.Y., Safonov I.D. et al, 1997).

To ensure survival, it is vital for the body to establish a balance between the peroxidation of lipids which is accompanied by the process of destruction of the cell membranes through free radical formation, and antioxidant protection. Hydrogen peroxides of the fatty acids inhibit cellular mitosis (new cell formation), while lipid antioxidants stimulate it.

Peloids provide excellent natural antioxidant protection to the body cells, since they contain high levels of antioxidants which act on the body through the neuro-humoral and immune systems. These sanogenetic (restorative) effects of peloids are demonstrated by the stimulation of maximum tissue repair and regeneration, which is one of the most important factors determining its effectiveness.

Research has shown that changes of various factors happen in stages during pelotherapy. For example, the concentration of **beta-carotene, retinol, alpha-tocopherol increase by the end of treatment by 1.5-2 times of the original level**. The activity of ceruloplasmin is highest at the second stage of the treatment which demonstrates the **balneological reaction** reflecting the systematic restructuring of metabolism as a result of the reflex effect from the procedures, as well as **absorption** from the peloids of a biologically active component **carotene**.

An increase in the blood plasma of the products of peroxidation of lipids, as well as the levels of beta-carotene and alpha-tocopherol reflects the passage of the regulatory systems of the body onto a new regulatory level, which results in a positive therapeutic effect.

So, two types of reaction to pelotherapy have been observed during research:

- An increase in the blood plasma of the products of peroxidation of lipids, as well as the levels of the concentration of beta-carotene, retinol, alpha-tocopherol by the end of treatment.
- This is accompanied by an increase in the body of ceruloplasmin and SH-groups – active water-soluble antioxidants - in the middle stages of peloid therapy and their decrease by the end of the treatment.

The phase character of the changes of ceruloplasmin and SH-group levels in the blood reflects, on the one hand, exacerbation of a pathological process, which in pelotherapy is viewed as **balneological reaction** preceding recovery. On the other hand, the reduction in the blood of water-soluble antioxidants and the increase of fat-soluble antioxidants and products of peroxidation of lipids at other stages of pelotherapy demonstrates activation of peroxidation of lipids and **replacement of one antioxidant system regulating them for the other** (water-soluble for fat-soluble). **The fat-soluble antioxidants form the second line of defense for the biological membranes against toxic activity of peroxide compounds.**

A very important factor in this reaction is the **modification of the structure and functions of the biological membranes**, changes in the activity of membrane-located and lipid-dependent enzymes, in the systems of the humoral and cellular immunity, and also in the processes of absorption of

biologically active compounds.

This **mechanism of anti-oxidant activity** can be described as '**soft reaction to stress**' resulting from pelotherapy. The soft reaction, or **reaction of adaptation**, as opposed to an often violent and distressing for the body and mind stress-reaction, has the following characteristics:

- Initial increase of fat-soluble antioxidants in the blood
- Consequential modification of the lipid matrix of biological membranes
- Changes in the activity of lipid-dependent and membrane-located enzymes
- Activation of the processes of biological synthesis in the endocrine glands (adrenal, thyroid glands, the pancreas).
- Regulation of the processes of biosynthesis in the actively proliferating tissues which contain an especially high amounts of antioxidants and systems of generation of activated oxygen metabolites and products of peroxidation of lipids. Apart from the adrenal and thyroid glands, these tissues also involve bone marrow and the liver. One can also expect an increase of biosynthetic reactions dependent on the content in the body of anti-oxidants and products of peroxidation of lipids.

This absence of a stress reaction and the presence of the reaction of adaptation demonstrates adaptogenic, 'soft' properties of peloids in the treatment of various pathologies, which is to a large extent due to their high and unique anti-oxidant content.

Research data has shown that there was an absence of the stress reaction to pelotherapy with Rapan. The changes had an adaptogenic nature. This was supported by the measuring of hormones in the body at various stages of therapy.

Conclusion 7 - Activation of metabolism

During pelotherapy there is a steady increase in the blood content of tri-iodinated thyronine. This shows that the the thyroid gland is the primary point in the of utilisation of the biologically active compounds from peloids. Thyroid hormones play important functions by stimulation metabolism in the whole body. Besides, they stimulate the production of protein, as well as the sodium-potassium balance. They increase the activity of many enzymes which participate in the carbohydrate metabolism, which is increased with the increase of the thyroid hormones.

The increase of the tri-iodinated thyronine not only increases metabolism, but also affects the function of other body glands, and first of all, it affects the metabolism of steroids, such as cortisol. These interactions are directed towards the maintenance of a balance between the speeds of the synthesis of hormones, the effectiveness of their metabolic activity and the speed of their degradation or biological transformation.

In other words, the endocrine balance implies that where there is a sub-normal increase in the blood of a certain hormone, the activity of the gland producing it must slow down, and if the content is below required level, then the corresponding gland activity is stimulated.

For example, with thyrotoxicosis, there is a rise in the production and secretion of glucocorticoids by the adrenal cortex, but the body demand in these corticosteroids increases to such an extent that the increase does not cover the demand in full.

The change in the content of glucocorticoids in various extreme circumstances is well-known. There is numerous evidence that the body adapts to repeated stress by gradually reducing the stress activity of the glucocorticoid function down to the complete elimination of the reaction, which means total state of exhaustion of the processes of biosynthesis in the adrenal glands.

Glucocorticoids have various functions. The following function is the most important from the point of view of the **metabolism-boosting effect** of pelotherapy.

Glucocorticoids take an active part in the restructuring of protein metabolism. This leads to the amino acids from some tissues being mobilised for anabolic processes in other groups of tissues. As a result, the cellular 'plastic' reserve of some tissues is transported and accumulate in other tissues. This transportation and utilisation of the 'plastic' body reserve is assisted by the regulating effect of insulin.

The evaluation of the balance between cortisol and insulin in the blood plasma during pelotherapy has shown that it grows considerably by the end of the treatment. This means that by the end of pelotherapy **metabolic effects connected with the action of glucocorticoids grow considerably**. Unlike in the case of acute stress reactions when the hypothalamo-hypophyso-adrenal gets activated first of all in order to provide the body with the energy material, the delayed reaction of this system with pelotherapy demonstrates the catabolic effect of cortisol on proteins and the preparation of the building blocks for proteosynthesis, or adaptive synthesis of proteins. This starts the reaction of regeneration with pelotherapy.

Conclusion 8 - Defense against osteoporosis

A whole number of biologically active regulators, such as carbocalcitonin, in combination with peloid applications, has a very high biological effectiveness in the treatment of osteoporosis which develop in post-menopausal women.(Cecchetti M., Bellometti S., Zennaro R., Lalli A., Galzigna L., 1994).

Conclusion 9 - Detoxifying action

As has been said earlier, clays have powerful detoxifying action, due to their ability to stimulate body cells, their ionic exchange and absorption capacity.

Rapan blue and yellow clays, used in patients with lympho-venous deficiency, showed an increase of lymphatic drainage and stimulation of the detoxification function of the lymphatic nodes in areas of application. This has led to a development of a range of treatments with Rapan clays, such as body wraps, thalassotherapy, baths, applications, etc, with the purpose of increasing lymphatic drainage and detoxification of the body systems.

For more information about detoxifying properties of clays in general and Rapan clays please refer to the earlier chapter "**Detox with Clays**".

Conclusion 10 - Analgesic (pain relieving) action

The analgesic action of Rapan is one of its most important properties which is used with great success in a range of procedures. The research described here has demonstrated again and again that apart from healing, the products work on the symptoms of a disease, such as pain. They work not only by alleviating the problem and thus its accompanying characteristics, but also by releasing the opiates into the brain through the endocrine and nervous systems. Most patients have reported signs on receding and gradually disappearing pain as a result of treatments with Rapan peloids. These

observations are well documented and mentioned here more than once.

This pain relieving effect is especially valuable where pain becomes debilitating, like in back problems, other musculo-skeletal conditions such as arthritis, rheumatism, lumbago, osteochondrosis, diseases of the nervous system, and many many more.

BALNEOLOGICAL REACTION TO PELO THERAPY

I thought that the subject of balneoreaction deserved a separate chapter, since it is something that routinely happens to most people starting a course of pelotherapy. Since a balneoreaction can be either barely noticeable or very prominent, with various unfavourable effects (e.g. Tiredness, fatigue, insomnia, aggravation of original symptoms, etc, which are part of the process of recovery), a practitioner needs to know about it and be able to recognise it as a sign that the treatment is having an effect on the body.

Obviously, clients need to be questioned thoroughly before the start of the treatment, with all possible contra-indications taken into account, and monitored closely during the treatment. Also, one does not need to think that a balneological reaction is a condition of the effectiveness of pelotherapy. It may be present, but in a very mild form (please read the part above about the reaction of adaptation).

When the body is under stress, it mobilises its resources to ensure our survival. The systems of adaptation play a vital role in this. They include the central and peripheral nervous systems, as well as the endocrine system which involves the hypophyso-adrenal, sympatho-adrenal and hypophyso-thyroid systems.

Being a recognised (albeit a positive) stressor, **pelotherapy stimulates sympatho-adrenal and hypophyso-adrenal systems and the functions of the adrenal cortex, especially considering the protective and anti-inflammatory role of these hormones.**

The studies of the functional states of various body systems put under stress by pelotherapy have demonstrated that the **body response** to them is of an **integral nature**, with the main components of such response being the **reaction of stress** and **reaction of adaptation** which are sometimes difficult and even impossible to separate.

The hormones of hypophyso-thyroid system act as an instrument of the body restructuring on a different level of functioning which is demonstrated in the form of balneo-reaction as part of sanogenesis (recovery).

Balneological reaction in pelotherapy is a complex of clinical and laboratory signs displayed by the patient during a certain period of treatment with peloids.

The majority of scientists have a view that the presence of balneo-reaction cannot be considered an obligatory proof of the positive effects of pelotherapy and that it cannot predict either a positive or a negative effect. The majority of researchers also think that 50-80% of patients display some kind of balneo-reaction. Most often it is observed between procedures 4-6.

There are 2 types of reaction – general and local. The most common signs of a local balneo-reaction are **an increase of pain, local hyperemia (red skin), oedema, increased local metabolism.**

V.P.Kaznacheev (1970) has separated the following main clinical symptoms of balneo-reaction:

- Vegetative-neurosthenic: insomnia, feeling sleepy, increased irritability, fatigue, general weakness, hand tremor.
- Vegetative-vascular: increased/ lowered arterial blood pressure, changes in the pulse, heart rate, headaches, dizziness, aching in the heart area.
- Dyspepsia: unpleasant sensations in the stomach, nausea, changes of appetite, flatulence, stool disturbances.
- Skin (allergic) reactions: itching of the skin, rashes, flaky skin.
- Musculo-skeletal: joint, bone, tendon and muscle aches and pains.
- Haematological, biochemical

In some cases there are combinations of the above syndromes. D.N. Vaisfeld et al (1980) agree that balneo-reaction is a necessary factor of pelotherapy. It may have obvious clinical symptoms, or it may not.

The following classification of balneoreaction and its effects was introduced by V.P. Kaznacheev (1970):

1. Adequate: initial period of restructuring and regeneration provides maximum body survival with maximum life expectancy.
2. Inadequate: initial period of restructuring of the levels of regulation without any subsequent clinical or laboratory changes or with excessive clinical symptoms.
3. Exacerbation of the condition - activation of the clinical pathogenesis of the disease. All the metabolic and structural changes developing during exacerbation of a disease lead to a clinical improvement of the condition of the inflammatory or dystrophic nature as a result of changes in the intra- and extra-cellular elements of the connective tissues.

There are various views on balneoreaction. Most scientists agree that it forms the integral part of balneotherapy, and that its absence demonstrates reduced reactive response of the body to the course of treatments, which in turn demonstrates ineffectiveness of the treatment and poor prognosis for the patient's pathology (e.g. Increased occurrence of the acute stages, reduced periods of remission).

For this reason, scientists have developed informative criteria of balneoreaction which can be used when assessing each particular patient. It forms an integral part of the clinical and preventative medicine. For example, patients with a prominent balneoreaction displayed the phase-like changes in the blood content of ceruloplasmin, beta-carotene and SH-groups. Their concentration increased during the 3-4 procedure and decreased practically to the original levels by the end of pelotherapy.

The adaptive reaction to pelotherapy has been described earlier. It is best of all observed through the blood analysis at various stages of the treatment. The data received during pelotherapy has shown that the reaction of the blood to pelotherapy is not a typical reaction to stress which constitutes pelotherapy. The increase of lymphocytes, decrease of eosinophils and monocytes and increased rate of erythrocyte sedimentation show the changes in the neuro-endocrine status of the patients. The changes in the content of antioxidants and peroxidation of lipids revised earlier show an absence of the classical stress-reaction with pelotherapy. This shows that the system of adaptation kicks in and replaces the stress-reaction. The system of adaptation means that peloids work on the body systems mildly, by re-tuning the body systems and restoring homeostasis without causing a major stress-reaction which can be detrimental to recovery and even dangerous in some cases.

Important : The research of the peloids of Lake Ostrovnoye has demonstrated absence of a stress reaction during pelotherapy with Rapan. The changes had a 'soft', adaptogenic, nature, rather than aggravated stress reaction. This was supported by a measuring of hormones in the body of researched patients at various stages of pelotherapy, as well as by

other factors, such as the activity of anti-oxidant systems (read above information about anti-oxidant protection provided by peloids in the conclusion about anti-oxidant effect of pelotherapy).

EVALUATION OF THE EFFECTS OF PELOOTHERAPY ON SKIN CONDITIONS

Psoriasis, allergic dermatitis and **eczema** take a leading place in the structure of skin pathology. These conditions are normally accompanied by disturbances in the digestive, nervous, circulatory, lymphatic, endocrine systems.

The most common medical remedies for such conditions include anti-inflammatory drugs, steroids, immuno-suppressant medications – in various doses. However, these medicines, helping to deal with the symptoms by suppressing them, do not address the root cause of the problem and may have a number of unpleasant or even disturbing side-effects (e.g., in cases of steroid medications or immuno-suppressants).

In Russian balneology/pelotherapy, such conditions are approached holistically, as a reflection of underlying systemic disorders of the digestive, endocrine, nervous, immune systems, metabolic disturbances, etc.

In order to show the effects of peloids on dermatitis, eczema & psoriasis, I feel there is a need to make light of these skin problems, even briefly.

Eczema/ Dermatitis

Eczema and dermatitis refer to the same condition. Eczema is an itchy inflammation of the skin associated to a varying degree with such features as redness of affected areas of skin, generally dry skin, thickened in the areas that have been scratched, blisters in affected areas, symptoms of recurring skin infection (weeping or crusty areas).

Eczema/ dermatitis can be subdivided into various groups:

- **Atopic (or allergic)** dermatitis. Often associated with hay fever or asthma. People with a tendency to suffer from allergic conditions are said to be atopic. The immune system is involved in this type of eczema. It seems likely though that increasing exposure to allergens (protein substances to which people can become allergic) such as house dust mite and other environmental factors have been the main causes of an increase in instances of such types of eczema.

Atopic dermatitis normally starts in childhood, developing for many years, with periods of exacerbation and remission. It gets worse during puberty, pregnancy and the menopause, and is often accompanied by endocrine disturbances. In old age, it demonstrates itself as general itching and lichenification of large areas of the skin (Lichenification is thickening of the epidermis seen with exaggeration of normal skin lines. It is usually due to chronic

rubbing or scratching of the itchy areas).

- **Discoid** - patches of dry skin on a normal-looking skin. The affected areas have a well-defined edge and are red. On top there are often small blisters, scales or crusts. This often reflects the fact that they are infected with bacteria. Can affect any population group, but are usually associated with middle-aged or older men. In older people it is often associated with stress, alcohol, or local irritation. Infection is common in discoid eczema, so antibiotic can be prescribed to soothe down an inflammation.
- **Allergic contact dermatitis** – happens as a result of a skin contact with substances to which the person is sensitive. Skin contact with the same substance does not necessarily cause a reaction in different people. Some are sensitive to some substances, some not. The immune system is involved this type of reaction.
- **Irritant contact:** due to skin contact with irritating chemicals, powders, cleaning agents, etc. Contact with such a substance is likely to cause eczema in any person, although a degree of individual variation still exists. This type of eczema does not involve the immune system.
- **Seborrhoeic:** appears in the scalp and the skin creases between the nose and sides of the mouth. Also in infants – expressed as a nappy rash and cradle cap.
- **Asteatotic** - a name for a common type of eczema that is usually seen on the legs of elderly people. The skin is very itchy and red, with much superficial scaling and splitting. The pattern of scaling is often described as looking like 'crazy paving'. Can be caused by using excess soap, especially if it is not completely washed off. The use of diuretics is possibly an extra factor in elderly people who may need diuretics to help correct a range of other medical conditions. Rarely, an under-active thyroid gland is found as a cause.
- **Gravitational** - this type of eczema affects the lower legs and results from gravity's effect on the pressure of blood within the veins. It is thought that the effects of the reduced blood flow on the nourishment of the skin can cause eczema, which is usually located around the inner sides of each ankle.
- **Pompholyx** - extremely itchy type of eczema associated with small to large blisters that affect the palms of the hands and/or the soles of the feet. It is also associated with atopic or contact eczema. Allergic contact eczema to nickel may appear as a pompholyx reaction (itchy blisters).
- Napkin eczema (nappy rash) - in babies and young children, prolonged contact of the skin with urine results in contact eczema caused by ammonia, faeces and the effects of gut bacteria. Napkin eczema is a red rash easily diagnosed by its distribution in the nappy area and absence within the skin creases, where the nappy has not been in contact with the skin.

There are various degrees of eczema/ dermatitis:

- Acute – characterised by a rapid onset, with a quick flare-up, inflammation, blisters, possibly oozing and crust.
- Chronic – eczema which has developed over a period of time. The skin is usually thickened, scaly, crusty and red.
- Infected – eczema can become infected at any stage. The infection is not always obvious, with

the general pain, oozing and itching which is typical for eczema.

Traditional management/ treatment of eczema/dermatitis includes:

- Avoidance of known or suspected irritants
- Use of moisturisers and soap substances
- Use of corticosteroids in cases of inflammations/ flare-ups.
- Newer treatments include non-steroid ointments which work by suppressing the immune response of the skin to an irritant.
- Infections are treated with anti-microbial / anti-viral /anti-fungal medication. **(Based on a text by Dr Dan Rutherford, GP).**

Psoriasis

“Psoriasis is a common condition affecting the skin. It causes red, scaly patches. In addition it can affect the joints, nails and eyes.

Symptoms

Psoriasis can cause as little as a single dimple on one of your finger or toe nails, or affect as much as the majority of your skin surface, your joints, and your eyes. 2% of people (1 in 50) have psoriasis to some degree.

The most commonly affected areas are the back of the elbows and the front of the knees. It often affects the scalp, too, and can, indeed, affect any part of the body. The standard appearance is of red areas where the skin is thickened and crusty, often with silvery flakes, which come off easily. This appears as patches, which are known as plaques.

Types of psoriasis

- *Plaque psoriasis*. The patches most commonly seen are called plaques. They especially affect the back of the elbows and the front of the knees and the back.
- *Guttate psoriasis* is many small patches of psoriasis, all over the body, and often happens after a throat infection.
- *Flexural psoriasis* causes red, shiny areas in skin folds eg under breasts, between buttocks etc.
- *Pustular psoriasis*. Smaller, circular patches, filled with pus, appear on the palms of the hands and soles of the feet. This can sometimes cause a [fever](#), and may need treatment with an antibiotic.
- *Scalp psoriasis*. Scaling and flakes of the scalp, often particularly affecting the hair margins.
- A serious, but rare, complication of psoriasis is *erythroderma*, where large areas of the skin become hot, red, and dry. This is one of the few emergencies involving skin conditions. If you suffer from this your doctor will admit you to hospital.

Sometimes parts of the body other than the skin can be affected:

- The joints can be affected by a form of arthritis (Psoriatic arthropathy). This can affect any joint, but often it is only one joint, that becomes inflamed, at a time.

- One or more of your finger or toe nails may develop little pits as on a thimble, or may become generally more opaque and thickened (nail dystrophy).
- The eyes may become inflamed (uveitis).

Though the rash is sometimes quite obvious, **it is not infectious and cannot be caught by contact.**

Causes

Psoriasis runs in some families, but that is not to say that everyone in a family will get it. It can start at any stage in life, but most develop their first symptoms between 11 and 45 years old. Often it starts at puberty.

The cause is unknown, but as well as a genetic link, a number of things seem to trigger a first attack:

- Often a patch will start where the skin has been scratched or injured (Köbner phenomenon).
- A throat infection.
- Certain medicines or drugs.

The skin, in the patches that are affected, replaces itself at a much quicker rate than the rest of the skin normally does. Normal skin replaces itself, by pushing up new skin cells from below, over a period of 28 days, but in psoriasis this takes as little as 4 days.

As with all diseases, and problems of the skin in particular, stress can aggravate psoriasis.

Treatment

There is no "cure" for psoriasis, but many people have long periods when it does not trouble them. Sometimes it gets better on its own, but most people need some treatment.

Treatments include:

- *Moisturising creams and ointments.* Used to moisturise dry skin, and also as a substitute for soap when washing the skin.
- *Oils for the bath.* Some of these contain tar or antiseptics, which can add other benefits in addition to the moisturising effect.
- The mainstay of treatment has for years been *creams, ointments, lotions and shampoos based on tar.* These help cut down scaling of the skin and also have an anti-inflammatory effect. The main worry is their smell!
- Preparations to be applied, *based on Vitamin D* (eg Calcipotriol and Tacalcitol) have been found to be very effective, and are probably becoming the first choice with patients and doctors alike.
- *Applications based on salicylic acid* (which was originally developed from willow bark, and is related to [aspirin](#)) are helpful at removing thick layers of over-grown skin and scales.
- *Sun shine* has been known, for years, to help. A development of that, especially as dermatologists are always very suspicious of the sun, is the controlled use of *ultraviolet radiation* often given with a medication (a psoralen) to prime the skin. (PUVA, Psoralens with long wave ultraviolet radiation.)
- Stronger medications - prescribed only by a dermatologist, and carefully monitored - are occasionally used and can be very helpful. eg Methotrexate.
- Mild steroid creams and ointments, used for short periods, for psoriasis affecting the face or body folds. (Stronger preparations and steroids by mouth are sometimes used, but this should be under specialist supervision.)”.

<http://www.medinfo.co.uk/conditions/psoriasis.html>

PELOIDS OF LAKE OSTROVNOYE AND SKIN CONDITIONS

For many years people have been using peloids of Dead Sea to treat a number of skin conditions, such as dermatitis/eczema and psoriasis. The effectiveness of this natural method is obvious, with excellent results for most people.

The chemical composition of peloids of Lake Ostrovnoye (brine, or natural salt solutions of the lake) is close to Dead Sea composition (general mineralisation, content of bromine, manganese, sulphides, iodides, etc.). This served as a foundation of the research of the clinical effectiveness of the brine when used in the treatments of patients suffering from psoriasis and atopic dermatitis.

SKIN DISORDERS - RESEARCH 1

Total number of patients used for this research: 17 (3 men and 14 women).

Number of patients suffering from chronic dermatitis: 9. This includes:

Vulgar psoriasis - 3

Exsudative psoriasis - 2

Chronic eczema – 2

Diffuse neurodermatitis – 2

The patients were observed by the chief consultant of the sanatorium Krasnozersky (with the use of Rapan peloids), on the basis of the chair of dermavenerology of the Novosibirsk Medical Academy, since all the patients were residents of Novosibirsk.

The repeat examination of the patients was conducted six weeks after the course of treatment. This examination showed full regression of the symptoms with 6 patients, while 3 patients showed considerable improvement of the skin condition and processes. Two patients showed moderate exacerbation of chronic eczema, which meant that the treatment was started at the stage of incomplete remission.

Two patients with psoriasis showed exacerbation of symptoms 3.5 months after the treatment. It was characterised by symptoms of a lesser degree than usual. The research is ongoing.

SKIN DISORDERS - RESEARCH 2

The research group included 12 patients with vulgar psoriasis (8 men and 4 women, aged 39-66 years old), with the PASI index into the progressive stage from 25.6 to 87.4. The average frequency of exacerbations from continuous to once a year.

The group also included 15 patients with atopic dermatitis - 4 men and 11 women aged 14 to 36 years old, with the SCORAD index during exacerbation from 32.5 to 67.2, and with the average frequency of exacerbations from continuous to once or twice a year. All patients had prominent

lichenification of the skin.

The brine was used as a 1% solution every other day and 10% compresses daily, which was combined with the ultraviolet irradiation of the skin for the patients with psoriasis in the stationary or regressive stage and for the patients with atopic dermatitis in the stage of receding exacerbation (accompanied by lichenification of the skin).

On the whole, the treatment was tolerated well by the researched group. Three patients with psoriasis (25%) and 6 patients with atopic dermatitis (40%) have noticed inconsiderable tingling and moderate itching of the affected areas at the first contact with the brine solution. By the 2-5th procedure, these symptoms decreased or disappeared completely without additional therapy. Seven patients who had arterial hypertension, did not show any increase of it during the treatment. Four patients demonstrated a tendency towards its reduction. All the patients had evaluated this method of treatment as simple and convenient. 22 patients (81.9%) said they wanted to repeat the treatment in case of exacerbation.

In the psoriasis group the psoriasis plaques (patches) regressed from the periphery to the centre (6 patients - 50%) and diffused (6 patients, 50%) in 2.5 – 5-week period.

On the 5-7th day the thickening and itching decreased, accompanied by a slight increase of the erythema and flakiness of the skin and further decrease by the 3-4th weeks.

In the atopic dermatitis group the symptoms were decreasing on the 3-6th week from the beginning of the treatments. On week 1 there was a decrease in oedema, lichenification, excoriation. The erythema increased on the 1st week and decreased on week 2 - 3.

After the treatment was completed, 8 patients with atopic dermatitis (53.3%) and 8 patients with psoriasis (66.6%) had a stable remission of the disease (3-6 months). 7 patients with atopic dermatitis (46.6%) and 4 patients with psoriasis (33.3%) had a slight exacerbation of the disease (SCORAD: 10 - 18; PASI: 12.5 – 32.5 respectively).

The results obtained in this research have allowed to make the following conclusions:

- Combined use of the salt brine and ultraviolet irradiation of the skin can be recommended as a highly effective method of treatment for the patients with psoriasis and atopic dermatitis.
- This method promotes the reduction of old plaques in psoriasis patients and lichenifications in patients with atopic dermatitis, the onset of remissions or reduction of follow-up exacerbations.
- **The treatment with salt brine has a number of advantages:**
 1. High effectiveness
 2. Non-medicamentous approach

3. Excellent toleration of the treatment by patients
4. Absence of noticeable balneoreaction
5. Relatively low cost of treatments

THE USE OF BRINE BATHS IN THE TREATMENT OF PATIENTS WITH SKIN CONDITIONS AND DISEASES OF THE INTERNAL ORGAN

Rapah (brine) is a high mineral salt solution of the unique sources of therapeutic peloids in Western Siberia. Rapah is a natural component of peloids and represents a complex structure of plant and animal matter combined with minerals. "Dry rapah" (salt crystals) can be produced by removing water from the solution by a non-thermal method. This makes it possible to preserve all the chemical ingredients encountered in the natural solution.

Rapah has an anti-inflammatory, anaesthetic, bactericidal, scar-reducing properties, improving and restoring circulation in the skin and internal organs, regenerating collagen, which improves skin elasticity.

The following methods were used by the physiotherapy department of a clinic belonging to the Siberian Branch of the Russian Academy of Sciences with the application of dry rapah of varying concentrations for various procedures, such as general baths, local and general wraps, electrophoresis, phonophoresis, SMT-phoresis.

1. General Baths

Indications for use:

- Musculo-skeletal disorders (osteoarthritis, osteochondrosis, other degenerative diseases of the spine)
- Disorders of the Peripheral nervous system (neuropathy, radiculitis)
- Skin disorders (neuro-dermatitis, eczema, psoriasis)

Contra-indications:

General for physiotherapy: oncology, cardiac deficiency of the 1st and 2nd degree, acute inflammatory conditions, systemic diseases, etc.).

Application:

- 1% solution of rapah (1kg of Rapan to 100 litres of water). Water temperature: **26-38°C** (depending on the general state of health).
- **Baths of neutral (body) temperatures (35-37°C)** improve cellular metabolism, enzymatic and trophic processes, regulate the functions of the Central Nervous System, lower arterial blood pressure and muscle tone.

- **Warm baths (37-39°C)** increase metabolic rate, functioning of the excretory organs, raise the blood pressure. Time of the procedure: 15 minutes. Course of 10-15 baths, daily or every other day. In the evening baths should be taken 1.5-2 hours before bedtime.

RESEARCH 3 - RESULTS

The course of treatments with Rapan baths was undertaken by 42 people. From 3rd to 5th procedure there was a decrease in pain, sedative effect and stabilisation of the arterial blood pressure, as well as **considerable improvement of the skin condition**. No side effects were observed or reported.

2. General body wraps

Indications for use:

These procedures were conducted for the reduction of excessive weight. 1% Rapan solutions were used, which were later replaced by 5% solutions. Two patients were selected for the treatment.

No side effects were observed or reported. The patients reported no discomfort during the procedures. Weight loss achieved was 900g and 700g respectively.

Application:

The patient was wrapped up with a sheet soaked in the brine solution (100g of dry rapah to 10 liters of water or 500g to 10 litres of water depending on the desired concentration). They were then wrapped up in a waterproof sheet and a wool blanket. The length of the procedure: 60-70 minutes. The course of treatments: 10 procedures, once a day.

Contra-indications:

General contra-indications to physiotherapy, individual intolerances, acute inflammatory conditions.

3. Compresses

Indications for use:

- Musculo-skeletal disorders (osteocondrosis, arthrosis, osteoarthritis)
- Skin disorders (psoriasis)

Applications:

Soak a gauze or other cotton material in the warmed-up Rapan salt solution, apply to the area and wrap up with either grease proof paper or cling film. Wrap it up with warm cloth in order to keep the area warm and ensure the desired effect. Leave for 30-60 minutes. For the first 2 procedures use 3% solution (1tsp per 1 glass/200ml of water), then 10-20% (1-2 tbsp per 1 glass/200ml of water).

Course of treatments: 10-15 procedures, daily or every other day.

RESEARCH 4 – RESULTS

In total, this treatment was used for 2 patients with arthritis, 1 patient with osteochondrosis, 3 patients with psoriasis.

The patients with osteochondrosis and arthritis displayed exacerbation of the disease, with the aggravation of pain after 3-4 procedures (balneo-reaction), with consequent steady improvement 1-2 days later. Patients with psoriasis displayed steady regression of the condition and improvement in the skin appearance.

4. Electrophoresis with rapah

Indications for use:

Musculo-skeletal conditions in the stage of incomplete remission

Contra-indications:

Sharp pain, general contra-indications to physiotherapy.

Method of use:

The current density is 0.02 – 0.03 MA/cm². Duration of the procedure: 2-25 minutes, every day, 1-12 procedures in total.

Each procedure requires 60-80 ml 1, 3 or 6% solution of Rapan salt. The pain decreases on the 3rd - 4th procedure. Some patients display reaction to the treatment starting from 5-6th procedure, which demonstrates itself in the increase of the pain syndrome without worsening of the general condition. The reaction lasted 1-3 days. By the end of the course of treatments the pain disappeared.

When the 6% solution was used, local erythema and itching were observed by the 2nd -4th procedure. This was the reason to cancel the procedures. When 15 solution was used, there were no such reactions.

5. Ultraphonophoresis

Indications for use:

Reflex neurodystrophy, musculotonic syndrome in the stages of incomplete remission.

Contra-indications:

General for physiotherapy, symptoms of the increase of compression of the nerve root or the spinal cord.

Method:

!5 solution of Rapan salt/glycerin solution is used for this procedure (1g of salt to 78.6ml of glycerin). The solution is applied with a dropper to the skin.

The treatment starts with the use of the impulse regime on the para-vertebral zones (4 miliceconds per impulse), with the intensity of 0.2 – 0.4 watt/cm², 3-5 minutes per zone. Later on, the pain areas are treated in the continuous regime with the intensity of 0.4-0.6 watt//cm². Total procedure takes 12-15 minutes. Total number of procedures – 10-12, daily or every other day.

Nine patients were treated with this method. Some patients had a balneo-reaction which expressed itself as general malaise, increase of pain, lasting 1-3 days. By the end of the treatment the reaction was replaced with the positive changes throughout.

AND IN THE CONCLUSION...

All this indicates that irrespective of the methods of Rapan use, researched patients with musculo-skeletal, skin and other disorders have displayed remarkable positive changes towards the end of their treatments.

Rapan products by right take a leading place among peloids in Russia due to their unique origin, geological history, physico-chemical and biological properties which allow the products to be used at Russian spas and sanatoria to treat a variety of diseases using the products obtained entirely from nature, outstanding medical personnel and the long-standing traditions of the use of peloids in Russian medical spas.

However, Rapan products are not limited to medical use. Their powerful therapeutic properties and the fact that they work on the body systems holistically have made the products extremely popular with beauty spas and salons in the development of various beauty treatments. Beauty practitioners and product manufacturers with a vision are looking into ways of making more and more of their treatments and products as natural as possible, with the consumer demand for such products increasing fast.

As has been shown in this book, Rapan has anti-inflammatory, bactericidal, anti-ageing, anti-oxidant, bio-stimulating, detoxifying effects on the whole body, including the the skin. The products work by being absorbed through the skin into the underlying tissues and into the blood, which delivers them to all the cells of all the body organs and structures to perform the important work of healing. In its turn, the body returns the favour by improving, regenerating, rejuvenating and nourishing the structure that keeps it alive and well.

What better characteristics can a product range have, apart from being 100% natural? Use it, enjoy it, and help us spread the word about this wonderful gift of nature. It has been so far unknown to the world outside of Russia. It is time to make it available to everyone who needs it.

Appendix A - Comparative data (in points) of the subjective clinical changes in the patients with osteoarthritis of the spine (the main and control group) before and after treatment

The degree of symptoms expressed in points	Main group before the treatment	Control group before the treatment	Main group after the treatment	Control group after the treatment
Pain in the cervical part of the vertebral column	2.37 ± 0.11	2.61 ± 0.15	1.75 ± 0.11	2.35 ± 0.15
Numbness in the hands & arms	2.04 ± 0.12	0.2 ± 0.17	1.41 ± 0.9	1.65 ± 0.15
Pain in the hand & arm joints	2.03 ± 0.10	1.7 ± 0.15	1.55 ± 0.09	1.52 ± 0.14
Feeling of cold hands	1.78 ± 0.12	1.61 ± 0.14	1.38 ± 0.09	1.22 ± 0.09
Headaches	2.01 ± 0.12	2.39 ± 0.15	1.31 ± 0.07	1.78 ± 0.14
Excessive perspiration of the extremities	1.79 ± 0.12	1.26 ± 0.13	1.33 ± 0.09	1.09 ± 0.06
Weakness in the hands & arms	1.67 ± 0.11	1.43 ± 0.12	1.22 ± 0.07	1.3 ± 0.12
General weakness	1.95 ± 0.12	1.7 ± 0.17	1.2 ± 0.06	1.57 ± 0.14
Pain in the spine	2.94 ± 0.03	3.0 ± 0	2.04 ± 0.09	2.65 ± 0.1
Pain in the joints	2.0 ± 0.10	2.22 ± 0.17	1.48 ± 0.09	2.0 ± 0.15
Numbness in the legs & feet	1.97 ± 0.11	2.43 ± 0.14	1.25 ± 0.07	2.13 ± 0.14
Disturbances of the function of the organs in the lower abdomen	1.56 ± 0.11	1.13 ± 0.07	1.37 ± 0.09	1.04 ± 0.04
Sleep patterns	1.57 ± 0.11	1.83 ± 0.14	1.34 ± 0.09	1.48 ± 0.11
Total points	25.7 ± 0.74	25.3 ± 0.84	18.59 ± 0.49	21.8 ± 0.84

Appendix B -Comparative data (in points) of the objective clinical changes in the patients with osteoarthritis of the spine in the main and the control group

Symptoms in points	Main group before the treatment	Control group before the treatment	Main group after the treatment	Control group after the treatment
The Lasegue's* Sign	2.43±0.08	2.39± 0.1	1.46±0.07	2.09±0.09
Pain in the vertebral processes	1.76±0.11	1.52±0.11	1.12±0.04	1.22±0.09
Muscle tension in the back	1.07±0.04	1.13±0.07	1.03±0.02	1.09±0.06
Pain in paravertebral points	2.45±0.10	2.04±0.13	1.42±0.07	1.74±0.11
The Neri **syndrome	1.17±0.05	1.30±0.13	1.03±0.03	1.22±0.09
Total points	9.92±0.21	8.39±0.3	7.09±0.13	7.35±0.27

* **Lasègue's sign** is a [medical sign](#) that involves "straight-leg raising", or SLR. It is of use in diagnosing lumbar disc disorders and tension of the [sciatic nerve](#). It was named after [Charles Lasègue](#) (1816-1883).

http://en.wikipedia.org/wiki/Las%C3%A8gue's_sign

****Neri**–. Barré–Lieou syndrome - chronic arthritis of the cervical vertebral column.

REFERENCE MATERIALS

1. Adaptogenic and medicinal properties of peloids, Novosibirsk Medical State Academy, Novosibirsk, 2001. Edited by Prof. V.Y.Kulikov.
2. Sanogenetic Mechanisms of Peloid Therapy, Novosibirsk Medical Institute, Novosibirsk, 1999. Edited by Prof. V.Y.Kulikov.
3. Sanatoria and Resorts' Part in the Processes of Rehabilitation of the Population of the Siberian Region (Materials of the Regional Scientific-Practical Conference, 22-24 October 2003). Novosibirsk, 2003.
4. Rapan Product Range Manufacturer's website (Siberian Technologies V.A.S., Novosibirsk) - www.rapansalt.ru. General Director – Mr Semenov V.A.

CONTENTS

PART I

INTRODUCTION.....	2
RAPAN RANGE – GENERAL INFORMATION.....	3
COMPETITIVE ADVANTAGES OF THE RAPAN PRODUCTS.....	4
GENERAL BENEFITS OF RAPAN PRODUCT USE.....	4
DIFFERENCES BETWEEN RAPAN PRODUCTS.....	5
DESEASES TREATED WITH RAPAN AT RUSSIAN SANATORIA	6
WHAT YOU CAN EXPECT TO FEEL AFTER USING RAPAN PRODUCTS.....	6
RAPAN® NATURAL SALT.....	7
RAPAN® NATURAL MUD.....	9
RAPAN® BLUE & YELLOW CAMBRIAN CLAYS	14
ADDRESSING HEALTH PROBLEMS WITH RAPAN – THE NATURAL OPTIONS	19
THERAPEUTIC COMPESSES/POULTICES.....	20
BATHS: HEALTH & BEAUTY.....	21
BODY WRAPS – RECIPES.....	23
GARGLES / MOUTHWASHES WITH RAPAN.....	25
MOUTH/ NOSE WASHES....	26
VAGINAL DOUCHES.....	26

ENEMAS	27
FOOTBATHS.....	27
MASSAGE	28
THERAPEUTIC COSMETIC PRODUCTS WITH RAPAN - masks, toners, face/body sprays, exfoliators, body washes, body wraps, bath recipes.....	30
RAPAN FOR OILY / ACNE PRONE SKIN	30
RAPAN FOR DRY/MATURE/ SENSITIVE SKIN.....	34
RAPAN FOR NORMAL SKIN.....	37
RAPAN FOR PROBLEM SKIN - ECZEMA, DERMATITIS, PSORIASIS, DANDRUFF.....	39
SLIMMER BODY AND BETTER SKIN WITH RAPAN – BODY WRAPS.....	42

DETOX WITH CLAYS

SMECTITE CLAYS – WHAT MAKES THEM SPECIAL?	44
SKIN – ITS ROLE IN DETOXIFICATION.....	46
CLAY – THE BEST DETOXIFYING AGENT?.....	47
INTERNAL DETOX WITH CLAYS	47
EXTERNAL DETOX WITH CLAYS	47
HOW TO USE CLAYS FOR EXTERNAL DETOX	48
DETOX WITH RAPAN	50

PART II

RAPAN – SCIENTIFIC RESEARCH

THE COMPARATIVE SPECTRAL ANALYSIS OF THE PELOIDS OF THE LAKE OSTROVNOYE (RAPAN), LAKE KARACHI AND DEAD SEA	51
ANTI-AGEING PROPERTIES OF RAPAN	55

RAPAN – CLINICAL RESEARCH

CLINICAL EFFECTS OF PELOOTHERAPY IN THE TREATMENT OF PATIENTS WITH SYSTEMIC DISEASES

WHY AND HOW PELOIDS WORK.....	57
PELOOTHERAPY AND DISORDERS OF THE MUSCULO-SKELETAL SYSTEM.....	59
RESEARCH CONCLUSIONS ABOUT THE THERAPEUTIC EFFECTS OF RAPAN PELOIDS	60
BALNEOLOGICAL REACTION TO PELOOTHERAPY.....	68
EVALUATION OF THE EFFECTS OF PELOOTHERAPY ON SKIN CONDITIONS.....	70
PELOIDS OF LAKE OSTROVNOYE AND SKIN CONDITIONS.....	74
THE USE OF BRINE BATHS IN THE TREATMENT OF PATIENTS WITH SKIN CONDITIONS AND DISEASES OF THE INTERNAL ORGAN	76
AND IN THE CONCLUSION.....	79
APPENDICES.....	80
REFERENCE MATERIALS	81
CONTENTS.....	82

WHERE TO BUY RAPAN PRODUCTS

info@medicina-uk.com

<http://www.naturalrussia.com>.

Medicina UK ltd

Registration office:

145-147 St John Street

London

EC1V 4PY

Telephone: 0208 2052369

Fax: 0208 2052346

I WISH THE BEST OF HEALTH TO YOU ALL!



**GALINA ST GEORGE, NATURAL HEALTH PRACTITIONER
RESEARCHER AND WRITER
GENERAL DISTRIBUTOR OF RAPAN PRODUCTS
galina@medicina-uk.com**