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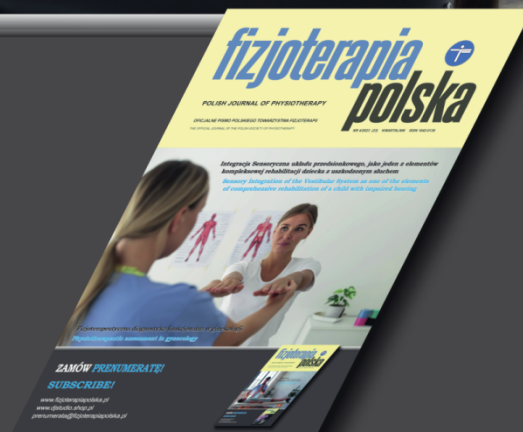
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Thalassotherapy as a multidirectional form of marine resources therapy

Talasoterapia jako wielokierunkowa forma terapii zasobami morza

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Abstract

Thalassotherapy is a treatment that uses the natural gifts of the sea (climate, air, sea sand, algae, some species of sea fish, mother of pearl) and physical factors (hydrotherapy, heliotherapy, aerosol therapy, music therapy, kinesitherapy and others). It is mainly intended for people who are stressed, overtired and have sleep problems. Thalassotherapy is also used in the treatment of rheumatism, back pain, lung diseases, heart diseases and skin dermatoses, such as psoriasis or atopic dermatitis. These treatments are widely used in wellness centers as care and therapeutic treatments for problematic skin. In cosmetology, preparations of marine origin are also used in the form of masks, peeling creams intended for dry, oily, gray, mature or poorly nourished skin.

Key words:

thalassotherapy, marine climate, gifts of the sea

Streszczenie

Talasoterapia jest kuracją, która korzysta z naturalnych darów morza (klimat, powietrze, piasek morski, algi, niektóre gatunki ryb morskich, masa perłowa) oraz czynników fizykalnych (hydroterapia, helioterapia, aerozoloterapia, muzykoterapia, kinezyterapia i inne). Przeznaczona jest głównie dla osób zestresowanych, przemęczonych, u których pojawiają się problemy ze snem. Talasoterapia znalazła również zastosowanie w leczeniu reumatyzmu, bólu pleców, schorzeń płuc, chorób serca oraz dermatoz skórnych tj. łuszczyca lub atopowe zapalenie skóry. Na szeroką skalę kuracje te wykorzystywane są w ośrodkach odnowy biologicznej w postaci zabiegów pielęgnacyjno-leczniczych dla skór problematycznych. W kosmetologii stosuje się również preparaty pochodzenia morskiego w postaci masek, kremów, peelingów przeznaczonych dla skóry suchej, tłustej, szarej, dojrzałej lub mało odżywionej.

Słowa kluczowe:

talasoterapia, klimat morski, dary morza

Introduction

The term thalassotherapy translates as sea therapy. From Greek, thalassa means sea, while therapea means therapy or care. The comprehensive effect of thalassotherapy can be defined as a treatment that includes a series of treatments using the natural gifts of the sea, which include, among others: climate, ionized air, sea sand, algae, some species of sea fish and mother of pearl. In addition to natural resources, thalassotherapy also includes physical factors, such as hydrotherapy, peloidotherapy, heliotherapy, aerosol therapy, music therapy, kinesitherapy and others [1, 2].

Thalassotherapy is intended mainly for tired and stressed people because its aim is to eliminate nervousness and sleep disorders. The method is also used in the treatment of rheumatism, back pain, lung diseases and bronchial asthma, heart and blood vessel diseases, and skin dermatoses, such as psoriasis or atopic dermatitis. Contraindications to using thalassotherapy treatments are allergies to ingredients used in the preparations (e.g. seafood), hyperthyroidism, advanced cancer, tuberculosis, kidney diseases, and mental disorders [1, 3].

Aim

The aim of the work is to present thalassotherapy as a comprehensive therapeutic method combining a number of natural therapies.

Elements of thalassotherapy

The comprehensive effects of thalassotherapy include: climatotherapy, hydrotherapy and balneotherapy, aerosol therapy, peloidotherapy, heliotherapy, music therapy, kinesitherapy, phytotherapy and the use of raw materials of animal and organic origin [1, 4]. Therapies used within thalassotherapy are presented in Table 1.

Table 1. Types of therapy with gifts of the sea and examples of their therapeutic use

Type of therapy	Examples of therapeutic use
Climatotherapy, including heliotherapy, aerosol therapy and music therapy	Walking along the seaside accelerates metabolism, stimulates blood-forming processes, strengthens immunity and synthesizes vitamin D. While staying in the coastal area, you inhale an aerosol composed mainly of sea water, iodine, bromine, calcium and magnesium, and listening to the sounds of the sea relaxes.
Hydrotherapy and balneotherapy	<ul style="list-style-type: none"> – treatments in swimming pools and bathtubs, – underwater massages, – water jet treatments, – kinesiotherapy baths, – pearl, oxygen and aromatic baths.
Peloidotherapy	<ul style="list-style-type: none"> – masks, – creams, – compresses, – peels.
Peloidotherapy	<ul style="list-style-type: none"> – gymnastics, – swimming in the sea.

Type of therapy	Examples of therapeutic use
Phytotherapy	Use of cosmetic preparations obtained from marine and seaside plants. Marine algae have moisturizing, firming, soothing, sebum-regulating, brightening, bacteriostatic, antioxidant, oxygenating and regenerating properties, among others. They are also used as a dietary supplement in the treatment of obesity, acne and diabetes.
Raw materials of animal origin	<ul style="list-style-type: none"> – sponges used in body care treatments, – sea silk used in hair care, – sea shells are used for massage and exfoliation of calloused epidermis, – sea pearls (pearl powder and mother-of-pearl) are a source of about 18 amino acids, minerals and trace elements, used in cosmetic preparations, they improve skin hydration and protect against UV radiation, they also have lifting, exfoliating and brightening properties, – sea fish and seafood are a source of essential fatty acids and have a beneficial effect on the condition of the skin, hair and nails, – fat obtained from the liver of sea fish, used in the treatment of bedsores, frostbite, burns, ulcers and difficult-to-heal wounds, – caviar, in addition to its valuable nutritional properties, is also found in cosmetics for face and body skin care.
Inorganic raw materials	<ul style="list-style-type: none"> – sea salt used in cosmetic treatments, brine baths, coarse-grained peelings, and also in the form of a salt cave, – sea mud is used to care for oily skin and is used to treat psoriasis, atopic dermatitis, vitiligo and mycosis.

Source: Kieltyka-Dadasiewicz A., Gorzel M., *Elementy talasoterapii i możliwości ich rozwoju w kosmetologii. Kosmetologia Estetyczna* 2015; 1(4), 43-48

Climatotherapy is a method that uses mesoclimate factors, i.e. air, temperature, atmospheric pressure, and local solar radiation [5].

Hydrotherapy and balneotherapy are methods related to a spa stay at the seaside or recreation of treatments in swimming pools and bathtubs. The most popular hydrotreatments include: total, partial, kinesiotherapy, pearl, oxygen, aromatic baths and underwater massage. Spas use treatments using a stream of water (i.e. pouring, fixed or moving showers) or fabrics (wrapping, compresses, compresses).

Aerosol therapy means inhaling suspensions of fluid particles in a constant gas environment and does not depend on the patient's will while staying at a seaside resort. The greatest amount of it appears during storms and windy weather. On days when the wind blows from the sea, seaside walks are especially recommended for people with asthma or other respiratory diseases. The aerosol is composed mainly of seawater, iodine, bromine, calcium and magnesium, and is created by the force of nature when waves hit the shore [1, 5].

The advantages of aerosol therapy include:

- relaxation,
- reduction of stress and nervous tension,
- moisturizing and cleansing the respiratory tract,
- liquefaction of residual mucus, which makes expectoration easier,
- strengthening heart contractions,
- improvement of blood circulation,
- improvement of blood supply to mucous membranes and skin,
- improved appetite,
- mobilization for physical activity,
- improved immunity,
- improving metabolism,
- hardening of the body [5].

Peloidotherapy is based on the use of natural marine peloids in the form of sea silt and mud. Black mud from the Dead Sea sediments is particularly famous in cosmetology (Fig. 1). It includes: kaolin, bentonite, magnesium, potassium, calcium, feldspar, bromides, quartz, copper, zinc and products of plant origin. It comes in the form of masks, creams and compresses. It has exfoliating, cleansing, astringent and disinfecting properties. It is intended for the care of all skin types, with particular emphasis on problem skin (acne vulgaris, seborrhea, atopic dermatitis). [7].

Heliotherapy involves exposing the body or parts of it to natural solar radiation in the infrared and ultraviolet range. This method, among others, accelerates metabolism, additionally supports hematopoietic processes and increases immunity. At the seaside, there is a high intensity of radiation, which is reflected from the water and sand. A big advantage of heliotherapy is the synthesis of vitamin D, which is responsible for, among others, for bone development [6].



Fig. 1. Peloidotherapy treatment Wadi Mujib beach, Dead Sea, Jordan (own source)

Music therapy is a therapeutic method based on the healing effect of sound on the human body. We distinguish between active music therapy, which creates sounds (e.g. singing) and receptive music therapy, which involves perceiving sounds (e.g. the sound of the sea). The goal of music therapy is to relax and unwind. Thalassotherapy uses passive listening to sea sounds, e.g. the sound of waves or the sound of seaside birds [1, 8].

Kinesiotherapy involves treatment with movement. During a stay at a health resort by the sea, kinesiotherapy is used in the form of gymnastics, swimming or playing in the water [6].

Phytotherapy is based on treatment with plants. In the case of thalassotherapy treatments, cosmetic preparations obtained from sea and seaside plants are used [1].

Algae (Latin: Algae, Greek: Phykos), called algae or seaweed, occur in both warm and cold seas. Algae contain mainly: vitamins (A, C, E and B group), amino acids (alanine, asparagine, lysine, serine, glycine), proteins (aosa protein), macro and microelements (potassium, nitrogen, sodium, phosphorus), chlorine, sulfur, iron, calcium, magnesium, zinc, iodine, bromine, copper), polyphenols, sorbitol, essential fatty acids (mainly linolenic acid), mannitol, hyaluronic acid, chondroitin sulfate, polysaccharides (alginic acid, salts potassium, sodium, magnesium). Compositions of ingredients in individual algae depend on species and place of occurrence [9-14]. Preparations with algae have: moisturizing, firming, soothing, sebum-regulating, brightening, bacteriostatic, antioxidant, oxygenating and regenerating effect. Algae are used to treat obesity, body shaping, reduction of stretch marks and cellulite, treatment of acne vulgaris and psoriasis. Algae are commonly used in cosmetology and as a dietary supplement. They may be in the form of micronized, dried algae powders, water and lipid extracts, and alginates.

The most popular algae include:

1. Sea lettuce – green algae (*Ulva lactuca*) – an alga used in the care of mature skin. The algae has anti-inflammatory, antibacterial and antifungal properties. This alga stimulates the biosynthesis of type III collagen and stimulates cellular metabolism.
2. *Laminaria digitata* – a brown algae, has a strong moisturizing effect and is used in hair care.
3. Bladderwrack (*Fucus vesiculosus*) – belongs to the brown algae and has anti-radical, draining, cleansing and anti-cellulite properties.
4. *Chondrus crispus* – is a red algae that softens, moisturizes and regenerates the skin.
5. Red algae (*Asparagopsis armata*) – has antibacterial properties and prevents blood from clotting in blood vessels.
6. Brown algae (*Padina pavonica*) – stimulates fibroblasts, has regenerating and antioxidant properties.
7. Microalgae (*Skeletonema costatum*) – soothes and eliminates skin irritations.
8. *Spirulina* (*Spirulina platensis*) – is a blue-green algae that moisturizes, smoothes, regulates the functioning of the sebaceous glands, additionally nourishes, heals, improves skin tension and has anti-inflammatory properties [10-14].

Thalassotherapy methods also include amber therapy, which is a fossil resin from coniferous trees in the Baltic Sea and from the Kaliningrad Oblast of Russia (it accounts for 90% of all world resources). Cosmetic raw materials used in cosmetology are: amber extract, succinic acid, dry distillation products and ground amber. The most important component of amber is succinic acid (1,4-butanedioic acid), which reduces swelling and removes free radicals. This ingredient is used in shampoos, masks, creams, ointments, balms and scrubs. Amber has following effects: moisturizing, nourishing, protective, improves skin tone, reduces wrinkles and creates a natural sun filter [1, 3, 15].

Raw materials of animal origin include: sponges, sea silk, sea shells, pearls, sea fish and seafood, and caviar [4].

Sponges are multicellular animals that live only in aquatic environments. Due to the fact that it is a hypoallergenic raw material, it is used in exfoliation treatments and for body care [4].

Sea silk is a rapidly healing secretion of certain marine bivalves. Sea silk is mainly used in hair care, because it gives it shine and makes combing easier, and in moisturizing preparations for the face and body. Moreover, it has anti-inflammatory and anti-allergic properties [4].

Sea shells are products of marine molluscs, such as snails, mussels and cephalopods. In addition to their aesthetic properties, shells also have a therapeutic effect because they are used for body massage, for example, due to their smooth surface. The effect of such a treatment relaxes and relaxes the muscles. Crushed shells are used to exfoliate keratinized epidermis [1, 3, 16].

Sea pearls are formed as a result of oysters' defense reactions against foreign bodies that penetrate the shell. They are a source of about 18 amino acids, minerals and trace elements (calcium, magnesium, iron, copper, zinc). The main building block of pearls is calcium carbonate. Powdered pearls in cosmetic preparations improve skin hydration and protect against UV radiation. Cosmetics based on pearls and mother of pearl have a lifting, exfoliating and illuminating effect, while in beauty cosmetics the pearl gives a glow [4, 14].

Sea fish and seafood are not ingredients of care cosmetics, although they have a beneficial effect on the condition of the skin, hair and nails. Seafood (i.e. shrimp, crab, squid, oysters) are a source of zinc (Figure 2). Chitin is obtained from the skeleton of shrimps and crabs, which is used to produce chitosan with a slimming effect. Chitin is used in anti-aging preparations because it contributes to the production of collagen and elastin. Mediterranean fish (i.e. tuna, mackerel, flounder, shark) are a source of fatty acids belonging to EFAs and natural collagen. Fish fat obtained from the so-called liver cod liver oil is used in dermatology to treat bedsores, frostbite, burns, ulcers and difficult-to-heal wounds. In the production of color cosmetics, cod liver oil is used to produce lip pencils [1, 3, 4, 14].

Caviar is salted fish roe. In addition to its valuable nutritional properties (used in Russian and French cuisine), this raw material is also found in cosmetics for facial and body skin care. Caviar constricts blood vessels, reduces the sensitivity of thermoreceptors in the skin,



Fig. 2. Seychelles black oyster farming on Praslin Island (Black Pearl Farming, Seychelles), (own source)

soothes irritations, has a protective function, evens out the skin tone, moisturizes and nourishes the skin. It is recommended mainly for clients with dry, mature and vascular skin. Caviar contains amino acids, proteins, vitamins (A, B5, D, E), minerals (i.e. phosphorus, potassium, iodine, silicon, selenium, magnesium, zinc) [17].

Inorganic raw materials used in thalassotherapy include: sea salt, sea sand and mud from the seabed [4].

Sea salt is obtained by evaporating it from sea water and contains about 80 chemical elements. Its action is multidirectional as it regulates the functioning of the sebaceous glands, is antibacterial, cleansing (because it releases toxins), accelerates metabolism in the subcutaneous tissue, is responsible for the regeneration of collagen and elastin fibers, improves blood supply, oxygenates and nourishes the skin. Sea salt is used in cosmetic treatments to reduce cellulite, stretch marks and acne vulgaris. Brine baths (Fig.3), coarse-grained body scrubs and refreshing foot salt are also popular. Additionally, gallotherapy is also used (staying in rooms filled with large amounts of salt), e.g. in the form of a salt cave. These treatments produce similar effects to spending time at the seaside [1, 18].

A walk on a sandy beach causes the skin of feet to exfoliate and also alleviates the problem of excessive sweating. Sea sand, by pressing the receptors located on the sole, gives an effect similar to reflexology and also prevents the formation of varicose veins [3].



Fig. 3. Baths and brine pools (Salinas de Burgas) located on the Black Sea, Burgas, Bulgaria (own source)

Mud used in cosmetology contains magnesium, potassium, calcium, copper, bromides, quartz, zinc, kaolin, bentonite clay and has cleansing and anti-aging properties. The mud is a dark brown mass with a sulfur smell. In cosmetology, it is used to care for oily skin (regulates the functioning of sebaceous glands and narrows pores), and is also used to treat psoriasis, atopic dermatitis, vitiligo and mycosis. Moreover, it increases the skin temperature and, consequently, stimulates circulation and accelerates oxygen exchange [6].

Climate and sea bathing

Both the composition of sea water and the marine climate have different properties depending on the geographical location [4].

Walks along the seaside require hardening. First, you should head towards the wind, then with the wind. On cloudy days, hikes should last no longer than an hour, and each day the walk should be extended by 10 minutes so that after 13 days it lasts about 3 hours. Such walks should take place regardless of weather conditions [4].

Summary

Thalassotherapy is a form of therapy that uses ingredients of marine origin. This treatment is used as a supportive method in the treatment of various diseases and cosmetological therapies. Raw materials of animal origin include: sponges, sea silk, sea shells, pearls, seafood, fish or caviar, while plant raw materials include algae. Inorganic raw materials, which can be found in sea water and on the beach, are also widely used in thalassotherapy.

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