

Mg. paed.

Diana Timofejeva

Author of the Nature Algorithm Method and patent holder of the "WARMSANDBOX®" device.

Chairwoman of the Board of the Association for Natural Environmental Aesthetics Studies.

Member of the Latvian Society of Inventors.



The Application of Warm Sand Therapy and the Aesthetics of the Natural Environment: Patterns of the New Age.

THE APPLICATION OF AESTHETICS OF THE NATURAL ENVIRONMENT

In today's era of climate change awareness and rapid growth in consciousness, people must be capable of processing large volumes of dynamically changing information, adapting, making informed decisions, and taking action. However, not everyone succeeds in adapting to these challenges in a timely and balanced way. There is a measurable increase in anxiety, burnout, and other stress-induced health conditions. Emotional overload has been intensified by the COVID-19 restrictions, the war in Ukraine, and ongoing economic instability.

Adults with developed self-awareness can more easily adjust to these changes. For children, however, this is significantly more difficult. Since their physical development and emotional maturity are still in progress, rapid environmental or societal changes can deeply impact their sense of safety and increase emotional tension.

Recent restrictions have also given many the opportunity to reconnect with nature—restoring both physical and emotional strength and helping the body regenerate its natural potential. Numerous studies confirm that being in a natural environment and engaging in movement through nature-based practices positively affects the body's regulatory systems. For example, research in Japan (Song et al., Ikei H., Miyazaki Y., Int J Environ Res Public Health, 2016) confirms that time spent in natural settings activates physiological relaxation responses. These natural stimuli promote calmness, improve nervous and cardiovascular function, help regulate blood glucose levels, and strengthen immunity and other key systems that support the body's overall health.

An experience-based approach

A human's innate desire to find peace and harmony in nature is organically determined and governed by natural laws. These laws, though not yet fully understood, may seem mysterious or unpredictable. Similarly, the concept of Aesthetics of the Natural Environment emerged from such laws—its origin connected to a sequence of seemingly random events and the unexpected outcomes of creative processes.

It's worth noting that more than thirty years ago—before the current surge in environmental pollution, social overstimulation, and rapid information proliferation—the idea of Aesthetics of the Natural Environment was not derived from compiling external knowledge. Instead, it grew from real-life experience and practical situations, seeking effective results backed by scientific research.

The method of Aesthetics of the Natural Environment developed during a time of change—through observing natural processes, shifts in children's perception, and the increasing volume of screen-based information. It also integrates insights from recent studies in geology, quantum physics, neuroscience, and epigenetics.

The theoretical foundation of the idea is built on scientific findings and over a quarter-century of accumulated data. Every thesis presented in writing is based on lived experience and supported by research and data analysis.

Many studies confirm that the natural environment and movements can have a beneficial effect on the regeneration processes of the body and nervous system.



Alternative that brings about true joy.

Warm sand activities are one of the core fields within the Aesthetics of the Natural Environment method. Alongside Movement and Forms in Nature, Colourful Sand and Colour Grain games, these activities form the foundation of the approach. Since 1993, the field of Aesthetics of the Natural Environment has gradually revealed the vast potential of applying nature's aesthetic beauty and natural materials as a methodical tool in education and developmental correction.

Initial work focused on organizing natural materials, and by 1995, creative exploration of colourful sands began, aimed at discovering and understanding the methodical aspects of using warm and coloured sand in child development. One of the earliest scientifically confirmed findings was the observation that participants—especially children—spontaneously smiled while engaging in warm sand sessions and seminars. These moments were captured in photos of children, students, and emerging professionals interacting with colourful warm sand. Referring to American psychologist Paul Ekman's research, it is suggested that a natural, spontaneous smile triggers the emotional experience of joy, which is associated with a specific release of neuromodulators in the brain.

A smile reflects a child's experience of positive emotions. Smiling activates the brain's functional development and emotional well-being. These observations laid the foundation for a deeper theoretical understanding of the method, supported by the research of Danish Royal University professor Hans Henrik Knoop, who visited in 1998. He emphasized the importance of playful exploration and curiosity in children's cognitive and neurological development. The professor's insights validated the author's original method for exploring coloured sand through structured, creative interaction.

This method has since been used by professionals to help regulate children's emotional states and address cognitive and behavioural challenges, ultimately supporting resilience and life skills. Discoveries in neuroscience confirm that the joy of discovery is rooted in bodily movement and hands-on exploration. When children interact with colourful sand grains, they engage in meaningful, structured activities (the method was formally defined in 1998). The Aesthetics of the Natural Environment method recognizes the importance of working with natural materials and the deep significance of grain as a symbol of life's value—offering both nourishment and tactile experience for the body and senses. This is particularly relevant today, as many countries are facing widespread attention and movement disorders. Therefore, in sessions with children, great care is taken in choosing grain-based materials that support movement, repetition, rhythm, and sensory development.

The method encourages respect for the structural and symbolic qualities of grain, which represents life, change, and potential—whether living (seeds) or inert (sand). By working with sand, while following the core principles of Aesthetics of the Natural Environment—such as balance, order, and contact with natural matter—participants gain a deeper sensory understanding.

Over 20 years of experience has shown that natural materials, especially warm or textured sand, can become powerful tools when used directly by hand or with specialized instruments. In practice, the method places strong emphasis on aesthetics, safety, and emotional support in the design of therapeutic environments.

The processes of Aesthetics of the Natural Environment offer the opportunity to align with present-day reality and activate the deeply rooted 'software' mechanisms embedded in the human organism over thousands of years

Change and Self-Regulation

Adaptation to change is a natural process in nature. It can be seen as a survival mechanism deeply rooted in both nature and human evolution—an inherent potential that remains highly relevant in today's challenging circumstances.

This interplay of change and adaptation is based on the organism's built-in self-regulation mechanisms, which have become the foundation for understanding the corrective and therapeutic effects within the Aesthetics of the Natural Environment methodology.

Nature-based processes offer the opportunity to attune to the present reality while activating mechanisms within the human body that has evolved over thousands of years—like built-in biological “software.” By applying these solutions professionally—for children, adolescents, adults, and seniors—specialists support self-regulation processes and promote individual personal growth.



The Development of the Method

This article is dedicated to outlining the essence of warm sand therapy sessions. However, without revealing the development process of the Nature-Based Aesthetic Methodology, the continuity and theoretical foundations of the warm sand method cannot be fully understood.

During my tenure as a lecturer at the University of Latvia, Faculty of Education and Psychology (hereinafter – LU PPF), from 1993 to 2007, while delivering lectures and supervising numerous student research projects—including master's theses (under the supervision of Dr. paed. Oskars Zīds) and doctoral studies (under the guidance of Prof. Raimonds Ernštreins)—a consistent conclusion emerged.

Specifically, a goal-oriented, methodically organized interaction with natural materials, a structured approach to exploring the natural world, and engagement in the process of aesthetic perception—when combined with hands-on creative activity—serve as an effective tool for personal growth, regardless of age.

Significant initial research data was provided by the implementation of the LU PPF course "Social Rehabilitation – Working with Natural Materials" in 1995 (up until 2007), which confirmed the advantages and relevance of a nature cycle-based methodology in achieving professional goals — including the alleviation of children's anxiety, learning difficulties, social interaction problems, coping with loss, and similar situations.

In the early 21st century, thanks to Dr. psych. Māra Vidnere and the insights from Prof. emeritus Aina Ozoliņa-Nuho of the University of Maryland (USA), as well as recent research into the therapeutic impact of creative processes, significant clarification was provided regarding creative sessions with natural materials (such as coloured sand, grains, and other textures) and their therapeutic benefits.

I am also deeply grateful to Prof. Gunta Ancāne, Prof. Sandra Sebre, and Assoc. Prof. Kristīne Martinson for their substantial contributions in clarifying aspects of psychology, and to art therapy practitioner Aleksandrs Kopitins for his input. Since 2000, the nature-based aesthetic methodology — particularly its application through warm sand therapy — has been highly regarded by Nagoya University (Japan), notably by Professor Etsuo Yokoyama. In 2012, the method also gained recognition in Taiwan through the expertise of education specialist Worathat Bunkhot. joined the research.

Explanations and justifications have been found in recent studies in quantum physics, neurology, epigenetics, and related fields. The central thesis presented in this article is supported by the experiences of hundreds of teachers, parents, and specialists, as well as the evaluation of extensive research data.

Over a period of 39 years (the author's pedagogical experience began in 1984), through involvement in various levels of education and social integration processes, and while assessing those processes, I have frequently encountered situations in which trauma-related disturbances in children caused by prolonged stress cannot be resolved using conventional therapeutic methods. Teachers and specialists increasingly encounter children with various behavioral disorders — children who struggle to regulate aggressive behaviours, who have difficulty concentrating, communicating with peers, or who exhibit prolonged withdrawal or hyperactivity (often linked to screen addiction and similar factors).

These challenges indicate a developmental imbalance and nervous system overload during critical stages of growth and maturation. Such expressions are especially characteristic of children on the autism spectrum, as well as others with mental health or neurodevelopmental disorders, often associated with complex and unresolved causes, limited emotional literacy, and difficulties in forming self-understanding or a coherent worldview.

Sand is a unique natural material that can both store and release warmth, without altering the chemical and physical properties — the structural form — of the individual sand grain.

Equipment for well-being

The concept of the warm sand device emerged in 2005. The first warm sand device was installed in 2008. Its content framework and technological solutions are based on research conducted during the development of the Nature-Based Aesthetic Methodology. These studies focused on the application of sensory stimuli from natural materials and their positive effects in balancing emotions, fostering long-term thinking, and supporting both therapeutic and professional use.

To ensure the therapeutic effectiveness of warm sand sessions, the functioning of the warm sand device is based on three core components:



certified equipment based on the patterns of nature, certified specialist and methodology of natural environment aesthetics. A warm sand session is a nature-based aesthetic practice that occurs within the specially designed warm sand device “WARMSANDBOX®” — a safe and aesthetically organized warm sand environment with defined boundaries.

Warm sand sessions are conducted in alignment with the theoretical and methodological foundation of the Nature-Based Aesthetic Methodology. “WARMSANDBOX®” is an innovative technology patented in Latvia (Patent No. 14477). Its safety has been confirmed by the European Union's conformity and safety certificate (Certificate of Conformity No. ScD2011S22).

The device provides natural heating of the sand to an optimal therapeutic temperature while respecting the fundamental properties of the natural material, ensuring consistent therapeutic support regardless of external environmental temperature fluctuations.

Sand is a unique natural material, capable of accumulating and releasing warmth without altering the chemical or physical properties — its structural form — of the sand grain itself. Sand is a mineral composed of silicon dioxide (SiO_2), formed deep within the Earth under high heat and pressure. These structural properties remain consistent whether the sand is from arctic, temperate, or equatorial zones, making it universally accessible and familiar to people across the globe.

This device was awarded the bronze medal at the international exhibition “ARHIMEDS 2013” and has been recognized by the University of Cambridge professor Alan Barell.

Summer all year-round

Currently, 42 “WARMSANDBOX®” warm sand therapy devices are installed in Latvia (37 sand boxes and 5 sand tables), operated by 160 certified warm sand specialists (with a total of 217 specialists trained so far).

Records show that children attend warm sand sessions based on referrals from doctors in 11 cities across Latvia. The extensive 15-year experience of warm sand specialists indicates that sessions provide developmental stimuli, reinforce the child's development, and support the body's self-regulation processes.

These sessions complement the work of physicians and other specialists, aiding in the achievement of professional therapeutic goals.

Comprehensive Health Perspective

A significant development milestone for the warm sand device and its methodological validation came through collaborative work with physicians who highlighted the presence of factors beneficial to health. Doctors consulted with specialists and trusted that the “warm support intervention” would provide added value for their patients — leading to a considerable broadening of the research base over time.

I am deeply grateful for the feedback from medical professionals. One important step was the confirmation of the idea's validity. As early as 2003–2004, at the Baltezers Rehabilitation Centre, work with children suffering from bronchial illnesses was conducted under the guidance of Dr. Vallija Masalska and Dr. Lidija Baraduskas. Under Dr. Andzemārs Liepiņš supervision, coloured sand was used during the sessions. Despite the children's serious diagnoses, no allergic reactions to the coloured sand were observed — neither contact allergies nor systemic responses. This experience was further validated when initiating work with the Warm Sand Therapy device, particularly with children suffering from atopic dermatitis, allergies, and arthritis. In these cases, the intensity of sessions and methodological approaches were carefully aligned with the treatment plans prescribed by the children's attending physicians.

When the first prototype was developed in 2008, its operating principles were positively evaluated by Dr. Artūrs Tereško and Dr. Vita Rubene. It is noteworthy that Dr. Tereško, responding to a request from the “Nature Envoy” study specialists, created a specially formulated “Children's Tea”, with a composition tailored to complement the therapy. This tea made post-session fluid intake more acceptable for children.

Pediatrician Dr. Irēna Mangale contributed valuable insight into understanding the subtle sensory qualities of the fine sand grains and their therapeutic effect.

Despite the children's serious diagnoses, no allergic or other negative reactions were detected after classes with natural materials and warm sand equipment. No any negative reactions were discovered during classes with children suffering from atopic dermatitis, allergies, arthritis. When providing support in the mentioned situations, the intensity of the exercises and classes, and methodological techniques are strictly coordinated with the doctors treating the children. When the first model was created in 2008, its working principles were praised by the doctors *dr. Arturs Tereško*, *dr. Vita Rubene*. The fact that *dr. Tereško*, referring to the request of the specialists of the “Embassy of Nature” studio, created “Children's tea” with a special taste and composition, which should be specifically emphasised here. This tea made it possible to make the prescribed liquid intake after the class more acceptable to the children. The fine pulse quality of a grain of sand was assisted to be understood by the paediatrician, *dr. Irena Mangale*.

Despite the children's serious reactions were observed following sessions with coloured sand and other natural materials

Since 2013, family physician Dr. Anda Elste, by recording the initial diagnoses of young patients and evaluating the results at the conclusion of warm sand therapy cycles, has confirmed the effectiveness of warm sand sessions in addressing specific issues. Particular emphasis has been placed on the reduction of stress, emotional balancing, and the mitigation of various functional disorders.

Speaking at a 2017 conference, Dr. Elste shared her experience with both aspiring and current warm sand therapy specialists.

Support for the significance of the concept was further strengthened by Dr. Dana Misiņa, who helped clarify the systemic connections between human body functions and holistic well-being. Additional professional backing came from pediatric neurologist Dr. Vizma Meikšāne and Dr. Līga Valģe, whose findings reinforced the idea that sensory impulses from warm sand play an important therapeutic role in strengthening the nervous system.

Neurosurgeon Dr. Med. Aksels Rībens, after becoming acquainted with WARMSANDBOX® warm sand therapy sessions in 2018, highly appreciated both the outcomes achieved and the broad methodological possibilities. He concluded: “The most important thing for a person is to reach a sense of something sacred for their children — something that elevates them. And above all, it must do no harm, which in medicine is just as important as achieving benefit.” He referred to the concept of NNH – Number Needed to Harm — the number of people harmed before one sees a beneficial effect.

A new collaborative effort began in 2020, when family physician Dr. Jana Borisova–Litvinova participated in a conference on the Nature-Based Aesthetic Methodology. Conference participants were introduced to the neurological aspects of how warm sand stimuli affect the brain and their impact on different brain regions (Brodmann areas). Special attention was given to how sensory input through the warm sand cortex contributes to motor reception and supports the execution of “movement algorithm” exercises.

Externally very similar, but Not the Same.

A child playing in sand outdoors and in a warm sand device may look very similar on the surface. However, while outdoor play is typically a self-directed activity, a warm sand session is not merely external play.

Under the guidance of a certified specialist, the process follows specific methodological guidelines, time frames, and a professionally understood and purposeful direction.

By maintaining the recognizability of the sand material and a comprehensible atmosphere, the session offers the child a specific set of “movement algorithm” exercises.

These exercises provide gentle, natural impulses that help release tension accumulated in the body, enhance emotional stability, and promote calmness and a sense of relaxation.

Additionally, they improve the child’s social interaction skills in a gentle way, allowing the child to experience and process inner emotional conflict more easily.

The operation of the warm sand device relies on high-quality sand (purified and processed), creating an environment favourable for cell regeneration.

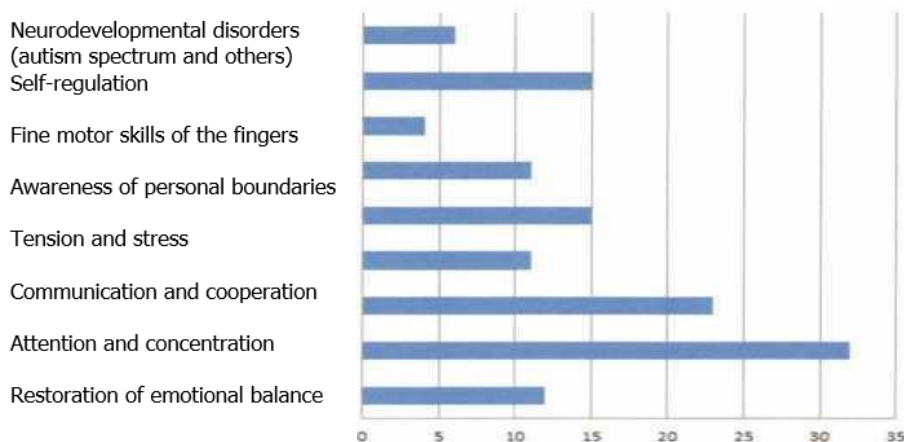
Latest Data

In February 2023, the Methodological Council of the “Nature-Based Aesthetic Studies Association” conducted a survey among warm sand therapy specialists. Out of 160 currently practicing professionals, 45 responded, sharing insights regarding children’s health challenges during the COVID-19 restriction period.

The surveyed specialists reported that between 2020 and 2022, they had collectively provided support to 4,791 children.

The survey results indicate that, in most cases, children attended warm sand sessions to restore emotional balance, address concentration and language development difficulties, and receive support in reducing stress, improving communication skills, and learning to regulate their boundaries.

In total, 36 specialists emphasized that warm sand therapy has been a significant support mechanism in mitigating disorders and helping children regain emotional stability after the pandemic restrictions.



Most frequently identified focus areas addressed by warm sand therapy specialists, 2019–2022 (Study by the Methodological Council of the “Nature-Based Aesthetic Studies Association,” February 2023).

The following are excerpts from the author’s commentary describing the conditions and challenges observed in children, as reported by certified warm sand therapy specialists — and how these are addressed during sessions:

“Due to the restrictions, the war in Ukraine, and economic hardships, children have been observed to fall into two groups — a large proportion show emotional instability, heightened vigilance, and difficulty with regulation, often presenting as aggressive behaviour. Others tend to be withdrawn, apathetic, unmotivated, ‘disengaged,’ or exhibit low volitional drive. Both groups struggle to regulate emotions and establish

boundaries or inclusion within the learning process. Sand is a valuable tool for addressing these difficulties.”

“The Nature-Based Aesthetic Methodology offers various strategies to support children in harmonizing conflicting emotional states.”

“By involving children, especially preschool-aged, in taking responsibility for situations, rather than shielding them from difficulties, we reduce emotional overload and stress-related symptoms caused by uncertainty, which also affect family dynamics.”

“Among students, we increasingly observe a variety of mental health disorders.”

By reducing physical and emotional tension, better outcomes are often observed compared to the exclusive use of medication, and the approach is applicable in therapeutic interventions, physiotherapy, and osteopathy.

“Warm sand therapy is in particularly high demand when children begin to show signs of emotional overload. A pattern has emerged.”

The situations described are reported from cities where sand therapy is practiced by certified specialists, including medical doctors, physiotherapists, and osteopaths.

“It is observed that more and more children experience panic attacks, behavioral outbursts, or withdrawal. COVID-19 and war-related instability have intensified emotional trauma for children. Many ask whether their fathers will be taken to war. In several cases, clinical symptoms associated with trauma and chronic stress have been recorded. Sand therapy provides a safe, regulated space where children can process emotional experiences and begin to recover.”

During this period, it became necessary to work not only with children but also with adults,” as parents also required emotional support — the restoration of emotional balance. While working with children, we also had to help regulate the emotional state of their parents.

At our institution, we had to stabilize the emotional well-being of three Ukrainian families — this was emotionally very challenging, not only for the Ukrainians themselves but also for our staff (due to the emotionally demanding nature of these sessions). “We had to manage the stress of our colleagues as well,” because during the COVID-19 period, the release of negative emotions became necessary.

Given that Nature-Based Aesthetic Methodology techniques are related to the ‘inner child’ and align with Carl Jung’s model of the mother-child archetypal structure, the broad professional competencies of trained specialists allow us to provide foundational support not only to colleagues but also to parents of the children.

“During the restrictions, children most frequently attending warm sand sessions were those with emotional overload, trauma, various disorders, anxiety, fear, hyperactivity, or behavioural issues arising from device addiction. Many were described as ‘disconnected.’ Tension, stress, and emotional overload were often linked to excessive screen use. Children displayed emotional instability, with some losing the ability to distinguish between real and virtual worlds, which led to confusion and imbalance.”

**Warm sand therapy sessions promote
the development and strengthening of children's emotional self-regulation skills.**



The previously mentioned concern regarding screen device use and its link to the rise in children's emotional and physical health issues is supported by a 2022 year-end survey conducted by the parent organization “For Moms and Dads”, titled “Toddlers and Screens” (publication author: Inga Akmentiņa-Smildziņa).

The results show that 75% of children under the age of two regularly use screen devices. Within the publication, psychotherapist Sabīne Bērziņa comments: “While conducting the survey, I was surprised by how often screens are used by children in Latvia — in a wide range of situations.”

Meanwhile, Nikita Bezborodovs highlights a core issue: “A person learns what they practice. Children, too, learn what they practice.”

Emotional regulation is an essential skill for every one of us — the ability to cope with anxiety and manage behaviour. A child's life is filled with challenging situations, and if screen devices are used as the primary tool for navigating these experiences, it must be understood that the child is not being given the opportunity to learn how to manage such situations independently.

Previous research and the professional practice of specialists confirm that warm sand therapy sessions support the development and strengthening of children's emotional self-regulation skills.

**Research indicates that the frequencies emitted by electrical devices in homes and workplaces interfere
with the body's ability to synchronize itself with the Earth's natural vibrations.**

Components of Nature's Secret

The operation of the warm sand device "WARMSANDBOX®" is based on the natural ability of sand to retain and transmit warmth, a principle known and applied in natural medicine for centuries. Although the device is a modern innovation, its conceptual foundation has been tested and refined over more than 30 years of applied experience in therapeutic and wellness settings.

The warm sand medium not only delivers warmth but also embodies the principles of the Nature-Based Aesthetic Method, rooted in nature's laws. It enables the reception of warmth and tactile sensory input in a gentle and comprehensive form.

Warmth

In northern latitudes, where winter temperatures can drop to -20°C or even lower, access to warm, natural surfaces is limited for much of the year. While natural warm sand can be experienced in summer, access is often restricted, especially for children living in urban areas. This underscores the necessity of a controlled warm sand environment, where warmth can be experienced consistently regardless of season. In the "WARMSANDBOX®" device, sand is gently warmed to a therapeutically appropriate level, ensuring both comfort and safety. The principle of natural warmth is essential — it must not be artificially forced but rather provided in a way that aligns with the body's natural receptivity.

The mode of heat transfer is key. Sand's ability to absorb and release warmth mimics processes found in nature. This gentle thermal exposure supports the regulation of physiological functions, enhances sensory perception, and has a beneficial impact on self-regulation and overall recovery processes.

The Power of the Earth

The Earth's natural vibration is 7.83 Hz. All living beings on Earth, including humans, are adapted to this frequency, which is essential for the body's normal functioning.

When this frequency is disrupted, it can interfere with the body's self-regulation and recovery processes, ultimately affecting health.

When natural materials are heated in contact with direct electrical fields, their inherent natural properties are altered — compromising their material and energetic quality. This may unpredictably affect the human body, particularly that of young children.

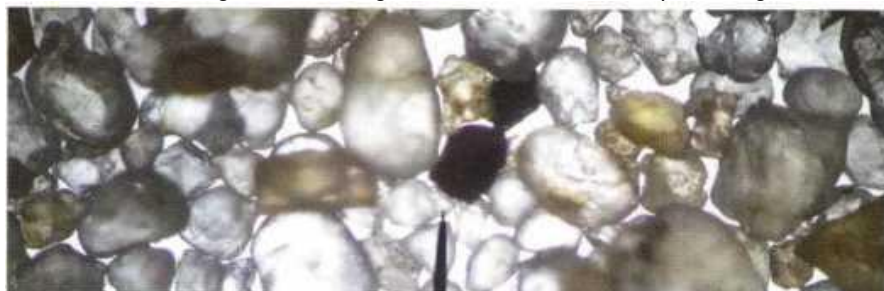
"The human body contains natural currents, especially around the heart, brain, and nervous system, which can be disrupted by currents induced by external electric fields. This opens the possibility for strong external electrical influences to affect bodily processes." — explains Valdis Ziemelis, electrical engineer and associate professor at the Institute of Occupational Safety and Civil Protection at Riga Technical University.

Research shows that the frequencies emitted by electrical devices commonly found in homes and offices (such as computers, mobile phones, and others) interfere with the body's ability to synchronize with the Earth's natural vibrations.

Such disruptions may negatively affect the immune system, stress resilience, energy levels, sleep quality, and increase the production of stress-related hormones.

Somotherapy

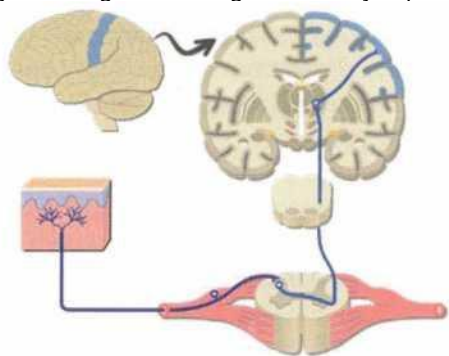
A large part of the warm sand device's operating principles is based on the scientifically recognized field of somotherapy, which is well known globally. This practice involves covering the body with warm sand or lying still in warm sand for 10 to 30 minutes. Therapeutic effects are achieved through gentle body warming, sweating, and improved blood circulation. Notably, similar procedures were already part of health services offered in Latvian sanatoriums — including those in Jūrmala — in the early 20th century. A 2013 study by Gomes (Gomes C.S.F., *Geomaterials*, 2013, 3, 1–14) highlights the specific mineralogical properties of sea sand, which is used in therapeutic practices worldwide as part of somotherapy, especially in the treatment of rheumatism and bone diseases. In this context, marine sand — particularly sea sand — is used with the goal of reducing muscle tone tension and promoting the recovery of the musculoskeletal system.



A Grain of Sand – A Crystal

During a warm sand session, every touch of a sand grain on the skin generates micro-impulses. The warm sand table contains 51 kilograms of sand. This means that each session delivers millions of touch impulses, which activate the brain's somatosensory cortex and, in turn, stimulate other brain regions — including the endocrine glands. This activation promotes the production of hormones such as: Oxytocin (associated with touch and bonding), Serotonin (associated with well-being), and other neurohormones that support emotional and physiological regulation.

By receiving a wide range of sensory impulses provided by warm sand, the skin's sensory receptors are stimulated,



Flow of impulses to the brain's sensory cortex (www.getbodysmart.com).

as along with nerve pathways, the spinal cord, the medulla oblongata (including the dopamine production bundle), and the primary sensory cortex of the cerebral hemispheres (Brodmann areas 1, 2, and 3).

This process occurs thanks to the specially selected high-quality sand enriched with quartz used in the device.

All of this is ensured by silicon dioxide (SiO_2) – the crystalline structure of quartz, which creates optimal angles for reflecting light and heat waves. This has a beneficial effect on the body's cells.

To maintain the long-term quality of the sand, the structure of warm sand therapy sessions, as well as safety regulations and hygiene standards, are based on strict protocols.

Presence of Minerals

To maintain a healthy body, it is essential not only to provide the necessary nutrients but also minerals, which influence vital processes and affect overall health. Minerals can be absorbed in various ways — through ingestion, inhalation, or absorption via the skin.

Microelements such as oxygen, hydrogen, carbon, sulfur, phosphorus, calcium, magnesium, sodium, potassium, iron, silicon, zinc, selenium, copper, vanadium, manganese, and others support human life processes, including cell formation (Gomes C.S.F., *Geomaterials*, 2013, 3, 1–14).

The natural environment contains many minerals and chemical elements in bioavailable forms, influencing both prevention and healing. Mineral deficiencies under certain conditions can contribute to the development of disease.

The warm sand therapy device uses high-quality sand (cleaned and processed), which helps create an environment conducive to cell regeneration. Thus, beyond the well-established therapeutic effects, the minerals in the sand offer an added benefit. As the child or specialist moves within the sand during warm sand sessions, minerals are naturally absorbed through the skin.

Movement Exercises as a Methodological Innovation

Within the Nature-Based Aesthetic Methodology, a set of "movement algorithm" exercises has been methodically developed and refined over more than 30 years. Unlike traditional somotherapy, these exercises are integrated into the warm sand therapy process to support individual needs (based on age, emotional state, physical condition, and therapeutic goals). These exercises enhance the other positive therapeutic effects of the WARMSANDBOX® device.

Performing movement exercises in the warm sand environment, enriched with a wide spectrum of sensory impulses, stimulates the activation of the motor cortex, which in turn promotes the release of dopamine and other neurotransmitters.

Structured Session

During a warm sand session, the child receives a complex of impulses that positively influence the nervous system, support neural and humoral regulation, and enhance the body's self-regulatory capacity.

In a warm sand therapy session within the WARMSANDBOX® device, the client experiences:

- 1) Quality heat and sensory input;
- 2) Activation of adjacent Brodmann areas through methodically structured movement exercises;
- 3) Motor cortex stimulation;
- 4) A comprehensible environment that reduces muscle tension and induces relaxation, aiding in emotional regulation;
- 5) Movement and creative tasks that develop focused attention, memory, and creativity;
- 6) Professional guidance and the structured methodological framework provide a sense of safety, set clear boundaries, and enrich communication experiences.

The specialist, operating within the framework of the Nature-Based Aesthetic Methodology and in accordance with their level of professional training, conducts sessions that can be developmental, educational, corrective, or therapeutic in nature.

Individual sessions last 45 minutes. Sessions typically occur once a week. The core structure includes seven to twelve sessions per cycle. Cyclical work includes 2 to 3 months of sessions, with optional breaks between cycles. If needed, the 7–12 session cycle may be repeated.

The Specialist's Inner Child

Although it may sound unusual, for a specialist to competently conduct warm sand sessions, their professional skillset must also include access to their "inner child's" creativity and openness.

For a session to be structured — meaning planned, prepared, conducted, and evaluated — and oriented toward clearly defined therapeutic goals and boundary setting, it is essential to create an atmosphere that feels playful and positive for the child. Such an environment is more easily created by a specialist who has developed and internalized these competencies.

Summarized Experience

At the beginning of 2020, the Methodological Council of the Nature-Based Aesthetic Studies Association conducted a review of the use of the Nature-Based Aesthetic Method and warm sand sessions for the period 2014–2019.

The data set included specialist-documented outcomes, focusing on positive effects observed in children's physical and emotional health during sessions.

A total of 11,002 cases were evaluated, showing that Nature-Based Aesthetic Warm Sand Therapy positively impacted children's adaptation and learning abilities.

The most common referrals were for adaptation difficulties (896 children), followed by learning environment-related adaptation disorders (748 children), and support for physiological and physical developmental disorders (602 children). In this area, the majority of cases (380) involved children with weakened immune systems and long-term.

illness-related complications. Within the domain of physical development, a significant number of children sought support for various issues, including: weakness in central body zones (47), poor fine motor muscle development (32), enuresis (30), visual impairments (18), low muscle tone (17), shallow breathing (15), and others. A total of 41 children attended sessions due to learning difficulties, 10 of whom had concentration issues, and 6 were diagnosed with epilepsy or developmental delays. Several children had autism spectrum disorders and behavioural difficulties. There were also "mild" difficulties and environmental anxiety (87 children). A total of 344 children exhibited emotional development disorders, 308 had specific emotional challenges, and 379 were identified with behavioural difficulties. The emotional and behavioural regulation issues included: stress-related difficulties (125), aggression (70), and emotional instability (63). As noted by specialists in evaluations: "Parents observed significant and stable behavioral improvements as early as after the fourth session cycle. Children in warm sand sessions experience emotional release. Warm sand is an art-based strategy within Nature Aesthetic Therapy." Among the collected data on psychological and behavioural disorders, the most frequently reported were: autism (72 children) anxious and aggressive behaviour (35 children). Analysis of earlier session goals and evaluations of 12-session cycles revealed improvements in communication, willingness to cooperate, and behavioral consistency. Behavioural problems were also confirmed to overlap with general language disorders (128 children). Common symptoms included: speech and language issues (81), somatic and neurological manifestations (56), which were reportedly stabilized through massage and warm sand therapy. This accumulated experience has been analysed in the context of a doctoral dissertation. One key regulatory mechanism identified is tactile contact with warm sand, which not only induces a relaxation effect but also stimulates sensory zones within the brainstem, hypothalamus, and limbic system, and synchronizes signals between the brainstem and cerebrum. Clinical experience shows that developing skills in self-regulation, body and movement awareness, communication, and social organization is

most effective when integrated into a structured warm sand therapy cycle (10–12 sessions).

Specialists with the highest levels of experience stated that the most effective method was to “play out” stories, experiences, and feelings within the sand environment.

Some specialists observed improvements in children's social orientation and increased interest in peers.

It was noted that non-verbal or less verbal children adapted more easily in the sand environment.

In the project “Nature Aesthetic Therapy for Behavioural Correction in Children,” a data set of 125 children was analysed. The observations were supported by developmental dynamics in 34 children, showing clear signs of improved adaptation in educational settings.

In reviewing behavioural correction outcomes, 28 children were identified with specific behavioural profiles. For example, warm sand therapy was recommended by professionals for physiotherapists and parents to use with the child. Educators reported that for several children, behaviour improved positively after beginning warm sand therapy.

The “Sand Touch” was perceived as a powerful tool — a unique warmth-based sensory effect. In 2019, experience-based reports from various regions noted that warm sand sessions were regularly used with anxious children, including one well-documented case of an eight-year-old girl with cerebral palsy.

Conclusion: Warm sand therapy provides significant support for improving children's overall physical and emotional health. It also offers benefits for adults (59 clients), particularly educators and behavioural specialists, in alleviating professional burnout symptoms.

What Helps Avoid Unexpected Surprises

To ensure the high quality of Warm Sand Therapy sessions, as well as other aspects related to children's safety, the idea holder, provider of warm sand specialist certification, further education, and recertification — the professional association “Aesthetic of Nature Environment Studies Association” — maintains a registry of specialists and tracks their experience.

Only a certified specialist with appropriate training is permitted to lead and can provide a fully qualified warm sand session process. The specialist registry is available on the WARMSANDBOX® website at:

www.warmsandbox.com/specialistiem/

A Tool for Professionals

Warm sand therapy sessions are an effective support tool for professionals across a range of disciplines, helping in children's physical and emotional self-regulation processes. Teachers can use these sessions to support the compensation and correction of perceptual, cognitive, and intellectual activity disorders. Speech-language therapists can enhance the effectiveness of their work by using warm sand sessions to help prevent and address speech and language development disorders. Psychologists can apply the structured format of warm sand sessions to better understand a child's/client's needs, strengthen emotional resilience, and support the development of causal reasoning and communication skills. Social pedagogues may utilize warm sand therapy to support processes of adaptation, integration, and similar developmental transitions. Collected data indicate that warm sand offers notable benefits in managing and supporting emotional, learning, sleep, and behavioural disorders.

According to Dr. Vizma Meikšāne, warm sand sessions are particularly recommended for children experiencing hypersensitivity, communication difficulties, or challenges related to the autism spectrum — especially in cases where these issues have been identified by a specialist.

Acting Responsibly

In the interest of children's safety and in view of the growing popularity of the ideas described, the Methodological Board of the Aesthetic of Nature Environment Studies Association and the concept's author Diāna Timofejeva wish to draw attention to the fact that devices have appeared in Latvia in which natural materials (such as sand or grains) are heated using electric currents. This approach contradicts the principles and research underlying Nature Aesthetic Therapy. These devices often imitate external features of the method without applying its properly validated therapeutic methodology. To ensure that the Nature Aesthetic Therapy approach described in this publication is correctly applied in sessions, we urge readers to verify the presence of a WARMSANDBOX® certificate for both the service provider and the equipment used.