



Review Article

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A Practical Solution to the Problem of Sleep Quality in the Elderly

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Abstract

Everyone knows about the importance of sleep, but for the elderly it is especially important, since during sleep regeneration processes are launched in the body, immunity is strengthened. Therefore, insomnia in the elderly becomes the root cause of most diseases.

Keywords: Sleep quality, Insomnia, Wax bio module

Introduction

Third, people over the age of 65 have problems with sleep. Sleep disturbance is a consequence of assessing the quality of life of people. Psychologists at the University of British Columbia in Canada have determined that lack of sleep blunts a person's ability to enjoy pleasant things and express positive emotions. After the age of 75, people double the frequency of insomnia compared to middle-aged people and develop increased weakness, decreased reaction time and memory, an increased risk of disease, and an almost 3-fold increased risk of death. More than 25% of people infected with insomnia or frequently use sleeping pills, this often leads to their abuse and dependence. Insomnia can be the cause of the development of mental disorders, depression and alcoholism. The main reasons are the accelerating pace of life, information overload, stress, and television. For the elderly, all this is exacerbated by the presence of chronic diseases. Insomnia in the elderly includes persistent persistent complaints of insomnia, persistent difficulty falling asleep, repeated awakenings during the night and waking up too early in the morning, poor sleep quality (shallow and interrupted sleep, the presence vivid, multiple dreams, often painful content; no feeling of rest from sleep). Secondary sleep disorders are caused by the presence of cardiovascular pathology, bronchial asthma, lung disease, Poly osteoarthritis, diabetes mellitus, inflammation of the prostate

gland, taking certain medications and the presence of other chronic diseases. Many methods and techniques have been developed to improve sleep - from prevention to drug treatment. Practice shows their rather low efficiency, and often a negative effect.

Sleep changes with age is a natural process. However, the quality of sleep should not become poor and should not be tolerated. Instead of taking sleeping pills, we offer a developed method of restoring sleep using a wax bimodule, which will provide "clean sleep" - a conscious healthy rest. The main priority is to eliminate sleep problems in a person suffering from chronic diseases and thereby prolong his active life and improve its quality.

Materials and Methods

The recommended preventive method is based on exposure to microwaves and micro vibration, as well as the heat coming from the bee colony, which allows stabilizing pressure and improving blood circulation in the brain. The procedure is carried out in a bimodule with a comfortable bed under which bee colonies are kept (3-4 hives, each can contain up to 60 thousand bees). Inside the bimodule everything is hermetically isolated from bees, safety from direct contact with insects is ensured; the notch through which the bees fly into the hives is located outside the bimodule. That is, being

inside, the person is completely protected and does not need protective clothing and a face mask; can fully relax. The patient is as if inside a bee colony, heat and air exchange inside the bimodule constantly circulates between the bee colonies and the space, creating a special microclimate; the air is saturated with aromas of honey, wax, propolis, royal jelly, has a unique aroma. At its core, this is an inhaler that you are inside. Such a microclimate quickly improves the condition of patients, improves the quality of sleep and appetite, improves mood. Basic principles of therapy: micro vibration (bees constantly work with wings to evaporate moisture from the hive, produce approximately 250 oscillations per second, this kind of therapeutic vibration massage has a beneficial effect on various organs and systems of the body and contributes to their recovery), temperature effects (the living heat generated by a bee colony is a hive in which part of the year, the bees maintain the air temperature within 34-35° Celsius), acoustic effect (the monotonous hum of bee colonies relieves fatigue, creates a calming effect), inhalation (volatile fractions from the hive have a stimulating effect on the respiratory, gastrointestinal, cardiovascular systems, improve the state of the nervous system). In 2008, Zaporozhe State Medical University (Ukraine) conducted an independent study of the influence of apitherapy factors on the cardiovascular, respiratory systems and indicators of human neurohormonal regulation in an apiary in the village of Malaya Tomaka, Orekhov sky district, Zaporozhe region [1-5]. 30 patients were examined, who were placed on a hive bed for 30 minutes for 10 days. The results of the studies showed a positive effect of sessions on the indicators of the cardiovascular system and neurohormonal regulation of the patient's body and a method based on close contact between the patient and bee colonies is recommended for use as physiotherapeutic procedures for the prevention and treatment of diseases of the cardiovascular, respiratory and autonomic nervous systems. All those who have experienced sleeping on the hives notice a significant improvement in their condition after only two or three sessions. After 10-15 minutes of such a rest, a person has a feeling of peace, serenity, at the same time craving for sleep and immersion in a deep healthy sleep. Waking up a few hours later, you feel a surge of strength and vigor. For achievement lasting effect is recommended from 15 sessions from an hour or more. With good tolerance, overnight stays in the bimodule are advisable, since the maximum effect is achieved in the late evening, when all the bees are in the hives (from 150 to 250 thousand bees "work" for the patient!). Sound sensation is a special sensation, incomparable with any other of our sensations. The physical parameters of sound (intensity, unit of measurement - decibel; oscillation frequency, unit of measurement - hertz, spectrum, duration, phase) of a bee colony in a particular bimodule are determined by the complex interaction of "own sound" and mass reflections of this sound from the walls, floor and ceiling of a given room. To obtain high-quality sound, to reduce the distorting effect on the sound of the acoustic problems of the room, in addition to the presence of healthy, complete bee colonies, it is necessary to minimize the distorting effect of the acoustic environment of the bimodule on the actual sound. In an acoustically poorly designed bimodule, even the best

colonies will only sound at half their capacity. An uncomfortable acoustic environment quickly causes fatigue, irritation and auditory immunity, and does not allow adequate perception of sound information. We have calculated the optimal dimensions of the bee bimodule and the location of the hives in it in order to enhance the acoustic effect on the auditory organs. The work done with the help of the MSC Nastran programs - acoustic analysis (internal acoustics) made it possible to more consciously approach the creation of a bioenergy informational bimodule. You can also use the axial mode calculator. At its core, a bee bimodule is a speaker system housing that performs multiple functions. Therefore, choosing its configuration must be given great attention. The housing affects the intensity of radiation both at low frequencies and in the region of medium and high frequencies. Vibrations of the cabinet walls determine the magnitude of linear and non-linear distortions and the sound quality of the speaker system. The acoustic features of the bimodule room affect the frequency response of the sound pressure and, consequently, the sound quality. The same hive will sound different in rooms with different configurations. Acoustic features include: the shape of the room, its volume and sound absorption coefficients enclosing surfaces (ceiling, floor, walls). So, for example, a smooth ceiling and walls absorb sound a little and reflect it to a large extent. Creating a comfortable acoustic environment in the bimodule was solved by using decorative acoustic sound absorbers in the interior that reduce the reverberation time - these are wall and ceiling wax panels. To amplify sound, a principle was applied that can be observed by placing a sound source in a mug. The sound is amplified as the mug becomes a resonance chamber. In a confined space, reflections from enclosing structures, the question of the placement of the sound source, in our case, beehives, becomes important, as well as the issue of observing acoustic symmetry. Optimal placement of the hives in the bio module will allow creating a figurative sound stage, improving the sound quality due to some weakening of the influence of early reflections, mainly from the side walls; will provide a component of spatiality in a small, enclosed space. Determining the optimal placement of hives in a bio module can be done using the Listening Room computer program from Sitting Duck Software. Based on the calculations, we do not recommend placing the hives in the immediate vicinity of the walls and, especially, in the corners of the room, since almost all indoor modes "meet" there. The optimal placement of 4 hives in a bio module 220cm wide, 107cm deep, 157cm high is as follows: the distance of the bottom of the hives from the floor of the room is 17 cm, from the side walls - 5cm, from the outer wall (where the entrances are located in the hives) - 8cm, from the opposite wall (the entrance is located) -25cm. The hives are located in butt, the total size: width-210cm, depth-74cm, height-40cm. The resonant acoustics of the calculated bio module does not cause fatigue, contributes to the enhancement of restorative and protective functions of the body, has a significant positive effect on the psychophysiological state of a person. The hive itself is a natural inhaler. The use of new scientific developments will increase its efficiency at times. In 2012, a device for energy and biological influence "Wax tile L.O. Valihura". This de-

vice of energy and biological influence consists of a ball of porous material (wood) with an ordered arrangement in space of cavities made in the shape of a honeycomb and filled with wax melted with solar energy from wax caps of honeycomb cells. This model refers to devices for the prevention and resumption of active human activity by exposing the body to the biologically active action of beeswax. The implementation of cells in the form of wax honeycombs made it possible to increase the energy effect of the device. The therapeutic effect is explained by the fact that the wax obtained by melting with the help of solar energy from wax caps (zabrus) of honeycomb cells contains up to 80% of lysozyme, in which the maximum amount of therapeutic and biologically active substances. Panels hung on a wall or other vertical surface in a residential or rehabilitation treatment room. The beeswax in the cells emits healing ethers that saturate the enclosed space of the therapy room. When designing and manufacturing the bio module, we used panels made of wood (tree species - linden), with cavities in the form of hexagonal bee honeycombs and filled with zabrus wax. It should be clarified that the wax melting temperature must be strictly observed within 65-68 degrees Celsius. As the temperature rises, the quality of the resulting wax deteriorates, and the color also changes. Wax panels were located inside the bio module on the walls and ceiling. Being in such a wax bio module contributes to the restoration of immunity, mucous membranes of the entire human body through the aroma of wax and the effect of propolis as an antibiotic. A visit to the wax bio module is indicated primarily for people with diseases of the respiratory system. After several sessions, the patient's cough and even snoring weaken or completely disappear, the lungs and airways are cleared. Wax therapy and propolis therapy can suppress inflammation, achieve an antiseptic effect, restore damage to the mucosa in diseases of the throat, reduce pain, dry and reduce stagnation of mucus and pus in sinusitis, relieve throat irritation with a dry cough, accelerate rehabilitation after illness and injury. Being in a wax bio module accelerates metabolism (promotes weight loss). And it provides a high therapeutic effect in the fight against prolonged depression, depression, nervous excitability. The air in the wax bio module seems to be thicker and more saturated, it helps to improve overall well-being and mood after the first visit, this is absolutely natural, highly effective and safe way of prevention and treatment. The aroma of wax intoxicates, the micro vibrations of bees, their quiet buzzing noise soothes and gives a feeling of peace and relaxation.

Results and Discussion

The effectiveness of the existing method for solving the problems of sleep quality in the elderly was significantly increased due to the calculation of the optimal (in terms of acoustics) dimensions of the bio module (as an acoustic system) and the coordinates of the placement of hives in it. The second direction of increasing efficiency is the placement of wooden panels in the form of hexagonal honeycombs filled with zabrus wax in the bio module. A method of therapy using a wax bio module was developed and tested from 2015 to 2023. Every year, 8 patients were in wax bimodules from

23:00 to 07:00 a month (from May to September). Age composition - 60+. Positive significant changes were observed in the form of a decrease in heart rate, an increase in the stroke volume of the heart and the power of the heart muscle, a decrease in peripheral vascular resistance, and optimization of blood pressure. A persistent bronchodilator effect was established with an improvement in forced breathing. All those who experienced sleep in the wax bio module did not suffer from acute respiratory viral diseases throughout the year and noted a significant improvement in the quality of sleep, an increase in appetite and mood. Although this study has many strengths (high efficacy, availability, possibility of parallel use of pharmaceuticals, absence of complications), there are both objective and subjective limitations. The objective ones are an allergic reaction to bee products in about 5-7% of the population and a limited scale of clinical studies. To the subjective: in medicine - effective disease prevention will significantly reduce the volume of sold pharmacological preparations and services provided; potential consumers lack any knowledge about the restoration of sleep quality in the wax bio module and the effectiveness of the treatment of many diseases, the possibility of parallel use with traditional drugs, the absence of side effects. The impossibility of obtaining a given level of profit in the production and operation of wax bimodules leads to a catastrophic lack of investment in scientific developments in this area, to financial problems in publishing the results of work performed, often by enthusiasts. Hence the position of "official" medicine - "when it comes to alternative methods treatment, it is very important to think critically and be very careful. More often, such methods do not have proven effectiveness, they are insufficiently studied" [4]. The mental health of older people can be improved by promoting active and healthy aging. When choosing medicines, 30% of patients listen to the advice of pharmacists, a quarter make their choice based on personal experience or recommendations from friends, and the rest - with the help of family doctors. Based on this, in modern conditions, sanitary and educational work can be carried out with the help of the Internet, family doctors and pharmacy workers. A dedicated resource should be created to provide access to a comprehensive knowledge base of natural remedies and experiences to effectively improve sleep quality. The purpose of the resource is to raise the level of awareness of family medicine doctors, pharmacists, and patients in these matters. Mutual communication in the form of questions and answers is important. This is an opportunity for a multilateral discussion of the problem that has arisen, in which each participant can take part. This is an opportunity to choose the main speaker not on the basis of territorial principles, but from the standpoint of his competence and knowledge of the problem under discussion. The idea of using Internet technologies to obtain knowledge, which is created by the joint efforts of numerous online communities created thanks to individuals, is timely and technically feasible. The task of the World Health Organization is to create and finance outside the national Internet community of doctors, pharmacists, and patients to improve the quality of life of the elderly [6-9].

Conclusion

The use of wax bimodules has a positive effect on the state of the main systems of the human body, reactivity and immunological status, adaptive capabilities, psycho-emotional sphere, cognitive functions of the elderly. This is confirmed by the results of a comparative clinical, laboratory and psychological study. This work is addressed to people who understand and accept full responsibility for their own health and the health of their loved ones.

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Conflict of Interest

The author declares no conflict of interest. Author Sergey Roslyak is an independent researcher, not an employee of government agencies and private companies offering contract development services for the pharmaceutical industry.

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