

October 25, 2023

For immediate release

Graduate School of Agricultural and Life Sciences /
Faculty of Agriculture, The University of Tokyo
Mitsui Fudosan Co., Ltd.
Mitsui Home Co., Ltd.

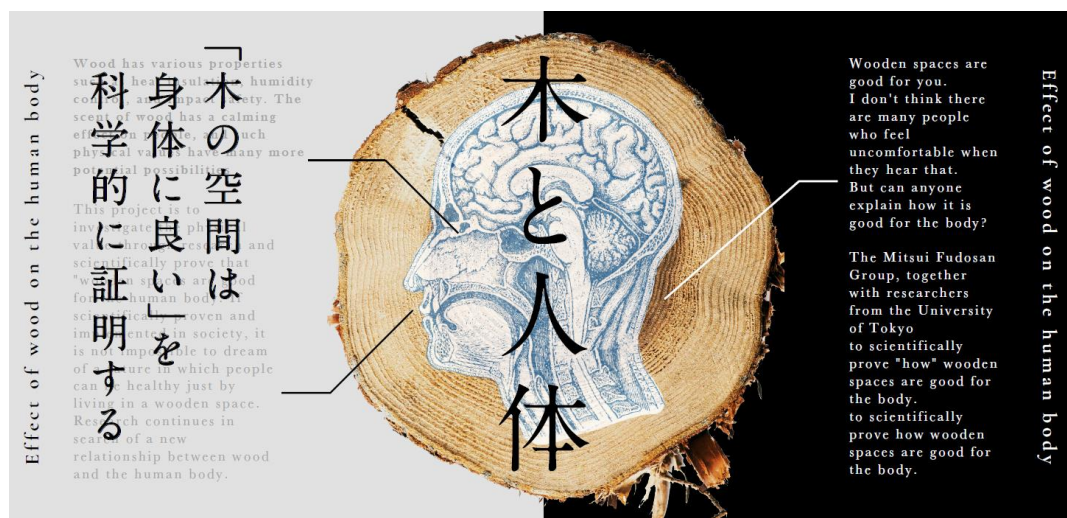
The University of Tokyo x Mitsui Fudosan Group Scientifically Proving that “Wooden Spaces Are Good for the Human Body” —Commencing Demonstration Studies and Research to Ensure Restful Sleep and Prevent Dementia in Order to Contribute to Future Lifestyles—

Tokyo, Japan, October 25, 2023 - The Graduate School of Agricultural and Life Sciences / Faculty of Agriculture, The University of Tokyo (“UTokyo”) and Mitsui Fudosan Co., Ltd., a leading global real estate company headquartered in Tokyo, along with Mitsui Home Co., Ltd. (“Mitsui Home”), announced today that they will commence demonstration studies and research to scientifically prove what kinds of positive effects wooden spaces might have on the human body. This initiative is part of the joint research activities of the industry-academia co-creation partnership Mitsui Fudosan UTokyo Laboratory.

When people are in a wooden space, they can often feel a close affinity with the wood with their five senses, thereby obtaining a feeling of calm and relaxation. The biophilia hypothesis*, which claims that “humans innately seek connections with nature and other forms of life such as fauna and flora,” has contributed to a recent surge in interest in wood-built structures. However, many facts about the effects of wood-enclosed spaces on people still remain unknown. Furthermore, regarding the sense of smell, while there are significant personal differences in terms of sensitivity, preferences and so on, scientific research has shown that components of scents and aromas can have an influence on humans and other life forms regardless of such personal differences. For example, people can be affected by a smell even when they do not perceive it. In light of this, we decided to focus on spaces where people can continuously benefit from the smell of wood in their daily lives. We have commenced efforts to investigate and unravel the relationship between the smell of wood, wood-incorporating spaces, and human health.

Healthy life expectancy is becoming increasingly crucial as we enter an age in which the average life expectancy reaches 100 years. In this environment, a decline in sleep quality, which is one factor that raises the risk of lifestyle diseases, and dementia, for which the number of patients is expected to rise further as people live longer, have emerged as major concerns for society. Through this research project, we will scientifically investigate how the power of wood-incorporating spaces might contribute to solving such issues.

Through these efforts, we will discover new value in wood, and provide scientific support for the benefits of incorporating wood into spaces where people live. By doing so, we will encourage the use of wood in ways that will lead to even better future lifestyles.



Outline of the “Wood and the Human Body” project : <https://youtu.be/qfsXp9Z8pn4>

* The biophilia hypothesis is a hypothesis proposed by American biologist Edward Osborne Wilson that claims that human beings possess an innate tendency or intuition to seek connections with nature and other forms of life.

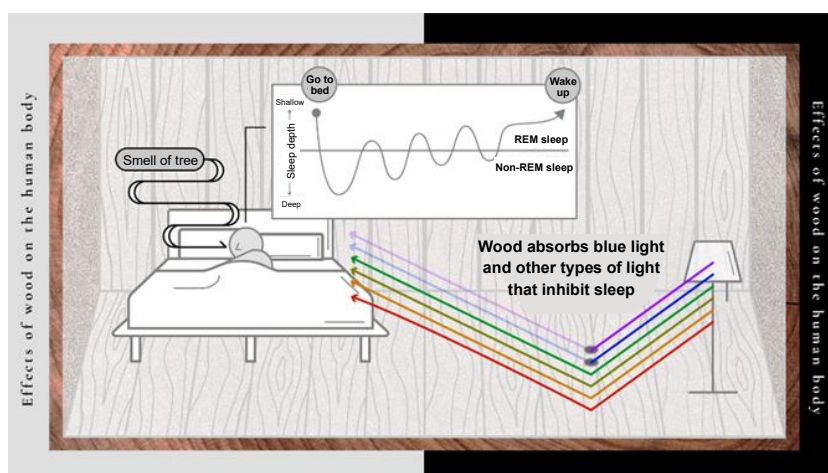
We will conduct research into the relationship between wood and sleep. In order to investigate the relationship between wood and dementia from the perspective of the brain's neurophysiology, research will be conducted primarily under the supervision of the UTokyo Graduate School of Science, in collaboration with the UTokyo Faculty of Agriculture.

Research 1 Research on the impact of wooden and wood-built spaces on sleep, with a focus on the “smell” of wooden spaces and their “effect on modifying the light environment”

People are said to spend one-third of their lives asleep. Sleep serves many important functions, such as recovering from fatigue and improving immune function. It is said that the Japanese people have extremely short sleep times in contrast to those in other developed countries, and that more than half of the Japanese population suffers from some type of sleep quality problem.

Wooden spaces have various properties, including superior insulation and the capacity to naturally adjust humidity to optimal levels. Among these properties, this research project will focus on the “smell” of wood and wood’s “effect on modifying the light environment,” with the aim of applying these properties to human living spaces.

Tree species such as Japanese cedar, with their distinct smell, stimulate the human parasympathetic nervous system and make it dominant. As a result, the respiratory and pulse rates slow, guiding people to a state of bodily recovery and mental calm. In addition, many tree species have the ability to effectively absorb light with short wavelengths, such as blue light, which disrupts sleep. For this reason, this research project hypothesizes that the light environment of spaces that incorporate wood could contribute to more restful sleep. The research project will employ several different types of wood to conduct experiments to study the differences in effect between tree species.



■ Comments by Professor Yuko Tsunetsugu, Department of Biomaterial Sciences, Graduate School of Agricultural and Life Sciences, UTokyo (Research 1 Principal Researcher, specializing in wood environmental science)

There are still many more questions about the impact of wooden spaces on the human body and mind that must be answered through research. For example, extensive studies must be conducted into the effects of the amount and grain of the wooden material used, differences in effect due to tree species, and the effects of spending extended periods of time in wooden spaces.

The biophilia hypothesis states that we seek connections with things derived from various forms of life. I believe that wood plays an enormously important role as a material that evokes nature and life in man-made structures.



■ **Comments by Hiroyuki Uesako, Technical Research Institute, Mitsui Home Co., Ltd.**
(Joint Researcher, responsible for research into wood product development technology)

I'm extremely thrilled about the prospect of presenting the appeal of wooden spaces to customers through the lens of their effect on improving sleep quality, along with proposing such spaces from a design perspective, as we have previously done.

Homes are important places where people spend a large amount of time over their lifespans. That is why I would like to suggest to customers not only the structural performance of homes, such as earthquake resistance and insulation, and their design characteristics, but also proposals that improve residents' quality of life in terms of health, as supported by this research project.

Through this research project, I will work to ensure that many more people are able to make their forward-looking aspirations a reality.

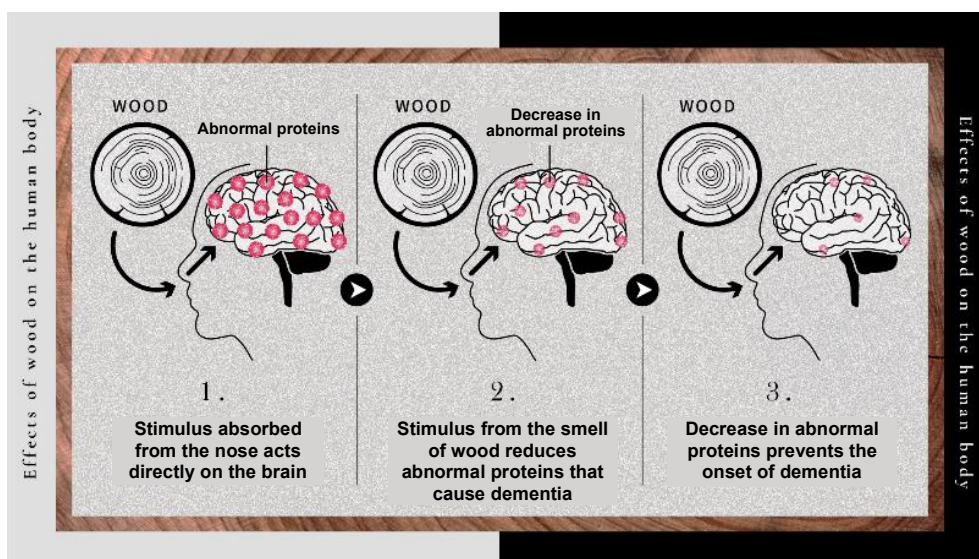


Research 2 Research on the effect of the smell released by wooden building materials on preventing dementia

In Japan's aging society, where one in every five elderly people is expected to develop dementia, measures to address this disease are an urgent priority. Dementia research is being conducted all around the world, with research focused particularly on how to slow the onset of the disease, which anyone could face firsthand. Although various new drugs are being developed, numerous issues remain, including a sense of urgency over public finances for medical insurance in connection with establishing expensive therapies.

In this research project, we focus on olfactory disorders, one of the precursors of the onset of dementia, which causes many social issues. Humans have five senses, one of which is smell. Unlike the other senses, the sense of smell has a neural pathway that directly stimulates the brain. Smells absorbed through the nose can act directly on the regions of the brain that govern memory and emotions. Therefore, it is well known that there is a close relationship between smell and memory.

This research project will investigate whether the parts of the brain that cause dementia can be stimulated by surrounding a person with the smell of wood, thereby delaying the onset of dementia. Wood-scented spaces will be created using several different types of wood, and animal studies will be conducted to find answers. Together with the UTokyo Graduate School of Science's Takeuchi Lab, we aim to utilize what we learn to enhance people's living spaces and daily lives.



■ **Comments by Professor Haruki Takeuchi, Department of Biological Sciences, Graduate School of Science, UTokyo (Research 2 Principal Researcher, specializing in molecular neurophysiology)**

There are more genes associated with the human sense of smell than with the sense of sight. It is thought that the genes for the sense of smell have survived based on their necessity and importance to human functioning. Meanwhile, while people are rarely self-aware of the importance of their sense of smell, there is a significant relationship between the sense of smell and the brain, as evidenced by how sensations from the sense of smell can prompt the recall of forgotten memories.

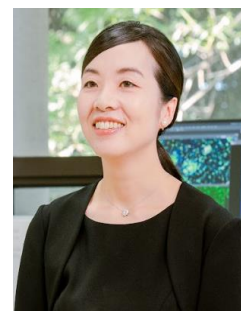
In this research project, we will create an environment in which an appropriate stimulus from the smell of wood can be naturally received through wood-based spaces. The effects of this smell on the brain will be investigated both from neurophysiological and behavioral science viewpoints. I strongly hope that this research will lead to the discovery of a new hidden power in the smell of wood.



■ **Comments by Makiyo Maekawa, Industry-Academia Collaboration Department, Mitsui Fudosan Co., Ltd. (Joint Researcher, responsible for promoting industry-academia collaboration)**

Because many cases of dementia occur in persons in their 70s, dementia never became a social problem when the average life expectancy was lower than it is today. Now that lifetimes are longer, I believe that delaying the onset of dementia can further increase healthy life expectancy and thus have a significant impact on society.

If living surrounded by the smell of wood helps to improve a person's health, this will not only improve the quality of life for individuals, but it should also aid the well-being of society as a whole. While observing individuals who live in such homes and the future of society around them, I would like to explore the possibilities of wood and make a scientific contribution in this area.



【Attachment 1】 Overview of Mitsui Fudosan UTokyo Laboratory

In 2020, UTokyo and Mitsui Fudosan concluded an agreement on industry-academia co-creation in the urban/neighborhood creation field and launched the activities of Mitsui Fudosan UTokyo Laboratory.

This laboratory aims to drive innovation in the real estate industry by combining Mitsui Fudosan's extensive experience in neighborhood creation and UTokyo's cutting-edge knowledge and technology.



【Attachment 2】 Mitsui Fudosan Group's Contribution to SDGs

https://www.mitsufudosan.co.jp/english/esg_csr/

The Mitsui Fudosan Group aims for a society that enriches both people and the planet under the principles of coexist in harmony with society, link diverse values and achieve a sustainable society, and advances business with an awareness of the environment (E), society (S) and governance (G), thus promoting ESG management. By further accelerating its ESG management, the Group will realize Society 5.0, which the Japanese government has been advocating, and contribute significantly to achieving the SDGs. Additionally, the Group formulated the following Group guidelines related to "Realize a Decarbonized Society" and "Diversity & Inclusion Promotion" in November 2021, and "Biodiversity" in March 2023. The Mitsui Fudosan Group will continue to work toward solving social issues through neighborhood creation.

【References】

• Group Action Plan to Realize a Decarbonized Society

<https://www.mitsufudosan.co.jp/english/corporate/news/2021/1124/>

• Formulated Diversity and Inclusion Promotion Declaration and Initiatives Policy

https://www.mitsufudosan.co.jp/english/corporate/news/2021/1129_02/

• Mitsui Fudosan Group Biodiversity Policy

<https://www.mitsufudosan.co.jp/english/corporate/news/2023/0413/>

* The initiatives covered in this press release are contributing to three of the UN's SDGs.

Goal 11: Sustainable cities and communities

Goal 12: Responsible consumption and production

Goal 17: Partnerships for the Goals



【Mitsui Home will advance the MOCX GREEN PROJECT】

https://www.mitsuihome.co.jp/company/mocx_green_project/

The MOCX GREEN PROJECT is a project in which Mitsui Home, which has so far built over 250,000 wooden structures, will contribute to decarbonization through a variety of efforts that expand the possibilities of wooden structures.

