

Survey branch

INFORMATION ON THE SURVEY FOR PARENTS OF KINDERGARTEN CHILDREN

Title of the study: Nationwide Research on the Rewilding of Kindergarten Yards (Vahvistu)

Request for participation in the study

We are asking you and your child to participate in this study, which investigates how kindergarten yard rewilding promotes children's well-being and whether greening can be used to prevent the emergence of immune defense disorders. The study invites children from kindergartens that have received a government grant for the environmental improvement or the development of exercise opportunities for their yards. In addition, children from control day cares whose yards are not being modified will be invited to participate. This information leaflet describes the study and your child's possible involvement in it. Please take time to read this leaflet. If you have any questions, you can contact the study staff (contact details are at the end of the document). If you decide to participate in the study, you will be asked to sign the consent form on the last page of this document.

Voluntary participation

Participation in this study is voluntary. You can refuse or drop out of the study at any time during the study without giving any reason or without any consequences for your child or you. Refusing or interrupting the study will not affect your child's or your right to receive the treatment required by the situation.

You may also withdraw your consent at any time during the study without providing any reason by notifying the research staff. Withdrawal of consent will not result in any consequences for the child or to you. If you decide to withdraw your consent, or your child's participation in the study is interrupted for any other reason, the information collected about your child or you up to that time may be used in this study if required for the purposes of the study and permitted or required by law. If you wish to withdraw your consent to participate in the study, please inform the research staff.

Conductor of the study

This research is carried out by the University of Tampere and Natural Resources Institute Finland. The mandator of the research is Olli Laitinen (University of Tampere). The leading researcher of the study is Aki Sinkkonen (Natural Resources Institute Finland) and the chief medical officer is Hanna Haveri (Helsinki and Uusimaa Hospital District).

The registrars of the study are the University of Tampere and Natural Resources Institute Finland, which are responsible for the legality of processing personal data in connection with the research. As a registrar, The University of Tampere answers questions about the processing of personal data.

The purpose of the study

The purpose of this study is to determine how the rewilding of the kindergarten yards contributes to children's well-being and whether it is possible to use greenery to prevent disorders of the immune system. Greening of kindergarten yards is expected to modify the microbiome of the skin, saliva, and intestines and reduce the cortisol level, the so-called stress hormone. Staying at a more diverse green yard can reduce infectious diseases as well as atopic or allergic symptoms - or even prevent them from breaking out. In addition, we assume that rewilding of the yard will have a positive effect on children's cognitive functions. In addition, the purpose of this study is to identify habitat factors with the help of vegetation mapping and satellite data that affect microbiota and well-being.

Children aged 1-5 from kindergartens that received a government grant for environmental improvement or the development of exercise opportunities for their yard are invited to participate the study. In addition, children from control kindergartens whose yards are not being modified are invited to participate in this study. The exclusion criteria for the study are less than one year or more than six years of age, as well as the use of antibiotics in the year before surveys.

Approximately 320 subjects from 40 kindergartens participate in the study

Research methods and measures

Municipalities carry out yard modification according to their plans, so the assumption is that the plants and materials used in the intervention are safe and do not contain for example toxic plants or fungi. In the interventions, guidelines for the safety of yard areas are followed according to the regulations and instructions of the construction industry quality system.

Before the start of the research, a vegetation and polypore survey will be conducted in the kindergarten yard to determine the environmental factors that promote or are harmful to the human microbiome or well-being. Open satellite data can also be used in research to determine habitat factors. The kindergarten staff in the intervention group are interviewed before and after the yard modification to record all the changes made in the yard. In addition, interviews with the kindergarten staff gather information about the children's daily rhythm to obtain information on how much time the children spend on the yard on average. In some kindergartens, a group interview is carried out regarding with landscaping. The children who participated in the study from the kindergarten in question will take part in the interview.

Participation in this study takes about three years and it includes surveys every three months.

The children's parents complete electronic surveys at home. Families fill out a survey about their children's living environment, diet, outdoor activities, and pets. The form also asks about parental smoking and a history of allergic and autoimmune diseases. The forms will be answered before the intervention, 2-3 months after the start of the intervention, and annually thereafter. The survey investigates children's contact with nature and the living environment in general, possible changes in outdoor behavior during the intervention, as well as changes in health. In addition, every three months, a very short survey about infectious diseases is answered – however not when a longer survey is sent to be answered, because the infection questions are already included. The surveys of participants from the control kindergartens are filled out simultaneously with those from the intervention kindergartens.

At the beginning of the research, before modifying the kindergarten/school yard, after 2-3 months of yard modification, and after one, two, and three years, a vegetation survey is carried out in the yard and soil microbial samples are collected.

You can contact the research staff during the study; for example, if you are experiencing changes in health or if instructions are needed (the contact details of the research staff can be found at the end of this information leaflet).

Research-related benefits and possible risks and disadvantages

Participating in an exposure test can be of immediate benefit to the subjects if exposure for diverse nature strengthens their immune defenses, protects against allergic disorders or from atopic dermatitis, and increases the well-being of the participants. Rewilding described in the study is done in any case, so the study does not increase the exposure to nature faced by the participants in comparison to the situation in which the research would not be carried out. Research increases the safety of performed procedures and ascertains the health benefits because without this research, there would be no corresponding information about them, nor about possible disadvantages. The aim of this research is to determine how the kindergarten yard rewilding promotes children's well-being and whether greening can be used to prevent the emergence of immune defense disorders.

Participation in this study causes little disadvantage in terms of the subjects' time use. The other risks of this study are minor and are comparable to a normal stay at home or in the kindergarten yard and for tending garden plants, when you can, for example, get a stick in your finger or insect bite.

Participating in research can also cause unexpected disadvantages. In addition, if new information relevant to safety or continuation of the research is obtained during the research doctor takes contact immediately and discusses the continuation of the study.

Insurance coverage of research subjects

If scientific research or a procedure causes a personal injury for your child, you can apply for compensation.

This study is covered by the University of Tampere's patient insurance. The insurance covers research activity examinations of practicing personnel also for healthy persons.

Compensation is sought for personal injuries caused by reasons other than the investigational drug from the research center's patient insurance. In accordance with the Patient Injuries Act, it compensates for health and personal injuries caused in connection with medical treatment under conditions specified in more detail in the law. The Patient Insurance Center manages the compensation process for patient injuries.

Research costs and financial statements

No compensation is paid for participating in the study. Research visits are free of charge to the research subjects.

The Strategic Research Council is responsible for funding this research through the Academy of Finland. The researcher and other staff are not paid separately for conducting the research.

Personal data processing and data confidentiality

Your personal data and that of your child will be processed for the scientific research described in this information. The basis for the processing of personal data is § 21 a of the Act on Medical Research and is in accordance with the following data protection regulations:

- public interest and public interest related to the purpose of protecting public health (personal data art 6.1.e, sensitive personal data article 9.2.i)

- scientific research in the public interest (personal data article 6.1.e, sensitive personal data Article 9.2.j)

In this study, only the personal data necessary to carry out the research is collected and processed. Personal data and research results collected about you and your child are treated confidentially, as required by legislation on the processing of personal data. Yours and your child's identity are known only by the researchers conducting the study, and they are all bound by confidentiality. All information collected in the study are processed coded. All personal data from which you can be directly identified (such as social security number and name) are removed and replaced with a code number and kept separate from the coded data and to avoid giving them to persons outside the study. The results of this study are reported at the group level. It is not possible to identify an individual subject from research result publications or reports.

In this study, the following information is collected from the following sources:

Information collected from child's parents:

- Child's and parent's name, social security number/date of birth, address information

Information to be collected via surveys:

- Question about staying in the kindergarten yard (kindergarten staff)
- Questionnaire about the child's living environment, outdoor activities, diet and health, a few questions about parents' health and smoking (parents)

Habitat information:

- Open satellite data (Corine land use class data, LAI, NDVI), kindergarten yard vegetation survey, kindergarten yard ground surface, and kindergarten door mat microbial composition.

In this study, the information about you and your child are dealt with by the research staff carrying out the research.

The subject's name and social security number will not be transferred outside the research clinic, nor will the research data be given to persons outside the study (see more details in the Register Statement on the study's website). The final research results are reported at the group level, and the identification of individual subjects is not possible.

The storage period for your data is regulated by legislation and good clinical research practice. In non-electrical materials containing personal data in the form are stored in locked premises of the University of Tampere at the research clinic on the Kauppi campus, which only designated persons have access to. The survey research material is archived in the REDCap (Research Electronic Data Capture) system intended for collecting and managing research data, which is installed on the server of the University of Tampere. REDCap meets the requirements of the General Data Protection Regulation (GDPR General Data Protection Regulation). The data obtained from REDCap is archived at the Natural Resources Institute Finland in an electronic database on Valtor's Tiimeri server. The database was developed by the research group and the research subjects are identified by a pseudonym with a research code. The University of Tampere keeps what is taken from REDCap and what is received from the research subjects research data on CSC's sensitive data server (<https://research.csc.fi/en/sensitive-data>). Subjects are identified with a pseudonymized study code, the code key of which is held by the named researchers and statistician outside the study. Personal data collected in connection with the study will be stored 15 years, after which they are destroyed.

Scientific research involves the publication of research results in scientific publications. The results of the research are published in scientific articles, dissertations or other theses, at seminars and stakeholder meetings. In addition, to protect the results of the study can patent applications be filed. Research publications and their Finnish language versions summaries will

be added to the project's website (<https://www.biwe.fi>), the address of which will be announced for families participating in the study.

Communication of research results

This is a scientific study, the results of which may take several years to complete. The research results are published in accordance with the funding conditions in national or international scientific journals in publications.

If based on surveys, something significant is found to be investigated in terms of health, guardians are contacted and guided to the necessary follow-up measures.

Rights related to the processing of personal data

You have the right to see the personal data collected about you and your child in connection with the study, and to receive information on what personal data has been used for, to whom it has been disclosed, and for what purpose. In addition, you have the right to request the information to be corrected or supplemented if you notice errors or omissions. In addition, you have the right to request the restriction of the data processing. These rights apply to both your and your child's personal data.

You also have the right to request the removal of your or your child's data from scientific research or limiting their use. You have the right to object to the processing of personal data by notifying it for the research staff. However, the entity conducting the research has the right to deal with the research subject data collected before withdrawal of consent in the study to which the subject has given their consent if necessary. In connection with scientific research, these rights however, can be limited. For example, legislation may oblige the data controller to keep your and your child's research data for a certain period regardless of the rights of the data subject and allows exceptions to the data subject's rights, when it is necessary for scientific research results and to ensure the safety of subjects.

You have the right to contact the data protection officer of the University of Tampere by e-mail at dpo@tuni.fi, or the Finnish Natural Resources Agency, tietosuoja@luke.fi.

You have the right to file a complaint with the supervisory authority if you believe that your child's personal data processing violates the EU General Data Protection Regulation (EU) 2016/679. Supervisory authority in Finland is a data protection officer.

Office of the Data Protection Commissioner

Lintulahdenkuja 4, 00530 Helsinki, P.O. 800, 00531 Helsinki

Phone number: 029 566 6700

E-mail: tietosuoja@om.fi

Additional information and researchers' contact information

If you have any questions about the research, please ask primarily postdoctoral researcher Laura Kummola.

Lead researcher

Aki Sinkkonen

phone 029 532 2306

aki.sinkkonen@luke.fi

Mandator

Olli Laitinen

phone 050 342 7273

olli.laitinen@tuni.fi

Postdoctoral researcher

Laura Kummola

phone 050 437 7412

vahvistu@tuni.fi