

Largest health study SHIP starts with third base group and enters new territory in population research

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- For the first time, pets are included in the studies
- Investigations include findings on corona infections
- Pets will be included in the exchange of information

On May 17, the world's most comprehensive long-term study SHIP (Study of Health in Pomerania/Leben und Gesundheit in Vorpommern) will start in the districts of Vorpommern-Rügen and Vorpommern-Greifswald with a new third population group (SHIP-NEXT). In addition to many new studies, the participants' pets are included in the studies for the first time. Dog, cat or chicken, what impact does individual pet ownership have on human health?

SHIP-NEXT creates a new randomly selected population of 4,000 subjects between the ages of 20 and 79. It is now the third baseline group in the SHIP project, which will again have several follow-up studies. The study, with a funding volume of 8.8 million euros, has a duration of four years. The SHIP health study is an epidemiological research project of Greifswald University Medical Center headed by Prof. Dr. Henry Völzke of the Institute of Community Medicine. For the start of the studies, a special hygiene concept was developed for the increased safety of all participants due to corona.

"With the new stage of the SHIP project, we are opening up a new dimension in population research and entering truly uncharted territory. Not only are we integrating highly innovative medical investigations and new methodological concepts, but for the first time we are also including people's pets in such a comprehensive health initiative," emphasized study director Prof. Dr. Henry Völzke. "In addition, we will offer participants information about the study and current developments on it beyond the examination program. Communication with each other and a dedicated portal for participants will increase the acceptance of research studies in the sense of citizen science."

In focus - living conditions, environment and health

The study program, which lasts up to twelve hours in total, consists of a core program and additional examinations. The core program includes basic medical examinations, a foot pressure measurement, determination of body measurements in the BodyScanner, several ultrasound examinations, seven-day measurement of daily activities using a GPS logger and an actimeter, a sleep examination, a hand examination, a gait analysis and eye examination, measurement of eye movements (eye tracking), as well as dental examinations, an evaluation of voice quality and a series of laboratory tests, including a hair and nail analysis. In addition, there is a personal interview, a survey on headaches and various thematic questionnaires for self-completion. The program of additional examinations includes a full-body MRI scan as well as a hand scan, cardiovascular pulmonary performance and tissue stiffness

examinations, a pulmonary function test, a bicycle stress test, a 3D cardiac ultrasound, a pulse wave analysis, a bioelectrical impedance analysis (BIA) to determine the body composition of water, fat and muscle tissue, and special ultrasound examinations of the heart and other organs.

The proven examination program is supplemented by numerous new checks. Among other things, an intraoral 3D scanner will be used for the first time to document the upper and lower jaws and their position in relation to each other. An intraoral camera is used to take pictures of the two rows of teeth. Another new feature is the measurement of eye movements with an eye-tracking camera. This should provide information about the reaction of the participants to different emotional images. Other new examinations include gait analysis, headache interview, sleep activity monitoring, and hand and foot examinations.

The new SHIP data collection also incorporates findings from the "SHIP-COVID" infection epidemiology study, which was launched in November 2020 with 1,000 participants. For example, data on the spread of the pathogen as well as on symptomatology, own behaviour and risk perception will be collected. Antibody determinations can be performed at any time from the stored blood samples from SHIP-NEXT to investigate the course of immunity to Corona.

In addition to a comprehensive educational brochure on the examinations and data protection measures, the test participants also receive a cover letter for their employer requesting time off for the study, as well as letters of support from the education and health ministries and the district administrator," says Völzke. Travel expenses to the Greifswald study center will be reimbursed. There is also a small expense allowance and a corona-compliant food bag.

Additional module One Health includes pets

In SHIP-NEXT, dogs, cats, chickens, ducks, geese and pigeons are also examined for the first time, as well as the coexistence of humans and animals. The idea of One Health ("One Health") is to look at human health not in isolation, but together with animal health and the environment. What influence does animal husbandry have on the physical and mental health of humans, and to what extent does this depend on the bond with the animal? What influence do housing and feeding conditions of the animal as well as the behaviour of humans and animals have on the risk of transmission of infectious diseases (zoonoses)? What is the need for information on animal husbandry and zoonoses? "Our goal is to provide concrete information on the importance of animals and their husbandry for human and animal health using the data collected in SHIP. In this way, we want to create, among other things, a greater awareness for the healthy handling of dogs, cats, poultry and pigeons in private households," explained the population researcher.

For this purpose, the animals of the test persons, if available, are examined by qualified veterinarians in their domestic environment. In addition, swabs and blood samples are taken from the animals. In addition to determining the general state of health, this allows laboratory diagnostic detection of various pathogens that may also have significance for humans. These examinations are supplemented by data collection using questionnaires and an on-site interview.

SHIP examinations only possible by invitation

"Participants benefit directly from the study as they are given the results of different examinations. However, the results of SHIP benefit everyone. With SHIP, scientific knowledge is gained in order to prevent diseases in the future, if possible, or to be able to detect them at an early stage and alleviate their consequences," Völzke emphasized.

"Our test subjects are selected exclusively at random via the residents' registration offices so that we can make representative statements for our region. It is only possible to participate in this study if you have received a personal invitation to do so," the study director made clear. The first invitation letters have been sent out this week. "We have had very good experience in the past years in the exchange with the test persons. But, we would like to intensify this direct dialogue significantly in the future. We have to take people along, involve them better; it's not enough just to examine them. That's the only way they can really take an active part in what's going on."

Financing of the study with a funding volume of 8.8 million euros:

State of Mecklenburg-Vorpommern, Greifswald University Medical Centre, German Research Foundation, German Centre for Cardiovascular Research, Federal Ministry of Education and Research, Joint Federal Committee (GBA)-Innovation Fund, Federal Ministry of Agriculture and Food, EU - European Union's Horizon 2020 research and innovation programme.

BACKGROUND SHIP - Largest research institute at the university

Since 1997, adults from Western Pomerania have undergone regular medical and dental examinations in the SHIP study to better understand the relationship between risk factors and diseases. Over the years, SHIP has evolved into a study with the world's most comprehensive screening program in a large-scale region. The first baseline group (SHIP-START-0) from 1997 has already been intensively studied four times (SHIP-START-0,-1,-2,-3). Follow-up surveys occur approximately every five years.

The second baseline group from 2008 (SHIP-TREND-0) has also been studied for the second time (Trend-0-1). Now the third baseline study is starting (SHIP-NEXT-0).

The study results have revealed many basic and complex medical relationships, such as that gum disease increases the risk of heart attack, fatty liver promotes the risk of diabetes, and thyroid dysfunction can increase the risk of cardiovascular disease. Nearly all of the University Medicine's 21 specialty hospitals and 19 institutes are now involved in the SHIP screening program.

In addition, the long-term study serves to determine important reference values for laboratory analyses, physical capacity and organ sizes. Modern bioinformatic methods are used to define relevant health indicators from the extensive information. The level of awareness of the study with many scientific publications is enormous, which is also due to numerous national and international cooperations. For example, large sister studies are underway in Brazil with 3,000 and in Poland with 5,000 participants.

The SHIP/Clinical Epidemiologic Research Unit at the Institute of Community Medicine, now with 88 employees (excluding students), conducts SHIP data collection on behalf of the Community Medicine Research Network. The Institute is the largest research unit at the University of Greifswald. Other priority projects for population research in Mecklenburg-Vorpommern have developed out of SHIP. These include, for example, GANI_MED ("SHIP in the Clinic" - Greifswald Approach to Individualized Medicine), prevention research at the Greifswald site of the German Center for Cardiovascular Research (DZHK) e.V., and the nationwide health study NAKO.

+++ Note for media representatives:

If you are interested, we will provide you with the educational booklet for the participants as well as the results brochure of the previous study series (mail to ship-next@uni-greifswald.de).

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