

New Ludwig Boltzmann Institute for Digital Health at University Institute of Sports Medicine, Prevention and Rehabilitation in Salzburg

Neues Ludwig-Boltzmann-Institut für digitale Gesundheit am Universitätsinstitut für Sportmedizin in Salzburg

In just a few weeks, a new Ludwig Boltzmann Institute (LBI) for Digital Health will open in Salzburg at the University Institute of Sports Medicine, Prevention and Rehabilitation, to improve the sustainability of changes in life style..

Cardiovascular diseases (CVD) remain the most frequent cause of death worldwide and are also responsible for most deaths in Austria. CVD cause enormous personal, societal and economic problems. Healthy behavior, especially sufficient exercise, healthy nutrition, proper taking of medications and abstinence from smoking are the most important measures in CVD prevention and treatment. However, all data show clearly that it is not presently possible for CVD-patients, CVD-risk groups and even for the general public to adhere to these recommendations in the long-term and sustainably.

The goal of this project is to support patients in the long-term, consistently, efficiently and effectively to reduce the risk and consequences of CVD.

Baseline

Presently, great advances are being achieved in information technologies. On the one hand, these advances are to be found in the hardware, particularly in units like smartphone, smartwatches, activity and sleep trackers, but also in units for continuous mobile blood sugar measurement. The environment (door locks, household machines) are becoming more intelligent and more easily programmable. On the other hand, these advances are also found in the software and the algorithms, especially in mechanical learning and data analysis (e.g. algorithms for self-driving cars, which continuously evaluate camera images). In addition, more and more data are available (Big Data), which form the basis for these algorithms. Thus, patients have access to their medical data from the health system (ELGA). The Data Protection Ordinance (DGSVO) covers also access to all of one's own person-related data, even if they were collected by a third party, like Facebook or Google. The advancing digitalization and increased use of digital units and services enable an increasingly deep insight into one's own behavior. Knowledge of one's own behavior is prerequisite to successful changes in behavior, such as in behavior therapy. Evidence of the effectiveness of behavior-therapeutic measures is increasingly good.

Potential and Vision

The combination of these advances has the potential to support sustainable life-style changes of patients and risk groups. The vision, starting from the model region Salzburg, is to support first CVD patients and then the general public in making health-promoting changes in life style using the new digital possibilities. Patients and the public will be actively involved in the implementation. In the long run, not only the health of the individual will profit from the LBI, but also the general public on both a scientific and the national economy level.

Digital techniques and knowledge from psychology will be combined in order to provide medically-investigated, health-promoting personalized help for patients automatically and promptly (just-in-time interventions) on the basis of modern data analysis and mechanical learning. For example, as a concrete measure, the patients will receive a safe and user-friendly digital health assistant. The assistance given takes into account the local environment and geographic details, as well as the patients' personal preferences.

In addition, a safe, user-friendly tool for monitoring and correctly assessing and using their health-relevant data will be developed for and in cooperation with the patients and public, including data from a third party. This tool facilitates gaining scientifically-founded knowledge (evidence) in the form of broad studies. In the model region Salzburg, this public-supported, open health-scientific research will be performed over a period of seven years, originating at the Ludwig Boltzmann Institute, but will be guaranteed by the continued existence and expansion of the Institute and the developed soft and, where appropriate, hardware provided.

The interdisciplinary, international LBI research team is comprised of physicians, computer specialists and neuroscientists and is working together with local experts at the University Institute of Sports Medicine, Prevention and Rehabilitation of the Paracelsus Medizinischen Privatuniversität (PMU) Salzburg to solve the problems of CVD rehabilitation and prevention.

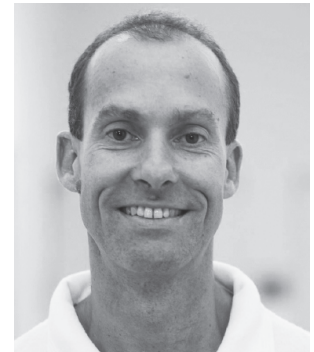
The funding covers 7 years and amounts to 10 million euros. The funds have been granted on the one hand by the Ludwig Boltzmann Gesellschaft and on the other by Land Salzburg and the consortium partners cited. The goal of >

ACCEPTED: May 2019

PUBLISHED ONLINE: June 2019

DOI:

Niebauer J, Stütz T. Neues Ludwig-Boltzmann-Institut für digitale Gesundheit am Universitätsinstitut für Sportmedizin in Salzburg. Dtsch Z Sportmed. 2019; 70: 143-144.



Univ.-Prof. Dr. Dr. Josef Niebauer, MBA
Head, Sport Medicine, University Hospital Salzburg, Head, Ludwig Boltzmann Institute, Salzburg

FH-Prof. Dr. Thomas Stütz
Co-Head, Ludwig Boltzmann Institut, Salzburg



Article incorporates the Creative Commons Attribution – Non Commercial License.
<https://creativecommons.org/licenses/by-nc-sa/4.0/>



QR-Code scannen und Artikel online lesen.

CORRESPONDING ADDRESS:

Prim. Univ.-Prof. Dr. Dr. Josef Niebauer, MBA
Universitätsinstitut für präventive und rehabilitative Sportmedizin, Institut für Sportmedizin des Landes Salzburg
Lindhofstraße 20, 5020 Salzburg, Österreich
✉: j.niebauer@salk.at

the LBI is to help patients to make realistic changes in life style using available as well as newly-created digital possibilities. Cardiac patients in outpatient cardiological rehabilitation will begin: if the program is successful, other patient groups and even healthy individuals will be included in the study.

Consortium Partners and Synergies

The University Hospital Salzburg, with control in the hands of the Sport Medicine here, contributes current medical knowledge and active outpatient CVD rehabilitation. This enables direct patient involvement and patient-centered development. The academic courses at the PMU enable dissemination of project results among medical students and their involvement in the interdisciplinary research.

The major Multimedia Technologies (MMT) at the Fachhochschule Salzburg (FHS) offers a bachelor's and a master's program with the focus on software development. MMT will start a master's program in Human-Computer Interaction in cooperation with the department of computer sciences. The FHS also offers majors in biomedical analytics, health- and patient care and physiotherapy. Interdisciplinary health research projects have already been performed. The dissemination of project results to courses in health-sciences majors is made possible by including the FHS.

The University of Salzburg and the departments of computer sciences and mathematics cooperate in the master's program for data analysis. Including these consortium partners enables the LBI to make use of the most up-to-date results in basic research in machine learning, data analysis and statistics.

The SalzburgResearch group is investigating and developing intelligent, networked and mobile systems in the "Internet of things(?)", especially in the areas of traffic / mobility and digitalization of sport. SalzburgResearch can offer the LBI important contributions for including exercise in everyday living and the digitalization and thereby optimization of motion processes.

The Austrian Institute of Technology is home to teams working on Human Computer Interaction and eHealth) and has many years of experience in the development of mHealth solutions, especially in the inclusion of these in the electronic health file ELGA and existing hospital information systems.

We are very pleased by the recognition of clinical and scientific work in sport medicine, which we have received through this new LBI and we see great possibilities for future forward-looking projects in cooperation with other sport-medical institutions in Germany as well, and for further interdisciplinary cooperation. ■