How digital technology affects our health

Always-on connectivity, information overload and new technology that has become part of our lives and that we now depend on. In this emerging digital world, researchers at Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU) and universities in Augsburg, Bamberg, Munich and Würzburg are investigating ways that we can interact with this technology that are beneficial rather than damaging to our health. The Bavarian State Ministry of Science and the Arts is funding the Bavarian Research Association ForDigitHealth with around 3.35 million euros over a period of four years.

Digitalisation is driving fundamental changes to our society and private lives. With these changes come both opportunities and risks for our health. The way we use digital technology and media can lead to negative stress (distress), burnout, depression and other health risks. However, digital media can also help to reduce distress or reframe stress in such a way that is perceived as a motivating challenge or positive stress (eustress). Rapid developments in technology are offering more and more options to improve health and well-being with the help of artificial intelligence, adaptivity and interactivity in systems.

‘Many people experience the benefits of technology every day, but also notice how much we are becoming dependent on and basing our lives around technology. They might be asking themselves how they can cope with masses of e-mails at work or notice that they look at their mobile device every five minutes to see if they have received a new message or who has looked at or commented on their latest post,’ says Prof. Dr. Henner Gimpel from the University of Augsburg, speaker of the new Bavarian Research Association ForDigitHealth. The research association aims to analyse the health effects of the increased presence and intense use of digital technologies and media in their many forms – in particular how digital distress and eustress arise and their implications – as well as to develop and evaluate options for prevention and intervention. In doing so, ForDigitHealth will contribute to appropriate, conscious, individual and collective use of digital technology and media that promotes health.

Two sub-projects at FAU

Experts at FAU in medicine, psychology, computer science, information systems and communications science are working on 11 individual projects that are related to the research areas of ForDigitHealth.

FAU is participating in ForDigitHealth with two sub-projects. Prof. Dr. Nicolas Rohleder, Chair of Health Psychology, is head of the ‘Psychobiological investigation of digital stress’ project that is examining the biomedical effects of stress caused by digital technology and media. Rohleder aims to examine digital stress in a laboratory setting. His research focuses on experiments that examine how people react when exposed to digital stressors. ‘Participants are asked to solve a task where they are required to concentrate. However, they are distracted by mails or messages on their smartphone.’ The researchers want to measure how this stress affects cortisol levels and inflammation. Increased levels can lead to cardiovascular diseases, cancer and depression.
Prof. Dr. Matthias Berking, Chair of Clinical Psychology and Psychotherapy, is exploring how modern technology can be used to increase the attractiveness and effectiveness of apps to promote psychological well-being. ‘Anyone who owns a smartphone is carrying a powerful computer around with them with in-built sensors that are capable of recording and monitoring a number of health-relevant factors. Smartphones could use this monitoring data to suggest ways that users can respond better to psychological challenges or provide contact with health professionals or others dealing with similar health issues for support when dealing with difficult challenges. Empirical research is still lacking in this area and this collaborative project aims to change that.’

Science minister Bernd Sibler emphasises the importance of this research. ‘Health research is an investment in our future. The Bavarian Research Association ForDigitHealth is examining key questions that are highly relevant to maintaining health and well-being when using digital media and technology. In the current climate of digitalisation, it is of critical importance that we make a conscious choice about how we manage technology. We need to be aware of the impact that digital technology has on our lives and how it affects our health.’

Raising public awareness

The research association is planning a series of public events, a scientific blog and an expert network to raise awareness of its findings in societal discourse. It aims to encourage public awareness and promote digital sovereignty in our society.

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