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**Personalized prevention of diabetes – relevance of subgroups**

The number of people in Germany diagnosed with diabetes is increasing. Currently about 7 million people suffer from diabetes, and by 2040, the number of people with type 2 diabetes is projected to increase up to twelve million. [1]. The number of excess deaths associated with diabetes is high, one in five individuals in Germany dies of diabetes [2]. These statistics highlight the urgent need for new, effective prevention measures and innovative forms of treatment.

Type 2 diabetes is a disease that is characterized by very heterogeneous manifestations. Studies in Scandinavia show that patients with type 2 diabetes can be clustered into different subgroups that vary in the severity of the course of the disease [3, 4]. These subgroups were confirmed by the German Center for Diabetes Research (DZD) in analyses of the German Diabetes Study (GDS). Patients in certain subgroups have a high risk of diabetes complications. These findings also highlight the importance of targeted prevention of diabetes.

**Different subgroups in prediabetes**

Current DZD studies show that already in prediabetes there are different subgroups that react differently to lifestyle interventions [5]. Studies indicate that not every prediabetic has the same high risk of developing diabetes later on. Rather, there is a high-risk group: test persons who suffer from fatty liver disease with insulin resistance or insulin secretion disorders are very likely to develop manifest diabetes. In addition, there is increased risk of developing secondary diseases later on. Studies indicate that intensive lifestyle intervention involving increased exercise and accompanied by sustained counseling can help to delay or even prevent the onset of the metabolic disease. Prof. Dr. Andreas Fritsche (Institute for Diabetes Research and Metabolic Diseases of Helmholtz Zentrum München at the University of Tübingen, DZD) presented the results of the study on May 5th in his lecture "Results on high-risk groups from the PLIS prevention study" at the DGIM.

**Digitalization enables research into the prediction and prevention of diabetes in a new dimension**

The DZD is working to identify further subgroups of diabetes and prediabetes and to develop specific prevention approaches and therapies for these subgroups. To this end, we have, among other things, set up large multicenter studies. In addition, the DZD has a huge data trove consisting of cohorts, clinical studies, biosamples, preclinical models, investigations at various sites, results from omics analyses, genotyping and phenotyping. In the DZD-Connect project, we combine the research data from these heterogeneous sources and analyze them using innovative IT technologies to identify patterns – e.g. for subgroups of diabetes. In the next step, we aim to derive conclusions for diagnosis and therapy.

Digitalization opens up the possibility of researching the prediction and prevention of the widespread disease diabetes in a completely new dimension. By setting up a digital diabetes prevention center, DDCP for short, and involving large population groups, health and research data as well as innovative information technologies, the opportunity shall be taken to identify subgroups of diabetes in the population at an early stage and to develop targeted personalized prevention and therapy. [6]

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