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Research in Graubünden

Sport and exercise keep the heart fit

Cardiovascular research at the Davos Medical Campus



Spiro ergometry is used in cardiac rehabilitation and by athletes for training control. Image credit: Oliver Oettli

“The heart is the most magnificent organ there is!” David Niederseer was already convinced of this when he first examined the anatomy of the heart more closely during the dissection course at the beginning of his medical studies. Since the summer of 2023, the sports cardiologist and researcher has been driving the expansion of cardiovascular research and sports cardiology at the Hochgebirgsklinik Davos. Sport and exercise are central aspects of heart rehabilitation. But athletes also need a competent point of contact for heart complaints or illnesses – this is where sports cardiology comes in. Niederseer explains: “For me, cardiac rehabilitation and sports cardiology are two sides of the same coin. For all performance and age levels, for healthy individuals as well as for people with heart diseases, we want to offer a comprehensive ‘sport and heart’ program in the sports city of Davos.”

The cardiology team at the Hochgebirgsklinik Davos, under the leadership of Jan Vontobel, aims not only to set new standards in clinical care but also to further strengthen research in this field. The growing scientific team is planning several ambitious projects:

In collaboration with the health insurance company ÖKK and the cardiology department of the Cantonal Hospital Graubünden, the project ‘Herzinsuffizienz Graubünden’ (heart failure Graubünden) has been

initiated. This scientifically guided pilot project offers a comprehensive program for individuals with heart failure following a hospital stay. The goal is to improve health prognosis and reduce long-term costs through comprehensive and interdisciplinary care.

RECOVER aims to establish the world's first cohort that comprehensively collects medical data from cardiac rehabilitation patients and analyzes them to address research questions. Individuals undergoing cardiac rehabilitation at the Hochgebirgsklinik Davos are asked for consent to use their anonymized data and blood samples for this study. Niederseer explains: "RECOVER is a special project that will answer many open questions in cardiac rehabilitation. Together with our partners CK-CARE and Cardio-CARE here at the Davos Medical Campus, we aim to better understand immunological reactions during the healing process after heart surgeries and develop treatment strategies."

Another focus of sports cardiology research is the prevention of sudden cardiac death during sports activities. Niederseer elaborates: "Regular exercise causes changes in the heart – it becomes larger and stronger. Sometimes, the athlete's heart may resemble a diseased heart. We try to understand these differences more precisely. We also utilize artificial intelligence, which can sometimes detect more in an EKG than a highly trained eye."

The physician himself is an avid athlete, participating in triathlons in the summer and cross-country skiing in the winter. For people who want to (re)engage in physical activity, the sports cardiologist offers the following advice: "A fitness watch isn't always necessary – the main thing is to sweat during training and still be able to talk."

David Niederseer and Daniela Heinen

About the Hochgebirgsklinik Davos

The High Altitude Clinic Davos is a leading Swiss rehabilitation clinic specializing in cardiology, pneumology, dermatology, allergology, and psychosomatics for adults, children, and adolescents. Diagnosis, research, and therapy work hand in hand on the Davos Medical Campus. Visit www.hochgebirgsklinik.ch for more information.



David Niederseer

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