



## Conference Article of the World Health Conference

*Prof. Rainer Klopp (Head of the Institute for Microcirculation Berlin, Max-Delbrück Center Campus Berlin-Buch) and Prof. Fred Harms (Medical Director of the International Micro-vascular Net, Brussels) were invited by the Board of Trustees of the 3rd Global Health Conference in the Kaohsiung Exhibition Center in Taiwan in November 2015 to report on their work.*

**T**he report was based on the publication of the research results of the Institute for Microcirculation on the effect of the physical stimulation of spontaneous arteriolar vasomotion for the improvement of the microcirculation and the immune system in patients with type 2 diabetes and wound healing disorders in an article in the Journal of Gerontology & Geriatric Research. At the Conference Prof.

Harms presented further study results on the changes of the functional state of the microcirculation and its therapeutic influence in patients with type 2 diabetes based on a placebo-controlled and blinded study (n = 60). In the course of this, not only were the latest findings on physical vascular therapy discussed with the international specialist audience, but the entire meeting "Inflammation and Wound Care in Diabetes" was carried out under the directorship of Prof. Fred Harms.

### Many parameters influence the microcirculation

Within the presented study approach related microvascular networks (arterioles, capillaries and venules) in a tissue volume of approx. 3000  $\mu\text{m}^3$  were covered. The following changes in characteristic features were measured: the number of the blood cell perfused node points (nNP) in a defined microvascular network as measure for the distribution status of the blood. In addition, the oxygen utilisation on the venule side ( $\Delta \text{pO}_2$ ) was shown. This showed the share of metabolised oxygen as a measure for the metabolic activity depending on the organ function. In addition,  $Q_{\text{RBC}}$  was determined as parameter for the distribution of the blood, the so-called flow force of microcirculation

Above all in the group of patients who were conditioned under moderate stress on a treadmill (comparable with a walk)

twice a day more than 60 min under hyperoxic conditions (oxygen share in room air of 26 volume percent) and the additional use of physical vascular therapy (12 minutes, level 3), a clear improvement in the stated microcirculatory parameter in the range of 30-50 percent was shown.

### Physical vascular therapy reduces risk of late sequelae

With regard to the clinical relevance of these results the following conclusions can be drawn: the BEMER physical vascular therapy significantly improves the physical performance capacity of patients with type 2 diabetes. It reduces the proneness to infection



through an improvement of the microhemodynamic general conditions or that is to say the microcirculatory standard width for the material exchange depending on the physiologically relevant requirements of the organ metabolism positively. The results underline once again the relevance of the adjuvant physical vascular therapy. This applies above all for patients who have been ill with type 2 diabetes for many years and would like to avoid the possible consequences of multi-morbidity.



Prof. Rainer Klopp



Prof. Fred Harms