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NEW GLUCOSE SENSOR TECHNOLOGY

FIRST CLINICAL TRIAL OF AN OPTICAL SINGLE-PORT GLUCOSE SENSOR ON A COMMERCIAL INSULIN INFUSION SET

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Within the scope of the EU project "SPIDIMAN" (<http://www.spidiman.eu>) a new glucose sensor technology is being developed which improves glucose measurement and allows a more exact insulin delivery which leads to a better blood glucose setting in patients with type 1 diabetes. Special target groups of the project are children and adolescents. JOANNEUM RESEARCHNow, the new technology was tested in a first clinical study in humans. From a technical point of view, the tested single-port system is comparable with systems currently available on the market. In this first study

important knowledge was obtained to further improve and advance the combination of glucose measurement and insulin delivery. This single-port technology has a great potential to become the central element of an artificial pancreas system coordinates this four year project which comprises a consortium of nine multidisciplinary national and international partners.

The new glucose sensor technology is a so-called “single-port system” which allows glucose measurement and insulin delivery at the same site in the adipose tissue. Together with the insulin delivery needle special the optical glucose sensors are placed into the adipose tissue. The sensors are read-out by a miniaturized measuring device which is placed on the skin. Subsequently, glucose values are calculated.

The results of this trial have now been published in a high ranking journal and can be further read here:

Rumpler, M., Mader, J.K., Fischer, J.P., Thar, R., Granger, J.M., Deliane, F., Klimant, I., Aberer, F., Sinner, F., Pieber, T.R., Hajnsek, M., 2016. First application of a transcutaneous optical single-port glucose monitoring device in patients with type 1 diabetes mellitus. Biosens. Bioelectron. doi:10.1016/j.bios.2016.08.039