Healthy diet helps obese people with chronic inflammation and skin wound healing

Why do chronic inflammatory conditions like psoriasis occur more in people with obesity? Experts at Leipzig University Hospital have investigated which factors negatively influence inflammatory reactions and wound healing in obese people. Among other things, they found that switching to a diet low in saturated fat has a positive effect.

In everyday clinical practice, it has been observed that chronic inflammatory diseases like psoriasis occur earlier and more severely in overweight people. In addition, they are more difficult to treat in patients with obesity. Experts at Leipzig University Hospital therefore wanted to find out why chronic inflammatory diseases and chronic non-healing wounds occur more frequently in obese patients.

In a study recently published in the journal Theranostics, the scientists investigated how saturated fatty acids contribute to the increased occurrence of inflammation or disrupt wound healing. When the skin is inflamed or injured, danger molecules are released. “Our focus was on the danger molecule S100A9. S100A9, together with many saturated fatty acids, causes abnormal activation and differentiation of macrophages and ultimately leads to the fact that inflammatory reactions do not subside or skin injuries are not properly repaired,” explains study leader Dr Anja Saalbach, scientist and working group leader at the Department of Dermatology, Venerology and Allergology at Leipzig University Hospital. Macrophages are important cells to initially fight infection. Later, they help inflammation to subside and the tissue to be repaired.

In mouse models, the Leipzig-based researchers have shown that blocking the danger molecule S100A9 normalizes the misdirected activation of macrophages in obesity and thus the inflammatory response and wound healing. Another solution involved feeding the animals on a diet with reduced levels of saturated fatty acids. After just one week of dieting, the inflammatory reaction had returned to normal – without the animals necessarily having lost weight. “Based on our data, it seems that changing a patient’s diet would be enough, even if they do not lose weight as a result,” says Dr Saalbach.

“In a previous study at Leipzig University Hospital, we showed that saturated fatty acids play a very important role. In mouse models, just four weeks of a diet rich in saturated fatty acids, such as palmitic acid and stearic acid, was enough to increase the occurrence of inflammatory skin reactions,” explains study leader Dr Saalbach, adding: “The data from our research in animal models has led to a clinical study now being conducted at the Department of Dermatology to investigate whether a change in diet would also aid the treatment of psoriasis in humans.” In addition, the danger molecule S100A9 is now an interesting target structure for the scientists in order to normalise misdirected inflammatory reactions and wound healing disorders in obesity.

Original title in “Theranostics”: healthy diet helps obese people with chronic inflammation and skin wound healing
"Overexpression of S100A9 in obesity impairs macrophage differentiation via TLR4-NFkB-signaling worsening inflammation and wound healing". DOI: 10.7150/thno.67174

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Originalpublikation:
Original title in "Theranostics": Overexpression of S100A9 in obesity impairs macrophage differentiation via TLR4-NFkB-signaling worsening inflammation and wound healing. DOI: 10.7150/thno.67174

URL zur Pressemitteilung: https://www.thno.org/v12p1659.htm

Healthy diet also helps with chronic inflammation and wound healing of the skin.
Photo: Colourbox
PD Dr. rer. nat. habil. Anja Saalbach
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