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THE EFFECT OF TEMPERATURE TREATMENT OF XENOGENEIC BONE SUBSTITUTE ON THE TISSUE RESPONSE – A MINI REVIEW

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In general, it has been revealed that interaction of bone substitute material with the host immune system is dependent upon their physico-chemical properties. In the case of xeno-grafts, different purification methods are applied to process the precursor tissue. One purification method that differs the most is the applied temperature. Materials treated with low and high temperatures are available. In this context, the question remains as to the influence of the different temperature treatments on the physical and chemical material properties and, thus, on the tissue reactions during the healing processes. It has been hypothesized that mate-rials that induce mononuclear cells induce physiological healing processes, while a pathological reaction is accompanied with the induction of multinucleated giant cells (MNGCs). In this mini-review, the focus is on the comparison of preclinical research into tissue reactions to sintered and non-sintered bovine-derived xenograft. Interpretation of this data showed that an induction of higher numbers of MNGCs by sintered xenograft also induced a higher implant bed vascu-larization. Finally, the higher number of MNGCs and increased vascularization presumably resulted in a higher expression of anti-inflammatory molecules that may support the process of bone remodeling.

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