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Characterising skeletopathy in an animal model of Type 2 diabetes

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ABSTRACT

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Suitable translational type 2 diabetes animal models of diabetic skeletopathy are few. The Zucker Diabetic Sprague Dawley (ZDSD) rat model of type 2 diabetes is relatively new, and we wanted to determine if it would be a suitable translational model to study diabetic skeletopathy.

We found that Type 2 diabetes increases bone adiposity while reducing osteoblastogenesis and promoting osteolysis. An increase in Advanced Glycation End Products (AGEs) enables interaction of the osteogenic cytokine (TGFβ1) and its antagonist (BMP3) to suppress osteoblastogenesis. We conclude that the ZDSD rat can be used as a translational model to study human diabetic skeletopathy.