

Type 1 diabetes is an autoimmune disease that targets the destruction of the insulin producing beta cells, usually in childhood. Even with insulin therapy, blood sugar control is often suboptimal in the adolescent patient population. In the long term, poorly controlled type 1 diabetes often leads to complications to various tissues and organs including blood vessels (small and large), eyes, kidneys and nerves. If type 1 diabetes influences skeletal muscle growth in the short term is likely but is not that well investigated. In this paper, Gordon and colleagues show that poorly controlled type 1 diabetes in young rats profoundly impacts skeletal muscle growth and function, particularly in the type 2 (fast) muscle fibres. The muscles from diabetic rodents are considerably smaller and weaker than age matched healthy animals when blood sugar is elevated and only small amounts of insulin are in the circulation. These authors also show that one of the main mechanisms behind the impairment in growth and strength in this model of adolescent type 1 diabetes is a failure to increase muscle protein synthesis following nutrient intake. Clearly, insulin provision and the resultant restoration of other metabolic disturbances in type 1 diabetes mellitus is required for normal growth and development of skeletal muscle in this very common childhood disease. A follow-up investigation by these authors examines the important role of increased physical activity during times of insulin deficiency in promoting muscle health and this model of adolescent type 1 diabetes.

Reference: Gordon CS, Serino AS, Krause MP, Campbell JE, Cafarelli E, Adegoke OA, Hawke TJ, **Riddell MC**. [Impaired growth and force production in skeletal muscles of young partially pancreatectomized rats: a model of adolescent type 1 diabetic myopathy?](#) PLoS One. 2010 Nov 17;5(11):e14032.

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