

## **The impact of exercise on insulin resistance and type 2 diabetes**

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The benefits of exercise to cardiovascular disease and type 2 diabetes (T2D) risk, improved insulin sensitivity and energy metabolism are generally well recognized. Several important gaps in knowledge remain, including knowledge about the mechanisms of exercise linked to the health benefits. We have investigated the effect of exercise on intramyocellular lipids and mitochondrial energetics, both of which have been associated with insulin resistance and T2D. Interrogating the effects of acute and chronic exercise on these potential mediators of insulin resistance and T2D has helped to reveal potential biochemical and molecular targets in human skeletal muscle to treat insulin resistance and T2D. Additional translational ‘bedside to bench’ studies will help to decipher these mechanisms, and will therefore help to better understand the etiology of T2D, its associated cardiovascular disease risk, and the targets of prevention and treatment of these costly diseases.