



**University of Dundee**

## **Repurposing metformin for cardiovascular disease**

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Trial (NCT number)	Patient group	Enrolled patients; duration & dose of metformin	Publication date	Selected outcome measures
<b>Jadhav and co-workers</b>	Cardiac syndrome X	33; up to 500mg BID for 8 weeks	2006	Improved endothelium-dependent microvascular responses;  Stress Test: maximal ST-segment depression,  Duke score and chest pain incidence
<b>TAYSIDE (NCT00473876)</b>	Chronic HF with insulin resistance	62; 1000mg BID for 4 months	2012	No effect on primary endpoint of peak VO <sub>2</sub> .  Improved pre-determined secondary endpoints of VE/VCO <sub>2</sub> , fasting insulin resistance index and decreased body weight
<b>CAMERA (NCT00723307)</b>	Coronary artery disease with central obesity	173; 850mg BID for 18 months	2014	No effect on primary endpoint of mean distal cIMT

	already taking statins			
<b>GIPS III (NCT01217307)</b>	STEMI without diabetes	380; 500mg BID for 4 months	2014	No effect on the primary endpoint of LVEF
<b>REMOVAL (NCT01483560)</b>	Type 1 diabetes	428; 1000mg BID for 3 years	2017	No effect on the primary endpoint of mean far-wall cIMT. Improvement in the secondary/tertiary endpoints of HbA <sub>1c</sub> ; LDL cholesterol; eGFR and maximal cIMT.
<b>MET- REMODEL (NCT01483560)</b>	Normotensive with insulin resistance and coronary artery disease	64; 2g daily for one year	2018 (expected end of study)	Primary: LV mass index Secondary: Fasting insulin resistance index; obesity; LV size, function and improvement in endothelial function
<b>VA IMPACT (NCT02915198)</b>	Pre-diabetes and established atherosclerotic	7868; up to 2g daily for 4.5 years	2024 (expected end of study)	Primary: Time to non-fatal myocardial infarction;

	cardiovascular disease			stroke; hospitalization for unstable angina; or symptom-driven coronary revascularization. Secondary: Cumulative/recurrent incidence of primary endpoints
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**Table 1 Summary of CVD outcomes in selected repurposing trials for metformin.**

Abbreviations: BID is twice daily. HF is heart failure. VO2 is oxygen consumption. VE/VC02 is minute ventilation – carbon dioxide production ratio. cIMT is carotid intimal media thickness. STEMI is ST-segment elevation myocardial infarction. LVEF is Left ventricular ejection fraction. HbA1c is glycated hemoglobin. LDL is low-density lipoprotein. eGFR is estimated glomerular filtration rate. LV is left ventricle