

**Pliml W, T von Arnim, A Stablein, H Hofmann, HG Zimmer, E Erdmann. Effects of ribose on exercise-induced ischaemia in stable coronary artery disease. *Lancet* 1992;340:507-510.**

There is no established treatment specifically aimed at protecting or restoring cardiac energy metabolism, which is greatly impaired by ischaemia. Even after reperfusion, myocardial content of ATP remains low for more than 72 h. Long-term post-ischaemic dysfunction and irreversibility of ischaemic damage have been associated with low ATP content. Evidence that the pentose sugar ribose stimulates ATP synthesis and improves cardiac function led us to test the possibility that ribose increases tolerance to myocardial ischaemia in patients with coronary artery disease (CAD). 20 men with documented severe CAD underwent two symptom-limited treadmill exercise tests on 2 consecutive days; we postulated that the ischaemia induced might bring about changes in ATP metabolism lasting for several days. Patients whose baseline tests showed reproducibility were randomly allocated 3 days of treatment with placebo or ribose 60 g daily in four doses by mouth. Exercise testing was repeated after treatment on day 5. At that time mean (95% confidence interval) treadmill walking time until 1 mm ST-segment depression was significantly greater in the ribose than in the placebo group (276 [220-331] vs 223 [188-259] s;  $p = 0.002$ ). The groups did not differ significantly in time to moderate angina. In the ribose-treated group the changes from baseline to day 5 in both time to ST depression and time to moderate angina were significant ( $p$  less than 0.005), but these changes were not significant in the placebo group. In patients with CAD, administration of ribose by mouth for 3 days improved the heart's tolerance to ischaemia. The presumed effects on cardiac energy metabolism offer new possibilities for adjunctive medical treatment of myocardial ischaemia.