Non-motorized treadmills are usually used for repeat sprint exercises as the belt speed increases and decreases very quickly in response to the athletes' actions. Historically, non-motorized treadmills have been very large and required the stabilization of participants either by holding onto surrounding objects or wearing a harness during exercise sessions. Recent developments in treadmill design have led to production of the first consumer sized curved non-motorized treadmill. This design features a belt powered by the user and a curved platform that may alter the physiological requirements of running.

**Methods:**
Experienced distance runners (males=6, females=3) performed an incremental exercise test on a motorized treadmill to determine lactate threshold (LT) and maximal (MAX) values. The subjects then performed four exercise bouts at 50%, 65%, 80% LT and LT running speeds on both the motorized treadmill (MT) and the curved non-motorized treadmill (CT). Each exercise bout lasted 6 minutes and the order of all exercise bouts was randomized. When the speed was increased, at least 5 minutes of rest occurred between exercise bouts; when the speed was decreased, at least 10 minutes of rest was provided. The rest periods were used to allow the measured variables to return toward baseline values. Heart rate (HR), oxygen uptake variables (VO₂, VE, RR, RER), muscle oxygenation (StO2), blood lactate (HLA) and ratings of perceived exertion (RPE) were obtained during the last minute of each exercise bout for the incremental test and the comparative runs. A two-way ANOVA with repeated measures was performed, followed by dependent t-tests where appropriate (P<0.05). RESULTS: All oxygen uptake variables, HR, HLA and RPE were significantly greater for the CT trials as compared to the MT trials shown below (mean ± SD).

**Discussion:**
Even though all subjects were able to run on the CT without the assistance of a harness or holding on, running effort on the non-motorized treadmill was significantly greater than on the motorized treadmill, as indicated by the greater oxygen uptake (VO₂), heart rate (HR), blood lactate (HLA) and ratings of perceived exertion (RPE). This may provide an additional training overload if the treadmill is consistently used as a training technique.