

[J Sports Med Phys Fitness](#). 2007 Mar;47(1):51-7.

Bilateral pedaling asymmetry during a simulated 40-km cycling time-trial.

[Carpes FP](#), [Rossato M](#), [Faria IE](#), [Bolli Mota C](#).

Biomechanics Laboratory, Physical Education and Sports Faculty, Federal University of Santa Maria, RS, Brazil. felipecarpes@gmail.com

AIM: This study investigated the pedaling asymmetry during a 40-km cycling time-trial (TT). **METHODS:** Six sub-elite competitive male cyclists pedaled a SRM Training Systems cycle ergometer throughout a simulated 40-km TT. A SRM scientific crank dynamometer was used to measure the bilateral crank torque (N.m) and pedaling cadence (rpm). All data were analyzed into 4 stages with equal length obtained according to total time. Comparisons between each stage of the 40-km TT were made by an analysis of variance (ANOVA). Dominant (DO) and non-dominant (ND) crank peak torque asymmetry was determined by the equation: asymmetry index (AI%)=[(DO-ND)/DO] 100. Pearson correlation analysis was performed to verify the relationship between exercise intensity, mean and crank peak torque. **RESULTS:** The crank peak torque was significantly ($P<0.05$) greater in the 4th stage compared with other stages. During the stages 2 and 3, was observed the AI% of 13.51% and 17.28%, respectively. Exercise intensity (%VO₂max) was greater for stage 4 ($P<0.05$) and was highly correlated with mean and crank peak torque ($r=0.97$ and $r=0.92$, respectively) for each stage. **CONCLUSIONS:** The DO limb was always responsible for the larger crank peak torque. It was concluded that pedaling asymmetry is present during a simulated 40-km TT and an increase on crank torque output and exercise intensity elicits a reduction in pedaling asymmetry.