Effect of Exercise On Key Pharmacokinetic Parameters Related To Metformin Absorption In Healthy Humans: A Pilot Study.

Nikolaidis S, et al. Scand J Med Sci Sports. 2020 Jan 23. doi: 10.1111/sms.13628.

- Ten healthy men participated in two sessions, spaced one to two weeks apart in random, counterbalanced order.
- In both sessions, participants received 1000 mg of metformin orally, 1-1.5 h after breakfast. Then, they either ran for 60 min at alternating intensity, starting at 40 min after metformin administration, and rested without food consumption over the next 3 h or they rested without food consumption during the entire testing period.
- Maximum plasma concentration of metformin (Cmax) was higher at exercise compared to rest. Time to reach Cmax (i.e., Tmax) decreased with exercise, and the area under the metformin concentration vs. time curve (AUC) was higher at exercise. Thus exercise affects the pharmacokinetic values of metformin.

The addition of exercise to metformin administration did not cause hypoglycemia or lactic acidosis.
An additional benefit of exercise: a higher bioavailability—and, hence, clinical effect—of metformin with the same dose or a similar bioavailability with a lower dose.