# Study finds that chewing gum while walking affects both physical and physiological functions

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New research presented at this year's European Congress on Obesity (ECO) in Vienna, Austria (23-26) May shows chewing gum while walking increases heart rate and energy expenditure. The study was conducted by Dr. Yuka Hamada and colleagues at Waseda University, Graduate School of Sport Sciences, Saitama, Tokyo, Japan.

Although there have been a number of studies which have examined the effect of chewing gum on physiological functions while at rest, none have focused specifically on how it impacts the body while walking, which is the basis for this study.

The authors recruited 46 male and female participants aged 21-69 to participate in two trials in random order. In one trial, individuals were given 2 pellets of gum (1.5g and 3 kilocalories per pellet) to chew while walking at their natural pace for 15 minutes after a 1-hour rest period. The control trial involved the same 1-hour rest and 15 minute walk, however participants were given a powder to ingest which contained the same ingredients as gum, but did not require them to chew.

In each trial resting heart rate, mean heart rate during walking, distance covered, and cadence (rate at which they took steps) were measured. Mean walking speed was calculated from the distance travelled during the 15 minutes, and stride length was estimated from the mean walking speed and mean step count. Total energy expenditure during the walk was estimated based on the mean walking speed and the body mass of each participant.

The study found that in all participants, the mean heart rate while walking as well as the change in heart rate from being at rest was significantly higher in the gum trial than in the control trial.

The team then performed stratified analyses by sex and age, separating the group into male and female, as well as young (39 and under), middle-

aged and elderly (40 and older). Both male and female participants in the gum trial had a significantly higher mean heart rate while walking and change in heart rate, however in males there was also a significant increase in the distance walked and mean walking speed when compared to the control trial. (see p627, full paper, link below).

While all ages experienced a significantly larger change in heart rate in the gum trial, middle-aged and elderly participants also had a significantly higher mean heart rate while walking compared to the control.

Combining these analyses to incorporate both sex and age showed that chewing gum had the greatest effect in middle-aged and elderly men who experienced a significant positive effect on distance walked, mean walking speed, mean step counts, mean heart rate while walking, change in heart rate, and total energy expenditure compared to the control trial.

The authors conclude: "Chewing gum while walking affects a number of physical and physiological functions in men and women of all ages. Our study also indicates that gum chewing while walking increased the walking distance and energy expenditure of middle-aged and elderly male participants in particular."

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