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Caloric Expenditure is Stimulated by a Single Bout of *Lycium barbarum* Combined With Indigestible Fiber, or Combination of These in Various Food Forms Indicated by Resting Metabolic Rate in Healthy Human Adults

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Background: *Lycium barbarum* (*L.barbarum*) increases resting metabolic rate (RMR). We investigated combination effect of *L. barbarum* and indigestible fiber on RMR.

Methods: *L.barbarum* juice (GoChi[®]=Product 1) and 3 fiber-containing products (dietary supplement containing *L.barbarum* and fiber=TAIslim[®]= Product A; chewable confection =TAIslim[®] SKINNY=Product B; meal replacement shake=TAIslim[®] SHAKE=Product C) were used. Indigestible fiber content was negligible in Product 1, and Product A, B, and C contains 5, 1 and 5 g, respectively. Healthy adults (n=6, age=34.5 y) consumed single bout of all test sample on different days after 12 h fast. RMR was measured by indirect calorimeter immediately before (baseline) and at 1, 2 and 4 h post-intake. A nutritional beverage (158 kcal) and test sample were provided at the completion of the 1st RMR baseline measurement.

Results: Baseline RMR was 1,633 kcal in average. RMR at 1 h post-intake was significantly increased from baseline by 6.7±1.9% (mean±SEM) with the control (nutritional beverage only), 12.7±1.2% with Product 1, 13.4±4.0% with A, 11.8±2.2% with B, 19.7±8.5% with C, or 26.0±4.6% with combination of Product A+B, respectively. RMR in the control returned to baseline within 2 h. Conversely, RMR at 4 h post-intake with consumption of Product 1, A, B, C or Product A+B remained elevated by 5.1±2.0%, 5.1±2.7%, 7.2±2.3%, 9.0±4.3% or 11.7±4.6% over baseline, respectively, representing statistically higher levels than the control all times (P<0.05).

Conclusions: These results suggest that, compared to control, indigestible dietary fiber may have combination effects with *L.barbarum* exhibiting long-lasting stimulating effects on caloric expenditure in humans.