

# Examining Activity and Diet as Mediators of the Relationship Between TV time and BMI in Youth



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## Background

- TV time has been consistently associated with weight status and health outcomes in youth, more so than other types of screen time or sedentary behavior (Tremblay et al., 2011).
- This association may be accounted for by dietary behavior, as increased television watching has been linked to increased calorie consumption (Gebremariam et al., 2013).
- Overall lack of physical activity and/or high amounts of sedentary time may also explain the relationship between TV time and higher weight status in youth (Mitchell et al., 2013).
- The present study investigated diet quality, energy intake, sedentary time, and physical activity as potential mediators of the relationship between TV time and BMI in youth.

## Methods

- 928 youth ages 12-16 (*M* age=14.1, 65.8% white, non-Hispanic) reported time spent watching television during non-school time.
- Participants completed three 24-hour dietary recalls to measure average energy intake and DASH diet quality (higher score indicates higher quality diet).
- Participants wore an accelerometer for 7 days to measure moderate-to vigorous physical activity (MVPA) and total sedentary time, which were summarized only for non-school time.
- Participants' height and weight were reported by their parents and used to calculate BMIz.
- MPlus was used to test direct and indirect effects of TV time on BMIz in boys and girls.

**Table 1. Relations of diet and activity measures to BMIz**

	Boys		Girls	
	r	p value	r	p value
TV time	.12	.02*	.12	.02*
Sedentary time	.08	.08	.06	.23
MVPA	-.13	.01*	-.09	.04*
DASH score	.01	.80	-.01	.81
Energy intake	-.10	.03*	-.15	.00*

**Table 2. Relations of diet and activity measures to TV time**

	Boys		Girls	
	r	p value	r	p value
Sedentary time	-.03	.50	.06	.23
MVPA	.02	.68	-.07	.19
DASH score	-.27	.00*	-.24	.00*
Energy intake	-.08	.17	-.03	.61

**Table 3. Direct and indirect relations of television screen time with BMIz**

	Boys (n=460)	Girls (n=468)
	BMIz	BMIz
	p value	p value
TV time (total direct)	.02*	.01*
Sedentary in/day(indirect)	NS	NS
MVPA min/day (indirect)	NS	NS
DASH score (indirect)	NS	NS
Energy intake (indirect)	NS	NS

## Results

- TV time was significantly associated with greater BMIz in both boys and girls.
- In both boys and girls, there were significant negative associations between MVPA and BMIz, and between TV time and diet quality.
- Unexpectedly, energy intake was negatively associated with BMIz in both boys and girls.
- There were no indirect effects for sedentary minutes, MVPA minutes, diet quality, or energy intake in explaining the association between TV time and BMIz.

## Conclusions

- There was a consistent association between TV time and BMI in this and numerous prior studies.
- However, none of the four activity/diet variables examined in the present study explained this association.
- Future research should continue to examine variables that may mediate the relationship between time watching television and weight status, and aim to better assess diet in youth.