

Prince Kevin Daniele<sup>1,2</sup>, Marina Ybarra<sup>1,3</sup>, Andrea Van Hulst<sup>1,4</sup>, Tracie A. Barnett<sup>1,3</sup>, Marie-Ève Mathieu<sup>1,5</sup>, Olivier Drouin<sup>1,5</sup>  
Lisa Kakinami<sup>2</sup>, Jean-Luc Bigras<sup>1,5</sup>, Mélanie Henderson<sup>1,5</sup>

(1) CHU-Sainte Justine Research Center, Montréal (2) Concordia University, Montréal (3) Armand Frappier Institute, Laval (4) McGill University, Montréal (5) Université de Montréal, Montréal - Canada

## BACKGROUND

Weight management interventions focusing on lifestyles have shown some promising results but:

- Attrition rates are often high
- Reasons for dropout are poorly understood

**CIRCUIT** (CHU Sainte-Justine, Montréal) is a **pediatric lifestyle intervention program** focused on increasing physical activity among youth aged **4 to 18 y** at risk of cardiovascular disease (CVD).

Over a **2-year period**, a personalized strategy is delivered by a team comprising of a kinesiologist, dietician and psychologist.

Participants are **contacted monthly** by the kinesiologist and **return every 6 months** for follow-up evaluations and further adjustments to the treatment plan.

## OBJECTIVES

Estimate the **prevalence** and **identify the determinants** of drop-out among CIRCUIT participants in the first year of a 2-year lifestyle intervention program.

## METHODS

### PARTICIPANTS

- Data were of CIRCUIT participants who attended their baseline visit by March 2016
- Participants were referred by a health care professional if they had at least one CVD risk factor

### DATA COLLECTION

- Height and weight were measured using standardized protocols, and BMI z-scores were derived according to WHO reference values
- Socio-demographic characteristics such as ethnicity and parental education levels were collected at baseline
- Driving time and distance to the clinic were estimated using Google Maps

### ANALYSIS

- Attrition was defined as having done the baseline visit but ceasing attendance prior to the 1-year follow-up
- Differences in baseline characteristics between those who dropped out and those who continued were analyzed using chi-squared- and t-tests (Table 1)
- Logistic regression models identifying predictors of dropout were adjusted for baseline age, sex, BMI z-score, socio-demographic characteristics, and driving time to CIRCUIT (Table 2)

## RESULTS

403 participants were included

Median Age 12 yo [IQR: 10 -15]

Mean zBMI 3.2 ± 1.1

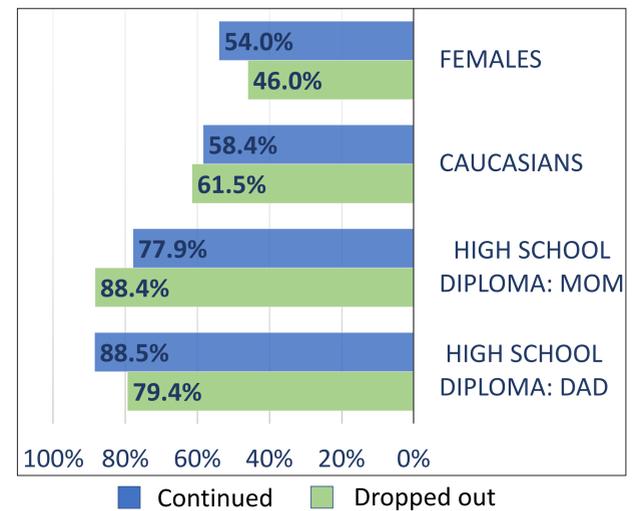
91% obese  
7% overweight

**Table 1:** Baseline characteristics among participants and drop-outs of the CIRCUIT program

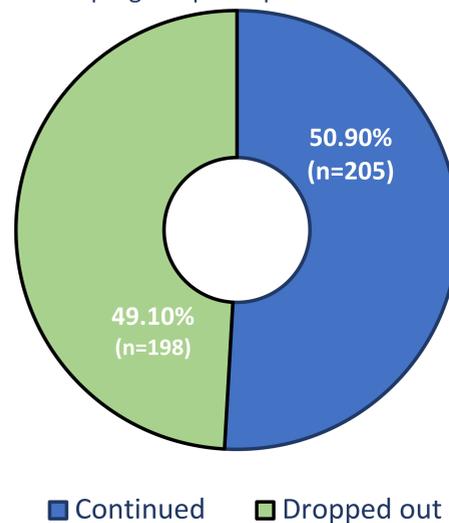
Variable	Continued N=205	Dropped out N=198
<b>Age (years)*</b>	<b>11.3 ± 3.0</b>	<b>12.8 ± 3.0</b>
BMI z-score	3.2 ± 1.3	3.1 ± 1.0
Estimated Driving Time to CIRCUIT (mins)	37.2 ± 51.3	37.8 ± 45.0
Driving Distance to CIRCUIT (km)	41.2 ± 79.3	39.0 ± 60.3

**bold\*** p < 0.05

**Figure 1:** Percentage of baseline characteristics among participants and drop-outs of the CIRCUIT program



**Figure 2:** Prevalence of drop-out among CIRCUIT program participants



**Table 2:** Determinants of drop-out in the CIRCUIT program: results from the multivariable logistic regression model

Effect	OR Estimate	95% CI
<b>Age (years)*</b>	<b>1.2</b>	<b>1.1-1.3</b>
Female (vs male)	1.3	0.8-2.1
Caucasian (vs others)	0.7	0.4-1.2
BMI z-score	1.0	0.8-1.30
<b>Mother w/o a High School Diploma (vs others)*</b>	<b>2.1</b>	<b>1.1-4.0</b>
Estimated Driving time CIRCUIT (10 mins)	1.0	0.9-1.1

## CONCLUSIONS

- The **attrition rate (49.1%)** in the first year of the **CIRCUIT program**, while comparable to other programs, was high.
- Youth who dropped out were **older** and had **less educated mothers**.
- No group differences were observed for sex, ethnicity, BMI z-scores, distance in time or kilometers to the clinic and fathers' education.
- In covariable-adjusted logistic regression models, only **older age at initiation of the intervention and lower maternal education predicted drop-out**.
- Promoting earlier initiation and tailoring the program to parental level of education may improve retention to lifestyle intervention programs.



The authors declare no potential conflict of interest