



# Management of Obesity in Children with Asthma Using Nutrition Video Counseling

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## Background

- Asthma and obesity are major health epidemics in the US, leading to significant healthcare expenditure and loss of quality-adjusted life years.
- In children with asthma and obesity, these co-dependent morbidities must be dealt with in an integrated multidisciplinary fashion.
- Successful nutritional and life-style interventions may require frequent in-person visits, which is often difficult due to logistical reasons and rarely affordable.
- We report a novel integrated approach leveraging telehealth to augment routine visits in the care of obese children with asthma.

## Objectives

- To determine if routine office visits plus nutrition video counseling improve BMI, asthma and obesity quality of life scores.

## Study Design, Setting, Participants

- At each office visit subjects underwent evaluation of anthropometric measures, respiratory and nutritional status, validated quality-of-life measures for asthma (PAQOL) and obesity (Sizing Me Up® (SMU) for 7 to 13 years; IWQOL-Kids® for 14 to 18 years).
- Participants were assessed for BMI and quality of life measures pre, mid and post intervention.

**Table 1. Procedures**

Procedures	Month 0	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6
	1 <sup>st</sup> in-person visit	1 <sup>st</sup> Telehealth visit	2 <sup>nd</sup> Telehealth visit	In-person visit	3 <sup>rd</sup> Telehealth visit	4 <sup>th</sup> Telehealth visit	Final visit
Pulmonologist	*			*			*
Enrollment	*						
ACT/cACT	*		*	*			*
Recent asthma history form	*		*	*			
PAQLQ	*		*				*
Nutritionist	*			*			*
Nutrition care process	*	*	*	*	*	*	*
IWQOL-K or Sizing Me Up	*						*
Program Satisfaction Survey							*

## Study Design, Setting, Participants

- Seven to 18 year-old obese children with persistent asthma were enrolled into a 6-month program
- Included 3 visits with a pediatric pulmonologist and a registered dietitian and 4 additional monthly free nutrition video visits using Facetime®, Whatsapp® or Skype®.
- Motivational interviewing guided discussions about why and how to change behaviors such as skipping meals, binge eating, excessive screen time and physical inactivity.
- Identifying whole foods, nutrition label reading, mindfulness and goal setting skills were taught.

## RESULTS

- 21 subjects were enrolled.
- Median age was 11 (IQR 10, 13); 67% were male. Median BMI percentile was 99 (IQR 98, 99); median FEV<sub>1</sub> was 93% of predicted value (IQR 80, 113).
- 14 (67%) completed all study visits and procedures.
- 7/14 (50%) had a decrease in BMI at program completion (Table 2).
- 12 of 14 subjects reported improvement in obesity quality of life scores with the median SMU improving from 61 (IQR 56, 76) to 76 (IQR 72, 77), p=0.03 and the median IWQOL improving from 95 (IQR 82, 97) to 97 (IQR 94, 99), p = 0.2.
- There were no statistically significant changes in lung function.

**Table 2. Effects of a telehealth-based program on obesity in children with asthma**

subject	Weight, kg			BMI, kg/m <sup>2</sup>		
	Before	After	% change	Before	After	% change
1	65.7			39.0		
2	101.2	107.8	6.5%	33.6	35.1	4.5%
3	109.3			39.0		
4	116.9			38.8		
5	62.4	65.3	4.6%	26.3	25.5	-3.0%
6	72.1	74.0	2.7%	34.3	33.8	-1.4%
7	58.3	59.2	1.6%	26.2	25.3	-3.4%
8	56.2	57.2	1.7%	25.9	25.7	-0.9%
9	87.6			37.7		
10	62.0	67.9	9.5%	27.0	27.9	3.3%
11	70.4	77.9	10.7%	33.0	33.0	0.0%
12	77.2	83.2	7.8%	32.9	34.6	5.3%
13	77.1			30.7		
14	73.0			36.7		
15	82.2	86.2	4.8%	36.5	36.8	0.8%
16	93.9	95.9	2.1%	33.0	31.6	-4.2%
17	52.0	53.5	2.9%	27.4	26.4	-3.6%
18	84.5	87.0	3.0%	30.5	31.0	1.7%
19	74.3	74.4	0.2%	33.2	31.7	-4.4%
20	47.3	52.3	11%	29.3	30.0	2%
21	69.2			27.3		
Median	73.0	74.2	3.8%	33.0	31.3	-0.4%
IQR	62.4-84.5	60.8-85.4	2.4%-7.5%	27.4-36.5	26.8-33.6	-3.3%-2.2%

## CONCLUSIONS

- There was no significant change in weight but half had a decrease in BMI.
- The majority of subjects reported improvement in obesity quality of life.
- The addition of video nutrition counseling to enhance office visits is promising and allows for deep discussions on the complexities of behavior change.
- However, future studies should be longer, combined with other multidisciplinary approaches, and have larger samples sizes.