

Nutrient Intake of Children With Severe Early Childhood Caries (S-ECC)

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Specific Aims

- To examine the impact of S-ECC on growth in young children (2-6yrs old)
- To evaluate treatment effects and treatment delay on growth velocity
- To determine if differences in diet contribute to differences in initial BMI and BMI changes

METHODS

Study Design

- Longitudinal, observational cohort study
- 2 sites:
 - CNMC (Washington, DC)
 - Children's Hospital (Columbus, OH)
- S-ECC children versus caries-free children
 - Compare BMI and dietary intake
 - Compare BMI before and after restorative dental treatment in S-ECC children

Inclusion Criteria for S-ECC Subjects

- Ages 2-6, in the full primary dentition
- Smooth surface carious lesions on at least 3 teeth
- At least 1 pulpally involved tooth
- Non-contributory medical history
- No previous invasive dental procedures
- Meets American Academy of Pediatric Dentistry guidelines for the use of general anesthesia

Exclusion Criteria for S-ECC Subjects

- Eruption of any permanent teeth
- Medically/developmentally compromising conditions, including mild systemic disease
- Absence of clinical impression of pulpal involvement
- Previous history of invasive dental procedures
- History of chronic disease (e.g., epilepsy, ectodermal dysplasia, cardiac anomalies) or medication usage
- Does not meet guidelines for the elective use of general anesthesia

Inclusion Criteria for Caries Free Subjects

- Ages 2-6, in the full primary dentition
- Caries-free dentition
- No previous invasive dental procedures
- Non-contributory medical history

Exclusion Criteria for Control Subjects

- Eruption of any permanent teeth
- Medically/developmentally compromising conditions, including mild systemic disease
- Previous history of invasive dental procedures
- History of chronic disease (e.g., epilepsy, ectodermal dysplasia, cardiac anomalies) or medication usage.

Nutritional Assessments

- Block Food Frequency Questionnaire for children 2-6 year olds
- Multi Pass 24 hour Recall, University of Minnesota Nutrition Data System

Height and Weight

- Calibrated instruments
- Trained and calibrated staff
- Baseline, 6 months, 12 months

Skin Fold Thickness

- Calibrated examiner
- Standard calipers
- Triplicate measures

RESULTS

Demographic data

Variable	S-ECC	Caries Free
Age	3.76±1.08	3.73±1.03
Sex (%male) p=0.006	51.6%	37.2%

Race (%)

Race/Ethnicity	S-ECC (n=179)	Caries Free (n=220)
Caucasian	49.2	14.5
Black	31.8	73.2
Asian	3.4	0.9
Native American	0.6	0.5
Bi-Racial	10.5	6.4
Other	4.5	4.5

p<0.0001

Race/Ethnicity by Site (%)

Race	Columbus	CNMC
Caucasian	49.1	3.6
Black	31.9	86.3
Asian	0.9	3.6
Native American	0	1.2
Bi-Racial	12.9	1.8
Other	5.2	3.5

p<0.0001

Insurance Status

Insurance Category	S-ECC	Caries Free
Medicaid	88.1	80.9
Private	9.6	18.2
None	0.9	2.3

p=0.03

Mother's Education

Education Level	S-ECC	Caries Free
< High School	30.5	11.6
High school graduate	47.7	47.7
Some technical	17.2	25.0
College graduate	4.6	11.6
Post college	0	4.1

p<0.0001

Family Income

INCOME	S-ECC	Caries Free
<\$10,000	41.6	25.7
\$10,000-\$14,999	6.0	10.4
\$15,000-\$24,999	15.1	12.0
\$25,000-\$34,999	25.3	23.0
≥\$35,000	5.4	22.4
Unknown	6.6	6.5

p<0.0001

Anthropometric Data

	S-ECC	Caries Free
Height (cm)	102.53 ± 8.56	103.62 ± 9.17
Weight (kg)	17.08 ± 3.73	17.30 ± 6.63
BMI	16.11 ± 2.10	15.66 ± 2.16
Midarm (mm)	17.09 ± 1.08	16.80 ± 1.62
Subscapular (mm)	6.02 ± 1.73	5.61 ± 1.46
Triceps (mm)	7.57 ± 1.50	7.37 ± 2.67

Nutritional Data

Nutrient	S-ECC	Caries Free
Calories - FFQ	1547.49 ± 591.17	1593.33 ± 630.74
Calories - 24 Hr	1280.59 ± 460.39	1319.42 ± 526.14
% Fat	33.56 ± 6.93	32.73 ± 7.85
% Carb	54.00 ± 9.24	54.02 ± 10.54
Total Fiber (g)	7.63 ± 4.09	8.08 ± 4.56
Total Sugars (g)	88.61 ± 47.08	89.28 ± 41.29
Added Sugars (g)	55.07 ± 37.53	54.41 ± 36.49

DISCUSSION

DISCUSSION

- Preliminary data- ongoing study
 - Power limitations
 - Trends may eventually prove significant
- Nutritional intake by Proxy
- Race/Ethnicity varies by site

Study personnel

■ Investigators

- Dr. Raul Garcia,
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- Paul Cassamasimo
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■ Research Staff

- Amy Cha
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