

S RTP - Project Description Form #221

PART I:

Name of Schulich faculty member who will supervise the project Michelle Mottola

Supervisor's Schulich, Western, Hospital or Lawson Email mmottola@uwo.ca

Schulich Department Anatomy & Cell Biology

PART II - Project Description

Title of Project Feeding Practices and Infant Growth: Assessing Weight and Body Fat Changes at 2, 6, and 12 Months

Background

Childhood obesity has become a significant global health concern, reaching epidemic proportions in developed countries and steadily growing in many developing nations. Obesity is associated with adverse health consequences in childhood and is likely to be carried into adulthood. Effective evidence-based treatments for child obesity are lacking; prevention needs to be an important strategy in tackling this problem.

A longstanding debate persists regarding the potential influence of infant feeding practices on obesity. This study seeks to add to the literature by investigating the impact of various feeding practices- namely breastfeeding, formula feeding, and the introduction of solids- on both infant weight and body fat content at critical developmental milestones (2, 6 and 12 months).

Existing research on this topic is generally limited and the literature that is available focusses solely on the effect of feeding practices on infant weight. In contrast, our study will analyze both infant weight and body fat content, measured through skin folds. This dual approach allows for the evaluation of not only overall weight gain but also the distribution of body fat which provides a more comprehensive picture of an infant's health. In addition, we will compare infant weight for length to the World Health Organization's growth charts to determine if infants over the 85th percentile are more likely to be formula fed with early introduction of solid foods before 6 months of age.

Hypothesis

We hypothesize the following:

- 1) Formula feeding will be associated with infant growth (weight for length) > 85th percentile and higher adiposity at 2, 6 and 12 months compared to breast feeding infants.
- 2) Early introduction of solids (< 6 months) will be associated with infant growth (weight for length) >85th percentile and higher adiposity at 6 and 12 months compared to introducing solids after 6 months of age.

Proposed Methodology

Sample: The study will encompass a convenience sample of infants at 2, 6 and 12 months of age from a previously completed pregnancy study.

Procedure: Approximately 60 participants have completed breast feeding and introduction of solid food questionnaires at 2, 6 and 12 months post delivery. Body weight, length, circumferences (arm, waist, hips, thigh), limb length, and 6 skinfolds (biceps, triceps, subscapular, umbilical, suprailiac, anterior thigh) have been measured and recorded in infants during this same time period. Body weight for length will be compared to World Health Organization growth charts for boys and girls at 2, 6 and 12 months of age. Infant growth and body fatness will be examined along with breast feeding vs formula feeding and introduction of solids and compared in those babies who are above the 85

percentile compared to those who are below. Linear regression models will be developed to examine the association between feeding type (breast vs formula), solid introduction (<6 months/>6 months), growth (>85th percentile vs not) and body fatness.

Expected Outcomes

- Evaluation of both weight for length and body fat content will contribute to a more holistic understanding of how feeding practices impact infant growth
- Results will illustrate which feeding practices are associated with optimal infant growth
- Results will illustrate which feeding practices are associated with infant growth that falls below or exceeds recommended guidelines
- Anticipated outcomes could inform evidence-based feeding recommendations for parents and healthcare professionals
- Research outcomes could contribute to more effective strategies for obesity prevention and infant health promotion

Research Environment - Description of the number of research personnel, primary location of research, size of lab, etc

The Exercise and Pregnancy Lab encompassing approximately 1625 square feet, led by Dr. Mottola and housed in Western University's 3-M Centre, is at the forefront of maternal lifestyle health research. With a dedicated team of 10 individuals, including a research coordinator, several PhD and Masters graduate students, and undergraduates, the lab explores the impact of maternal lifestyle factors on the well-being of mothers and their infants. Equipped with cutting-edge tools, the lab contributes to advancing knowledge on prenatal health, influencing guidelines, and developing interventions to enhance the overall health and outcomes for both mothers and their babies.

Names and titles of other individuals who will be involved with the research project?

NA

Can this project be done remotely? Yes

Duration of Project One Summer

Expected Objectives/Accomplishments for Student?

The student will:

- Conduct an in-depth review of relevant literature to identify gaps and contextualize the research
- Analyze collected data using relevant statistical or qualitative methods
- Interpret results and draw meaningful conclusions
- Write a comprehensive research paper summarizing the study, methodology, and findings
- Develop effective written and oral communication skills for presenting research outcomes
- Prepare and deliver a compelling poster or oral presentation summarizing key aspects of the research
- Explore opportunities for publication and submit the research paper to relevant journals or conferences
- Engage with experts in the field to build a professional network and gain insights into the broader research community
- Demonstrate effective time management to meet project milestones and deadlines

PART III - Certifications

If the project will require any certification - Human Ethics approvals from one or more of the following offices, please check the appropriate box below.

Human Ethics: If you have the protocol information, please enter it below (or enter the status of the approval). Approved

Note: certification approval should be obtained prior to the start of the summer. Projects without this approval will not be a priority for funding.

