Introduction

- East Texas has a high rate of preterm births. Optimal nutrition for these infants is human milk.
- Many women express and store their milk to provide for their preterm infants.
- Currently, little is known about the macronutrient consistency over time in expressed stored human milk in relation to geographic location.
- The goal of this research was to explore the macronutrient composition in expressed stored human milk of mothers in East Texas.

Methodology

- Anonymously donated expressed frozen milk was analyzed for macronutrient content.
- 5mL samples of human milk were warmed to 40°C, ultrasonically homogenized, and processed through a MIRIS Human Milk Analyzer for lipid, carbohydrate, protein, and energy levels.
- Statistical analyses performed: descriptive statistics and one-way ANOVA.

Results

- Fat and energy concentration varied by time of day.
- Carbohydrate and protein concentration remained consistent over time.
- Time of day was statistically significant for energy (p = 0.0001).
- Time of day was statistically significant for fat (p = 0.0002).
- Time of day was not statistically significant for carbohydrate or protein levels.
- Some researchers have found similar variations in fat and energy over time (Khan et al., 2013).

Conclusion

- The variation of lipid and energy content was an unanticipated finding.
- This finding is also contrary to current literature (Daly et al., 1993).
- The circadian-like fat and energy fluctuations have clinically important ramifications for the energy needs of premature infants (Feinberg et al., 2017; Chowning et al., 2016).
- This fluctuation may be related to maternal dietary intake.
- Further research is needed to characterize the underlying mechanism responsible for the lipid and energy content fluctuation.

References


Acknowledgments

- My advisor and research associates offer their commitment of time and energy!

**The University of Texas at Tyler**

**Center for Health Informatics & Analytics**

Wyatt Schaefer 1 Undergraduate Student, UT Tyler Rebecca Swindall, BS, CHES, Graduate Student, UT Tyler Juliana Boyle, BS, Graduate Student, UT Tyler Jimi Francis, MS, PhD, IBCLC, RLC, LD, RDN 1 - College of Nursing and Health Sciences, University of Texas at Tyler, Tyler, TX 2 - College of Arts and Sciences, University of Texas at Tyler, Tyler, TX USA

*Corresponding author - Jimi Francis, University of Texas at Tyler, 3900 University Blvd, Tyler, TX 75799, jfrancis@uttyler.edu; telephone 903-565-5352*