Lactation is associated with a lower risk of type 2 diabetes among parous women. This association is particularly important in women with a history of gestational diabetes because of their higher lifetime risk of conversion to type 2 diabetes. The neuroendocrine nature of lactation justifies seeking an endocrine mechanism whereby lactation promotes long-term glucose tolerance in the mother. The long-term goal of this research is to distinguish the endocrine changes during active lactation from delayed maternal metabolic reprogramming apparent after lactation ends. We work with mothers who have chosen to either feed their newborns only with breast milk or only with formula. Our current studies end by 16 weeks postpartum. Future studies will extend to one year postpartum. This work benefits from collaboration with experts in the fields of perinatal epidemiology, obstetrics, cell biology, biostatistics, and mathematical modeling.

Techniques:
1- Hyperinsulinemic-euglycemic clamps
2- Use of stable isotopes to measure endogenous glucose production, lipogenesis, and lipolysis
3- Insulin-modified, frequently-sampled intravenous glucose tolerance tests
4- Indirect calorimetry
5- Body composition using Dual-energy X-Ray absorptiometry or Magnetic Resonance Imaging
6- Magnetic Resonance Spectroscopy for lipid accumulation inside the muscle cells
7- Subcutaneous fat biopsies

Selected Recent Publications:
3- Lambert JE, Ramos-Roman MA, Browning JD, Parks EJ. Increased de novo lipogenesis is a distinct characteristic of individuals with nonalcoholic fatty liver disease. Gastroenterology 146:726-735, 2014