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**Diana M Thomas\***, 1 Normal Avenue, Montclair, NJ 07043, and **James F Clapp** and **Susan Shernce**. *A Fetal Energy Balance Equation Based on Maternal Exercise and Diet*.

Empirical data indicates the maternal diet composition has a direct impact on fetal fat mass and resulting birth weights. Weight bearing maternal exercise influences the placental volume, which has also been correlated to birth weight. A fetal energy balance equation based on the first law of thermodynamics that incorporates maternal diet and exercise is developed. Model parameters and validity are evaluated using published data. (Received August 27, 2007)