PREVENTION OF MALNUTRITION AND GROWTH FAILURE IN VLBW INFANTS**W.W. Hay***Pediatrics/Neonatology, University of Colorado School of Medicine, F441, Aurora, CO, USA*

The growth of preterm infants remains poor and nearly all are significantly growth restricted by term gestational age. The primary cause is under nutrition. This is not an insignificant problem-as much as half of certain later life disorders, including obesity and diabetes, may result from early life growth restriction. Normal fetal growth at 24-30 weeks gestation requires up to 4 g/kg/day of protein. Most preterm infants also receive too little of certain essential fatty acids that are necessary for normal neural development. If not fed this amount of nutrition, the consequences for such infants are clear-later life short stature, reduced muscle mass, and smaller brains that do not allow normal cognitive development. The good news, though, is that there is potential for improved brain growth and intellectual development if preterm infants are fed diets that supply nutrients at the appropriate rates necessary for normal third trimester human fetal growth. Preterm infants fed higher rates TPN solutions with higher rates of amino acids, preterm formula with more protein and non-protein energy, or milk with nutrient supplements have measurably improved developmental and intellectual outcomes in early childhood. By adolescence, brain structural development and verbal IQ are directly related to the original amount of nutrient intake that preterm infants receive, particularly of protein, but also of balanced energy supply and essential fatty acids. Clearly, more consistent approaches to enhanced nutrition of preterm infants are necessary to prevent growth failure and promote normal development.