

### Epigenetics/ Imprinting

Epigenetics and imprinting research examine how exposures to dietary components during critical periods of development “program” an individual’s long-term health and wellbeing. For example, animal studies show that adequate consumption of choline, an essential B vitamin, during pregnancy may positively impact a baby’s brain development and memory capacity and provide resistance to cardiovascular disease and certain cancers in later life. Research is needed to determine how other early nutritional events contribute to disease later in life and alter an individual’s normal developmental progression.



### Childhood Nutrition

Research is necessary to better understand the role of diet and individual food components on normal growth and development. This includes the role of both parent’s pre-conception diets, the mother’s diet during pregnancy, and the child’s early nutritional events. Studies indicate that the timing of an infant’s introduction to solid foods may increase the likelihood of that child becoming obese later in life. The number of overweight children in the U.S. has increased dramatically in recent years, and excess calorie intake, increased portion size, and steady decline in physical activity are all, in part, responsible. Research is now needed to determine how best to influence these factors in early life. The important role of nutrition throughout childhood on normal growth and development, as well as health and well-being, must be continually assessed.



### Nutrition and Reproductive Health

The impact of nutrition on reproductive health, including pre- and post-conception, requires further research. Nutrition has a direct impact on both male and female fertility and the ability to conceive, and also plays a key role in preventing diseases related to reproductive organs, such as prostate and ovarian cancers. For example, some evidence suggests that cancers of the prostate, breast, and cervix may be prevented by lycopene intake throughout adulthood. Lycopene is a carotenoid, which provides red pigment in various fruits and vegetables, and acts as an antioxidant to fight free radicals in the body.