

ENDOCRINE AND METABOLIC DIFFERENCES IN FORMULA-FED AND BREAST-FED INFANTS

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BY

GUDRUN FICKLER

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Major Professor

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I. INTRODUCTION

There has been much interest in the differences between human breast milk and infant cow's milk formulas in the last decade. Lucas et al. (1) recently have reviewed the differences in the biochemical composition of both breast milk and cow's milk formulas. Advantages and disadvantages exist for both types of milk (2,3,4); one possible disadvantage and major controversial point is the influence of formula-feeding to obesity (5,6). Several different studies showed increased weight gain and increased skinfold thickness in formula-fed infants in comparison to breast-fed infants (7,8,9). However, neither the impact of these findings on the development of obesity in childhood and adolescence is clear, nor are the reasons for differences in growth development of breast and formula-fed infants always known. Overfeeding is a frequent reason for overweight in formula-fed infants (10). Metabolic and endocrine responses of the body to different milks may be another reason that contributes to increased weight gain in formula-fed infants (1). However, there is little information on these responses to different types of milk-feeding in infants. A few studies about fuel metabolites and hormone levels were conducted recently. This report will review the impact of weight gain in infancy to weight development in childhood, adolescence, and adulthood. The effect of either formula-feeding or breast-feeding on anthropometric measurements and serum concentrations of selected metabolites and hormones will be included. A research plan will be developed to investigate the response of several hormones and fuel metabolites to either breast-feeding or formula-feeding.