

# Cellular growth of cerebrum, cerebellum, and brain stem in normal and marasmic children

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The pattern of cellular growth during the first 2 years of life has been studied in human cerebrum, cerebellum, and brain stem from normal and marasmic children. In normal children there is a linear increase in wet weight, dry weight, total protein, and total RNA in all three regions throughout the first 2 years of life. In contrast DNA content increases rapidly in cerebrum to about 6-8 months and in cerebellum until 8-10 months with very little increase thereafter. In brain stem, DNA content increases more slowly until about 1 year of age with little increase thereafter. Children who died of severe marasmus demonstrated reduced wet weight, dry weight, protein, RNA, and DNA in all three regions. The reductions in DNA content (cell number) are approximately equal in cerebrum and cerebellum and of much greater magnitude in these two parts than in brain stem. These data demonstrate that malnutrition early in life will retard the rate of cell division and reduce the ultimate number of cells