
APPLYING BASIC RESEARCH

There is a wealth of research available on the impact of the early years on later growth and development. This research comes from the fields of anthropology, developmental psychology, medicine, sociology, and education. It provides insights into the types of changes that children undergo during the early years and into what supports are required from the environment to promote growth, development, and learning.

It is well established, scientifically, that the early years are critical in the formation of intelligence, personality, and social behavior, and that the effects of early neglect can be cumulative. Research would suggest that there are critical points in children's development where it is important to ensure that children are having the kinds of experiences that support their growth and development. The field of molecular biology brings new understandings of the way the nervous system functions, the ways in which the brain develops, and the impact of the environment on that development. For example,

- Brain development taking place before age one is more rapid and extensive than previously realized. The months immediately after birth are critical in terms of brain maturation. During this time the number of 'synapses'—the connections that allow learning to take place—increase twenty-fold.¹
- Development of the brain is much more vulnerable to environmental influence than suspected. Nutrition is the most obvious example of how environment can have an impact on a child's well-being, however a child's interactions with others and the care a child receives also have an impact. The quality of interaction and a child's cumulative experience (health, nutrition, care, and stimulation) during the first 18 months lead to developmental outcomes, which for children from poor environments may result in irreversible deficits.
- The influence of the early environment on brain development is long lasting. The positive impact of children's early exposure to good nutrition, toys, and stimulating interactions with others can still be seen to affect children's brain functions at age 15, as compared to peers who lacked this early input, and the effects of what happens in the early years appear to be cumulative.
- The environment affects not only the number of brain cells and the number of connections, but the ways in which they are 'wired'. The brain uses its experience with the world to refine the way it functions. Early experiences are important in shaping the way the brain works.

- There is evidence of the negative impact of stress during the early years on brain function. Children who experience extreme stress in their earliest years are at greater risk for developing a variety of cognitive, behavioral, and emotional difficulties.

In summary, much of the brain is already formed at birth, and during the first two years of life, most of the growth of brain cells occurs, accompanied by the structuring of neural connections. By age 6, most of these connections are made (or not, as the case may be). Thus, providing opportunities for complex perceptual and motor experiences at an early age favorably affects various learning abilities in later life and can even compensate, at least partly, for deficits associated with early malnutrition.

A range of social research indicates that the early years are critical in the development of intelligence, personality, and social behavior. For example,

- Children are born with physical, social, and psychological capacities allowing them to communicate, learn, and develop. If these capacities are not recognized and supported they will wither rather than improve.
- Children whose caregivers interact with them in consistent, caring ways will be better nourished and less apt to be sick than children who do not receive such care.
- Establishing a loving relationship in the early months of life has been shown to affect the ability later in life of a person to love and to establish permanent relationships.
- The earlier attention is given to the child's development, the better, since children's development is cumulative in nature. If children's early nutrition and health are jeopardized, development is delayed or debilitated, and, over time, the child's development follows a downward trajectory.
- Attention to children's needs must be continued for gains made in the early years to be sustained.
- Longitudinal studies demonstrate long-term effects with a variety of intervention programs. These effects go beyond the learning of basic abilities to include: improved school attendance and performance, reduced repetition, increased employment and reduced delinquency during the teenage years, and reduced teenage pregnancy.
- Improving a young child's health and nutrition, and providing opportunities for stimulating interaction and early education can bring a high economic return to society as well as to the individual.
- Investment in early development can help to reduce economic and social inequities. Children living in conditions of poverty and/or discrimination often fall behind their more fortunate peers at an early age. This reinforces existing differences. In the short run, investments in ECCD programs can reduce (but seldom eliminate) the growing gaps in development, and therefore can reduce the differential consequences. Indeed, there is increasing evidence that children from more-disadvantaged backgrounds can profit more from good early childhood programs than more-advantaged children.

■ Early childhood programs are likely to have multiplier effects. In the case of programs of parental education, the effects will carry over to the raising of additional children. To the extent that programs of early childhood care and development affect subsequent education, the evidence suggests that they will also have an effect on fertility and population growth.

¹ For more information on brain research, see: Carnegie Corporation of New York. 1994. *Starting Points: Meeting the Needs of our Youngest Children*. New York: Carnegie Corporation.

The Consultative Group on Early Childhood Care and Development, 1997.

Early Childhood Counts: Programming Resources for Early Childhood Care and Development. CD-ROM. The Consultative Group on ECCD. Washington D.C.: World Bank, 1999.