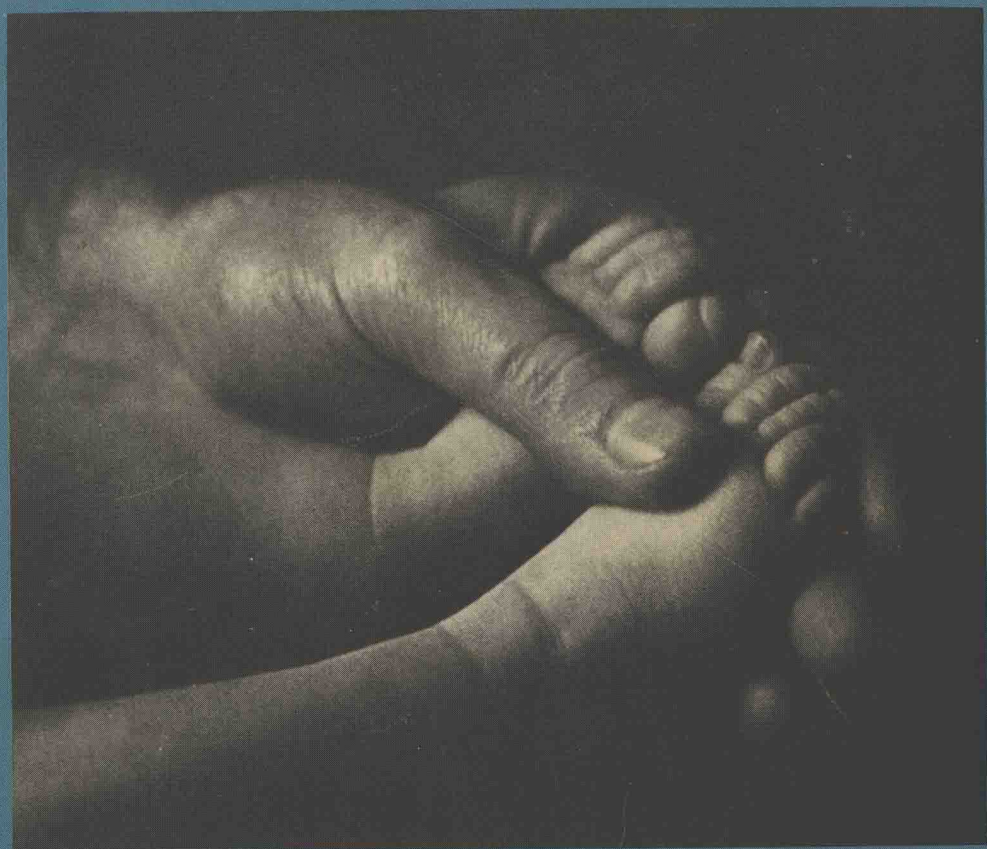


FAILURE TO THRIVE IN INFANCY AND EARLY CHILDHOOD

A Multidisciplinary Team Approach

Edited by Pasquale J. Accardo



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Foreword

Failure to grow is the most obvious defect of development. Causes range from lack of food to neurological, genetic, cardiac, endocrine, renal, or metabolic disease or profound disturbances of parent-child relationships such as neglect and child abuse; these still leave a generous proportion of cases of unknown cause. Diagnosis requires detailed and sensitive multidisciplinary appraisal of the child and family and a carefully selected battery of tests, some of which are highly specialized. Few problems are more in need of continuity of care, both to refine and reexamine the initial diagnosis and to test the effects of therapy.

The John F. Kennedy Institute represents one of 43 University Affiliated Programs for the developmentally disabled; these were established in 1963 under the provisions of Public Law 88-164 (the Mental Retardation Facilities and Community Mental Health Center Construction Act) and are a legacy of the commitment to the care of the handicapped that was a hallmark of the Kennedy administration. Fundamental to the operation of such centers are the concepts that care must be interdisciplinary and involve the family and child together, and that diagnosis alone is of little value unless it is coupled to intervention, follow-through, and continuity of care. As a result of Dr. Accardo's initiative and leadership, the Kennedy Institute has begun a systematic study of the causes and treatment of failure to thrive. An essential feature of this study is the effective interaction between many disciplines, including genetics, neurology, psychiatry, pediatrics, behav-

ioral sciences, nutrition, occupational therapy, social work, and special education. Working together on a regular basis solves many (but not all!) of the problems that bedevil interdisciplinary cooperation.

This book provides a comprehensive review of the present state of research and methodology directed toward the child who fails to grow. The chapters on diagnosis provide many leads to the definition of the problem and also describe conditions that do *not* cause failure to thrive and tests that do *not* need to be performed. The chapters on therapy list a wealth of intervention techniques. Which of these techniques work best? When should they be applied? In what sequence? Although these and many other questions cannot yet be answered, this book provides the foundation so that they can be tested in a precise and sensitive manner to the benefit of families and children.

Hugo W. Moser, M.D.

Introduction

For decades failure to thrive has been a clinical problem that academic pediatricians and practitioners alike have flourished upon. Hardly anywhere in medicine is there a symptom complex that requires more thorough mental review of the anatomy and physiology of practically every organ system of the body than does failure to thrive. Since growth and development is a fundamental biological process of every immature organism, almost any disorder in early life can result in failure to thrive.

The establishment of the causative process therefore becomes a challenge not so much to the recall of exotic diseases but to the organization of thought processes that permit a system-by-system mental review of body functioning. Such a review is essential to avoid unnecessary procedures that cause pain and discomfort and that waste time and money.

Regardless of the basic disorder, failure to thrive is usually the result of depression of appetite. Although the exact mechanisms of appetite control are not fully understood, it is clear that a myriad of influences operating through or on the hypothalamus can influence the regulation of food intake.

In the diagnosis of failure to thrive logic and logical reasoning are absolutely essential. Strict adherence to scientific facts are equally important. At times a cause of failure to thrive is invoked that makes no scientific sense. Time, money, and energy are expended in trying

to establish the presence of mechanisms that defy the laws of biology, chemistry, and physics.

Thus, the starting point in all considerations of failure to thrive is recognition and emphasis and reemphasis that biological systems—whole organisms—obey the Laws of Conservation of Mass and Energy. Many of the mysteries and myths surrounding failure to thrive derive from a failure to recognize that fact of Nature. Organisms do not remain thin and dwarfed when energy intake substantially exceeds energy expenditure for sustained periods of time. Occasionally a history is obtained or is even reported in the literature that no growth or weight gain has occurred despite the presence of marked hyperphagia and in the absence of unusual energy losses or expenditures. Disorders of metabolism or metabolic anomalies or altered cellular metabolism are invoked to explain such findings. When careful balances of energy are carried out, it can be demonstrated that energy intake is indeed small and not equal to the expenditure of energy. These misconceptions arise because the transformation of energy can be confusing in the absence of rigorous measurements, since potential chemical energy as food is expended as kinetic energy or in chemical processes such as peptide bond synthesis (giving off heat) or is stored in a variety of tissues as chemical energy with or without the accretion of other substances such as water.

Another myth that exists in the older pediatric literature concerns the energy expenditure for growth, which has been "misinterpreted as being enormously greater than the basal state. Quantitatively the concept cannot be correct. Since resting metabolism is essentially the result of synthetic processes, an increase of only one percent per day would shortly lead to a large increase in mass provided catabolic rates did not increase proportionately. The energy required for cell division has been studied in rapidly dividing cells of lower animals. The energy increments are small—only two to four percent above basal and for only brief periods of time. Likewise, in the human infant or child the actual number of cells undergoing division at any one time is so small in relation to the total number of cells in the body that no significant increase in energy expenditure or oxygen consumption can be expected even though a considerable excess of chemical energy must be available for storage as new protoplasmic constituents if growth is to occur. The high resting energy expenditure per Kg. of body weight or M^2 of body surface in the infant as contrasted with the older child or adult results from the preponderance of organs of high metabolic rate such as brain, heart and liver in the infant in relation to tissues of low resting rate such as muscle."*

* Cooke, R. E. 1968. Energy metabolism: Introduction. In D. B. Cheek (ed.), *Human Growth*, Lea & Febeger, Philadelphia.

From the psychological point of view equally serious misconceptions may also exist: that the human organism—infant or adult—exists, operationally, independent of other human beings. In this sense failure to thrive is a condition not of the individual but of the dysfunctional organism—his/her family. Likewise, it is equally inappropriate to limit the suspected dysfunction to maternal-infant interaction since the mother in turn is a part of a larger organism (the family) and her behavior vis-à-vis the infant is a consequence of the actions of other members of the family unit of the same or different generation.

Such facts demand that when psychological factors are responsible for the depressed appetite of the infant or child, therapeutic approaches must be addressed to the whole family, not just a part. Attempts to change the child or the mother without influencing the dysfunctional patterns of the whole family are likely to be unsuccessful or of only short-range benefit.

Robert E. Cooke, M.D.

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Gratitude is not only the memory but the homage of the heart.

N. P. Willis

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Ἐὰν μὴ ἔλπῃαι, ἀνέλπιστον οὐκ ἐξευρήσει . . .

Ἡράκλειτος, VII

FAILURE TO THRIVE
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EARLY CHILDHOOD

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