Can Sputnik Influence Our Growth and Development?

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Ever since top honors as the world's greatest obstetrician have been bestowed on Kruschev for his feat of being the first man to deliver a dog in outer space, people in these United States of America have been asking many questions. The most insistent question has been, "How can we improve our intellectual growth and development?"

Recrimination, blame, and accusation for laxness in teaching have been hurled at school systems. A demand has been made for accelerated courses in physics, chemistry, mathematics, and other sciences.

Sputnik should turn the spot-light on Americans in a more basic quarter than our educational system. This man-made satellite, bespeaking scientific knowledge of formidable proportions, was put into space by a people intent on rigorous physical training for an entire population. Upon children born and reared in hardihood has been placed mental training of an exacting nature, as described in many recent publications.

The American Academy of Nutrition is an organization with a primary goal to inform its members on nutrition as it is related to health. Professional members of this group in turn instruct patients in the role of nutrition on the curative and preventive aspect. Lay members seek such knowledge for the improvement of their family health, and when successful, influence other people by example.

Allow me to scan the horizon of what answer we, as an organization, can give to the challenge of Sputnik, the product of people who concentrate on health and education. It is helpful to look a moment at some statistics of physical fitness in the military services of the United States in order to become alert to an existing need for us to do something about our National health situation.[1]

Table I

Fort Dix, New Jersey. May 3, 1957

ARMY

Out of 884,000 men drafted, 220,000 were able to do only menial labor, K.P. duty, etc.

Out of every 5 men drafted, 2 were rejected for physical disability.

136,000—inducted by Draft Boards in 1957.

50,000—or 37% were rejected by the Boards.

44,170—or 30% were rejected after 8 weeks basic training.

EXPECTED REJECTION BY DRAFT BOARDS IN 1958—42%.

AIR FORCE—998,000 men volunteered. 90,000 or 9% were mentally slow.

MARINE CORPS—176,360 men volunteered. 31,750 or 18% were mentally slow.

NAVY—634,000 men volunteered. 101,840 or 16% were mentally slow.

Modern America is changing from a once active culture into a passive culture with its wealth of new ideas; its extensive use of labor-saving devices, not only in the

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city, but also in the remote rural areas; its habit of using motor transportation even for very short trips; its widening demand for ready-cooked and ready-to-serve meals, so-called "maid service foods"; its use of school buses for even short distances.[2]

Table II

4,458 American children given muscular fitness tests. 56.6% failed to meet requirements, or 1 in 2 American children.

1,987 European children given physical fitness tests. 8% failed to meet requirements, or 1 in 12 European children.

Recreation for children has changed in large part from active out-door games to passive indoor television-watching. With most of us the short-cut has become popular in order to give us more leisure. Where leisure is used for such activities as gardening, golf, hiking, fishing, and other active pursuit, it is valuable; where it is used for a needed complete rest, it is valuable; where it serves only to send one flitting from one restless past-time to another, it is debilitating.

This Society knows a great deal about the effect of modern methods of food processing on health. We know that poor soils produce poor foods; and that animals fattened rapidly by chemical additions to their feed are inferior for human food. We know, too, how difficult it is to find adequate foods, even when we seek them. We know about the importance of whole grains and the problems of getting and keeping them fresh. We know that the quality of milk depends on the health of the cow. We know that fine quality foods cost more than others, though we also know that they are not as costly as the "maid service" meals. We know the hazards of foolish dieting. We know that public opinion, shaped by many influences, believes that Americans eat too much and that we have vast surpluses to give to other countries. Hence young people diet and reduce to conform to modern fashions, disregarding their health.

We are, therefore, in a preferred position to appreciate the challenge of Sputnik, the evidence of the power of a people more concerned with hardihood than we.

What shall we concern ourselves with in order to meet this challenge? A first consideration might be to give some study to courtship and marriage. The present trend of "going steady" in high school, early marriage without the opportunity for broader social experience can often be likened to sickly plants that flower profusely without adequate seed. It is well known that there are relative periods of better development when procreation is most conducive to the best offspring, namely, when the male is about 25 and the female two or three years younger.

When we are successful in interesting young men and women to choose a mate with health and intelligence, let us next concern ourselves with imbuing them with the ambition to maintain health, avoid infections as far as possible, maintain an adequate program of fresh air, rest, exercise, and good dietary.

We are now ready for the most important of all projects, the conception of a child. The healthy mother rarely suffers from nausea. She should not expect it as inevitable, as many young women do. It can produce many stigmata on the fetus. From the start the expectant mother should think of nursing and making a substantial effort to prepare the breasts. Her life should be as even as possible for indiscretions and infections may leave a scar on the growing fetus. The well nurtured unborn child develops regularly as it grows.

Table III

Development of Face

Prenatal

Mandibular arch—28th day in utero

Branchial arch (maxillary and mandibular)

40-45 days—dental ridge

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65 days—first development of dental germs (deciduous)

4½ month—enamel organ

5th month—first evidence of calcification

Post-natal

By the end of the first year the linear length of dental arch from the interdental space of this deciduous molar to opposite deciduous molar is determined.[5]

Ridges on the deciduous teeth determine metabolic disturbances in utero and its time of eruption. Ridges in the enamel of permanent teeth determine disturbances up to 7th year and occasionally to the 12th year, if third molars are in place.[6]

Though the increase in size is regular the development of each structure has a time table which has even less leeway. Only those infants who do develop in this regular manner can be expected to be normal "uninsulted children."[3] Because of this orderly development the trained observer can place his finger on the time of a metabolic upset of the mother during pregnancy with a surprisingly close prediction by noting the effect on the structures of the infant. The most obvious of all is the development of the teeth and face. Though to the casual observer the infant face may be normal, yet the orthodontic problem is written largely before and is present at birth.

Though up to the fifth month, development of the fetus is that of soft tissue and soft tissue matrix, after that time calcification begins. Soft tissue and soft tissue matrix can be injured just as well as the bony. Many of the congenital anomalies are the result of metabolic injuries such as infections,[4] accidents, severe emotional trauma, and exhaustion.

Table IV

Deformities

1st Week—Eyes (cyclops)

2nd Week—Twins

3rd Week—Viscera

4th Week—Hands and Feet

5th Week—Lens of eyes, cataracts, harelip, hands and feet.

6th Week—Continued disturbance in lens of the eyes; lower jaw.

7th Week—Cleft palate, abnormal head, constriction of lungs, heart disease, failure of toes to grow.

8th Week—Mongoloidism

9th Week—Deafness

10% of all babies are born with serious malformations.

20% show some deformity.

23% are still born.

The effort the infant exerts in his exercise periods in utero is an important index of his future health. The lazy infant tends to carry such characteristics through life. The development of the new born foot is usually affected and the development of the bones shows a dense or porous pattern directly in accordance with the interuterine activity and the health of the mother.

From a skeletal point of view after birth, more study has been expended on the hand though we have regular tables of development of the various parts of the body just as we do before birth.

Likewise we have regular periods of development of soft tissue, muscle groups, function of the organs such as fusion of the eyes and the menarche of girls and puberty of boys.

Over-growth of the long bones is frequently associated with insufficient usage. Physicians familiar with child growth are aware that the leg used exclusively to push the scooter is the shorter of the two legs of such a child. Use makes for greater maturity. The hand of dexterity can frequently be detected from the X-ray before the parents can be sure.

Now that we have briefly noted the growth of the infant from conception to the

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Sputnik

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period of puberty; let us observe that such children when continued on a good dietary and plenty of exercise and given work to suit their age are also developing their brains. They show definite periods of auditory learning, visual learning, and periods of developing the power of reasoning.

Let us take these normal children, surround them with love, sound parental guidance, excellent teachers and the ambitions to fulfill a worthy niche in this world, we have then material for superior scientists, for healthy parents of future generations. Sputnik has then done us a lasting service—to awaken Americans to reverse the trend of physical unfitness.

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