

Fitness: Goal or Grail?

THE author of this column is a layman in the area of physical fitness and health, although he did play touch football as a youngster and still plays a rough game of volleyball each week. This latter endeavor, he is convinced, is an outgrowth of the impact of the culture as well as an expanding waistline. He seeks physical fitness—though he often feels like either a knight seeking the Holy Grail or Don Quixote tilting at windmills.

Is physical fitness a useful reality toward which to aim, or another catch-all slogan that defies adequate description? Do our attempts to measure it oversimplify the concept? How does it relate to psychological well-being? How usable is it for curriculum-building in the highly competitive market for educational time? If one can forgive a layman his naïveté, his highly personal answers follow.

First, is the term too broad and all-inclusive for research purposes and subsequently for curriculum development? Just what *is* physical fitness? To some degree the concept suffers from the same difficulty as "intelligence"—our measures determine our definition. Much furor has been made over the findings, based on the Kraus-Weber tests, of the inferiority of American to European youth. Do such tests measure physical fitness? Not completely, if we accept the conclusion in Rarick's and Reddan's (1962) just published review. They say, "It is becom-

ing increasingly clear that physical fitness is a composite of many interacting but specific factors. Thus, future research will attempt to identify with some exactness the components of fitness which have the greatest significance for the well-being of children and youth. Meaningful research or methods of improving physical fitness must await the accomplishment of this end" (p. 526).

A significant study, probably not available to Rarick and Reddan, provides us with some of this needed exact identification of factors. Nicks and Fleishman (1962) factor analyzed all the physical proficiency tests they could locate. They identified five major factors, with several subfactors. A brief listing, with an example, must suffice for this article. There are three *strength* factors: (a) explosive—the ability to exert maximum energy in one explosive act such as the standing broad jump; (b) dynamic—strength of muscles in limbs in moving or supporting the weight of the body repeatedly over a given period of time as in chin-ups; (c) static—exertion of maximum force for a brief *period* of time where the force here is exerted continuously up to a maximum, such as is measured by a dynamometer.

Many physical fitness measures have used the static strength factor. Nicks and Fleishman stated: "The lack of correlation of static strength with the dynamic

and explosive factors, together with the greater practical implications of these latter factors for significant human activities, would argue against such emphasis on tests of static strength" (p. 82). Kraus-Weber measures only the dynamic aspect of the strength factor.

The second major factor is *flexibility*, divided into (a) extent: moving or stretching as in yoga and (b) dynamic: repeated flexing in deep knee bends; speed of changing direction in potato racing; running; limb movements. Kraus-Weber measures only extent of flexibility in this factor, and nothing clearly in the remaining factors of *coordination*, *balance* and *endurance*. The *balance* factor they found to be not well-defined, the *endurance* factor may not be "real," and *coordination* may not be completely related to athletic endeavors and may be more a matter of central nervous system control.

Their conclusion agreed with the previous one, "There is no such thing as general physical proficiency." The problem is a multidimensional one. They further concluded: "It is also clear that previous studies comparing American youth with youth of other countries have assessed only a small number of the factors already identified" (p. 89).

The comparative studies, although they do not measure most factors, do show that American children are not equal in performance to contemporary European children on whatever they measure. It is clear, however, that these tests are influenced by motivation and skill training. When American youth are compared to earlier generations, the picture is not so clear-cut. California adolescent boys do better than did boys 25 years ago, although the girls do poorer (Espenschade and Meleny, 1961). Yale freshmen in 1956 did poorer, although per-

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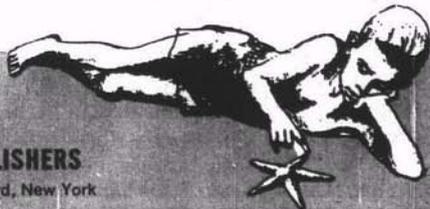
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haps not significantly so, than did the entering class in 1948 (Blesh and Scholz, 1957).

Perhaps the most important point we can glean is that on whatever factors these performance tests do measure, American youth have not improved substantially over previous generations in spite of their better nutrition and living conditions, nor have they held their own against western European youth. This may be due to lack of any real reason, as youth see it, to excel in what often are dreary calisthenic drills. Further, our culture, except for certain ethnic groups, has never stressed the mass calisthenic activity, but has stressed competitive team sports. Since these proficiency factors appear to be so specific, it may be that American youth might excel at those activities more related to our culture. The findings between American generations may be the more meaningful.

But physical fitness is not adequately defined by motor performance. When physiological measures are used rather than skill tests, the picture changes. The comparative studies, using working capacity (as measured by oxygen intake) as the criterion, "do not verify the differences between cultures reported in studies employing physical performance tests. . . . Since tests of maximum working capacity are not as likely to be influenced by skill as are motor performance tests, the former are believed to be more valid measures of physical fitness than the latter" (Rarick and Reddan, 1962, 518). In addition all the studies of working capacity show considerable individual variability.

We see then that the term "physical fitness" is a broad general construct, usable for popular discussions, but too broad for research purposes. We can isolate both skill and physiological com-

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ponents, but we are still faced with many difficult questions. If the skill differences are cultural, and the physiological ones individual, how then do we construct experiences to build skill and still recognize individuality?

If age is a variable in fitness, and there seems to be general agreement on this, how do we utilize this variable in research on fitness and evaluation of school fitness programs? Normative data using chronological age may be much too gross for clear-cut evaluation. We know from the Adolescent Growth Study that strength is related to maturity; that girls approach their full strength before boys; that early maturers are at an advantage. Yet, the studies of which I am aware make no allowances for this but deal in terms of chronological age.

We recognize in our psychological studies that we must control for intelligence—which acts as a control through mental age—but we do not control for maturity in our fitness studies. Such a lack, from an outsider's viewpoint, seems curious and crucial. Controls for age seem insufficient although they are a necessary step. Can we say that the late maturing boy of 10 has failed a static strength test because he falls below the age norm? Obviously, he should not be expected to match what the early maturing boy can achieve.

Kessen (1961) has demonstrated significant individual differences in motor activity literally in the cradle; these individual differences reveal themselves in all the studies. Any instructional program, therefore, must be so designed as to enable youngsters at different levels to achieve and to see themselves as improving.

To engage only in reductionist and factor analytic descriptions of physical fitness, although this approach fits into our

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“hard-nosed” sense of modern behavioral science, also begs the question. Physical fitness, when viewed in the individual child, is but an aspect of the total functioning person. It is essential that we reduce the area for study, but it is also necessary to see the area in perspective.

If we look at behavior from the concept of movement toward mastery, if we see competence as a prime mover, we can then see health in a positive fashion as more than the absence of disease, and physical fitness not as an end in itself but interwoven with psychological well-being.

Halbert Dunn, for example, speaks about “high level wellness,” that stage of good health which is free from illness and in which behavior or performance approaches the individual's maximum potential. This condition is a goal which, as with Maslow's self-actualizing people, unfortunately few achieve. This intro-

duces some additional problems of operational definition. If physical fitness is hard to grasp, how much more elusive are such concepts as "high level wellness, mastery," and the like?

Lois B. Murphy (1962) and her colleagues have made a masterful contribution to our understanding in a longitudinal study of 32 normal children. Here we can see the role of physical competence in the individual child.

The main construct of the study is "coping"—the process of dealing with the challenge of new situations. A few quotations from their conclusions about coping and development will serve to make the point:

The motor explorations, surveys, and efforts contribute to attitudes of hope and confidence, on the one hand, and to knowledge of coping resources and insights into ways of problem solving, on the other. The motor efforts implicitly increase the skill of the child as repeated actions become more efficient and successful simply through their repetition, but could not take place without affective and cognitive support which are enhanced as the efforts themselves reach the expected goals. The effort to cope always involves an integration of what we, from our outside point of view, differentiate out into motor, affective, and cognitive aspects and contributes simultaneously to development as a whole which is not experienced in a piecemeal way by the child (p. 362-63).

In everyday parlance, we say that success breeds success. This is more than a matter of the modification of structure by function which constantly contributes to the improvement of skill. What we have seen is a combination of this improvement in skill resulting from the active coping effort; an emergence of belief in or confidence in the worthwhileness of this coping effort which produced success; a reduction of anxiety as a result of this success; the development of a self-image as the child who can master a challenge by his own efforts. That is,

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triumph or successful results of coping efforts produce motor, affective and cognitive changes which predispose and equip the child for more efforts (p. 366).

We could summarize this by saying that each experience of mastery and triumph sets the stage for better efforts in the next experience. Confidence, hope, and a sense of self-worth are increased along with the increase of cognitive and motor skills, which can contribute to better use of the resources. In this way the foundation is laid for spontaneous use of new potentialities made available by maturation as the child moves from one developmental stage to another (p. 367).

We must, therefore, recognize that motor skill is important and that it plays into general health. However, we should not stress skill in ways which are unrelated to the child, and which appear as artificial tasks designed by adults to develop certain muscle groups or to beat the Europeans or the Russians. Physical

competence should not, in educational practice, be isolated from the motivational system of the child. Physical competence should be developed so that the child's individual physique, level of maturity, previous experience are all considered, similar to the way the many psychological, cultural and biological variables are taken into account in developing a reading program. We should not be too concerned about comparisons on a few factors, but we should develop better techniques for clarifying our concepts of fitness, better ways of assessing those aspects of fitness which are meaningful in America in the coming decade, and better approaches to understanding those aspects of physical fitness most closely related to the concept of high level mastery.

As for me, I will continue to play volleyball—now not only for my waistline but also because as my skill increases it contributes to my sense of achievement and mastery.

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got this information in his undergraduate preparation. If not, from whence must it come? From the school administrator as a part of in-service education or from a supervisor who is adequately prepared in depth on the subject? Far better still—from the physical education supervisor working closely with the school administrator in a coordinated merger of authority on one hand and knowledge on the other, each one welded immutably to a belief in the importance of the problem.

We wish to summarize with the following points: (a) physical fitness is a justifiable goal but not obtainable through sports or games education; (b) the concept of the unity of man dictates that an alert mind be accompanied by a fit body; (c) an effective method of measuring progress is vital to success—it implies program change to avoid getting caught short a second time; (d) to fail to redirect effort after testing is analogous to checking the oil level in the family car and doing nothing about it after finding it dangerously low.

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