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PHYSICAL
EDUCATION
FOR CHILDREN
Concepts into Practice

Objectives

for introduction

- ✓• Identify why the elementary classroom teacher must take an active role in the physical education program.
- ✓• Discuss how physical education fits within the total elementary school program.
- ✓• State the two major objectives of elementary physical education.
- ✓• Discuss why the development of skill and fitness is important for both girls and boys.
- ✓• Identify participation patterns in children's physical activity.
- Discuss the purpose and structure of this book and its use with *Physical Education for Children: Daily Lesson Plans*.

Introduction to Elementary Physical Education

What would motivate an author to write a book, in particular a physical education book whose readers are likely to be elementary classroom teachers rather than physical education specialists? The following story explains the motivation in our case. The youngest child of two of the authors (Jerry and Katherine Thomas) was in first grade. One day, Jerry was in the backyard at the barbeque grill preparing dinner, while 6-year-old Deani was practicing jumping the single rope. She was working diligently at learning to turn and jump the single rope because many of her friends could. Although Deani had learned to jump a long rope turned by two people, she was having difficulty timing a jump to her own inconsistent speed. Jenny, her 13-year-old sister, was also out in the yard and finally offered assistance. Jenny gave a couple of demonstrations and then tried to provide verbal cues to help Deani time the turning and jumping movements. After several minutes, when Deani's skills had not improved, Jenny became frustrated and asked, "Deani, don't you learn any of this in P.E.?" Deani stopped practicing and replied, "We don't have P.E. anymore since the student teacher left."

Deani's statement identifies a major problem reducing the quality of physical education programs in the elementary school. Elementary classroom teachers are responsible for teaching something that they know little about, have little time to plan, and are not motivated to teach. Thus,



Learning movement skills can be fun.

P.E. may be taught only when a student teacher is assigned to a classroom teacher, or in the few

instances when there is a physical education specialist in the school. But few specialists teach every child every day. Therefore, if students are to have physical education daily, the classroom teacher must be partially responsible.

The situation stated so succinctly by Deani is the motivation for writing this book. This book and its companion book of daily lesson plans fulfill three goals: first, to help elementary classroom teachers recognize the need for children to receive regular—daily—physical education and to see their role and responsibility to provide this instruction; second, to explain why and how a physical education program should be developed; and third, to provide a complete program for classroom teachers. Having a fully developed program does not mean that teaching physical education is easy or requires little effort; all good teaching requires careful planning and hard work. But by using the knowledge gained from this book and the program developed in *Physical Education for Children: Daily Lesson Plans*, the elementary classroom teacher can successfully contribute to the development of physical fitness and motor skills of children. The lesson plan book alleviates the time-consuming tasks of curriculum and lesson planning. Said more bluntly, with the information from these two books, elementary classroom teachers can provide a successful physical education program if they choose to do so.

We have tried to make no assumptions about what classroom teachers know about exercise, sport, or physical activity. The information they need about children's motor development is provided in this book. Techniques for curriculum development are presented, and teachers are shown how to organize instruction. Strategies for observing children and teachers are provided. Approaches are suggested for teaching handicapped children who may be mainstreamed into regular classes, for developing facilities and equipment, for managing children in the gym and on the playground, and for evaluating children's participation in physical education. In the daily lesson plan book, a program is developed for kindergarten through sixth grade based on the knowledge and procedures in this book. These lesson plans can be used as they are or further developed by the teacher. Our desire was to provide everything an elementary classroom teacher needs to provide a good physical education program.

Some of the previous remarks may sound like criticism of the elementary classroom teacher. They are not. The best teaching to be found in the school system is consistently done by elementary class-

room teachers. However, they are called on to teach in areas that require specialized knowledge, interest, and skill—namely, art, music, and physical education. Given this circumstance, it is not unexpected that their teaching in these areas is less than excellent. However, the development of children's movement skills and physical fitness is essential to good mental and physical health as well as an important part of our culture. While elementary classroom teachers may never be able to teach all that should be included in an elementary physical education program (for example, they seldom have the expertise to teach and evaluate specific sport skills developed in the upper elementary grades), every classroom teacher can provide a reasonable and quality physical education instructional program for children. This book and its companion provide an appropriate program that is sound and can be taught by the classroom teacher. Classroom teachers will implement a program of this type if they are convinced of its value and of their ability to teach it.

The remainder of this introduction provides a short historical overview of elementary physical education in the United States, an explanation of the goals of physical education, a description of the status of exercise and sport participation by children, and an explanation of the purpose and structure of this book.

Historical Overview

The history of physical education parallels the development of education in general and reflects the cultural, economic, social, and religious forces of various civilizations. Programs of physical education in today's elementary schools have roots that can be traced to ancient nations. Through the decades great physical educators have made contributions that have shaped the modern concept of physical activity. Movement and sport are basic to life, and patterns of participation have been altered according to the basic needs of each era. At the turn of the 20th century, physical education had become an established offering in many elementary schools. While physical education during the latter 19th century was primarily therapeutic exercises, the new century brought new aims and objectives.

✓ The influence of John Dewey created a new philosophy that focused on the individual child and active learning in a social setting. Dewey's philosophy of developmentalism, which stressed total

development through natural problem-solving activities, provided a core of education in all subjects. Because play activities are natural experiences for children and offer many opportunities for learning in a social environment, Dewey's theories had a positive effect on elementary physical education. The new problem-solving approach for education was directly applied to physical education programs in the form of sports and games. New physical education programs developed by Thomas D. Wood and Clark Hetherington replaced rigid exercises with natural play activities.

Because of the Great Depression and World War II, progress was hampered during the decades from 1930 to 1950. The objectives of education in American schools formulated in the philosophy of John Dewey continued to be directed toward social education. Likewise, the emphasis in physical education had completed a shift from physical exercises to games and from the classroom to the out-of-doors. While physical education struggled to survive the educational crisis during the Depression of the 1930s, the new program continued to gain philosophical support. The concept of total development through physical activities was further developed by Jesse F. Williams and Jay B. Nash and continued to shape the program of activities for children.

Concern for the development of quality physical education programs for children has increased since 1950. Interest of unbelievable scope was stirred in 1953, when national attention focused on research showing that the physical fitness level of American children compared unfavorably with that of European children. Because of public concern, the President's Council on Youth Fitness was established in 1956. This group stressed the need for physical fitness programs in the schools and had a major influence on the physical education curriculum. The current emphasis on fitness has continued to be an important force in modifying physical education programs. Other efforts to promote better physical education programs for children have resulted in increased emphasis on coeducational programs, programs for the handicapped, individualized instruction, lifetime sport participation, and student involvement in planning.

Today's Elementary Schools

The goal of education in today's elementary school is to provide experiences to help all children

achieve their capacity as contributing members of society. For schools to encourage the realization of human potential, teaching children to decide among alternatives, to change wisely, and to develop a broad base of understanding in a variety of topics is important. Ultimately each student is responsible for his or her actions.

Physical education makes an important contribution to total development. Even though educators talk about "the total child," during a typical school day time and energy are devoted primarily to academic subject matter. Educators express concern for the social, emotional, and aesthetic needs of the child—planned sequences are provided for these concerns—yet physical education, like music and art, is taught when time is left over. If the child is truly a physical, intellectual, and social being, then educational plans must meet the whole needs of the child. A child's physical needs go beyond food and shelter; for good health a child requires vigorous physical activity. To maximize a child's total development, physical activity must be planned by the teacher and systematically performed by the child.

Goals of Physical Education

Physical education contributes two unique goals to the curriculum. ①developing physical fitness and ②developing motor skills. Casual observation and numerous surveys indicate that these are important parts of our culture and, thus, are significant concepts for schools to transmit to children. So, in addition to the broad goal of education—developing the total child to a maximum potential—physical education

- ✓• develops and maintains appropriate levels of physical fitness for health and teaches why fitness is important and how it is influenced by exercise
- ✓• develops appropriate motor skills, beginning with fundamental motor skills, which lead to specific sport skills, and finally emphasizing lifetime sports.

Health-related physical fitness involves such characteristics as cardiovascular endurance, muscular strength and endurance, and flexibility. Helping children develop and retain these characteristics is an important function of the physical education program. To meet this objective, physical education programs must provide vigorous activity on a regular basis for extended periods of



Developing upper body strength for physical fitness.

time. This goal cannot be met by recess or play periods. A structured, regular plan of exercise is required. One major focus of this book is to help teachers understand this need and plan to meet it through a physical education program.

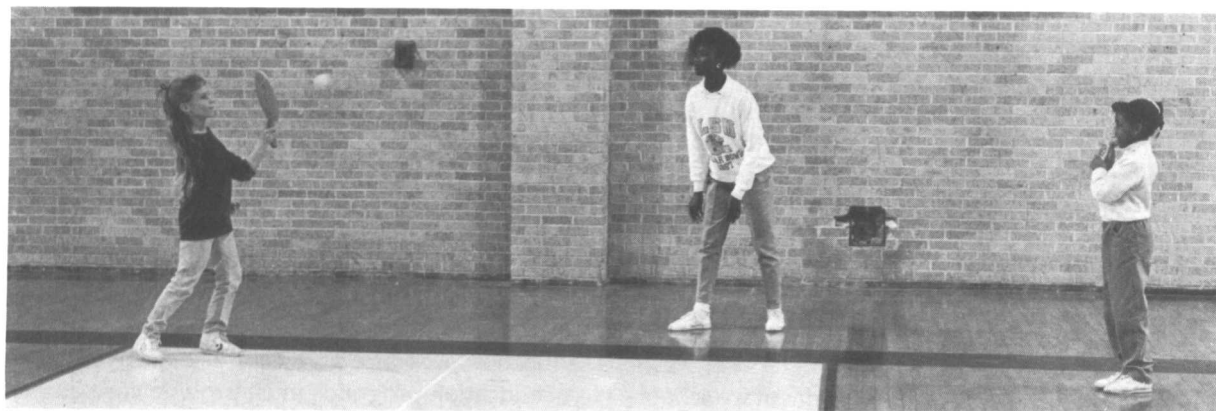
The other major focus of this book is to aid the teacher in understanding how movement skills are

learned and developed and how to help children practice and use these skills. The development of movement skills by children is unlikely unless the teacher has a specific plan for frequent and correct practice. Again, recess and play periods alone are not likely to develop the range and level of movement skills necessary for children to enjoy participation and to want to continue regular activity as they grow and mature.

Development of physical fitness and motor skills is the unique contribution of physical education; that development must begin in the early elementary grades. Physical education, like most areas of the curriculum, can provide opportunities to teach social, moral, and intellectual concepts. If children do not experience quality physical education programs during their elementary years, they will miss valuable competencies; furthermore, the school is not fully addressing the educational needs of the total child.

Two situations often undermine the goals and value of physical education. Children quickly learn that teachers do not value physical activity for them if they

- ✓ use physical education time as punishment. For example, a teacher may say, "John, you may not go to physical education today because you misbehaved during the spelling lesson." That same teacher would never say, "John, you may not go to reading today because you misbehaved during the spelling lesson."
- ✓ use "escape" from physical education time as a reward. For example, a teacher may say, "Susie, you do not have to go to physical education today. You can stay in and help me instead."



Developing motor skills, which lead to specific sport skills.

In either instance, the hidden message is that physical education, and consequently the development of lifelong activity patterns, is unimportant. Such attitudes may understandably stem from teachers having been exposed to poor quality physical education programs. However, prudent teachers can look beyond the quality of their own experiences to what is of value to all children.

Who Is Responsible for Physical Education?

Most states do not mandate or provide funds for physical education specialists throughout the elementary school years. There is considerable variation among and within states as to who will teach physical education. A large city may have specialists who provide a daily physical education program, while a rural area in the same state may have classroom teachers responsible for physical education, which may mean recess or supervised play once or twice a week. Physical education needs to be an integral part of the curriculum regardless of the legal requirements; the school has a responsibility to provide quality movement experiences for children during elementary school. Even for teachers who do not have the major responsibility for providing physical education, knowledge of and commitment to physical education are important. The more understanding you have of the total child, the better equipped you will be to meet the challenge of educating children.

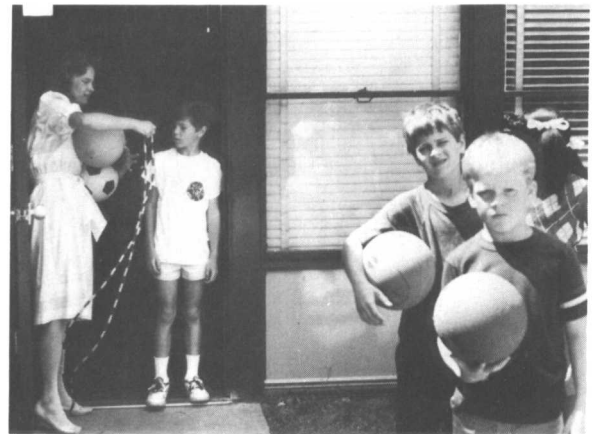
Gender Differences Are Insignificant

Research and common sense suggest that during the elementary years there are no reasons to expect children to perform differently because of their gender. Yet frequently a teacher—whether a physical education specialist or a classroom teacher—will hand jump ropes to the girls and balls to the boys at recess. Adults have accepted, and inadvertently taught, that boys and girls prefer different activities and should meet different performance standards. The process begins with parents who

treat boys and girls differently and continues with elementary school teachers who accept the gender differences with which children come to them as if they were biological. Most adults react negatively to situations that seem to discriminate against them on the basis of sex, race, religion, income, education, or anything else. Yet lessons and even the total curriculum often promote gender differences in areas where no true differences exist. The developmental research (to be discussed in coming chapters) indicates that most gender-related performance differences are learned, cultural artifacts. That is, there are no physiological or psychological reasons for boys to be better than girls prior to puberty in measures of motor skill or fitness.

Children, regardless of sex, race, or economic class, should be expected to perform equally and to exhibit interest in a wide variety of physical activities. Children should be treated as individuals with their own strengths and weaknesses, not as part of a gender-specific group. For example, a teacher would design an activity for a child with poor throwing skills to try to improve, so that child might participate on a level with the rest of the class. The child needs to develop this competence, regardless of gender. The teacher should not accept poor throwing because the child is a girl, and “everyone knows girls throw poorly.” Nor should the teacher set unrealistic goals because the child is a boy, and throwing is supposedly important for boys! If throwing is an important competency, then it is equally important for girls and boys, for blacks and whites, for rich and poor.

The goals of physical education have been explained, and the perspective of this book has been identified, but what is really going on in elementary physical education?



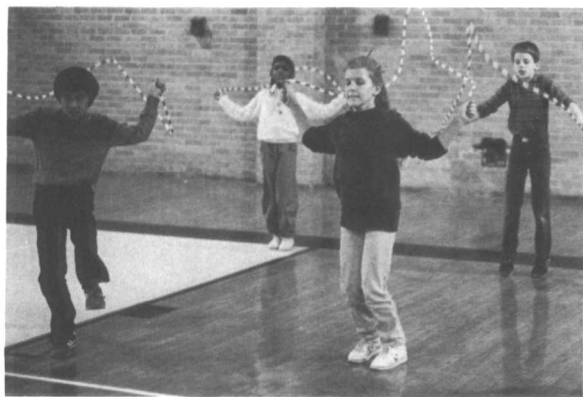
Giving jump ropes to girls and balls to boys.

Children's Patterns of Participation in Exercise and Sport

In 1980 the U.S. Government identified youth fitness as a national priority in the report *Promoting Health/Preventing Disease: Objectives for the Nation*. The objectives, to be met by 1990, specifically relating to physical education are these:

1. 60% of 10- to 17-year-olds will attend physical education daily;
2. 70% will have their fitness tested periodically between 10 and 17 years of age;
3. 90% will participate in cardiorespiratory training activities.

In addition, the report establishes the need for monitoring participation patterns of children and youth and for evaluation of short- and long-term beneficial effects of exercise on health. As a result of this concern, a federally funded, nationwide research project—The National Children and Youth Fitness Study (NCYFS)—was conducted to assess the fitness and activity level of children. NCYFS (1985) surveyed and fitness-tested nearly 9,000 children across the country. Other projects have tested fitness or tried to determine participation patterns of children, but this is the most recent and the most complete to date. Even though this is the most comprehensive, recent, and experimentally sound information available, some of the results may be misleading. One of the study's major weaknesses is the lack of definition for physical education. Children were asked to describe the amount of time they spent in physical education activities, yet they may have been reporting supervised play, recess, intramurals, or the instructional physical education program.



Jumping rope to develop cardiorespiratory fitness.

Incidence of Physical Education

The NCYFS survey indicated that 80% of the children in grades 5 through 12 were enrolled in physical education; they averaged 3.6 classes per week totaling 141 minutes of instruction. Only 36% were in daily physical education classes. The curriculum usually covered 12 different activities. In other words, most of the children participated in each of the 12 activities in about 11 class periods spread over three weeks. The number of children enrolled in physical education decreases from 5th to 12th grade, with less than 50% of girls participating in 12th-grade physical education (see Figure 1). Many activities listed by children are typically done during recess or in other situations where they make their own decisions about organizing and participating in activities.

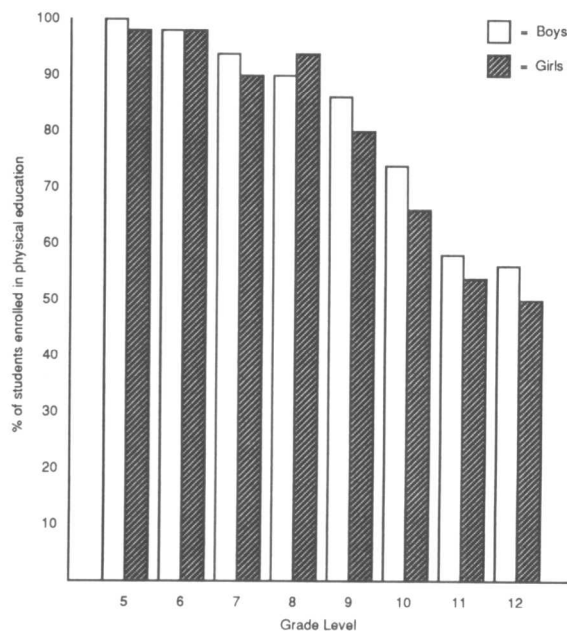


Figure 1 Percentages of boys and girls in physical education. Note. From "What Are Kids Doing in School Physical Education" by J.C. Ross, C.O. Dotson, G.G. Gilber, and S.J. Katz, 1985, *Journal of Physical Education, Recreation and Dance*, 56(1), NCYFS-32. Copyright 1985 by AAHPERD. Reprinted by permission of the American Alliance for Health, Physical Education, Recreation and Dance, 1900 Association Drive, Reston, Virginia 22091.

In 1974–1975 the statistics were nearly the same—80% of children in grades 5 to 12 reported receiving some physical education, 33% daily. Thus, the results are consistent over a 10-year period and across two different surveys. The 80% must be ad-

justed for children's perception of what constitutes physical education. Since the NCYFS survey did not limit the definition of physical education to the instructional program, many children, especially younger ones, are likely to have included any time appropriated to physical activity, such as recess or free play. Since most states do not provide specialists until the later elementary grades, these percentages probably do not reflect quality instructional programs with appropriate physical activity to develop motor skill and physical fitness. Even when daily physical education is required from kindergarten to sixth grade, little evidence of any organized program exists, except where specialists are provided to teach, or at least organize and supervise, physical education.

In 1987 Phase II of the NCYFS study was published, focusing on the physical fitness of 6- to 9-year-old children. A national probability sample of 4,853 children from 19 states was used. Results indicated that while 97% of these children take physical education, only about one-third do so every day. NCYFS II looked at three questions about young children's physical activity and fitness (p. 4, NCYFS):

- (1) How do children in grades 1 to 4 perform on health-related tests of physical fitness?
- (2) What are the physical activity habits of children at home, at school, and in the community?
- (3) What factors, including exercise habits, affect measured fitness?

When compared to earlier statistics (National Center for Health Statistics, 1964-1965), 6- to 9-year-old children are fatter, as the sum of two skinfolds averaged 2 to 4 mm thicker. Leaner children had more active parents with whom they exercised regularly. Children who did well on the 1-mile run, a health-related measure of cardiovascular response, are rated as more fit by teachers and parents, watch less television, participate in more community sport/physical activity programs, and are more likely to be taught by a physical education specialist.

Activities commonly offered in physical education for these children in the NCYFS study (in rank order of frequency) were movement experiences and body mechanics, soccer, rope jumping, gymnastics, basketball, throwing and catching, exercises, rhythmic activities, kickball, relays, running, and softball. The frequency with which schools provide physical education is inversely related to the amount of time allocated for recess. This sug-

gests that many elementary schools are substituting recess for physical education, a practice that is unlikely to enhance children's motor skills or physical fitness.

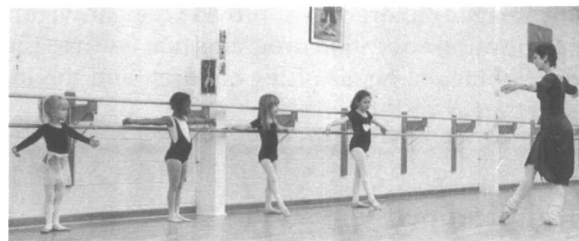
✓Other Sources of Activity

One might infer from the number of students who do not participate in physical education when given a choice (usually in high school) that children do not like to be active. One might further suggest that parents, teachers, and administrators are justified in deemphasizing physical education, and certainly in not demanding it daily for children. However, the NCYFS reported that 80% of those surveyed reported participating in physical activities outside of school. These students participated in over 20 different activities per year for 760 minutes per week! An average of only two activities were community-sponsored, so students were devoting over 12 hours per week to sport and physical activity at their own expense. We must conclude that parents, children, and youth see physical activity as important.

An estimated 20 million children participate in youth sport programs, typically coached and administered by parents—a further indication of the commitment of children and adults to physical activity. In addition, commercial programs provide after-school instruction—dance studios, skating rinks, health clubs, and so forth. Clearly, there is a demand for quality instruction and vigorous physical activity that is not being met by schools' physical education programs.

✓In-School Versus After-School Activity

Why do children participate in physical activities at a high level outside of school, yet show low interest in physical education at school? Part of the answer may be the types of activities offered. For example, girls report that the five most frequent activities in physical education class are calisthenics



Participating in after-school activity.

(or exercises), volleyball, basketball, jogging, and baseball (or softball). Yet their five top choices for activity after school are swimming, cycling, dancing, roller skating, and fast walking. The boys, on the other hand, show more interest in physical education class, and three of their first six choices overlap between school and after-school. That is, physical education class offers basketball, football, and baseball (softball), which are three of the six activities most often selected after school. Another possible source of girls' low interest is the fact that half of the most frequent activities in school are team sports, yet only 20% of girls' after-school choices are team sports (and all occur in the bottom two-thirds when ranked for popularity). The obvious conclusion is that boys get more of what they like out of the physical education program and they continue to participate, while girls lose interest.

Another part of the reason for a lack of interest goes back to the amount of time devoted to physical education. Kids want to improve their skills, yet in the limited class time allocated to physical education, this is often impossible. Further, the schools often offer poor programs that deserve little interest from the students. Teachers may do the minimum, which may range from no physical education at all to just supervised play, or they may replicate athletic programs. In either case, children lose interest and fail to develop skill or fitness.

Culturally Disadvantaged, Multicultural Children

Some children never participate in after-school programs because their families lack the interest, the knowledge, or the resources to provide these supplementary activities. As we discuss later, there are serious health-related implications for children who do not have ample vigorous activity. In addition, social gaps are widened as a result of vastly different experiences. Schools wishing to address the problems of multicultural and culturally disadvantaged children must provide regular, vigorous physical education programs that address the developmental needs of the children and the interest areas of their peers.

Handicapped Children

After-school programs may restrict access by handicapped children. Federal regulations dictate

that the disabled must be allowed to participate in school-sponsored extracurricular activities when appropriate. The definition of "appropriate" often eliminates handicapped children from interscholastic sport, and other programs not sponsored by the school may discriminate against them. When a school's physical education program is poor, handicapped children often do not have the option of supplementing their participation with after-school activities.

Physical Fitness in American Children

During the 1950s the space program, the poor fitness records of men in the military, and a research project comparing the fitness of American and European children all contributed to a heightened interest in physical education and fitness. Since that time several tests have been developed (the President's Fitness Test, the AAHPERD Fitness Test, the AAHPERD Health-Related Fitness Test) and administered to school-aged children across the country. In general these tests have indicated that the level of fitness in children in the U.S. is considerably lower than experts believe is acceptable or healthy.

Recent research indicates increasing rates of hypertension, with approximately a 25% obesity rate in elementary school children. Low levels of fitness as a result of little or no vigorous activity contribute to both of these health risks. The NCYFS found low levels of cardiorespiratory fitness, increased and excessive levels of body fat, poor flexibility, and low levels of muscle endurance. Furthermore, the report suggests a strong relation between fitness level and exercise participation. That is, those children involved in more activities were more fit and leaner and had fewer health risks.

Correlation Between Fitness and Exercise

Many research studies have identified the relation between physical fitness, which contributes significantly to health, and exercise. The evidence suggests minimal time is necessary to influence fitness (which will be defined in chapter 2), yet in the majority of programs, which meet 3.6 hours per week (from NCYFS statistics), the activity level is not sufficient to influence fitness. Many of these programs are also doing little to teach motor skills. People who have developed adequate motor skills are more likely to participate in vigorous activities

because they will be successful. Participation is related to fitness. When fitness and participation become a habit for children, they are more likely to continue throughout life. Early fitness can also eliminate some health problems of children and youth.

Purpose and Organization of the Book

The purpose of this book, in conjunction with *Physical Education for Children: Daily Lesson Plans*, is to provide elementary classroom teachers with a knowledge base and lesson plans to conduct a quality physical education program. Curricular approaches to elementary physical education differ considerably. Although this book is somewhat eclectic, it is guided by a basic principle:

A teacher who understands children's motor development can adapt any instructional strategy or movement activity to promote the development of health-related physical fitness and motor skills.

The remainder of this book is an attempt to apply our stated underlying principle. In Part I we present the motor development knowledge base, with examples of how it can be applied to enhance children's movement. Part II demonstrates how an elementary physical education program can be developed based on motor development knowledge. While the term *developmental physical education* is used, no specific curricular model or methodology is implied by that term. What is meant is that the curriculum and methods are based on motor development knowledge. Thus, plans of instruction and organization (including the selection of activities) are suggested from a variety of approaches. While this may appear inconsistent from a curricular perspective, it is very consistent in light of our basic principle. Part III continues this premise into areas that supplement curriculum and program planning—observation of teachers and children, development of equipment and facilities, and evaluation.

This book is organized somewhat like a teacher-training plan. In Part I, the knowledge base is presented. An elementary education student would learn math content before a course on how to teach math. But, in physical education, the

content—human movement in general and motor development in specific—has traditionally been included within the teaching area. Thus, when an elementary teacher takes a course such as elementary physical education, the content must be included along with teaching methods. Parts II and III and the lesson plan book represent the curriculum, method, and skill components needed to plan and teach elementary physical education.

The companion lesson-plan book, *Physical Education for Children: Daily Lesson Plans*, is developed around the same basic principle. Its varieties of approaches and activities have been selected and organized according to the level of motor development. Within a class, of course, children will vary considerably, and the teacher must adapt the plans and activities to the range of individuals. This is possible if the teacher understands how children develop and the purpose of specific activities. *Physical Education for Children: Concepts Into Practice* provides the conceptual basis for the development of a teaching plan and the information teachers need to adapt it to individual children.

A final point of considerable significance: Although elementary physical education has but two unique objectives—the development of physical fitness and of motor skills—meeting those two objectives is not easy. Developing physical fitness is time-consuming, as is the practice necessary to increase the quality of motor-skill performance. In the typical time allotted for elementary physical education, achieving both is nearly impossible. Thus, to meet both objectives, most of the work to develop health-related physical fitness should occur during nonschool time. If health is important—which it is—and if regular exercise promotes health—which it does—then assigning children regular exercise as “homework” is just as important (and maybe more so) as academic homework. Convincing parents of the need for this should be made easier by the constant media promotion of the value of regular exercise for health. In addition, a teacher who positively influences students' feelings about physical education will promote their fitness, because they are more likely to voluntarily participate in activities they feel good about. By providing information, acting as a role model, and teaching physical education daily, the teacher guides the child in experiencing regular exercise and developing physical fitness and motor skills.

Our approach to this task is to begin physical education class each academic year with a unit on health-related physical fitness. This includes testing, teaching appropriate activities that are assigned as homework, and developing a contract

with each child. The teacher checks on this periodically (the child keeps records and the teacher conducts tests) during the year. This method should contribute to physical fitness and help children develop good exercise habits during non-school time—we would expect it to produce individuals who exercise regularly throughout their lifetimes.

If after-school time is used to develop children's health-related physical fitness, teachers can use the regular physical education class period for instruction and practice in the important movement skills of our culture. In the lesson plan book, the concentration is on developing movement skills, but opportunities are provided for as much vigorous physical activity as possible. For example, all lessons have vigorous five-minute warm-ups, and many activities require continuous whole-body movement for extended periods.

A concerted effort by the reader to acquire the knowledge in this book will enable him or her to use the lesson plan book effectively and thereby to provide a quality elementary physical education program. Children deserve the best efforts of the classroom teacher in this area, for our society has come to value regular exercise and sport skills, and little doubt remains of the positive benefits of regu-

lar exercise and leisure-time sport participation for physical and mental health.

References

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Part I

The Knowledge Base for Elementary Physical Education

Motor development can be defined as the changes in movement efficiency and effectiveness that occur across the lifespan of the individual. This book focuses on these changes as they occur during childhood and adolescence, although the adult or mature performer is often used as the standard for comparison. Motor development is limited in this way because this book is devoted to improving elementary physical education by using the knowledge base from motor development during childhood and adolescence as the basis for planning the elementary physical education program.

The knowledge base of motor development is presented in the first five chapters—How Children Grow and Develop, How Exercise Affects Children, How Children Develop Movement Skills, How Children Learn Motor Skills, and Psychosocial Factors and Children's Movement. It is the basis for the development of the remainder of the book, so you need to learn the information. In ad-

dition, the companion book to this one, *Physical Education for Children: Daily Lesson Plans*, uses the motor development knowledge base as the means for selecting appropriate physical activities for children.

Because we want to present the information on motor development as simply and straightforwardly as possible, we have not provided literature citations. However, references are given at the end of each section. It is important to recognize that much of the information here is borrowed from others. The knowledge presented is based on solid research, but many beyond the researchers have developed and suggested applications for this knowledge. In a number of instances the data has been oversimplified as well as generalized from laboratory situations to real-world behaviors, but for the information to be useful to teachers of elementary-aged children, the "translation" (though some errors probably occur) is necessary.

Objectives

for chapter 1

- Define growth, development, maturation, and experience.
- Differentiate among infancy, childhood, and adolescence.
- Describe growth curves for height and weight for boys and girls.
- Identify the components of weight—lean body mass and fat.
- Discuss the relation between body size and motor performance.
- Identify important body proportions and their changes and how they influence performance.
- Differentiate among ways of estimating maturity.
- Discuss the growth and development of the nervous system.
- Identify the influence of environment and heredity on growth, development, and performance.