

Health & physical education: Partners for the future

Ronald S. Feingold, Ph. D.
Adelphi University. Garden City, New York, U.S.A.

It is indeed an honor and special privilege for me to present the Cagigal Lecture. I had the pleasure of meeting and knowing Jose Maria, unfortunately too briefly, when I first became involved with AIESEP in 1981. He was a true leader and a true scholar, one who cut across many disciplines, music, art, philosophy and sport. As a leader he had been a visionary, one with a humanistic and caring thrust. I hope my presentation will provide a similar searching and visionary perspective that Jose Maria would have appreciated, although I am not sure a perspective he would have agreed with.

I am also proud to follow in the foot steps of former past Cagigal Lecturers, Linda Bain, Wolf Brettschneider, Risto Telama, George Sage, Paul Schempp, and Manoel Tubino.

On a personal note, to present the Cagigal Lecture in Israel has a very special significance for me, and I thank the organizing committee for giving me this opportunity and honor.

1. INTRODUCTION

As we approach the year 2000, our profession is facing a significant crossroad, not only in the United States, but around the world. I believe, Physical Education as we know it today, will be transformed within the next five years. What direction this transformation will take and what role higher education will play will be the topic of my presentation, "*Health & Physical Education: Partners for the Future*".

A few of the following trends provide the framework upon which, I believe, this transformation will take place, and upon which I formed my conclusions:

1. ***Health Care Costs***. Health care and health care costs have escalated to the point that will not allow for the necessary care and improvements. A preventive model will become more accepted, and governments, business, and insurance agencies must look to the development of incentives;

2. ***Break-up of the traditional family structure***. Increase in divorce, enhanced role of women in the work force, and a seriously weakened economy has led to a break-up of the traditional family unit. No longer are parents home, and fewer take care of their children. For many the baby-sitter has become the TV or computer, for others the street corner;

3. ***Instability of institutions***. Besides a change in the family structure, there will be and have been significant changes in culture, governmental structures, business, and society. Only a few short years ago, when I was in Israel at the Wingate Seminar, Pan American Airlines, Soviet Union, Yugoslavia, Berlin Wall, Eastern Europe, peace in the Middle East, and Israeli relations with the PLO have all changed since the last time we were here;

4. ***Multi-disciplinary perspective of education***. A more holistic view of education with cross-disciplinary connections are being promoted as a more acceptable and logical approach to education; and

5. ***Collaboration***. Greater collaboration between schools, higher education, professional associations, the community, business and parents.

2. HEALTH CARE

If I may use the health care costs in the U.S. as an example of the escalating costs throughout the world, and the potential crisis in which we find ourselves. In 1985 it was 220 billion, 660 billion in 1990, 880 billion in 1992, and an expected 1.6 trillion by the year 2000. These figures provided by the Department of Health and Human Services for the US does not reflect the increase costs of AIDS, nor does it reflect the increased costs of new viruses, terrorism or chemical warfare. This last figure, 1.6 trillion is the current total budget of the United States Government; that is, there would not be funds for anything else in government but health care - no military, no space flight, no court system, no congress, no government officials. As the health care costs go up, either there is an increased burden on government or fewer and fewer people will be able to afford it. At present approximately one-third are without health care, and if this trend continues at the present rate, only the very wealthy will be able to afford any medical care.

Although the economy has remained weak, technology continues to prosper. New techniques and tools such as computer-aided tomography (CAT), magnetic resonance imaging (MRI), X-ray crystallography, scanning electron microscopy, and supercomputing have created new medical procedures and new fields of study. But technology has also driven up the cost of research as well as health care.

In addition to costs, technology has also enabled the births of infants who in past years would have died. Pre-mature births, infants with congenital defects, infants born from mothers with AIDS, or mothers who are drug-abusers are being saved in record numbers. It is estimated that over 10% of the babies born each year in the US have come from mothers who have used one or more illicit substances during their pregnancy. (Chasnoff, 1989; Chasnoff et al., 1990; Hollinshead et al., 1990). These same infants, although living, will require significant medical care for years to come. While these babies are being saved at birth in record numbers, there seems to be a shortage of funds or support available for medical care of the babies once they are born.

At the other end of the spectrum, more and more people are living longer, as a result of break-throughs in medical surgery, technology, nutrition, and pharmacological therapy in combating disease. It is estimated that the average person who lives to be 76 is ill approximately 11 years of one's life, mostly during the last ten years. Again, the financial burden on society becomes greater, resulting in the 1.6 trillion dollar expenditure expected by the year 2000. The economy, at least in the United States, is unable to keep up with the financial burden of health care, and the result is in a decrease in the support for governmental human services necessary to maintain the expected quality of life.

The saving of births and increased life span, due to medical technology continue to increase the costs of surgery and health care. The increased costs coupled with the current economic constraints have brought the medical profession, governments, and society to new positions regarding life itself, and the costs in saving of one's life. It is bringing the medical profession to respond to the critical question. Who is to live and who is to die? It is not unusual to spend \$300,000 to 1 million to save the life of a crack cocaine baby, only to see it die within 1-2 years, or live with the defects from the addiction without any family, governmental or societal support for maintaining a minimal quality of life.

A few years ago, a major issue was the cost of separating Siamese twins, given that there was about only a 1% chance of survival of one of the babies. As it turned out one did live, but only a year and never left the hospital. One hospital would not do the operation, for fear that it would take away funds for the treatments of other patients who would have had a greater chance of survival.

Only last week, Mickey Mantle was given a new liver, and there was an outcry from those who felt that he was given preference due to his celebrity status. Who decides on whether to be a recipient for a new heart, lungs, liver, when there is a shortage? In some places, computers are already answering this question of life and death.

3. SOCIETAL PROBLEMS

A more serious problem is the recent drug epidemic in the United States. It is estimated that 70-80% of all crimes in the US are drug-rela-

ted. This drive for drugs or addiction is destroying, not only people but society itself. As previously noted, over 10% of all babies are born from mothers who have taken drugs during pregnancy. This figure is growing and it is with full knowledge that continued drug use will harm the unborn infant. Costs for rehabilitation of the mother are staggering, but more staggering is the cost to society in maintaining the health care of the child.

The resultant health status, health care, and quality of one's life will depend more and more upon decisions one makes about one's lifestyle. At least in the US, more people are reluctant to pay for someone else mistake. If someone smokes, chooses to eat the wrong foods, chooses to participate in taking drugs, etc., taxpayers and citizens are becoming increasingly reluctant to pay for it. In the U.S. Shepard (1986), estimates that over 90% of all diseases can be prevented by lifestyle choice, and as previously noted that 70-80% of all crime in the US is related to drug abuse. (Masnick & Bane, 1980) These risk data translate into a substantial number of premature deaths, disabilities, as well as loss of quality of life, in addition to exacting a tremendous expenditure of funds. (Shepard, 1986). **Thus decisions about physical activity, nutrition, sex, drugs, environment, and pollution are just a few of the factors that will play much greater roles in the quality of our life as we enter a new millennium.**

4. CHALLENGE TO OUR PROFESSION

While the society finds it more difficult to support the ever expanding costs of medical care, and while U. S. Government Reports indicate that over two million deaths/year in the United States may be effected by personal choice and lifestyle, the challenge to our profession becomes clear (U.S. Dept of Health and Human Services, 1990). **Through education, through development of healthful lifestyles, and through prevention of disease and illness, the financial costs and the man-power costs to society can be significantly reduced.** I found in New York State alone, through one year of disease prevention, New York State can save up to three to five billion dollars a year. It has been demonstrated time and again in the reports that lifestyle management and personal choice can significantly prevent the

onset of illness and disease. Again, and I repeat smoking cessation, healthful nutrition, physical activity, drug abuse reduction, etc., are key factors in the prevention prescription, and that is what we are all about.

5. EDUCATION AND PREVENTION

The literature strongly supports a position for the health promotion and prevention model. Numerous studies have shown a significant decrease in the fitness level of its children and more importantly a significant decrease in their activity level. Cardiovascular disease, once considered to be a geriatric problem, is now largely becoming recognized as a pediatric problem (Fixler & Pennock, 1983), (Gabbard & Crouse, 1987). Overall, younger children weigh more and have more body fat than they did twenty years ago (Ross, et al., 1987). And the fitness levels of youth have significantly declined (Blair, 1985). **However, the critical variable is not necessarily the fitness level of children, but the current and future levels of activity.** Simmons-Morton et al, 1987 and more recently Sallis and McKenzie, 1991 have argued for an increase in physical activity, rather than concentrate on fitness levels. It is noted by Sallis and McKenzie that, "*The public health goal is to prepare children for a lifetime of regular physical activity.*" (Sallis & McKenzie, 1991, 133).

To prepare for a lifetime of physical activity is an important and significant concept. The question still remains, how much fitness is enough or necessary for long term health and well being? I support Freedson & Rowland's, (1992) position that it doesn't matter. More important is physical activity, not necessarily the fitness level. In other words, it is not getting children fit, as we all might suspect. **Instead the goal is to get them to like physical activity and to provide them with information so that they can make better decisions about their own health and wellness for the rest of their lives.**

6. NEW STRATEGY TO PROMOTE PHYSICAL ACTIVITY

In support of this new direction in the promotion of physical activity rather than fitness levels, and in one of the more important studies of this

century, Blair et al. (1989), reported in the *Journal of the American Medical Association* that physical inactivity was a significant factor in mortality, not only from coronary artery disease, but also cancer and numerous other diseases. **The study also found that high levels of fitness was not the critical factor. Instead it was the significance of an active lifestyle.** In another study related to lifestyle also reported in *JAMA*, (Neaton et al, 1993), found that lifestyle changes regarding nutrition (weight reduction and sodium restriction), aerobic exercise, and alcohol reduction was as effective in controlling hypertension as drug therapy. Likewise Paffenbarger, one of our most notable epidemiologists, reports in the *New England Journal of Medicine* that he has seen significant changes investigating over 10,269 patients who have made lifestyle changes concerning activity, diet and smoking reduction (Paffenbarger, 1986). He notes, however, besides saving on the average of 2 1/2 years of life, he feels there is a significant difference in the quality of life as a result of the lifestyle change. Studies of this nature have led to the recent position of the American Heart Association in 1992, that physical inactivity was the fourth major risk factor of heart disease, along with smoking, high blood pressure, and high cholesterol. More recently the American College of Sports Medicine (ACSM) and the Center for Disease Control (CDC) endorsed the concept of moderation in training and activity as the key to prevention of disease. Again, it is not necessarily the fitness level, although the greater the fitness and the greater the activity up to a point the greater protection, but instead the continuous participation in moderate activity is what counts.

7. NUMEROUS STUDIES HAVE POINTED TO SCHOOLS AND WHAT HAPPENS TO CHILDREN AS CRITICAL FACTORS FOR CONTINUATION INTO ADULTHOOD

At the recent AHA convention, numerous studies support the concept that what happens to children effect adult behaviors. We have known this for years. These studies focus on the need for early prevention through weight control, activity, and smoking reduction, and are supported by the American Pediatric Society, the American College of Sports

Medicine and the American Heart Association all of whom had prepared position papers requesting schools and physical education to focus on health related fitness education programs. And only last month the AHA, ACSM and AAHPERD formed a coalition on physical activity (ACSM Convention, 1995).

In addition, numerous papers, dating back to the mid 80's have called for using physical education as the logical place in education to develop positive activity patterns. (Meredith, 1988; Iverson et al., 1985; Riopel, 1986; Sallis, 1987; Simmons-Morton, 1987). And more recently in support of health and physical education working more closely together. Most of the authors also recommended that the emphasis be on increased participation in and enjoyment of moderate to vigorous physical activity rather than on specific training effects.

Meredith (1988) notes that traditionally the goal has been on performance either on skill or fitness. They are taught to see that the product is the ultimate goal, rather than focusing on the process.

Thus one might suggest when focusing on fitness education a public health perspective, whereby one views the use of physical activity, knowledge about the body, program development, goal setting, and assessments all within with the environment that will develop positive feelings and attitudes about activity. In other words, how to make Physical Education both enjoyable and an educational experience.

In a paper I presented at the Loughborough AIESEP Conference in 1991, I suggested a MIC Model, Multi-disciplinary, Integrative and Collaborative, as opposed to a) **fitness assessment model** (only test fitness levels, beginning and end); b) **general activity model**, where one assumes all activities promote physical fitness; c) **introductory warm-up**, five to ten minutes of warm-ups; d) **no-pain, no gain**, including strict discipline and hard work; and e) **comprehensive model**, where one relates fitness concepts as taught in the gymnasium to healthful life-long activity patterns - often times the health service and school nurse are involved. The MIC Model includes the comprehensive approach, plus integration of concepts throughout the physical education and health curricula, as well as the services and facilities outside of the school. Parents, recreation, health and social services (Feingold, 1991).

Blair et al., also reported that the traditional approach to exercise prescription (intensity/duration formulas) and the “no pain, no gain” model have clearly not motivated the majority of people in society. (Blair, Kohl & Gordon, 1992).

Both in mine, Blair’s and Meridith’s plan the basic goal relates to what types of programs can provide stimulus with the background that will not only increase activity levels during childhood, but also carry this behavior into adulthood?

For those interested on the issue of testing of fitness, and for some schools this is their entire program, Fox and Biddle, prepared an interesting article on the psychologically harmful effects of traditional fitness testing, and note, “concentrating too much on the product of fitness by overuse of fitness norms and comparisons between children may effectively mask the real issue.” (Fox & Biddle, 1988, pp47).

8. MIND/BODY RELATIONSHIP

Psychological effects of traditional fitness testing brings to mind the extremely important relationship between the mind and body, and the need to consider both in an integrated fashion when concerned about life-long physical activity patterns. In fact, Fox and many others report that when one considers adherence, motivation and behavioral changes, **psychological factors may be the more critical factors to maintaining activity patterns** (Fox, 1988).

In support of psychological considerations, Fox (1988) also reviewed numerous studies on the psychological benefits of physical activity. Sonstroem (1984) has reported that research has consistently shown that it is perceptions of physical ability rather than actual ability that relate to self-esteem, i.e., how good we think we are that counts. Duda (1987) in describing the developmental achievement theory notes that the ego-involved child achieves a sense of competence primarily by peer comparison. Those who do not compare well with others experience inferiority and failure and will seek competence elsewhere. In the area of health related fitness, it will usually involve those in greater need of fitness. On the other hand, focus on personal fitness improvement through carefully plan-

ned behavioral goal setting will allow children of all fitness abilities to experience a sense of mastery and competence.

Reflecting on the process and behavior modification, one must also look at the role exercise has on mental health and the whole person. Traditionally, the role of exercise on health has been viewed predominantly from a physiological perspective. Recently, however, the role of exercise in treating or preventing a variety of mental disorders, including depression, and anxiety has received increased attention.

In addition, Hinkle (1992, 1988) in the *Journal of Mental Health and J. of Mental Health Counseling*, reported on the psychological benefits of aerobic running, including the increase in self-esteem, enhanced thinking, and greater focus on written tasks, and recently, the Academy reported on Physical Activity and Stress in *Quest 94*. Both Dishman (1994) and Landers (1994) in this publication reviewed numerous studies that supported the role of physical activity in having a positive effect upon the mind.

Leith (1995) in a recent text, also reviewed a number of studies that pertain to the effects of activity on mental health, a number of which analyzed the intensity of exercise that is necessary to reduce depression and anxiety found that moderate activity of from 40-60% max as a level that is necessary (North, et al., 1990; North, McCullagh & Trann, 1990; Felts, 1989). **These results support the recent moderation approach to activity, which in turn supports the notion of "lifestyle management"**. However, Dishman (1994) warns that to continue a dualistic approach in research, as is typically done, is incomplete and must change in order for advances in knowledge and application to occur.

Thus, with a more holistic perspective, it is time for the exercise scientists and mental health practitioners to focus on an exercise and wellness relationship.

The human being is indeed a complex organism and must be treated and analyzed as such. We can no longer continue to maintain our single-mindedness and study the human from one perspective at a time (Dewaltowski, 1994). Physiologists, sociologists, psychologists, motor development specialists, and pedagogists must work more closely as a team when it comes to research and curricular programmatic developments. Bressan (1990) said it best in her review of scholarship, that the

“*true scholars*” were the ones that can cross disciplines, and can communicate with others. Boyer (1990) as well in his book, *Scholarship Reconsidered* belabored the point that there was a need for research that was applied and research that cut across disciplines. Too often we appreciate in higher education, those most that we understand least.

9. COLLABORATION

Besides the complexity of the individual person, the necessity to consider a holistic perspective, as well as utilization of a multi-disciplinary approach, one must consider a more systemic approach, a more comprehensive approach to “*lifestyle management*”. The effects of a teacher, or physical education by itself can not have the impact of a systemic, collaborative approach. It has been shown by the U.S. Department for Human Services, over the past ten years in the United States, through education and support from schools, health agencies, and professional societies when acting together and cooperating has reduced deaths due to smoking by over 40% (U.S. Dept of Health and Human Services, 1990). By inclusion of the community, parents, parks, government agencies, work-place, and business the greater the likelihood that those who would least likely be active will be changed.

As Lawson had noted last year in Berlin and in many of his publications, (Lawson 1992, 1993a, 1993b, 1994), we have a history of viewing human problems, as health, drugs, violence, and crime as separate problems, each in need of a specialized profession. Some children, as reported by Lawson (1994) must see fourteen different specialists trying to meet their needs. Rather than joining forces, Lawson points out that they are often in “*a silent competition, at times undercutting each others efforts*” (Lawson 1994, p 4). Instead he calls for a change in our thinking from a mechanistic perception, a perception that looks at parts of the human to one that focuses on the whole person and relations to other professional and community groups. This Lawson calls “*interprofessional collaboration and service integration*”. Lawson’s model builds upon the capacities of children, and families alongside professionals. This model calls for a new vision, a network between service agencies, professionals, family, commu-

nity and schools. How this model relates to higher education implies that future teachers, not only will be exposed to other disciplines, but also interact with the helping professions, social worker, nurses, and health professionals. Instead of schools providing cognitive-academic development or physical skill development, they become concerned with children's well-being. Instead of focusing on our uniqueness, we work with others collaboratively with health and human service issues (Lawson, 1994).

10. ROLE OF HIGHER EDUCATION

Lastly, considering the preceding, what is the role of higher education? How do we prepare teachers differently? How do we connect with health education better than we did in the past? Might health issues be integrated throughout a curriculum (fitness education concepts, social values as cooperation, cultural awareness, drug abuse). What might be the role of schools, higher ed, social agencies, and health services in the future.

We have come full-circle in education, we entered the schools as part of education, and we spent the last fifty years in trying to show how unique and different we were than any other subject, that we were the physical part of the person, without realizing that the physicalness is a significant part of the mind and emotions, while the gymnasium and playing field is the perfect environment for learning, not only sport, but also the complexities of life:

- 1) If we expect teachers to connect to societal issues (lifestyle management, cooperation, values) doesn't higher education have to prepare teachers differently?
- 2) If we wish to produce research that is at the cutting edge, don't we have to look at the total person from multiple perspectives, utilizing a variety of disciplines and sub-disciplines?

Thus, as we look towards physical education's impact on disease prevention and lifestyle education and a "*preventive model*", we must seriously review some of our current practices:

- 1) Traditional skill development for sport competition. Although skill development has importance, might it assume a lower priority in our school instruction and teacher preparation programs?

- 2) The separation between health and physical education as separate disciplines, separate school subjects, and separate organizations must be re-evaluated. The walls between the two have become too thick and must come down;
- 3) Our connectedness to other disciplines. Both within the schools, as well as higher education. Our connection to sub-disciplines within our profession, as well must be re-examined. Can exercise science, psychology, sociology and pedagogy respect one another and work as a team?
- 4) Our lack of relationship to community and other social institutions must be reviewed; and ultimately;
- 5) How we prepare teachers and other professionals in light of prospective changes must be reviewed.

If we are to play a role in the education of the child, youth, and adult and have an impact upon societal issues, we can no longer rely on sport skills and competition alone, nor maintain our current traditional view of teacher preparation, where we work in isolation, isolation with disciplines outside of physical education and isolation in sub-disciplines within physical education.

Societies can no longer accept the burden of medical costs and inherent dangers of drug abuse. Our profession can be and must be on the cutting edge. I do not know of another field of inquiry that has the potential for significant impact upon each person and society as we enter the new millennium. We can, indeed, make a difference.

In closing, some of you may question my thrust for greater communication to health and other disciplines, or my call for connecting our profession and disciplines to societal issues. Others may reject my underlying optimism for the future, and the significant role our profession may play in the quality of life of all peoples, but few would reject the idea that higher education and in particular physical education is in a crisis that cannot be willed away. Our challenge is to use the crises as an opportunity to re-think what we do, and to emerge from the crisis stronger and more important than we were before.

11. REFERENCES

- *** (1992). Summary Statement. Physical Activity and Public Health. Center for Disease Control, ACSM, and President's Council on Physical Fitness and Sport, Wash D.C.
- ACSM (1988). Position Statement on Youth Fitness. *Medicine and Science in Sport and Exercise*, 20(4), 422-423.
- AHA (1988). American Heart Association position statement presented at the New York State Affiliate Board Meeting, Saratoga Springs, New York.
- AHA (1994). American Heart Association National Convention. Dallas, Texas.
- American Academy of Pediatrics (1987). Physical Fitness and the Schools. *Pediatrics*, 80(3), 449-450.
- Blair, S. N. et al. (1989). Physical Fitness and all-cause mortality. *J. Am. Medical Assoc.*, Nov 3, 1989, 2395-2401.
- Blair, S. N. (1992). AHA News Conference. New York City.
- Blair, S., Kohl, H. & Gordon, N. (1992). *Physical Activity and Health: A Lifestyle Approach*. Blackwell Scientific Publ.
- Boyer, E.L. (1991). *Scholarship Reconsidered*. Princeton, NJ: Carnegie Foundation for the Advancement of Teaching.
- Bressan, E. (1987). The future of scholarship in physical education. In Massengale, J. (Ed.), *Trends Toward the Future in Physical Education.*, Human Kinetics, Publ, Ill, 25-36.
- Chasnoff, I. J., (1989). Drug use in women: establishing a standard of care. *Annals of the New York Academy of Science*, 562:208.
- Corbin, C. (1991). A multidimensional hierarchical model of physical fitness: a basis for integration and collaboration. *Quest*, 43(3), 296-306.
- Dishman, R. K. (1994). Biological Psychology, Exercise and Stress. *Quest*, 46(1), 28-58.

- Duda, J.L., (1987). Toward a developmental theory of children's motivation in sport. *J. of Sport Psych.*, 9, 130-145.
- Dzewaltowski, David D. (1994). Physical activity determinants: a social cognitive approach. *Med and Science in Sports and Exercise*. 26(11), 1395-1399.
- Feingold, R.S. (1994). Making connections: an agenda for the future. *Quest*, 46(3), 357-366.
- Feingold, R.S., Rees, C. R. & Barrette, G. T. (1991). Strategies for school fitness curricular modifications: an integrative model utilizing the superordinate goal theory. In *Sport and Physical Activity* (Eds.). Williams, T., et al., E & FN Spon, London.
- Felts, W. M. (1989). Relationship between ratings of perceived exertion and exercise-induced decreases in state anxiety. *Perceptual and Motor Skills*, 69, 368-370.
- Feltz, D. (1988). Multidisciplinary interaction: networking with sport psychology. Paper presented at the NAPEHE Annual Meeting, Orlando, Fla.
- Fixler, D.E. & Pennock, L. (1983). Validity of mass blood pressure screening in children. *Pediatrics*, 72(4), 459-464.
- Fox, K. (1988). Self-esteem complex and youth fitness. *Quest*, 40(3), 230-246.
- Fox, K. & Biddle, S. (1988). The use of fitness tests: educational and psychological considerations. *JOPERD*, Feb, 47-55.
- Freedson, P.S. & Rowland, T. (1992). Youth activity versus youth fitness: let's redirect our efforts. *Research Quarterly*, 63(2), 133-136.
- Gabbard, C. & Crouse, S. (1987). Children and exercise: myths and facts. *Physical Educator*, 45(1), 35-43.
- Hinkle, J.S. (1988). Psychological benefits of aerobic running: implications for mental health counselors. *J. of Mental Health Counseling*, vol 10, 253-261.

- Hinkle, J.S. (1992). School Children and Fitness: Aerobics for Life. ERIC Digest.
- Hollinshead, W.H. et al. (1990). Statewide prevalence of illicit drug use by pregnant women - Rhode Island. *Morbidity and Mortality Weekly Report*, 39(14): 225-7.
- Hooper-Briar, K. & Lawson, H. (1994). *Serving Children, Youth and families Through Interprofessional Collaboration and Service integration: A Framework for Action*, Danforth Foundation, Oxford, Oh.
- Iverson, D.C. et al., (1985). The promotion of physical activity in the United States: the status of programs in medical, worksite, community and school settings. *Public Health Reports*, 100, 212-224.
- King, A.C. (1991). Community intervention for promotion of physical activity and fitness. *Exer Sprt Sci Rev.*, 19:211-219.
- King, A.C., Blair, S.N. Bild, D.E., et al. (1992). Determinants of physical activity and interventions in adults. *Med. Sci Sports and Exercise*, 24(suppl) 221s-236s.
- King, Abby C. (1994). Community and public health approaches to the promotion of physical activity. *Med. Sci Sports and Exercise*, 26(11)1405-1412.
- Landers, D. (1994). Performance, stress, and health: overall reaction. *Quest*, 46(1), 123-134.
- Lawson, H. (1991). Specialization and fragmentation among faculty as endemic features of academic life. *Quest*, 43(3), 280-295.
- Lawson, H. (1992). Toward a socioecological conception of health. *Quest*, 44(1), 105-12.
- Lawson, H. (1993a). After the regulated life. *Quest*, 45(4), 523-545.
- Lawson, H. (1993b). School reform, families, and health in the emergent national agenda for economic and social improvement: Implications. *Quest*, 45(3), 289-307.
- Lawson , H. (1994). Economic, Political and Cultural Changes: Their Import for New Models for Practice. AIESEP Address, Berlin.

- Lawson, H. & Hooper-Briar, K. (1994). *Expanding Partnerships: Involving Colleges and Universities in Interprofessional Collaboration and Service Integration*. Danforth Foundation, Oxford, Oh.
- Leith, L.M. (1994). *Foundations of Exercise and Mental Health*, Fitness Information Technology, W. Vir.
- Lidstone, J. & Feingold, R. (1991). The case for integration and collaboration, reprise. *Quest*, 43(3), 241-246.
- Marsh, H.W. et al., (1984). The self-description questionnaire: age effects in the structure and level of self-concept. *J of Ed. Psychology*, 76, 940-956.
- Masnack, G. & Bane M.J. (1980). *The Nation's Families, 1960-90*, Auburn House, Boston.
- McCauley, E. (1992). Understanding exercise behavior: a self-efficacy perspective. In *Motivation in Sport and Exercise*, G. C. Roberts (Ed.), Human Kinetics, Champaign, Il.
- McGinnis, J.M. et al. (1991). Physical educators role in achieving national health objectives. *Research Quarterly*, 62(2), 138-142.
- Meredith, M. (1988). Activity or fitness: is the process or the product more important for public health. *Quest*, 40(3), 180-186.
- Neaton, J.D., Grimm, R.H., et al. (1993). Treatment of mild hypertension study: final results. *J. Amer. Med. Assoc.*, 270: 713-724.
- North, T.C., McCullough, P. & Tran, Z. V. (1990). Effects of exercise on depression. *Ex and Sprt Sci Rev*, 18, 379-415.
- Paffenbarger, R.S. et al., (1986). Physical activity, all-cause mortality and longevity of college alumni. *New England J Med.*, 314, 605-613.
- Patrick, K., Sallis, J.F., et al. (1994). A new tool for encouraging activity. *Physician and Sports Medicine*, 22(110), 45-52.
- Riopel, D.A. et al., (1986). Coronary risk factor modification in children: exercise. *Circulation*, 74, 1189A-1190A.

- Ross, J. et al. (1987). What is going on in the elementary physical education program? *JOPERD*, 58(9), 78-84.
- Sallis, J.F. (1987). A commentary on children and fitness: A public health perspective. *Research Quarterly*, 58, 326-330.
- Sallis, J.F. & McKenzie, T.L. (1991). Physical education's role in public health. *Research Quarterly*, 62(2), 124-136.
- Shepard, R.J. (1986). *Economic Benefits of Enhanced Fitness*. Human Kinetics, Champaign, Il.
- Shepard, R.J. (1994). *Aerobic Fitness & Health*. Human Kinetics, Champaign, Il.
- Simmons-Morton, B., et al. (1987). Children and fitness: a public health perspective. *Research Quarterly*, 58(2), 295-302.
- Sonstroem, R.J. (1984). Exercise and self-esteem. *Ex. and Sprrt Sci Rev.*, 12, 123-155.
- US Department for Health and Human Services (1990). *Healthy People 2000*. US Public Health Service, Washington, D.C.