



# Presidential Address of the American Orthopaedic Society for Sports Medicine

## A new frontier\*

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Our founder, Don O'Donoghue, said in the first edition of his classic *Treatment of Injuries in Athletes* that "in spite of the arguments about the benefits of sports, there is general agreement that at the least the athlete should be no worse when he finishes his athletic career."

The American Orthopaedic Society for Sports Medicine has accepted that challenge as its regnant educational role. It may be too generous to say we have stayed even with the problems generated by sports, and it certainly would be hubristic to believe we have improved the postcompetition lot of the athlete.

Dr. O'Donoghue and the sports world were justifiably concerned with the number and severity of knee injuries when he began his pioneering work. While we are not through with this most common injury problem, members of this society have rendered the recognition, treatment, and rehabilitation of these injuries to an exacting science.

Other challenges met by the AOSSM have been violence in sports, chemical abuse, and from time to time, pragmatic, trendy questions, such as, early in our history, the artificial turf controversy, and more recently, prophylactic bracing of the knee.

Our current challenge, and the genesis of my remarks to you today, is the development of a vehicle to fund the myriad projects, programs, and concepts generated by the myriad intellects of this society's membership. The financial and ideologic scope of this zeal demands an active and productive fund gathering method. This need has produced the concept of an independent funding foundation now being developed by your board of directors.

While the need for such a foundation was easily recognized, justification of that foundation's ultimate objectives was not so easy. Much of our pride in our research and educational accomplishments dissolves when the limbos of necessary data and knowledge we now possess are contrasted with that which we need.

The preamble to the foundation was developed into the following statement: "The AOSSM, recognizing the professional obligation to maximize the safety and health of both competitive and recreational athletes, undertook investigation of the best means to achieve those concurrent purposes."

Among some sobering thoughts engendered by the foundation discourses are these:

- Dr. Albright—"that until solid scientific data bases are developed to provide a thorough understanding of sports specific injury patterns, relatively few major advancements in care or prevention may be expected at any level of scientific sophistication."

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- Dr. Feagin—"Our body of knowledge is too new and too untested to have become absolute."
- "Sports medicine is but one of many disciplines where its practitioners remain inexperienced in the essentials of epidemiological methodology."
- "There exists little scientifically sound information about incidence, types, and patterns of injury, or the identification of risk factors, let alone discovery of any promising methods of curtailment of injuries."

The predominant thesis of the foundation philosophy is the development of answers to ultimate questions, and not the production of immediate practical ends such as a new operation for shoulder instability. While not unimportant, our ad hoc response to current problems has evaded these ultimate issues. Our pedagogy has been ordered from the bottom up, rather than from the prescription of policy from the top down. Had we not better begin with the child than the elite athlete?

What are some of these ultimate questions? They are: What are the benefits of sports? What are the benefits of exercise? What is an optimal dose of exercise to achieve these putative benefits with a minimum risk?

As members of this society, do we all, or should we all, believe in the benefits of sports and exercise? But what is our *raison d'être*? Is it not exercise *and* its manifestations? How often, if ever, have we thought of this basic question and enunciated the values of sports and exercise?

Samuel Johnson once said "No man is a hypocrite in his pleasures," and I will use this presidential address to tell you of my ultimate goal, namely the nurturing of the developmental athlete.

We as a nation are confronted by a dichotomy of fitness classes for our children. The President's Council on Physical Fitness and Sports has reported a growing trend in the lack of fitness in our school children. This concern has been supported by studies conducted by many research centers. Paradoxically, we in this Society now see 6-year-old females who are too fit, who have succumbed to overuse syndromes seen 20 years ago only in college male scholarship athletes. Those unfit and those too fit!

As pointed out by the research committee, the fund of our knowledge of exercise and involved anatomy is so scant that conclusions about benefits or liabilities cannot be drawn. Yet we continue to support our prejudice that more and at an earlier age is better. We believe we should be encouraging habits of lifelong exercise without knowing its effect.

It is not uncommon to discover gymnastic, swimming, and aerobic classes for children 6 years old *and* younger that occupy 2 to 4 hours of their day, 5 to 6 days per week! *Right Start* is a new innovation at my own sports medicine center that begins with 4-year-old children. Its aim is to develop correct motor skills in the young child, skills that will be useful in later athletic endeavors. A very worthy motive! However, the parents are already asking what program they should put their children in after age 4! As surrogate parents, we should have an answer; we should be able to tell the parents that 1) there is a finite exercise dose for a given age, 2) that this dose will maximize their lifetime of fitness and

will not prejudice them to musculoskeletal problems, and 3) that this increasing adult-supervised athletic intrusion on their free time/play will not leave psychological deficits. While we may not be even close to answering these questions, we have made some observations on the effects of intensive training on the young athlete.

In the psychological-physical realm, we have seen the startling progeria of two female gymnasts who captured the public's attention in the Olympics of 1972 and 1976. We all know the effects of burnout on the young athlete, but nothing is known of the effects of adult athletic intrusion on free playtime of the child.

An endemic condition in the very young athlete is juvenile osteochondritis dissecans (JOCD). JOCD is now recognized not as a disease, but as a stress fracture of subchondral bone, resulting from cumulative stresses occurring most often in the young athlete. It is not the benign disease it was once regarded as, but a serious injury with disabling complications if not recognized or properly treated.

The question of growth arrest attributable to early physical work or intensive training has not been answered, but experiential evidence provides some evidence of stunting. Other maturation aberrations have more documentation, such as delayed menarche.

The number of overuse syndromes seen in the young athlete now are similar to the adult exerciser. The very etymology of the phrase "overuse syndrome" is inappropriate since these are stress failure syndromes. An inability of the organism to accommodate the stresses generated by that organism results in failure of a tissue.

There is some quantum of implied stress that is catabolic to any organism and this differs with each individual, especially with children, who have wide ranges of maturation for the same chronologic ages. In most training programs we are, for some children, in that catabolic range of stress.

This brings us back to the exercise dose, which is the stress that the organism or child accumulates. Recognition of that optimal maintenance or training dose is still an art, even in adults and race horses. We have, in our own studies on strength training in prepubescent males and females, reached what we believe is a catabolic dose in females 8 years old and under. While no stress failure syndromes were recognized, decreased performance was.

Speaking for my Society peers I can say that early in our careers in sports medicine, we were preoccupied with mending the carnage of competition, and had little time to think of, let alone deal with the ultimate questions of exercise. Most of my peers have established a perdurable niche in an area of pathology, a segment of anatomy, or an operative technique. The younger members of our society have perceived these niches to be occupied, thus stifling their creative impulses.

However, as the supply of capable sports medicine physicians has increased, so *pari passu* has the practice of our membership changed. The amount of time devoted to surgery has declined, whereas that given to soft tissue injuries, conservative remedies, injury prevention, and rehabilitation has become a larger part of our practice hours.

That the art and craft of surgery is not our principle *raison d'être*, is obvious if we consider the change in your Society's research and educational activities. In the past year, workshops have been conducted on strength training for the prepubescent and on physical therapy modalities. Program content has changed from a how to approach to problems, to why the problem or injury occurs. As a symbol of this change we may recall that at the time of our last Florida summer meeting, the program committee was criticized for including exercise physiology! The practice of sports medicine is inexorably attached to the effects of exercise, and our younger members know it!

And so what have I said? I have said that in the beginning our founders were principally concerned with elite athletes and repair of the detrimental manifestations of exercise.

However, as our Society has adapted to the changes, to the new needs of the consumers of our services, and most of all to the new consumer type, so too must our membership, especially our newer members, recognize their opportunities to lead. They must recognize that exercise and its manifestations is the new frontier.

Youth belongs to the young, and it is my belief that the young members of this Society will become discouraged by ad hoc responses to temporal issues, and will devote themselves to these ultimate questions.

One can prophesize without being prophetic. My remarks are of another kind: This is no fault prophecy, since I would expect to be criticized for these remarks, which should elevate the level of scientific discourse.