

The IAAF and Youth Athletics – A report to the IAAF Medical Committee

by Harmon C. Brown, Herbert Elliott

The IAAF has initiated several activities in youth coaching, growth and development, and the applications of sports sciences to youth training. The goal of these activities was to devise age-appropriate programs, which lead to the optimal opportunities for athletes to achieve their long-range dreams of becoming elite athletes. At the same time, the IAAF has pushed forward with a number of competition opportunities for young athletes, such as World and Area Championships for juniors or World Youth Championships. The authors describe the need for an appropriate competition program, which takes into consideration the problems of growth, early specialisation and dropout. In the conclusion the authors recommend that the IAAF should establish a Working Group to study the entire range of Youth Athletics programming.

ABSTRACT

Dr. Brown is Chair of the Sports Medicine and Sports Sciences Committee of USA Track and Field, former Chair of the Girls Youth Athletics and Women's Development Committees of USA Track and Field, and a member of the IAAF Medical Committee. He is Clinical Professor of Medicine at the University of California, San Francisco. As a former U.S. national teams coach, including two Olympic and two Pan-American teams, he is a Federation-certified Master technical official and honorary Master Coach. He is a frequent writer on sports medicine topics, editor and co-author of the IAAF Medical Manual: A Practical Guide and the IAAF Medical Manual for Athletics and Road-Racing Competitions.

Dr. Elliott is the long-time head of the Jamaican Athletics Federation Medical Committee and national teams physician. He is a former sprinter- 400m runner. He works as a Public Health Physician in the Ministry of Health of Jamaica and is a member of the IAAF Medical Committee.

AUTHOR

The IAAF has long-recognised the critical importance of youth programs to the continued growth of athletics worldwide. In recent years it has sponsored promotional events such as World Athletics Day, and has selected many young athletes to attend major competitions such as the World Championships. In order to further appropri-

ate coaching and training programs, the IAAF has co-ordinated or sponsored several seminars and roundtables, and has published articles from experts in youth coaching, growth and development, and the applications of sports sciences to youth training (1-4). The goal of these activities was to devise age-appropriate programs, which lead to the opti-

mal opportunities for athletes to achieve their long-range dreams of becoming elite athletes. At the same time, the IAAF competition management staff and the IAAF Council have pushed forward with a number of competition opportunities for young athletes. These include World and Area Championships for juniors, and most recently, since 1999, a World Youth Championships (WYCA) for young athletes 14-18 years of age. However, this latter competition program suggests that the IAAF did not fully take into consideration the recommendations from the various developmental activities noted previously when establishing this event. For example, the most recent NSA Roundtable No. 36 (4) makes a number of excellent recommendations, which deserve serious consideration, and should serve as the basis for a comprehensive review and integrated program development for all future IAAF Youth efforts.

A broad array of issues face the administrators and coaches who are involved in youth sports programs. Many sports have attempted to come to grips with these issues, but it is too early to evaluate the success of these efforts. For example, the tennis federation has placed restrictions on the number of tournaments in which younger players may participate.

The high dropout rate in youth sports, which may be as high as 70% in some U. S. youth programs, has been of increasing concern. This has been addressed by Busmann (5) for German youth athletics and in the U.S. by Tuffey (6) for the Swimming Federation. The latter group found a drop-out rate of 35%, and has completed a number of studies in an effort to determine why athletes remain in the sport, or drop out. These studies have resulted in a number of recommendations (7) concerning age-appropriate adaptations in coaching style, training methodology, parental behaviour, and organization of practice sessions and competitions. A review of these studies would be of value to all who are involved in youth sport programs.

All sports governing bodies seek to enrich their pools of talented young athletes, with the goal of eventually producing World and Olympic champions. The recruitment and retention of these young athletes becomes

fierce competition among sports, especially athletics vs. football. The talented young football athletes are used to make up 'select' teams for national and international competitions, as an incentive to develop and retain them.

This strategy appears to be a great part of the motivation for the late President Nebiolo's push to establish the World Youth Championships. He states in his pre-event letter - "I personally campaigned hard for the introduction of this new addition to the World Athletic Series calendar, because we must fight harder than ever to gain the attention of young people today."

However, there are a number of drawbacks and caveats which must be considered before accepting the premise that high-level competitions for youth will serve to attract and retain these presumed 'stars of the future'. Early selection and intensive competitions favour the early-maturing athlete, to the detriment of the late-maturer. Many studies show that this process discourages these late-maturers, causing them to drop out of the sport entirely, or to seek out other sports. Further, these slower-maturing athletes often go on to surpass their early-maturing peers, and eventually become the elite athletes at the senior levels.

Shuyong and Zelichenok (4) express concern that the pressure to succeed at the WYCA will lead to efforts by coaches, athletes, parents, and officials to emphasize intensive training and early specialization at the expense of general athletic development. They and Levy (4) suggest that the WYCA be restricted to athletes age 16-17. Levy points out that the age differential of 3 1/4 years at the 1999 WYCA made for an inequitable competition situation at this critical stage of an athlete's growth and development.

There is considerable evidence to support the need to avoid early specialization if later success is to be realized (8-10). Harre (11) studied a large group of children age 9-12. They were divided into two groups. One group received specialized training, the other a multi-faceted sports training program. The specialty group achieved early success, but 'peaked' at about age 15-16, plateaued, and

then sustained a high attrition rate. The multi-laterally trained athletes began to attain success at age 18 and beyond, and went on to successful careers in their sport.

Kollark (12), coach of world shot-put champion Astrid Kumbernuss notes, "It was especially helpful for her that she participated in a lot of sports during her growth phase as they had a very positive influence on her coordination, and bone development".

Hay (13) studied the sports background of elite American jumpers. He found that these athletes participated in one during their developmental teen years, and only focussed events as they matured.

Drabik (14) points out that for some sports such as gymnastics, diving, figure skating (and perhaps football?) early special training may be appropriate for developing neuro-motor skills. On the other hand, most sports (including athletics) require more prolonged, broad-based preparation over many years before specialization should be introduced. However, competitive pressures may tempt the coach and athlete to adopt more intensive, 'adult-type' training. This may be deleterious physically, developmentally, and psychologically to young athletes during this period of rapid growth and maturation. Injuries to the immature physiques are well-known consequences of heavy training loads. Intensive endurance training has been well demonstrated to cause a delay in maturation and primary amenorrhea in pre-adolescent girls, and secondary amenorrhea in young girls and women. (15, 16). There is also a high incidence of over-use injuries in this group (17).

There are also physiological and biomotor factors which must be considered in the training regimes of young athletes. Pre-adolescence and early adolescence are peak periods for the development of aerobic capacity, while anaerobic systems and muscular strength must await the maturation of other enzyme and hormonal systems. Saltin (18) attributes much of the success of Kenya's distance running program to their all-around endurance activities for youngsters. Gibbons (19) in studying successful endurance programs in several sports programs world-wide

(Biathlon, Nordic skiing, and distance running) found that these programs emphasized a variety of endurance activities, organised coaching, a limited number of competitions, and specialized training beginning only at about age 16 1/2 years.

Hence, the IAAF should accept the fact that the WCYA, as currently structured, is unlikely to identify those athletes who will be the future 'stars' on the world athletics stage.

Dr. Nebiolo further states that the WYCA "is not just another athletics competition - it is an opportunity for youngsters to gain valuable experience, to improve personal bests, and to build friendly relationships with their rivals from every corner of the world." However, a number of the recent Roundtable participants point out a higher priority to develop standardized competitions at the federation, regional and Area levels, and that the world-level event should not be considered a "World Championship". Indeed, the goals expressed by Dr. Nebiolo for these young athletes could as well be accomplished by conducting more geographically-limited meetings, especially for the under-16 age group. This would provide more equitable competition opportunities for athletes from regions where youth programs are less well-developed, and be more affordable for most federations.

The CAC region is an excellent model, as it conducts championships for the under-17 and under-20 age levels, and recently held an under-23 competition.

Recommendations

The IAAF should establish a Working Group to study the entire range of Youth Athletics programming. This Working Group should be comprised of representatives from the areas of pedagogy, psychology, coaching, the sports sciences and medicine, growth and development, as well as representatives from the Development and Competition departments, and representatives for federations with well-developed youth programs. Topics to be considered should include, but not restricted to:

1. Establish a uniform definition of age groupings, consistent with IAAF age groupings, if they exist.
2. Establish age-appropriate guidelines for programs, events and technical specifications. These guidelines should also include recommendations as to duration and type of training, length of training and competition seasons, and number of competitions.
3. Develop recommendations for age-related coaching styles (pedagogy), recognizing that teaching strategies and athlete motivations vary with age, gender, and social situation.
4. Develop a consistent, logical competition progression for the different age group-

ings. For example: local competitions only for the youngest age groupings (i.e., under-12), larger area meetings for age 12-13, national and perhaps limited international competitions (dual national, regional) for U16, and Area- and World-level Competition for age 16-17.

Consider also whether there should be different stages of progression for adolescent females vs. males, given that females mature 1-2 years earlier than males.

Contact:

Harmon C. Brown

e-mail: chbiaafmed@earthliuk.net

References

1. NSA: Round Table 13 "Sport Pedagogy". *New Studies in Athletics* 6 (2) 15-20, 1991
2. BALLESTEROS, J.M.: European Athletic Association seminar on youth athletics. *New Studies in Athletics* 8 (2) 105-106, 1993
3. LAHOZ, D.: Child and youth training in the North American, Central American and Caribbean areas. *New Studies in Athletics* 7 (3) 40-44, 1992
4. NSA: Roundtable No.36 "1st World Youth Championships in Athletics". *New Studies in Athletics* 15 (1) 61-67, 2000
5. BUSSMANN, G.: How to prevent "dropout" in competitive sport. *New Studies in Athletics* 14 (1) 23-29, 1999
6. TUFFEY, S.: Understanding factors influencing dropping out versus continuing participation in Age-Group swimming. Report to USA Swimming (unpublished) 1996.
7. USA SWIMMING: Sports Science Summit, 1999
8. BECKER, U. et. al.: Ideas for supplementary competitions. *Lehre d. Leichtathletik*, Cologne 31(12) 15-18; (13)17-18, 1992
9. FREY, G.: Athletics for students requires moderation. *Modern Athlete & Coach*, Adelaide 30(3) 14-16, 1992
10. JONES, M.: Age laws for beginning of specialisation in athletic events. *Athletics Coach* (Birmingham) 27(2): 5-13, 1993
11. HARRE, D.: Trainingslehre (sport teaching in schools) Sportverlag, Berlin, 1985
12. KOLLARK, D.: Interview: Astrid Kumbernuss, Part II *New Studies in Athletics* 14 (3) 59-65, 1999
13. HAY, J. G.: Sports participation of Elite male horizontal jumpers. Report to USA Track and Field (unpublished) 1998
14. DRABIK, J.: Children and Sports Training. Stadion Publ. Co. Island Pond, VT USA 1996
15. PUHL, J.L., BROWN, CH (Edts.): *The Menstrual Cycle and Physical Activity* Human Kinetics, Champaign, IL 1986
16. OTIS, C.L. / GOLDINGAY, R.: *The Athletic Woman' s Survival Guide* Human Kinetics, Champaign, IL 2000
18. RICE, S.G.: Update and reflections on the athletic injury health care system high school injury surveillance study *AMAA Quart.* 11(2) 5-9, 1997
19. SALTIN, B. et.al.: Aerobic exercise capacity at sea level and at altitude in Kenyan boys, junior and senior runners compared with Scandinavian runners. *Scand. J. Med. Sci. Sports* 5: 209-221,1995
20. GIBBONS, T. *Common Characteristics of Successful Endurance Programs* United States Olympic Committee, May 2000.