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THE PROCESS OF CHANGE - PREDICTION OF SPORT ACHIEVEMENTS HISTORICAL TENDENCY

1. Introduction

Sports clearly are an important part of cultures and societies around the world. As we look around us, we see that the Olympic Games, Football's World Cup, the Tour de France, The Tennis Championships at Wimbledon, The NBA and rarely Paralympics, Special Olympics are now worldwide events capturing the interest of billions of people. These events are televised in over two hundred countries, including Kosovo. Children around the world grow up with vivid images of televised sports and sport figures, they play video games based on these sports and sport figures, and they are encouraged to participate in sports by parents, Physical Education teachers, and the elite athletes who often are presented as role models in their lives. Some people (sport researchers) are concerned more directly with learning about scientific sports prediction. Their involvement in the sport sciences focuses on understanding how sports organized and how changes in that organization might influence sports experiences for both athletes and coaches. The goal of these scholars is often to improve sport experiences and performance prediction for current participants and make sport participation more attractive and accessible for those who do not currently play sports (prospective athletes). They also may want to help athletes improve their performance, help coaches work effectively with athletes and win more games, help sport organizations grow and operate more efficiently and profitably, and improve sport achievement prediction.

Humans, who are rational beings, make and give meaning to social phenomena. Their thoughts and actions, as well as the individual character of experience and meaning, are neither predetermined nor predictable. Before one even can begin to answer the "how?" questions, there is a need to identify clearly all the variables, the agents the social factors and structures, that operated in the process of change - prediction of sport achievements. Questions important to this work include the following:

- What are the early stages of sports and athletics performance?
- Development of organized and competitive sport activities, ambiguity of thoughts in regard to sport achievements prediction, and which are environmental constraints on sport performance?

These questions have been raised and have been issues of interest to many researchers in the field of Kinesiology, Sports Psychology, Sociology of sport and Biomedical Sciences.

Whilst questions of the relative roles of genes and environment in the past may have been addressed from the standpoint of the academic interest, in recent times there have been increasing reports of medical interventions and attempts to use genetic knowledge for performance enhancement in sport.

The aim of this work is to summarize the different standpoints and different approaches in regard to the sport performance preparation and prediction. Put simply, the gene-environment interaction concerns the extent to which an individual is a product of her/ his genes or environment, generating questions over the role of genes and environmental influences and experience in a range of human behavioral contexts, including athletics and sport achievement.

2. THE EARLY STAGES OF SPORT AND ATHLETIC PERFORMANCE

To understand sports as a social phenomenon in today's world, we should have a sense of what physical games, contests, and sport activities were like in past times? Therefore, this paper presents brief social overviews of sport activities in different cultural and historical settings. People in all cultures have engaged in physical activities and used human movement as a part of their ritual life.

Games in Ancient Greece and Roman contests and games (100 B.C. to A.D. 500)

Competitors in these early games were from wealthy, respected Greek families. Events were based on the interests of young males. They consisted primarily of warrior sports, such as; wrestling and boxing, javelin and discus throwing, foot racing, archery, and long jumping. Violence and serious injuries were commonplace, in comparison with today's sport events (Elias, 1986; Kidd, 1984, 1996b). Greek contest and games were different from the organized competitive sports of today (Gutmann, 1978). First, they were grounded in religion, second, they lacked complex administrative structures; and, third, they did not involve measurements and record keeping from event to event as we do in 21st century. Roman leaders used physical contests and games to train soldiers and provide mass entertainment spectacles. As the power and influence of the Roman Empire grew, these spectacles, consisting of contests and games became increasingly important as diversions for the masses. Men and women were forced into the arena to engage in mortal combat with lions, tigers, and panthers. Gladiators armed with a variety of weapons, were pitted against one another in glory fights to the death. These spectacles achieved two purposes for the Romans: they entertained an idle populace and disposed of socially "undesirable" people, such as thieves, murderers, and Christians (Baker, 1988).

Sport activities during middle ages (500 to 1300)

Sport activities during Medieval Europe consisted of folk games played by local peasants, tournaments staged for knights and nobles, archery contest, and activities in which animals were brutalized (Dunning, 1999). The contests and games of the medieval period, the tournaments and games of that time were not much like today's organized sports. They lacked specialization, they never involved the measurement and

recording of athletic achievements, and they were not based on a commitment to equal and open competition among athletes from diverse backgrounds.

Games and sport activities during the Renaissance and The Industrial Revolution (1300 to 1900)

About the same time that the peasants were being subjected to increased controls in many locations, the “scholar –athlete” became the ideal among many of the aristocrats and the affluent. They saw the ‘Renaissance man’ as someone who was “socially adept, sensitive, to aesthetic values, skilled in weaponry, strong of body, and learned in letters” (Baker, 1988, p. 59). During the enlightenment period (1700 to 1800), many games and sports activities in parts of Europe and North America began to resemble sport forms that we are familiar with today (Guttman, 1978).

Although opportunities for participation in organized, competitive sports between 1880 and 1920 were not equally distributed by social class, gender, skin color, ethnicity, age or ability, participation among most categories of people increased dramatically. In most Western cultures, the organizational attributes that we associate with today’s high-profile organized sports became clearly established during this time. The most heavily promoted sports were football, baseball, and basketball. Each was native to the US; each celebrated a form of masculinity, emphasizing aggression, domination, and emotional control; and national loyalties (Burstyn, 1999). Commercial interests had promoted an emphasis on competition, winning, and record setting. Basic organizational structures for professional sports had been established.

3. DEVELOPMENT OF ORGANIZED AND COMPETITIVE SPORTS

The organized competitive sports so popular in many parts of the world today are very different from the folk games played before the industrial revolution. Allen Guttman’s study of sport activities through history shows that dominant sports forms (DSF’s) today comprise seven interrelated characteristics, which have never before appeared together in past physical activities and games (Dunning and Sheard, 1979). Everything that can be reduced to a time, distance, or score is measured and recorded. Standards of achievements are discussed in measurable terms, and statistics are used as proof of achievements. Performances are compared from one event to another, and records are published for individuals, teams, leagues, events, communities, states, provinces, and continents. Most important, of course are world records. One or more of these traits have characterized physical games during previous historical periods, but not until the 19th century did all characteristics appear together in what might be called modern sports (Dunning, 1999).

Modern sports in 21st century

Modern sports are highly organized and competitive. Generally, they emphasize the following; the use of strength, speed, and power to push human limits and aggressively dominant opponents in the quest for victories and championships. The importance of the setting records, defining the body as a machine, and using the technology to control and monitor the body. Selection systems based on physical skills and competitive achievement.

4. THE INTERACTION BETWEEN GENETICS/ENVIRONMENT ON SPORTS PERFORMANCE

How environmental and genetic constraints correlate or interact to shape performance variations in sport and exercise is a question of increasing interest in sport medicine, sports pedagogy, and sports psychology (Baker & Davis, 2006; Brutsaert & Parra, 2006; Pitsiladis, et al., 2006; Bjelica & Petković, 2011). In particular, there have been some efforts in molecular biology to identify single gene variants with the potential to profoundly impact on individual performance or the propensity to lead to a specific disease (e.g. a gene responsible for physical power, propensity to exercise). In sport, this ‘single gene as magic bullet’ philosophy, favored by some molecular geneticists, has led to claims that elite performers are born to succeed. However, the relative contribution of genes to sport performance is likely more varied than the 50% contribution indicated by Hopkins (2001).

This approach is exemplified by attempts to identify sprinters and endurance runners on the basis of differing alleles (i.e. forms) of a single gene known as α -actinin-3 (Coghlar, 2003; Yang et al., 2003). There have been similar claims on the roles of different variants of the ACE gene in endurance and power events such as mountaineering and running (Coghlar, 1998).

There is growing awareness in science of ‘the complementary nature’, as Kelso and Engström (2006) so aptly entitled their critique of the historical tendency to attempt to explain phenomena on the basis of dualist positions and theoretical stances. Their thesis is that a systems biological approach can help categorize natural phenomena as exhibiting strong cooperative tendencies to interact as well as tendencies to function separately, the emergence of which can characterize the relationship of genes and environments. The ‘complementary nature’ of phenomena in the natural world suggests that it is highly important for geneticists to identify many single gene variants, although the role of these genes in regulating behaviour needs to be framed by their overarching tendencies to network and to cooperate or compete with environmental constraints.

Environmental influences on sports performance

While ‘heredity’ refers to the innate characteristics an individual contributes to their performance, ‘environment’ makes up those qualities that result from one’s experiences (Davis and Baker, 2007). In this paper we provide with the range of environmental factors that contribute to sport performance and more accurate sports achievement prediction.

Quantity and Quality of Training. - Much of our understanding about environmental influences on performance comes from studies of sports expertise (Davids and Baker, 2007). In 1993, Ericsson et al. produced a seminal paper on the role of practice and expert development that shaped a great deal of the research that followed. Their position (based on the work of ex Ericsson et al., 1980; Simon and Chase, 1973 and others) was that, with proper attention to what they called ‘deliberate practice’ (i.e. relevant, effortful activities done with the specific goal of improving performance), healthy individuals could prevent performance improvements from tapering off. In

early development, activities that are inherently enjoyable and motivating may be necessary to provide an impetus to continue training during times when more diligent, effortful practice is required. Without this pleasurable involvement, athletes run the risk of dropping out of sport (Petlichkoff, 1993)

Coaches. - play a critical role in optimizing an athlete's training time, in some cases having complete control over the practice environment. Indeed, a key characteristic of expert coaches is meticulous planning (Voss, et al. 1983). Researchers have dissected practices in sports ranging from individual sports such as wrestling and figure skating, (Deakin & Cobley, 2003; Starkes, 2000) to team sports such as volleyball (Deakin & Cobley, 2003) and basketball (Bloom, et al., 1999; Tharp & Gallimore, 1976). What seems clear is that the structure and content of expert athletes' practice is superior to that of non-experts. For example, Cote et al.(2003) suggested that, during early phases of development, coaches should emphasize opportunities to develop fundamental motor skills and general abilities that will form the basis for more advanced development in the future.

Parents -Researchers have highlighted the critical role that parents play in promoting the athletic development of their children. In an examination of exceptional individuals across a range of sports and other activities, (Bloom, 1985) reported that parental resources, such as support, were imperative in nurturing talent. During early sport development, parents typically provide the initial opportunity to get involved in sports. As the athlete matures, parental involvement decreases and the performer takes greater control of the decision-making process regarding their future career. Parents continue to provide support in a background role, as providers of financial support and more importantly, emotional support (Cote, 1999).

Culture effect-The importance that a nation or community places on a particular sport can have a dramatic influence on any success achieved. For example, in Canada, the sport of ice hockey has become a fundamental component of the national identity (Russell, 2000). Robinson (1998) suggest that Canada has three times more children playing ice hockey than Russia, Sweden, Finland, The Czech Republic and Slovakia combined. Given these factors, Canada's international success is not surprising. Other countries have similar sport-related associations including Austria with skiing and Kenya with distance running.

5. CONCLUSIONS AND RECOMMENDATIONS

When sport science scientists say that sports are contested activities, they mean that, through history, people have disagreed about what sports could and should be. Sports experiences vary with the conditions under which sports are organized and played. To assume that all sports are organized around the same goals and emphasize the same orientations and behaviors' is a mistake.

In all over the world, there are highly organized competitive sports, informal sports, recreational sports, extreme sports, alternative sports, cooperative sports, folk sports, contact sports, team sports, individual sports and so on, and there are various

combinations of these types. However at this time, it seems that the dominant sport form in many societies all over the world is organized power and performance sports.

Although power and performance sports have become standard for determining what sports should be in many countries, they have not been accepted by everyone. The alternative and oppositional sports forms are diverse, but many fit in so called pleasure and participation sports (recreational sport activities). Power and performance sports remain dominant today in the sense that they receive the most attention and support. Historically, sports domain offered the opportunity to participants involved in, athletes and their respective coaches for showing up the racing spirit explicitly, since the early stages of sport and athletic performance. The competition of involved athletes and coaches in games and sport performance activities – their respective team of experts from complementary sciences is ongoing process, athletes and experts are in forever relative racing of who is the best on sport competitions in the playing pitches (players and sport teams) and sport achievement prediction outside the playing pitches (coaches and sport experts).

Allied to this recommendation, the literature reviewed in this paper suggests that many clinicians and sports scientists may be expecting more from use and abuse of quantitative molecular studies than can be delivered. A requisite step forward would be to discard both the dualist approach to nature vs nurture and the ‘gene as magic bullet’ philosophy. It is becoming clear that sports performance is the result of interactions among a host of genes and environmental constraints.

Although challenging, an interactive approach for analyzing relative contributions of genes and environment in degenerate neurobiological systems may shed light on a number of significant issues in sport science and medicine related to the acquisition of expertise in sport.

Current data on genetic and environment constrains on motor skill acquisition are unclear due to a number of methodological weaknesses and conflicting findings, and there is a need for more work to identify genetic and environment mechanisms underlying performance variations, if we want to be more accurate sport achievement predictors.

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The aim of this paper is to summarize the different standpoints and different approaches in regard to the sport performance preparation and achievement prediction. Sports researchers are concerned more directly with learning about scientific sports prediction. Their involvement in the sport sciences focuses on understanding how sports organized and how changes in that organization might influence sports experiences for both athletes and coaches. The goal of these scholars

is often to improve sport experiences and performance prediction for current participants and make sport participation more attractive and accessible for those who do not currently play sports, prospective athletes. They also may want to help athletes improve their performance, help coaches work effectively with athletes and win more games. Sports researchers intention is also to assist and help sport organizations grow and operate more efficiently and profitably, and improve sport achievement prediction.

Key words: achievement, prediction, sport performance, athletes, coaches

„Dan“, 3. april 2015.

МЕЂУНАРОДНА НАУЧНА КОНФЕРЕНЦИЈА ЦРНОГОРСКЕ СПОРТСКЕ АКАДЕМИЈЕ ОКУПИЋЕ 166 АУТОРА ИЗ 22 ЗЕМЉЕ СА ТРИ КОНТИНЕНТА

Свечано отварање данас у 16

Међународна научна конференција о трансформационим процесима у спорту, 12. по реду, као и 11. Конгрес Црногорске спортске академије биће свечано отворени данас у 16 часова у згради Ректората Универзитета Црне Горе. Учесници конференције почеће у 9 часова са радом у двије сесије и једном радионицом, у оквиру које ће проф. др **Нејд Шарабон** са Универзитета Приморска из Словеније приказати повезивање високошколског образовања са индустријом спорта. Након свечаног отварања планирана су четири пленарна излагања – о спорту и националном поносу у уједињеној Њемачкој говориће **Хенк Ерик Мајер** (Универзитет у Мунстеру, Њемачка), падове у спортским дисциплинама обрадиће **Зденко Регули** (Масарик Универзитет, Чешка), **Вишња Борђић** (Универзитет у Новом Саду) говориће о промоцији физичке активности а **Мартин Звонар** (Масарик Универзитет, Чешка) о промјени температуре стопала приликом коришћења специфичне обуће. Иначе, за овогодишњу конференцију прихваћена су 94 научна рада са 166 аутора и коаутора уз 22 земље: Црне Горе, Турске, Србије, Чешке, Словеније, Албаније, Босне и Херцеговине, Њемачке, Гане, Индонезије,



Душко Бјелица

Лужне Кореје, Аустралије, Бугарске, Хрватске, Индије, Јапана, Македоније, Румуније, Саудијске Арабије, Тајвана и Велике Британије. Најбоља два рада биће објављена у часопису на енглеском језику „Montenegrin journal of sports science and medicine“, који од свог оснивања 2012. године излази два пута годишње и налази се у чак 46 индексних база. Остали радови ће бити објављени у часопису „Спорт Монт“, који је од 2003. године доживио своја 42 издања – троброја са преко 1.000 аутора.

Т.Б.