

Izlaganje sa naučnog skupa

PROBLEMI IDENTIFIKACIJE I RAZVOJA TALENATA U SAVREMENOM SPORTU

UDK 796.01:159.928 ; 796.077.5-056.45

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Apstrakt: Identifikacija talentovanih mladih sportista i njihovo pravovremeno uključivanje u proces treniranja sportske discipline koja najviše odgovara njihovim sposobnostima jedan je od najvažnijih zadataka sa kojim se bave sportska nauka i struka. Pogrešne odluke su brojne i veoma bolne. Problem talentovanih pojedinaca je u činjenici da oni nisu sposobni samo na jednom polju, nego po pravilu na brojnim poljima. Osnovna dilema povezana je sa odlukom o izboru sportske discipline i vremena uključivanja u specifičan sport. Da li je rano uključivanje dece u sport korisno ili ne? Odgovor je i da i ne! Rano uključivanje dece u sport inače je trend u savremenom sportu. Mnogi mladi talentovani sportisti prebrzo izgaraju (eng. burn out). Mnogi treneri i previše ambiciozni roditelji često imaju sasvim nerealna očekivanja oko sportskih rezultata svoje dece. Mladi talentovani sportisti često završavaju svoju sportsku karijeru zbog predimenzioniranog i previše specifičnog treninga, zbog povreda i nedostatka unutrašnje motivacije.

Gljučne reči: *sportski talenat, selekcija, povrede, motivacija, vrhunski sport*

UVOD

Uspešnost u sportu zavisi od mnogih faktora koji potiču od samog sportiste ili njegove okoline. Genetski potencijal sportiste i njegov razvoj, adekvatni i sistematični proces treninga, visok stepen motivacije, dobar stručni i pedagoški rad su faktori koji na kraju omogućuju uspeh u sportu. Selektivnost je jedna od osnovnih karakteristika sporta. Početni izbor - selekcija (eng. talent identification) je univerzalno interdisciplinarno područje genetike, kineziologije, biomehanike, sportske medicine, fiziologije i razvojne psihologije. Sa početnim izborom u uskoj vezi je nadarenost – talentovanost pojedinca. Ko je nadaren, ko je talentovan? Nadarenost (eng. giftedness) je širi pojam, talentovaost je už

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pojam (Ferbežer, 2008, Epstein, 2015). Nadareni učenici su oni koji pokazuju izuzetnu uspešnost u mnogim područjima delovanja. Talentovani učenici su oni koji pokazuju potencijal i izuzetnu uspešnost u jednom području delovanja (George, 1997, Jurak, 2005; Ericsson, 2007; Ferbežer, 2008; Baker i sar., 2012). Kako prepoznamo nadareno, talentovano dete, učenika ili učenicu? Kako se manifestuje nadarenost, kako se manifestuje sportska talentovanost, kojim instrumentima i testovima prepoznamo nadareno-talentovanu decu, da li mi uopšte prepoznamo pravi sportski talenat? Kako prepoznamo talenat za određeni sport? To su klasična pitanja na koje kineziološka nauka i struka nema sasvim sigurne odgovore. Identifikacija i razvoj sportskog talenta je izuzetno kompleksna problematika oko koje nema saglasnosti među autorima (Bompa, 2000; Balyi, 2002; Vaeyens, Matthieu, Williams, Philippaerts, 2008; Baker i sar., 2012; Epstein, 2015, Skof, 2016).

SPORTSKI TALENAT

Talenat u sportu definišu genetski urođene morfološke karakteristike, psiho-motoričke i funkcionalne sposobnosti, kognitivne i socijalne karakteristike i motivacija. Razvoj tih sposobnosti i njihova realizacija u velikoj meri zavisi od roditelja, škole, kluba, trenera, uže i šire socijalne okoline (Renzulli, 1986). Autori J. Baker, S. Cobley i J. Schorer (2012) u svojoj knjizi *Talent identification and development in sport*, definišu talenat u fudbalu na osnovu četiri grupe prediktora: antropometrijski, fiziološko – motorički, psihološki i sociološki prediktori.

Prema Malini (2010), talentovanost u sportu predstavlja kombinaciju natprosečnih biomotoričkih sposobnosti, kreativnosti i unutrašnje motivacije. Talentovana deca imaju generalno nekoliko zajedničkih karakteristika: sličnog su ponašanja, okolina je ključna za realizaciju njihove nadarenosti - ako nadarenost nije adekvatno podstaknuta gubi se motivacija, nadarena deca doživljavaju svet i okolinu na drugačiji način od svojih vršnjaka, njihove potrebe su drugačije, rad sa njima je veliki izazov, ali i veliki napor za roditelje, učitelje i trenere. Na kraju, talentovana deca zaslužuju talentovane, sposobne i empatične trenere i učitelje!

Najznačajnije karakteristike nadarene - talentovane dece su:

Školsko područje:

- Visoka školska uspešnost
- Opšta edukovanost
- Bogat rečnik
- Brzo čitanje i računanje
- Motorička inteligencija
- Umetnička nadarenost

Motivacijsko područje:

- Visok nivo aspiracije
- Radoznalost
- Jaki interesi
- Visoka opšta efikasnost

Socijalno – emocionalno područje:

- Nekonformizam
- Samostalnost
- Empatija
- Asocijalno ponašanje

IDENTIFIKACIJA TALENATA U SPORTU

Problematika identifikacije dece talentovane za sport veoma je složena i kompleksna. Talentovana deca po pravilu pokazuju natprosečne sposobnosti na više polja. Sposobna deca brzo pokazuju multilateralni talenat. Sport je samo jedna od njihovih mogućih opredeljenja. Da li je rano uključivanje talentovane dece ili dece generalno u pojedine sportove uopšte korisno!? Da li je rana specijalizacija korisna? Sportska praksa nema sasvim jasnih odgovora. Problem »mladih šampiona« leži u njihovom prebrzom izgaranju (burn out), pomanjkanju motivacije, povreda i zasićenju treningom. Rezultati u ranoj fazi njihovog razvoja nisu garant takmičarske uspešnosti kasnije u sportskoj karijeri. Mnogi talentovani pojedinci završavaju karijeru zbog neadekvatnog, monotonom i predimenzioniranog treninga, koji ima za posledicu povrede i odsutnost potrebne unutrašnje motivacije. Suprotno tome, neki sportisti počeli su da se sportom bave dosta kasno, a postigli su vrhunske rezultate (olimpijski pobjednik u sprintu na 100 m Linford Christi (GB), počeo je da trenira sprint sa 22 godine; dvostruki olimpijski pobjednik na 400 m i na 800 m Kubanac Albero Juantorena dolazi u atletski klub sa 19 godina; Jelena Isimbajeva, olimpijska pobjednica u skoku sa motkom sa 16 godina napušta gimnastiku i počinje da trenira atletiku).

Identifikacija i usmeravanje na sport talentovane dece i njihovo pravovremeno uključivanje u sistematični proces treninga, koji najviše odgovara njihovim sposobnostima jedan je od važnijih izazova savremene sportske nauke. Problemi selekcije su veoma specifični, povezani su sa mnogobrojnim sposobnostima i karakteristikama koji definišu sportski rezultat. Genetski materijal, morfološke karakteristike, osnovne i specifične sposobnosti, psihološke i psihosocijalne osobine i na kraju, motivacijska okolina nesumnjivo generišu potencijalnu uspešnost u izabranoj sportskoj disciplini.

Da li je važna genetika u sportu? Na to pitanje nemamo sigurnog odgovora sportske nauke. Sigurno je važna, ali ne odlučujuća. Da li postoji »sportski gen«? Jamajka, ta mala država u Karipskom moru sa tri miliona stanovnika sinonim je za sprint u atletici. Na Olimpijskim igrama u Londonu osvojili su 12 medalja; na Olimpijskim igrama u Pekingu 11 medalja, pretežno u sprinterskom trčanju. Da li je to slučajnost ili je rezultat genetike ljudi sa tog područja? Poznato je da gen Alpha- aktinin-3 (ACTN3) generiše sposobnost u

brzoj snazi. Ovaj gen je prema istraživanjima u velikoj većini prisutan kod stanovnika tog područja (Eynon, 2013). Osim genetskih predispozicija, atletika na Jamajci ima kulturni značaj, na hiljade dece se takmiči u sprintu svake godine.

Danas postoje različite metode identifikacije i selekcije dece talentovane za sport. Najjednostavnija i najelementarnija je prirodna metoda – spontana selekcija. Selekcija dece po toj metodi bazira se na trenutnim takmičarskim rezultatima pojedinaca. Ti rezultati mogu biti posledica različite količine i intenziteta treninga. Sportski rezultati, takođe mogu biti posledica bržeg biološkog sazrevanja, a ne posledica talentovanosti. Između kalendarske i biološke starosti može postojati razlika od dve ili više godina. Ova metoda se pokazala kao dosta nesigurna. Za mladog sportistu velika prednost ili veliki hendikep može biti njegova biološka starost. Biološka starost generiše motorički potencijal, koji se manifestuje kroz takmičarske rezultate. Po pravilu oni su samo trenutni. Pobjednici u mladosti nisu pobjednici i u kasnijim godinama (Malina, 2010; Eynon i sar., 2013; Skof, 2016).

Druga skupina metoda identifikacije i selekcije dece su naučne metode. U međunarodnom prostoru postoji nekoliko metoda. Najpoznatije su (Skof, 2016):

- Talent Identification and Development Programmes in Sport - TIDPS
- Talent Intelligence, Personality, Skills – TIPS
- Speed, Understanding, Personality – SUPS
- Differentiated Model of Giftedness and Talent - DMGT
- Talent – SLO

Za sve ove metode, takođe moramo konstatovati da nisu visoko pouzdane. Ne postoji metoda na osnovu koje bismo mogli sa sigurnošću prognozirati rezultate u zreloj dobi sportiste. To samo dokazuje da je identifikacija, selekcija i prognoza uspeha u sportu složena i kompleksna problematika. Uspeh u sportu zavisi od niza unutrašnjih i spoljašnjih faktora. Kombinacija motoričkih sposobnosti, psiholoških faktora, kognitivnih sposobnosti, biološkog i psihosocijalnog razvoja utiče na različit tempo i dinamiku sportskog razvoja pojedinaca. To samo pokazuje da je čovek komplikovana »biološka mašina«, koja deluje po nepredvidljivim principima.

RANA SPECIJALIZACIJA DECE U SPORTU

Da li je korisno i potrebno da se deca rano uključuju u sport? Postoje mnogobrojni primeri negativne prakse. Rana specijalizacija ne daje očekivane pozitivne rezultate. Mnoga talentovana deca koja su bila izuzetno uspešna u određenom sportu u ranoj mladosti, te rezultate nisu ponovili kasnije. Imamo i neke izuzetke. Tiger Woods je počeo igrati golf sa tri godine, Novak Đoković tenis sa četiri godine, Andre Agassi je počeo pobeđivati svoje vršnjake sa šest godina starosti, Jennifer Capriati je bila čudo od deteta u tenisu sa pet godina,

Ana Ivanović počela je igrati tenis sa šest godina, Janica Kostelić bila je serijska pobjednica u svojoj kategoriji sa 11 godina. Rano uključivanje u sport je inače trend u savremenom sportu. Konkurencija među sportovima za mlade talentovane sportiste je izuzetno velika. Rana sportska specijalizacija vezana je za specifičan trening i specifična opterećenja. Posledica takvog treninga kod mladih sportista su povrede. Rana specijalizacija znači pritisak okoline, trenera i roditelja usmeren ka postizanju visokih rezultata. To stvara pritisak, stanje velike odgovornosti i stresa za mladog sportistu. Mnogo puta treneri i preambiciozni roditelji imaju sasvim nerealna očekivanja u vezi sa rezultatima svoje dece. Kada je glavni imperativ uspeh i pobjeda, tada trening mora biti intenzivan, specifičan, jednostran, a to pre ili kasnije vodi do povreda ili zasićenja treningom i sportom uopšte. To je stručna greška - mladi sportisti moraju trening i takmičenja doživljavati i racionalno i emocionalno. Jednostrano vežbanje ne omogućava razvoj široke motoričke pripreme, koja je osnov za kasniji specifični trening. Nije sporno da se deca počnu baviti sportom rano; sporno je to što takva sportska aktivnost sprečava spontano druženje deteta sa svojim vršnjacima kroz igru. Ako je dete u doba najvećeg telesnog rasta preopterećeno, nikada neće dostići svoje optimalne telesne visine, a ujedno i ostali sistemi u razvoju neće funkcionisati optimalno (Baker i sar., 2012).

Glavni razlozi rane specijalizacije su:

- Uloga roditelja i njihove ambicije
- Izuzetna talentovanost
- Sportske stipendije i druge pogodnosti
- Stipendije »menadžera«
- Rani finansijski ugovori sa mladim sportistima
- Sponzorski ugovori sportske industrije
- Tekmičenje mladih sportista
- Sportska kategorizacija
- Uticaj medija

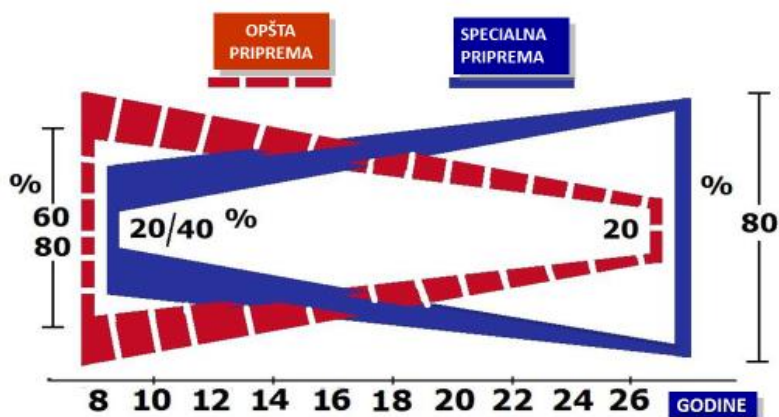
Koji su rizici rane specijalizacije:

- Preterana zavisnost od sportskih rezultata
- Socijalna izolacija – segregacija mladih sportista
- Sindrom izgaranja i iscrpljenosti (burn out)
- Odsustvo mogućnosti obrazovanja
- Manipulacija trenera i roditelja u smislu postizanja »ciljeva«
- Odsustvo unutrašnje motivacije za trening i takmičenja
- Sindrom zasićenosti sportom
- Psihički stres
- Ugrožavanje razvoja i zdravlja mladog sportiste
- Mikro povrede i specifične povrede
- Usklađivanje školskih i sportskih obaveza

MODELI RAZVOJA MLADIH SPORTISTA

Put do vrhunskih sportskih rezultata je dug, naporan i neizvestan. U proseku taj proces traje 8-10 godina, što označi oko 10.000 – 12.000 sati treninga. Autor te teorije je švedski fiziolog sa Univerziteta na Floridi, Anders Ericsson. Ta teorija ima brojne pristalice i brojne protivnike. Modeli razvoja sportista su različiti s aspekta specifičnosti pojedinačnih sportova. Osim klasičnog modela razvoja sportiste sa ranom specijalizacijom, u svetu se sve više primenjuje takozvani divergentni model – multilateralni model sa kasnijom specijalizacijom. Po tom modelu razvoja sportista na početku se predviđa svestrani - multidimenzionalni trening (Bompa, 2000), svestrano vežbanje, bavljenje različitim sportovima, razvoj osnovnih motoričkih i funkcionalnih sposobnosti (Slika 1).

Slika 1. Multilateralni razvoj sportista (Bompa, 2000)

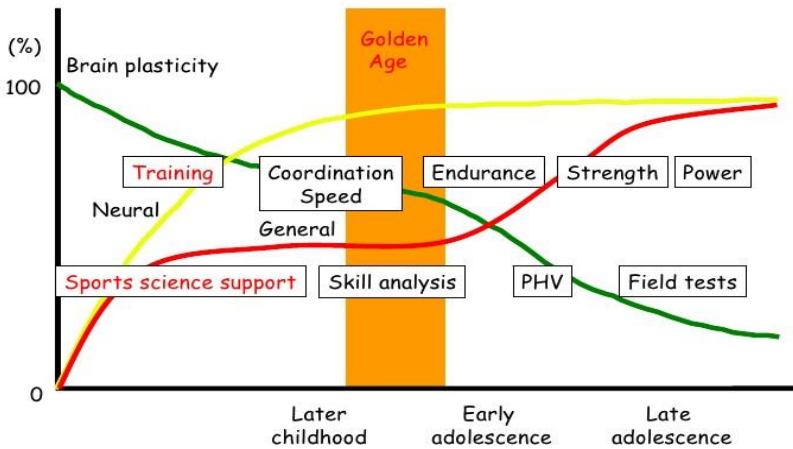


Akcentat je na humanom, holističkom pristupu treninga dece. Trening mora biti igra, koja se temelji na motivaciji i pozitivnim emocijama (Bompa, 2000; Malina, 2010, Skof, 2016). Divergentni model se temelji na savremenim principima neurofiziologije razvoja nervnog sistema kod dece. Intelektualni i motorički razvoj deteta je najintenzivniji u dobi od 4. do 12. godine. Intelektualni kapacitet pojedinca zavisi od broja neurona i broja njihovih veza-sinapsi. Neuron i sinapse stvaraju neuronske mreže, u koje se ugrađuju motorički programi kao posledica kretanja. Biološki potencijal deteta je direktno vezan na količinu motoričkih programa. Taj period opravdano definišemo kao »zlatne godine« (eng. golden age) u razvoju psihomotorike (Kinugasa, 2009) – Slika 2.

Slika 2. Razvoj motoričnih sposobnosti u biološkim fazama

<https://www.slideshare.net/umekinu/early-specialization-in-youth-athletes>

Biological Approach for Training



Različiti sportovi tako stimuliraju razvoj većeg broja motoričkih programa i na toj osnovi temelji se motorička inteligencija. Mozak je organ koji se u evoluciji čoveka uvek prilagođavao okolini. Zbog novih tehnologija i načina života, on se prilagođava i danas. Najintenzivniji period razvoja mozga je od druge do šeste godine starosti. Nova otkrića neurologije i neurofiziologije pokazala su da je broj neurona (nervnih ćelija) posledica nasleđstva, broj sinapsi – veza između neurona zavise od čovekove motoričke i intelektualne aktivnosti. Do pete godine starosti formira se 50%, do sedme godine 75%, do 12. godine 95% veza (sinapsi) između nervnih ćelija (Rajović, 2015). Više nego što imamo veza, gušće su neuronske mreže, koje direktno utiču na motoričku inteligenciju čoveka. Raznoliko vežbanje (multilateralni trening) stvara najbolje uslove za razvoj motoričkog potencijala mladog sportiste, koji je nužan za kasniji specifičan trening.

Jedan od najpoznatijih modela dugoročnog - funkcionalnog razvoja sportiste je kanadski model, autora I. Balya (Slika 3). Taj model previđa pet faza u razvoju sportiste:

1. Faza igre - osnovno vežbanje (Fundamentals)
2. Faza učenja (Learning to Train)
3. Faza bazične sportske pripreme za izabrani sport (Learn to Train)
4. Faza pripreme za takmičenja (Training to Compete)
5. Faza treninga za postizanje rezultata (Training to Win)

Slika 3. Model dugoročnog sportskog razvoja (Balyi, 2002)



Taj model predviđa holistički razvoj morfoloških karakteristika i motoričkih sposobnosti sportiste koji se temelji na biološkim i psihosocijalnim zakonitostima čoveka.

Koje su moguće posledice rane specijalizacije u sportu

Rana specijalizacija u sportu znači jednostrano, intenzivno ka takmičarskim uspesima usmereno vežbanje mladih sportista. Glavni imperativ je uspeh. Posledica toga je predimenzioniran, specifičan trening koji dugoročno ugrožava njihovo zdravlje i normalan funkcionalni telesni razvoj. Specifično vežbanje u ranom detinjstvu ne ispunjava socijalne potrebe dece. Američka akademija za pedijatriju upozorava da su deca koja se intenzivno bave samo jednim sportom lišena mnogih motoričkih i psihosocijalnih veština (Malina, 2010, Skof, 2016). Uska specijalizacija, visoke ambicije trenera, roditelja i uže socijalne sredine često stvaraju ogroman pritisak, socijalnu izolaciju i stres na mladog sportistu. Sport više nije igra, nego jako opterećenje sa strahom pred neuspehom. Zbog velike odgovornosti i straha mladi sportista ne razvija potrebno samopouzdanje, kreativnost i ambicioznost. Neuspeh smanjuje njegov ego i njegovo uživanje u sportu. Kada se tome dodaju još problemi usklađivanja školskih obaveza i socijalna izolacija, to često vodi do prestanka sportske karijere.

Najveću opasnost rane specijalizacije zbog specifičnih i jednostranih opterećenja predstavljaju povrede, koje često delimično ili potpuno blokiraju karijeru mladih sportista. Povrede lokomotornog sistema u nekim individualnim i kolektivnim sportovima su česte zbog predimenzioniranog treninga, brzog rasta u pubertetu ili njegove specifičnosti. U atletici, gimnastici, hokeju i

sporskim igrama najčešće povrede su: stres fraktura, tibije i metatarzalne kosti, povrede hrskavice kolena, upala apofize (apofizitis), upala patele, upala ahilove tetive i stopalnog luka, patelofemuralni sindrom (Skof, 2016).

Visoke takmičarske i rezultatske ambicije mladih sportista često su povezane sa problemom telesne težine i problemom prehranjivanja. Poremećaji prehranjivanja kod mladih sportista aktuelni su u nekim specifičnim sportovima (eng. weight-sensitive sports): gimnastika, akrobatika, borilački sportovi, estetski sportovi. Zbog hormonalnih promena u pubertetu, menja se generalno motorička efikasnost, pogotovo kod ženskog pola, povećava se količina balastne mase, smanjuje se količina mišićne mase. Svi spomenuti faktori biološkog razvoja i rane specijalizacije utiču na sportsku aktivnost mladih sportista. Zato mnogo »mladih šampiona« nikad nije postiglo očekivane rezultate u seniorskoj konkurenciji.

ZAKLJUČAK

Put do vrhunskih rezultata u sportu je dug i veoma zahtevan. Otvoren je onim pojedincima koji imaju izuzetne predispozicije za određeni sport, specifične karakterne osobine, snažnu motivaciju, radne navike i dobru stručnu podršku. Rad sa mladim talentovanim pojedincima zahteva specifičan pristup. Pre svega, važan je humani rad, koji se temelji na ličnom i socijalnom razvoju mladih sportista. U takmičarskom sportu mladih nema preticanja i prečica. Mladi nisu minijatura odraslog čoveka. Mladi gledaju, misle i osećaju na svoj način. Isključivo takmičarski rezultat ne može biti primarni motiv bavljenja sportom. Samo humani sport je pravi sport.

LITERATURA

1. Balyi I. (2002). Long – term athlete development: <http://coac-hing.Usolympicteam.com>
2. Baker, J., Copley, S., Schorer, J. (2012). Talent identification and development in sport«. Routledge, Taylor & Francis Droup.
3. Bompa, T. (2000). Total trening for young champions. Human Kinetics. Champaign, IL.
4. Epstein, D. (2015). Športni gen. Talent, trening in resnica o uspehu. UMco, Ljubljana 2015.
5. Ericsson, A. (2007). Deliberate practice and the modifiability of the body and mind: Toward a science of the structure and acquisition of expert and elite performance. International Journal of Sport Psychology, 38, 4–34.
6. Eynon, N., Hanson E., Lucia, A, Houweling, P., Garton F, North, K., Bishop, J. (2013). Genes for elite power and sprint performance: ACTN3 leads the way. Sports medicine, 43 (9), 803-817.
7. Ferbežer, I. (2008). Nadarjeni otroci, Radovljica, Didakta.

8. Jurak, G. (2005). Športno nadarjeni otroci in mladina v slovenskem šolskem sistemu. *Annales, Univerza na Primorskem, Znanstveno-raziskovalno središče Koper*.
9. Kinugasa, T. (2009). Early Specialization in Your Athletes. *SMAS Annual Symposium Training*.
10. Malina, R. (2010). Early Sport Specialization: Roots; Effectiveness, Risks. *Current Sports Medicine Reports, Vol. 9, No. 6, 364-371*.
11. Rajović, R. (2015). IQ otroka – skrb staršev. *Mensa Slovenije, Ljubljana*
12. Renzulli, J. (1986). The three-ring conception of giftedness: a developmental model for creating productivity. *Conceptions of giftedness. London, Cambridge University Press*.
13. Skof, B. (2016). Šport po meri otrok in mladostnikov. *Fakulteta za šport, Ljubljana*.
14. Vaeyens, R., Matthieu, L., Mark Williams, M., Philippaerts, M. (2008). Talent Identification and Development Programmes in Sport Current Models and Future Directions. *Sport Medicine, 38 (9), 703-714*.

Scientific conference presentation

TALENT IDENTIFICATION AND DEVELOPMENT ISSUES IN MODERN SPORT

UDK 796.01:159.928 ; 796.077.5-056.45

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Abstract: Identifying talented young athletes and their timely integration into the process of training the sports discipline best suited to their abilities is one of the most important tasks of sports science and profession. Wrong decisions are numerous and extremely painful. The problem of talented individuals lies in the fact that their abilities are not limited to a single domain, but a number of different ones. The fundamental dilemma is related to the decision concerning the selection of a sports discipline and the time period of engagement in a specific sport. Is early engagement of children in sport beneficial or not? The answer is both yes and no! Early engagement of children in sports is a trend in modern sport. Many young talented athletes burn out too soon. Many coaches and overly ambitious parents often have quite unrealistic expectations from their children's sports results. Talented young athletes often terminate their sports career due to overly ambitious and specific training, injuries and lack of intrinsic motivation.

Keywords: *sports talent, selection, injuries, motivation, top sport*

INTRODUCTION

Success in sport depends on a number of factors coming from the athlete himself/herself or their circle. The genetic potential of an athlete and their development, adequate and systematic training process, high degree of motivation, good professional and pedagogical work are factors that eventually provide success in sport. Selectivity is one of the fundamental characteristics of sport. Talent identification is a universal interdisciplinary field of genetics, kinesiology, biomechanics, sports medicine, physiology and developmental psychology. Talent identification is closely related to giftedness – a person's talent. Who is gifted and who talented? Giftedness has a broader and talent narrower meaning (Ferbežer, 2008, Epstein, 2015). Gifted students are those

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who demonstrate extraordinary success in many fields. Talented students are those who demonstrate potential and extraordinary success in one field (George, 1997; Jurak, 2005; Ericsson, 2007; Ferbežer, 2008; Baker et al., 2012). How do we recognize a gifted, talented child or a student? How is giftedness manifested; how is talent for sport manifested, which instruments and tests do we use to identify gifted-talented children, and do we recognize real sports talent at all? How do we recognize talent for particular sport? Those are classic questions to which the science and profession of kinesiology has no definite answers. Sports talent identification and development represent a truly complex issue that authors cannot agree on (Bompa, 2000; Balyi, 2002; Vaeyens, Matthieu, Williams, Philippaerts, 2008; Baker et al., 2012; Epstein, 2015, Skof, 2016).

SPORTS TALENT

Talent for sport is defined by genetic morphological characteristics, psycho-motor and functional abilities, cognitive and social characteristics and motivation. The development of these abilities and their realization largely depend on parents, school, club, coach, immediate and wider social environment (Renzulli, 1986). Authors J. Baker, S. Copley and J. Schorer (2012) in their book *Talent Identification and Development in Sport*, define talent in football based on four groups of predictors: anthropometric, physiological-motor, psychological and social predictors.

According to Malina (2010), talent in sport represents a combination of outstanding biomotor abilities, creativity and intrinsic motivation. Talented children generally have several characteristics in common: they behave similarly, their environment is crucial for the realization of their giftedness – if giftedness is not adequately stimulated, motivation is lost, gifted children observe the world and their environment differently than their peers, their needs are different, work with them is a great challenge, but also an effort for parents, teachers and coaches. In the end, talented children deserve talented, competent and empathic coaches and teachers!

The most significant characteristics of gifted – talented children are:

Domain of school:

- Excellent success in school
- General knowledge
- Extensive vocabulary
- Fast reading and calculating skills
- Motor intelligence
- Artistic giftedness

Domain of motivation:

- High degree of aspiration
- Curiosity

- Strong interests
- High general efficiency

Social-emotional domain:

- Nonconformity
- Independence
- Empathy
- Asocial behaviour

TALENT IDENTIFICATION IN SPORT

The issue of the identification of children talented for sport is very complex. As a rule, talented children demonstrate outstanding abilities in multiple fields. Capable children quickly show multilateral talent. Sport is just one of their potential commitments. Is early engagement of talented children or children in general in certain sports beneficial at all!? Is early specialization useful? Sports practice does not provide definite answers. The problem of »young champions« lies in their premature burn out, lack of motivation, injuries and overexertion by training. The results achieved in the early stage of their development do not guarantee competitive success later in their sports career. Many talented individuals end their career due to inadequate, monotonous or overly ambitious training, which results in injuries and the absence of much needed intrinsic motivation. Contrary to this, some athletes engaged in sports quite late, still managing to achieve top results (a 100m sprint Olympic champion Linford Christie (GB) began training for a sprinter at the age of 22; a double 400m and 800m Olympic champion, Cuban Alberto Juantorena, first joined an athletics club when he was 19; Yelena Isinbayeva, a pole jump Olympic champion, abandons gymnastics at the age of 16 and begins training athletics).

Identifying and directing talented children toward sport, as well as their timely integration into a systematic training process, best suited to their abilities, represents one of the most important challenges of modern sports science. Selection issues are very specific, related to numerous abilities and characteristics that define sports results. Genetic material, morphological characteristics, basic and specific abilities, psychological and psychosocial characteristics, and eventually, motivational environment undoubtedly generate potential success in selected sports discipline.

Does genetics matter in sport? Sports science does not provide a definite answer to this question. It does matter, but it is not crucial. Is there such a thing as »sports gene«? Jamaica, that small Caribbean country, inhabited by three million people, represents a synonym for sprinting in athletics. At the 2012 London Olympics, they won 12 medals, at the ones in Beijing they won 11 medals, mostly for sprinting. Is that a coincidence, or a result of the genetics in that region? It is known that the alpha actinin 3 (ACTN3) gene generates the

ability to develop fast power. According to research, this gene is largely present in the inhabitants of the region (Eynon, 2013). Apart from genetic dispositions, Jamaica cherishes the cult of athletics, and thousands of kids enter sprinting competitions every year.

Today, there are different methods of identifying and selecting children talented for sport. The simplest and most basic method is the natural one – spontaneous selection. This method bases the selection of children on the current competitive achievements of individuals. Those achievements may be results of different quantity and intensity of training. Sports achievements can also be a result of faster biological maturation, not talent. Chronological and biological age can differ by two or more years. This method proved to be rather unreliable. For a young athlete, biological age can be a major advantage or a major disadvantage. Biological age generates motor potential, which is manifested in competitive achievements. As a rule, they are just momentary. Those who win in youth are not always those who win in senior categories (Malina, 2010; Eynon et al., 2013; Skof, 2016).

Another group of methods for identification and selection of children are scientific methods. The international space recognizes several methods. The best known ones are (Skof, 2016):

- *Talent Identification and Development Programmes in Sport (TIDPS)*
- *Talent Intelligence, Personality, Skills – TIPS*
- *Speed, Understanding, Personality – SUPS*
- *Differentiated Model of Giftedness and Talent - DMGT*
- *Talent – SLO*

It must be underlined that all these methods are not highly reliable. There is no method based on which a mature athlete's achievements could be predicted with a degree of certainty. This only proves that identification, selection and prediction of success in sport is a complex issue. Success in sport depends on a number of intrinsic and extrinsic factors. A combination of motor abilities, psychological factors, cognitive abilities, biological and psychosocial development affects the different rate and dynamics of individual sports development. This only proves that people are complicated »biological machines«, which act according to unpredictable principles.

EARLY SPECIALIZATION OF CHILDREN IN SPORT

Is early engagement of children into sport beneficial and necessary? There are numerous examples of negative practice. Early specialization does not provide anticipated positive results. Many talented children who excelled in a certain sport in early youth, could not keep the level up later. There are certain exceptions, too. Tiger Woods began playing golf when he was three, Novak Đoković started playing tennis when he was four and Andre Agassi began winning his peers when he was six; Jennifer Capriati was a child prodigy in

tennis at the age of five, Ana Ivanović began playing tennis when she was six, while Janica Kostelić was a serial winner in her category at the age of 11. Early engagement in sport is a trend in modern sport. The competition among sports to attract young talented athletes is enormous. Early sports specialization is related to specific training and specific loads. The consequence of such training in young athletes are injuries. Early specialization implies the pressure coming from the environment, the coach and the parents in an attempt to achieve excellent results. This creates pressure, the feeling of great responsibility and stress for a young athlete. Many times, coaches and overly ambitious parents have unrealistic expectations from their children's results. When success and winning become an imperative, training must be intense, specific, unilateral, and that will sooner or later lead to injuries or overexertion by training and sport in general. That is a professional error – young athletes must observe training and competitions both rationally and emotionally. Unilateral training does not develop wider motor preparation, which is a condition for latter specific training. There is no problem with children engaging in sport early; what is disputable is that such sports activity prevents spontaneous socialization of a child with their peers through play. If a child is overexerted at the time of their major body growth, they will never achieve their optimal body height, which will also prevent other systems in development from functioning optimally (Baker et al., 2012).

The main reasons for early specialization are:

- The role of parents and their ambitions
- Exquisite talentedness
- Sports scholarships and other benefits
- »Manager« scholarships
- Early financial deals with young athletes
- Sponsorship deals in sports industry
- Young athletes' competitions
- Sports categorization
- The influence of the media

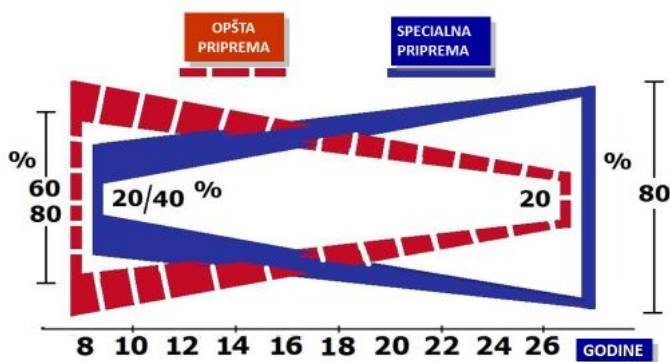
The risks of early specialization:

- Excessive dependence on sports achievements
- Social isolation – segregation of young athletes
- The burn-out syndrome
- Absence of education opportunities
- Manipulation by coaches and parents for the purpose of achieving »goals«
- Absence of intrinsic motivation for training and competing
- The syndrome of overexertion by sport
- Mental stress
- Putting a young athlete's development and health at risk
- Micro-injuries and specific injuries
- Coordinating school and sports obligations

MODELS OF DEVELOPMENT OF YOUNG ATHLETES

The road to top sports results is long, strenuous and uncertain. On average, it lasts from 8 to 10 years, or 10,000 to 12,000 hours of practice. The author of this theory is a Swedish physiologist from the University of Florida, Anders Ericsson. This theory has a multitude of supporters and opponents alike. The models of athlete development are different from the aspect of specificity of each sport. Apart from the classic model of athlete development by means of early specialization, a so-called divergent model – a multilateral model with late specialization - has been increasingly applied. This model implies beginning with a versatile – multidimensional training (Bompa, 2000), versatile exercising, engagement in different sports, the development of elementary motor and functional abilities (Picture 1).

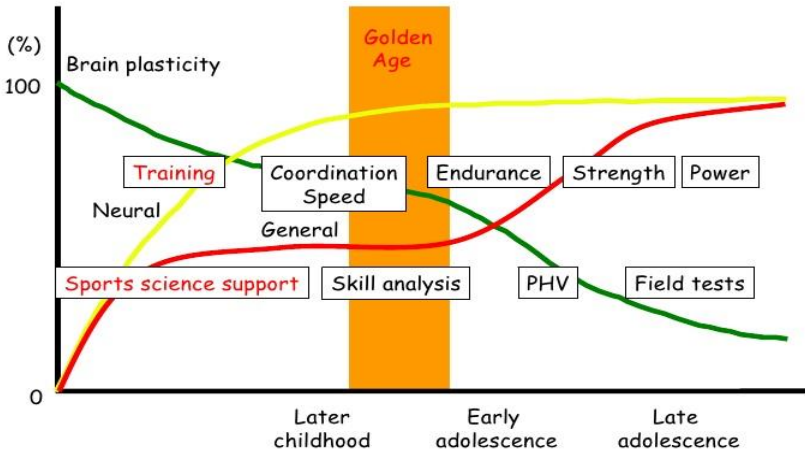
Picture 1. *Multilateral development of athletes* (Bompa, 2000)



The accent is on humane, holistic approach to training children. Training must be a game based on motivation and positive emotions (Bompa, 2000; Malina, 2010, Skof, 2016). The divergent model is based on modern principles of neurophysiology of nervous system development in children. A child's intellectual and motor development peaks at the age of 4 to 12. A person's intellectual capacity depends on the number of neurons and their connections, synapses. Neurons and synapses create neural networks which have motor programs built in as a consequence of moving. A child's biological potential is directly related to the amount of motor programs. This period is justly defined as the »golden age« in the development of psychomotorics. (Kinugasa, 2009) – Picture 2.

Picture 2. *The development of motor abilities in biological stages*
<https://www.slideshare.net/umekinu/early-specialization-in-youth-athletes>

Biological Approach for Training



Different sports thus stimulate the development of a greater number of motor programs, which serve as a basis for motor intelligence. Brain is an organ that has always adapted to its environment throughout human evolution. Thanks to new technologies and lifestyle, it is adapting today as well. The most intense period of brain development is between two and six years of age. New neurological and neurophysiological discoveries indicate that the number of neurons (nerve cells) result from genetics, while the number of synapses – connections between neurons – relies on a person's motor and intellectual activities. By the age of five, people form 50% of synapses between nerve cells; by the age of seven, this number increases to 75%, while by the age of 12 it amounts to 95% of connections between neurons (Rajović, 2015). The more connections we have, the thicker the neural circuits which directly affect a person's motor intelligence. Diverse training (multilateral training) creates the best conditions for developing a young athlete's motor potential, which is essential to future specific training.

One of the best known models of long-term – functional development of an athlete is the Canadian model by author I. Balyi (Picture 3). This model envisages five stages in the development of an athlete:

1. The playing stage – fundamental training (*Fundamentals*)
2. The learning stage (*Learning to Train*)

3. The stage of fundamental sports preparation for the selected sport (*Training to Train*)
4. The competition preparation stage (*Training to Compete*)
5. The stage of training for sports achievements (*Training to Win*)

Picture 3. *The long-term sports development model* (Balyi, 2002)



This model envisages a holistic development of the morphological characteristics and motor abilities of an athlete, based on the biological and psychosocial principles of the human kind.

Potential Consequences of Early Specialization in Sport

Early specialization in sport implies unilateral, intensive training of young athletes for competitive achievements. The main imperative is success. The consequence of this is an overly ambitious, specific training which puts their health and normal functional bodily development at risk on the long run. Specific training in early childhood does not fulfil children's social needs. The American Academy of Paediatrics cautioned that children who intensively engage in just one sport are deprived of numerous motor and psychosocial skills (Malina, 2010, Skof, 2016). Narrow specialization, great ambitions of coaches, parents and closer social environment often create enormous pressure, social isolation and stress for a young athlete. Sport is no longer a game, but a heavy burden which carries a fear of failure. Due to the feeling of responsibility and a fear of failure, a young athlete fails to develop the necessary self-confidence, creativity and ambition. Failure reduces their ego and their enjoyment in sport. Also taking into account the issue of coordinating school and sports obligations, as well as social isolation, all this combined often results in sport career termination.

The biggest risk of early specialization, due to specific and unilateral loads, are injuries, which often partially or completely block young athletes' careers. The injuries of the locomotor system in some individual and team sports are frequent due to overly ambitious training, fast growth during adolescence, or its specificity. In athletics, gymnastics, hockey and sports games the most frequent injuries are: stress fracture on tibia and metatarsal bones, knee cartilage injuries, apophysitis, patellar inflammation, Achilles tendinitis, foot arch inflammation, the patellofemoral syndrome (Skof, 2016).

Great competition- and achievement-related ambitions of young athletes are frequently connected to issues with body weight and overeating. The issues of overeating are present in young athletes in certain, weight-sensitive sports: gymnastics, acrobatics, martial arts, aesthetic sports. Due to hormonal changes in adolescence, the general motor efficiency changes, especially among female population, and the amount of ballast mass increases while the amount of muscle mass reduces. All the aforementioned factors of biological development and early specialization affect young athletes' sports activity. That is why so many »young champions« never managed to fulfil expected achievements in the senior category.

CONCLUSION

The road to top sports results is long and very demanding. It is open to those who possess extraordinary predispositions for a certain sport, specific character traits, strong motivation, work habits and good professional support. Work with young talented individuals requires a specific approach. What matters above all is humane work, based on young athletes' personal and social development. There is no overtaking or shortcuts in youth competitive sport. The young are not adults' miniatures. The young observe, think and feel in their own way. The primary motive of engagement into sports cannot lie exclusively in a competitive result. Only humane sport is a true sport.

REFERENCES

1. Balyi I. (2002). Long – term athlete development: <http://coac-hing.Usolympicteam.com>
2. Baker, J., Cobley, S., Schorer, J.(2012). Talent identification and development in sport«. Routledge, Taylor & Francis Droup.
3. Bompa, T. (2000). Total trening for young champions. Human Kinetics. Champaign, IL.
4. Epstein, D. (2015). Športni gen. Talent, trening in resnica o uspehu. UMco, Ljubljana 2015.
5. Ericsson, A. (2007). Deliberate practice and the modifiability of the body and mind: Toward a science of the structure and acquisition of expert and

- elite performance. *International Journal of Sport Psychology*, 38, 4–34.
6. Eynon, N., Hanson E., Lucia, A., Houweling, P., Garton F, North, K., Bishop, J. (2013). Genes for elite power and sprint performance: ACTN3 leads the way. *Sports medicine*, 43 (9), 803-817.
 7. Ferbežer, I. (2008). Nadarjeni otroci, Radovljica, Didakta.
 8. Jurak, G. (2005). Športno nadarjeni otroci in mladina v slovenskem šolskem sistemu. *Annales, Univerza na Primorskem, Znanstveno-raziskovalno središče Koper*.
 9. Kinugasa, T. (2009). Early Specialization in Your Athletes. *SMAS Annual Symposium Training*.
 10. Malina, R. (2010). Early Sport Specialization: Roots; Effectiveness, Risks. *Current Sports Medicine Reports*, Vol. 9, No. 6, 364-371.
 11. Rajović, R. (2015). IQ otroka – skrb staršev. *Mensa Slovenije, Ljubljana*
 12. Renzulli, J. (1986). The three-ring conception of giftedness: a developmental model for creating productivity. *Conceptions of giftedness*. London, Cambridge University Press.
 13. Skof, B. (2016). Šport po meri otrok in mladostnikov. *Fakulteta za šport, Ljubljana*.
 14. Vaeyens, R., Matthieu, L., Mark Williams, M., Philippaerts, M. (2008). Talent Identification and Development Programmes in Sport Current Models and Future Directions. *Sport Medicine*, 38 (9), 703-714.