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DEVELOPMENT OF THE ELITE WRESTLING ATHLETE

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INTRODUCTION

There is not a simple singular uniform approach to the topic such as the “Development of the Elite Wrestling Athlete” because of many cultural differences among countries. So, the way to success is not the same for all wrestlers.

Wrestlers’ development model from novice to elite level is a long-term process with different systems among countries. In the most countries, the systems are based upon club development with a primary singular coach involved in the young athlete’s development, focusing on the international styles of Freestyle and Greco-Roman Wrestling. Whereas, in the USA it is based upon folkstyle wrestling within the school system, from middle school to the university level with a multitude of coaches involved.

Mirzaei et al. (2013) in a comparative study of starting age of training, training background, sport achievement and performance consistency of 800 elite wrestlers in the seven world famous countries including: Russia, Iran, USA, Cuba, Turkey, Georgia and Ukraine who won medals in international competitions since 1960s reported that there are significant differences between all above-mentioned variables among top wrestling countries (3).

These days, the advancement of the science and technology has made it possible for many countries to invest in training successful athletes to succeed in international sporting events. One of the most remarkable among these investments is in talent selection. Being talented is a way to succeed in sports. Therefore, talent selection is very important for the identification of future champions.

Reaching the top level and becoming a national team member will occur only in a very small percentage of those athletes that start into the sport of wrestling. So, it is important to be able to identify those talented wrestlers as early as possible and nurture and encourage them in their development. Most sport clubs, coaches and professional teams use talent tests to identify talented athletes. The concept of talent in sports can be defined as all of the characteristics such as genetic factors, intrinsic physical and physiological capacity, psychological strengths, mental toughness or “grit” and high performance that are thought to be effective for a person to succeed in sports (1).

TALENT IDENTIFICATION

There are two well-known main methods applied for talent selection in sports, namely Natural Selection and Scientific Selection. Natural selection means someone chooses a sport randomly based on an athlete’s tendency toward that sport without any scientific test or particular guidance of athlete’s family or a sports teacher. The scientific selection directs the person to the most appropriate sport by using various scientific tests in order to identify talent. To detect young athletes with potential for success in Olympic sports talent identification (TID) programs are designed. According to TID program, talent selection is generally applied regardless of potential and maturation processes of athletes, but the advantages of anthropometric, aerobic and anaerobic power depend on a certain maturation process in athletes. When performing skill identification and development programs in the field, coaches should assess athletes according to their preadolescence and postpubertal periods. Furthermore, physical and physiological characteristics, anthropometric structure, somatotype characteristics, and psychological factors are reported to be important parameters in determining the talented athletes (1).

In some countries where wrestling is a successful sport, it is very important to determine their champion athlete candidates by early scientific tests and lead them to the specific training programs. That’s why many developed countries such as the USA, UK, China, Russia and Germany have used a variety of tests to direct the athlete candidates to a sport discipline in which they can be more successful.

Studies conducted on wrestlers demonstrate that tests such as 800 m running, 30 m running, flexibility, mental tests are applied to determine the talent of the athletes. Also other tests such as finger and hand grip strength, standing long jump, medicine ball throw, active leap, anaerobic power, 20m sprint run, pro-agility quickness and 20m shuttle run tests are performed for children in the age group of 9-14 (1).

Based on studies, wrestling coaches use talent test methods to determine the basic motoric characteristics. In addition, technical characteristics, physical structure and tendency to wrestling have been observed in talent identification. Recently the use of genes has been one of the most considerable developments in talent identification. Many studies suggest that genetic tests should be used in talent selection. By the help of this method, physiological and anatomical aspects of individuals can be determined, so they can be directed to a certain sport. Physiological characteristics such as aerobic capacity, strength, endurance, types of muscle fibers, cardiac size and lactate threshold are affected by genetic factors(1).

The primary way to achieve to one's ultimate performance capacity such as techniques, practices and behavior is training, but also the environment, heredity and their interaction can affect it. We know that some rare athletes reach high enough to performance capacity which it called "Golden Status" and it is also known that there are some athletes who possess the necessary capacity, but they never reach it. The coach should help the athlete to reach to their ideal performance capacity. In fact, all should be satisfied and proud regardless of the medals and matches outcome. The question is that; what is the best way to develop a wrestler? A comprehensive training model which is an athlete centered approach that is concerned with a maximization of potential throughout the lifespan is Long-Term Athlete Development (LTAD) (2).

LTAD integrates preparation over an entire career or lifetime, individual development as well as development as an athlete. Therefore, it takes the periodization concept (the integration of competition, training, recovery, nutrition, and other elements of preparation to create a long-term training plan) to the next level. LTAD model should enhance wrestling as an experience and a sport for all participants by consisting of guidelines which athletes, coaches and parents should be flexible with. The development of sound physical literacy skills that learned and trained during "sensitive periods of a trainability" is a key for an athlete to reach his/her full potential. The "S's" (stamina, strength, speed, skill and suppleness) of LTAD must introduced in an appropriate time. Peak Height Velocity (PHV), the maximum rate of growth is the main point for sensitive periods of trainability. It is essential that S's training introduction should base on developmental age, not chronological age. Development occurs at different times for different young athletes, but if the sensitive periods of development missed, the athlete may not develop to full potential or the path of progress may be more difficult (4).

Coaches can help athletes of any ages to participate and achieve their aspirations more effectively by understanding the 10 Key Factors of LTAD. The 10 key factors of LTAD are as follows:

1. **The FUNDamentals:** Basic physical literacy is the foundation for later athletic success. Developing a wide range of movement at the early time of life may be better for a top-level athlete in the future.
2. **Specialization:** Pre-mature specialization may lead to a lack of skill development, overuse injuries, early burnout and retirement from sport and physical activities. So, it is necessary to pay attention to broad-based skills and abilities at first.
3. **Developmental Age:** Young athletes are divided into three categories in range of physical, mental, cognitive and emotional qualities; early, average or late maturers. Athletic training should be based on developmental age, not chronological age. Some coaches pay special attention to early maturers while the late maturer may have the greater potential to become a top athlete. In fact, early physical maturity does not mean that the athlete is mentally prepared for the challenges.
4. **Trainability:** This concept related to the ability of an athlete to train at different stages of growth and maturation. Each of the "S's" of Stamina, Strength, Speed, Skill and Suppleness occur at different and special times. For example, stamina and strength trainability is linked to developmental age, while the others are linked to chronological age.
5. **Physical, Cognitive, Mental and Emotional Development:** Over-emphasis on physical training and winning at any stage may not equip the athlete for all challenges or for life outside sport. Thus, character, ethics and so on should be objectives for every program.
6. **Periodization:** Periodization is the organization of training program by manipulating modality, volume, intensity, frequency, recovery and competition periods of training over a long term. LTAD periodizes training program by focusing on life-long development.
7. **Competition Calendar Planning:** LTAD needs an optimal sport-specific competition calendar that requires for all stages. It may create logistic challenges, but it is essential to LTAD.
8. **The 10-Year Rule:** Research has shown that a talented athlete needs at least 10 years and 10,000 hours of training to reach elite levels. It is easy to skip long-term development in the effort to attain short-term results, but it is not constant.

9. **System Alignment and Integration:** LTAD focuses on all wrestling leaders and organizations. The best results can only be achieved when all organizations work together in an integrated and coordinated way to support athlete success.
10. **Continuous Improvement:** Sport is continuously evolving. LTAD will constantly enrich our understanding to adapt to new progressions (4).

The optimal development of those five skills cannot occur without; Structure/Stature (body type and growth), psychology, Sustenance (adequate nutrition and rest), Schooling (or Stress), and Sociocultural factors;

Structure/stature: Following the stature is a guideline to planning the sensitive periods of physical (endurance, strength, speed and flexibility) and skill development.

Psychology: Planning, implementing and refining of mental strategies will have a large impact on performances. Consequently, the mental training is important in all stages of LTAD to deal with success or failure which can keep the athlete in sport and physical activity in general.

Sustenance: Sustenance is a broad range of components which involve nutrition, hydration, rest, sleep and regeneration. These components are needed to apply to training (life) plans depending on the stages of LTAD. The coach or parents must monitor recovery through the identification of fatigue to achieve proper sustenance and recovery.

Schooling (or Stress): The demands of school must be considered for young athletes designing programs. It means that the program should include school academic loads, duties and other stresses. It is the same for mature athletes by training camps and competition tours. Overstress must be monitored carefully in all stages.

Sociocultural: Sport planning is not just simply commuting between the hotel room and gymnasium, it includes ethnicity awareness and national diversity (4).

The LTAD model divides athlete development into a series of stages. The stages of wrestling's LTAD model are:

1) Active Start- ages 0-6 (M&W)

The Participant

- From age 0 to 6 years old, a child is a "learning machine" full of curiosity and always on the move. Brain connections are being made and the body is growing rapidly.
- The child has a short attention span and needs lots of variety and frequent breaks.
- Social play with other children develops gradually, but the child loves to imitate and play with parents.
- Limited ability to grasp concepts like sport rules but lots of imagination to create their own games.

The Coach

- Parents, family, and teachers are the "coaches" at this stage.
- Allow lots of room for exploration and risk-taking in a safe environment.
- Promote physical activity and healthy eating as a family activity. Role modeling is very important.
- Provide short-duration, rapidly changing activities with lots of breaks. Let the child's attention span and interest dictate the activity.

Development

- The child is building the foundation for future success in skill development and creating neural connections across multiple pathways in the brain particularly when rhythmic activities are used.
- Physical activity enhances development of brain function, coordination, social skills, gross motor skills, emotional development, leadership and imagination. It helps children to build confidence and develop positive self-esteem.
- Activity also helps builds strong bones and muscles, improves flexibility, develops good posture, improves fitness, promotes a health body weight, reduces stress and improves sleep.

The Program

- Daily activity: minimum 30 minutes/day for toddlers and 60 minutes/day for preschoolers.
- FUN activities on land, in water and air, and sliding on snow and ice.
- Encourage running, with stops, starts and changes in direction.
- Catching and throwing games using a wide range of soft objects, and balls of different sizes. Start with two hands then progress to using left and right hands to catch and throw.
- Balance, jump, slither like a snake, and roll like a rolling pin. Use hands, feet and other body parts to balance, push and jump. Ride a tricycle or bike.
- Allow non-aggressive tumbling and "play-wrestling" as long as you can see smiles and hear laughter(4).

2) FUNdamentals- ages 6-9 (M) and 6-8 (W)

The Participant

- From age 6 to 9 years old, a child learns to participate in group activities. He/she expects to be directed by parents, teachers or coaches and loves to follow, but due to short attention span and judgmental nature, can quickly become frustrated or lose interest.
- He/she likes to show off skills and be the center of attention. Participation in sport can be a source of pride as long as success is praised and reinforced.

The Coach

- Parents, family, and teachers are the early “coaches”. Later, in structured sport programs, coaches should direct Community Sport- Initiation.
- Approach: structured play in fun, safe environments and a minimal emphasis on competition.
- Focus on building-blocks of later performance: ABC’S (Agility, Balance, Coordination, Speed) through a wide range of fun activities.

Development

- The first period of accelerated adaptation to speed occurs at age 6-8 for girls and age 7-9 for boys.
- Suppleness (flexibility) is also very trainable.
- Anaerobic capacity is low, as is ability to regulate temperature in extreme hot or cold environments.
- Attention span is short: children are enthusiastic and want to be in action.
- Skill learning is through verbal, visual, and physical means. Demonstrations and guided trial works are better than explanation alone.
- Strong sense of fairness emerges. Children understand basic sport rules, ethics and concepts.

The Program

- Daily activity: unstructured play daily plus a minimum 30 minutes/day, 5x/week of structured activity including school PE.
- Multiple, fun sport activities on land, in water and air, and sliding on snow and ice.
- Use of modified sports and equipment to ensure the child can control the game.
- Consolidate fundamental movement skills and begin to apply in sport settings. Emphasize catching, throwing, hitting, running and other games.
- Work on speed (linear, lateral, multi-directional, arm/ hand, leg/foot, etc.) with activities under 5 seconds long.
- Develop strength through games using own body weight, medicine ball, Swiss ball, etc.
- Wrestling-related activities: let the athlete experiment with concepts of balance, center of gravity, leverage and strength in games. Allow non-aggressive tumbling and “play-wrestling”. Judo lessons to experience a basic combat sport utilizing similar principles (4).

3) Learning to Wrestle- ages 10-12

The Athlete

- Entering organized wrestling for the first time.
- May be interested due to participation in school, participation of parent or family member, or other reasons.
- May be apprehensive, curious to “see how he/she does” ...needs encouragement and reinforcement through success.
- May be entering at Kids Division if age 10-12 but if he/ she is entering the sport later, may be 12-16 or older. All novices entering the sport enter at Learn to Wrestle.

The Coach

- Community Sport- Initiation coach if new wrestler is age 10-12 and entering via club stream.
- May be Competition-Introduction coach if athlete is age 12 or older, or entering through high school stream.
- Approach: Use games-based training- allow the athlete to experiment with concepts of balance, center of gravity, leverage and strength in games and simple simulations.
- Use games to develop multiple competencies (e.g. skills, speed and stamina) but avoid complex tactics, highly repetitive drills, and high intensity physical training.

Development

- Optimal period for Skill development is age 8-11 in girls, 9-12 in boys. Fine motor and coordinated movements can develop quickly. The emphasis is on transferring
- fundamental movement skills to fundamental sport skills, and building sport skills.
- Prior windows were Speed and Suppleness: continue to build on motor speed and flexibility through a variety of activities.
- Strength is developed through own body weight activities, medicine balls, etc.
- Stamina is developed through games and relays.
- Abstract thinking and attention span are still developing. Lengthy explanations and complex concepts are difficult to grasp.
- At this age children are becoming more self-aware and self-conscious. Peer approval is important. They may like to be part of a team and “show off” their success and skills to peers.

The Program

- Overall: Athlete should be involved in multiple other sport/physical activities for multi-lateral development
- Wrestling-specific program: 2 - 6+ weeks, 1 – 3x/week. Seasonal program coordinated with those of other sports.
- Physical: Develop ABC'S: Agility, Balance, Coordination and Speed
- Technical: Learn basic concepts of take-downs and parterre actions
- Tactical: Thinking of how to get an advantage
- Psychological: Develop passion for wrestling as individual/ combative sport, through fun, success mastering basics.
- Theoretical: Basic rules of wrestling.
- Life skills: Cooperation, sport personship.
- Competition: “Festival” environment, modified rules/ match conditions – 1+ events per year(4).

4) Formalize Training- ages 12-16

The Athlete

- Has made a commitment to participate in organized wrestling.
- Is prepared to train hard and compete.
- Is likely experiencing many life challenges in adolescence, including school, family and work, which may detract from commitment to sport. Growth spurt may also lead to temporary loss of performance.
- Wants to feel successful and accepted.
- Has learned basics of the sport in the Learn to Wrestle stage.

The Coach

- Competition-Introduction coach working in a club or high school environment.
- Approach: Introduce a more structured, higher volume program. Use games and decision-based training to develop multiple competencies (e.g. skills, speed, and stamina). Expect the athlete to learn through experimenting and thinking, not just repetition. Emphasize building a strong foundation of core wrestling skills.
- Avoid “cutting” athletes especially late-matures. Build every athlete for the next stage or the next sport.
- Reinforce athlete's feeling of competence and success through progressive exposure to competition. Avoid temptation to push too hard, too soon, especially with early-maturing athletes.

Development

- Rapid physical, mental and emotional changes in this phase.
- Optimal period for stamina begins at growth spurt: usually age 11-15 in girls, 12-16 in boys. Make aerobic training a priority after the growth spurt while maintaining or further developing levels of skill, speed, strength, and flexibility.
- Emphasize flexibility training given the rapid growth of bones, tendons, ligaments, and muscles.
- There are 2 periods of accelerated adaptation to strength training for females: the first occurs immediately after PHV and the second begins with the onset of menarche. For males, there is 1 period and it begins 12 to 18 months after PHV.
- Abstract thinking and future-planning skills develop later in the stage.
- Adolescents are highly influenced by their peers and want to be independent and make their own decisions.

The Program

- Overall: The athlete should continue involvement in other sport/physical activities focusing on 2 main sports.
- Wrestling-specific program: 8 – 12+ weeks, 2 – 4x/week. Periodized seasonal program coordinated with other sports.
- Physical: Consolidate ABC'S: Agility, Balance, Coordination and Speed. Introduce off-mat training including strength training.
- Technical: Consolidate core skills through repetition. Introduce new skills regularly.
- Tactical: Introduce tactical principles: action, reaction, deception.
- Psychological: Foster combative mentality and perseverance.
- Theoretical: Language, protocol, structure and history of wrestling
- Life skills: Respect for sport, opponent, self.
- Competition: Regional and Provincial competition; introduce National later in stage. Build success through selected competitive experience. 10-20 matches/year(4).

5) Training to compete- ages 17-20

The Athlete

- Is serious about organized wrestling and pursuing excellence.
- Is prepared to train hard and focus on competitive success.
- Is likely experiencing life challenges in balancing school, family, personal relationships and work, which may detract from commitment to sport.
- Self-image becomes defined, includes sport as a major element in identity.
- Looking ahead to next steps in sport success e.g. college, national team but may be frustrated by injury or other priorities.
- Needs to build a support network including family, coach, sport science and health care to sustain sport career.

The Coach

- Competition-Development coach working in a club or college/university environment.
- Approach: Introduce a year-round, high-volume and intensity program. Decision-based training is used to transfer skills and fitness to competitive situations. Use competition simulations and training competitions to build competition skills. Insist the athlete learn through experimentation and analysis.
- Reinforce feeling of competence and success through progressive exposure to competition. Avoid overreaching, over-training and over-competing to protect against injury.

Development

- Major opportunity for strength and power development.
- Maintain or further develop skill, speed, stamina and flexibility.
- Capacity for significant increase in volume and intensity of training.
- Abstract thinking and goal-setting skills well-developed; can think ahead tactically, and in terms of personal development.
- Strong sense of independence and wants to make own decisions, yet continues to desire external support and identity with peer group.

The Program

- Overall: Specialize in maximum two sports and move to year-round, high volume and intensity training. Focus on volume.
- Wrestling-specific program: 30+ weeks, 5 – 8x/week. Periodized annual program with single or double peaks. Introduce tapering/peaking strategies.
- Physical: Optimize strength, speed and power. Build maximal capacity.
- Technical: Master core skills and develop variations in competitive situations.
- Tactical: Develop personal strategy/tactics based on individual strengths.
- Psychological: Plant seeds of peak performance: goalsetting, desire, sacrifice.
- Theoretical: Understand basis of athletic performance.
- Life skills: Develop independence.
- Competition: Provincial, national Games. Intro to international and Junior Worlds. 30+ matches/year(4).

6) Training for Peak Performance- ages +21

The Athlete

- Totally committed to pursuing excellence in wrestling.
- Has been focused on competitive success and training hard for 7+ years. Is mastering all aspects of wrestling and life as a high-performance athlete.
- Has an active support network including family, coach, sport science and health care to help sustain sport career. Is learning to manage stress, injury, and maintaining peak performance while balancing life demands.
- Is increasingly seen as a role model and is in demand to appear or coach at various events.

The Coach

- Competition-High Performance coach working in a club, college/university or national team environment.
- Approach: Provides support, technical analysis and outside perspective to an established high-performance athlete. Seeks competition opportunities and engages additional specialized expertise to fine-tune athletic performance.
- Build independence through athlete's participation in planning decisions and own control of day-to-day training.
- Monitor carefully to avoid over-reaching, overtraining and over competing and protect against injury.

Development

- Maintain or further develop skill, strength, speed, power, stamina and flexibility.
- Care must be taken to optimize volume and intensity of training to maintain peak performance while avoiding injury. Consider individual variation in ability to cope with training volume, recovery needed, etc.
- Abstract thinking and goal-setting skills fully developed. Able to analyze situations quickly and adapt or innovate.
- Is independent and self-directed, yet needs strong support to enable full focus on demands of sport.

The Program

- Overall: Analyze, monitor and perfect performance. Focus on quality.
- Wrestling-specific program: Year-round, 9 – 12x/week. Periodized annual program with multiple peaks.
- Physical: Optimize all physical qualities with emphasis on recovery.
- Technical: Perfecting strengths in simulated or modeled competitions. Innovating skills.
- Tactical: Study opponents while refining own actions and reactions. Innovating tactics.
- Psychological: Prepare for the unexpected and overcome adversity.
- Theoretical: Understand and refine personal problem solving, choices, decisions.
- Life skills: Becoming self-directed and in control at all times
- Competition: National, international, Worlds and major Games. 15+ selected quality matches per year.
- Participation in high intensity training camps, national team program, performance testing (4).

7) Active for Life- Enter at any age

The Athlete

- This athlete may be younger, moving out of Learning to Wrestle or Formalized Training stages and seeking ongoing participation in the sport, or ending a high-performance career in wrestling.
- Wants to maintain physical fitness and enjoy the fun of sport, in either a competitive or non-competitive setting.
- Is leading a busy life including school or work, and family. Sport is not top-priority.
- Has a lot to offer wrestling, whether as a participant, coach, official, or leader.

The Coach

- If the participant wants to continue competing, the coach may be a Competition-Introduction coach working in a club environment.
- Approach: A structured, but lower-volume program. Give the participant opportunities to learn and grow through designing and leading activities and experimenting with other disciplines. Emphasize maintaining fitness through regular activity.
- Encourage the participant to try coaching, officiating or other leadership roles in the sport Offer support and encouragement.

Development

- After age 25+/- some physical abilities decline gradually but can be maintained with training. This is often compensated for by superior tactical sense and mental strength.
- Development as a coach, a mentor, an organizer is just beginning – supporting life-long learning should be a goal of every sport organization.

The Program

- Overall: Athlete should continue involvement in other sport/physical activities focusing on several enjoyed sports.
- Wrestling-specific program: Seasonal program as desired by athlete, coordinated with other sport activities.
- Physical: Maintain key physical abilities.
- Technical: Maintain and refine core skills. Provide opportunities to learn new skills.
- Tactical: Maintain personal strategy/tactics based on individual strengths.
- Psychological: Mentally stronger for life- employ the lessons of sport and life.
- Theoretical: Life-long learning.
- Life skills: Reflecting on the experience of sport and finding ways to give back.
- Competition: As desired- regional, provincial or national competition(4).

Developing wrestling skills depends on recognizing the success demands such as; split-second reactions and near-automatic decision-making: attack, defend, react and counter. There are two subsets here: 1) the ability to execute skills to perfection. 2) the ability to read the situation and make the right decisions. The best success in teaching both skills and decision-making to athletes in all stages of LTAD is affected by Decision Training (DT), combined with a games approach to practice. Decision Training is a coaching method based on providing feedback by the coach when the athlete falls outside pre-determined limits while he/she employs in a competition-simulation situation. Games Training, Games Sense or Teaching Games is a series of game activities that design by a coach to teach technical and tactical skills which are related to DT accordingly. Games-Based Training is more fun than traditional drills, while it causes superior results for decision-making. These concepts underline the coaches role in appropriate programs, optimal coaching and competition calendars in wrestling (4).

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