

Experiences of young South African gymnasts, parents and coaches about the health benefits of sport participation

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Abstract

Gymnastics, as a physical activity, presents young people with opportunities to learn physical skills, improve eye-hand coordination, develop gross and fine motor skills, and socially develop through engagement with other young people. An understanding of aerobic and anaerobic physical activities is important to enhance young people's physical, emotional, cognitive and social development. This study investigated the perceptions of a purposively sampled group of young people in the Western Cape of South Africa about the health benefits of gymnastics participation, and reported findings from the perspectives of registered competitive gymnasts, gymnastics coaches, and parents of gymnasts (total n=34), with specific reference to the domains of physical, cognitive and socio-emotional development. A qualitative approach based on the Process-Person-Context-Time (PPCT) concept, adapted from the bioecological model, was used as the theoretical framework to underpin, analyze and interpret findings of the study. Four key informant interviews were conducted with four coaches, and five focus group discussions were held with gymnasts, parents of gymnasts and gymnastics coaches. Thematic analysis of the participants' responses indicated the following themes as health benefits and opportunities for children's development through gymnastics participation: socio-emotional development with respect to positive attitude shifts, respect of peers and coaches, and physical development concerning musculoskeletal growth. Development of strength and flexibility were also found to be positive contributors to child development. Additionally, improvements in cognition which could positively influence children's academic achievement and the learning of new movement skills, were also attributed to gymnastics participation. The implications of the findings for children's holistic development was discussed.

Keywords: Gymnastics, parents, coaches, sport participation, physical, cognitive and socioemotional benefits.

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Introduction

Globally, youth sports are firmly established in societies, touching the lives of all people across the lifespan (Smoll, Cumming & Smith, 2011). Regular physical activity and sport participation is recommended at each stage of a child's development and the associated health benefits form some of the important key aspects of research in this field. However, in South Africa, levels of overweight and obesity continue to rise, causing a health risk among children and adolescents (Draper, Bassett, De Villiers & Lambert, 2014). Thus, sport is an excellent platform for children and adolescents to experience physical, cognitive and emotional development, as it promotes their wellbeing, academic achievement, and the lifeskills of team work and self-discipline (Moore & Werch, 2005). Gymnastics may serve as a conduit for the learning of gross and fine motor skills, which promote benefits associated with health-related physical activity that is important for the growth and development of young people (Coelho, 2010; Donham-Foutch, 2007). The global recommendations on health enhancing physical activity require that children engage in sixty minutes of daily moderate to vigorous physical activity (WHO, 2016).

Physical activity and sport participation should be encouraged for toddlers and young children in order to develop essential motor skills such as coordination, balance, strength, and flexibility. This could promote physical literacy, positive leisure experiences, positive stress adaptations, which lead to positive health outcomes such as lowering blood pressure, a reduced risk for non-communicable diseases, a reduced risk for all cancer-related mortality, and regulation of blood sugar (Cairney, Dudley, Kwan, Bulten & Kriellaars, 2019). Children and adolescents are uniquely influenced by their parents (Roman, Davids, Moyo, Schilder, Lacante & Lens, 2015) who play a direct role in their physical activity participation and sedentary behaviour in the first few years of life. Parental support is also a strong factor in inculcating a physically active lifestyle in children (Xu, Wen & Rissel, 2015). Parents are able to communicate their beliefs through actions and words, which are critical for children's development and achievement (Olszewski-Kubilius, 2018). Children also prefer their parents to be involved in their sport showing them their support and motivating them to participate in physical activity and sport (Sanchez-Miguel, Leo, Sanchez-Olivia, Amado & Garcia-Calvo, 2013). Therefore, parents play a critical role in influencing their children's socialization into sport and through this process of influence, many parents are productive contributors to their children's sporting experiences (Brustad, 2003) as well as for the adoption of intrinsic and extrinsic goals associated with overall wellbeing (Roman et al., 2015).

Some studies have made reference to "an athletic triangle" (Smoll et al., 2011), which defines the parent-coach-athlete relationship, which further explains complex interactions and psychological development of the child within this social

system (Davis & Jowett, 2010). Coaches are in a unique position to channel parental concerns in a way that increases the sport experience of the participant (Smoll et al., 2011) which suggests the important role that coaches play in influencing children's sport participation.

Many health organizations such as the World Health Organization (WHO), and the Centres for Disease Control (CDC) and members of the scientific community such as the American College of Sports Medicine (ACSM), have reported that young people benefit from participation in physical activity (Tomporowski, Lambourne & Okumura, 2011). Furthermore, the Healthy Active Kids South Africa 2014 report card (Draper et al., 2014) states that the benefits gained from regular physical activity far outweigh health alone, as it promotes social connectedness, inclusivity and gender equity. In addition to the physical, cognitive and socioemotional health benefits associated with sport and physical activity, sport participation provides for overall health development resulting in a positive experience of health and wellness (Department of Health, 2010).

Evidence also suggests that children participating in gymnastics possess enhanced orientation and stabilization skills leading to a better understanding of where the body is during space and movement; thus, gymnastics offers an opportunity to develop children's movement skill competence (Rudd, 2016). Uniquely, gymnastics affords participants the opportunity to experience muscular and non-muscular spatial changes and loadings, movement patterns and a wide variety of bodily shapes that cannot be duplicated easily in other forms of human and physical activity and sport (Dowdell, 2013). Gymnastics also provides an educational medium for the development of desirable physical and psychosocial characteristics (Smoll et al., 2011).

Previous studies have reported the influence of a variety of internal and external factors that affect children's developmental process, particularly the role and interaction of biological, psychological, social, motivational, and cognitive domains in the developmental process as well as how these domains develop through children's exposure to active play experiences (Hardy, King, Farrell, Macniven & Howlett, 2010). These skills, which may be learned in gymnastics, allow children to interact whilst exploring their immediate environment (Hardy et al., 2010). Furthermore, research among school-aged children indicates mastery of fundamental movement skills and other motor skills essential to development, and its correlation with higher levels of physical activity, with improvements in locomotor skills (Barnett, van Beurden, Morgan, Brooks & Beard, 2008). Socio-emotional, physical and cognitive health benefits for growth and development are not well documented in gymnastics, especially in the South African context. Therefore, the aim of this study was to investigate gymnastics participation experiences and explore its associated health benefits as perceived by young

gymnasts, their parents, and gymnastics coaches in the Western Cape of South Africa.

Context

The South African Gymnastics Federation (SAGF) is the official governing structure of all gymnastics sport activity in South Africa, encompassing both recreational and competitive gymnastics disciplines, which include; Men's Artistic Gymnastics, Women's Artistic Gymnastics, Acrobatic Gymnastics, Aerobic Gymnastics, Rhythmic Gymnastics, Rope Skipping and Gymnastics for All, respectively. The SAGF works closely with government sport departments namely, Sport and Recreation South Africa (SRSA) and the South African Sport Confederation and Olympic Committee (SASCOC). Additionally, the SAGF is an official member of both the African Union of Gymnastics (UAG) and the International Gymnastics Federation (FIG) (South African Gymnastics Federation, 2012). Participants in this study were young gymnasts, parents of gymnasts and gymnastics coaches of the the Western Cape Gymnastics Association that is affiliated to the SAGF.

Theoretical framework

This study was guided by the Process-Person-Context-Time (PPCT) concept based on the bioecological model for human development (Bronfenbrenner & Morris, 2006), which served as the study's theoretical framework. This study focused specifically on the domain of the "Person" within the PPCT concept, which describes personal characteristics of individuals, such as age, sex, gender, physical or mental health, and others, in relation to social interactions and individual development. This study presents findings relating to the overall health and social benefits of participation in gymnastics that may be experienced, using the "Person" domain as a lens for interpretation.

Methodology

Study design

The study followed a qualitative research approach to gain insight into the experiences and perceptions of young gymnasts, parents of gymnasts and gymnastics coaches about the physical, cognitive and socio-emotional benefits of participation in gymnastics. This study used an exploratory qualitative approach as was aimed to formulate an understanding of specific social constructs and situations, group interactions, and life experiences within society based on the participants' experiences. As qualitative research enables the researcher to formulate and report on the individual or place under investigation in detail (Creswell, 2009), this approach was deemed appropriate for the study.

Population and sampling

The study population targeted for this study consisted of members of the gymnastics fraternity within the Western Cape Province of South Africa. Participants were sampled from two regions within the Cape Town metropolis namely, the West Coast and Cape Flats. A homogenous purposive sampling approach was adopted specifically focusing on gymnastics to provide an in depth description of the aspects of health enhancement through gymnastics participation, and to reduce variation in participants' sporting experiences (Palinkas, Horwitz, Green, Wisdom, Duan, & Hoagwood, 2015). This enabled the researchers to facilitate group interviews as part of the techniques used for data collection. Specifically, young gymnasts (aged 7-17 years old), who were registered with the South African Gymnastics Federation, and were provincially competitive/amateur and from low-middle income groups/households were invited to participate in this study. The gymnasts were screened for inclusion eligibility, which was based on (1) length of participation in gymnastics, and (2) number of days at gymnastics practice over a year's period. After the inclusion criteria were met, the gymnasts were invited to participate in focus group discussions. In total, 14 gymnasts were sampled comprising six from the Cape Flats (2 males and 4 females) and 8 from the West Coast (2 males and 6 females) regions.

Key informants were recruited through the use of Criterion-i purposive sampling (Patton, 2002). Key informant participants, comprising four coaches in the Gymnastics For All programme, Aerobic Gymnastics and Women's Artistic Gymnastics disciplines, were interviewed. Further, a focus group discussion was held with a group of four gymnastics coaches within the Women's Artistic Gymnastics discipline, included in this research study who were required to have had continuous involvement and participation in coaching gymnastics, managing gymnastics, and must have maintained a long-term service commitment to both the South African Gymnastics Federation and Western Cape Gymnastics Association. Therefore, a total of eight gymnastics coaches participated in this study.

The sample of parents of gymnasts was recruited based on a snowball sampling method (Green & Aarons, 2011). Key informants were asked by the researcher to identify, through their affiliated gymnastics clubs, parents of gymnasts whom they knew had children who were registered within, and participating in competitive gymnastics for more than a year. Based on this sampling technique, a total of 12 parents from the West Coast and Cape Flats regions were selected and participated in focus group discussions. Thus, the total sample for this study included 34 participants.

Research instrument

This study took place at two gymnastics clubs in Cape Town. In-depth semi-structured interviews guided by the PPCT concept (Bronfenbrenner & Morris, 2006) were conducted to facilitate the data collection process during focus group discussions and key informant interviews. The interviews conducted took place in a private room at the gymnastics clubs, and were designed to find out the experiences and perceptions of the health benefits associated with gymnastics participation.

Data collection and analysis

Data for this study were collected between 2014 and 2016. The qualitative approach used for data collection allowed participants to share their opinions and experiences of the health benefits of participation in gymnastics. Participants were invited to take part in focus group discussions and key informant interviews. Focus group discussions and key informant interviews lasted 45-60 minutes on average. With the permission of the participants, the interviews were conducted in English, audio-recorded using a dictaphone, and transcribed verbatim for coding and thematic analysis.

Transcriptions of key informant interviews and focus group discussions became the primary documents for the identification of codes for a thematic analysis process (Braun & Clarke, 2006), as a method for identifying, analysing, organizing, describing and reporting emerging themes. Identification of themes involved five tasks namely; (1) discovering themes and sub-themes; (2) describing the core and peripheral elements of the themes; (3) building hierarchies of codebooks and themes; (4) applying themes and (5) linking themes to the theoretical model of this study (Ryan & Bernard, 2000).

Coding took place iteratively as information was examined, which led to new themes being noted as they emerged during the data analysis process, using the observational technique of repetition. When certain words and concepts occurred in transcribed texts, themes developed. Any coding inconsistencies and discrepancies were unpacked, keeping codes in alignment with the theoretical framework, as to not deviate from the research question. The data analysis process was conducted using Atlas.ti (version 7.5.7), which enabled the research team to derive and collate group codes and facilitated the data analysis process (Friese, 2019). Further to this, a framework approach, as outlined by Ritchie and Spencer (2002), was utilized for data analysis, which includes five stages namely; familiarization, identifying a thematic framework, indexing or coding, charting or mapping, and interpretation of data (Ritchie & Spencer, 2002).

Reflexivity and trustworthiness

Reflexivity involves the researcher considering him- or her-self and the subject under investigation as mutually and continually inclusive during a research process. The researchers acknowledge any preconceived assumptions relating to the topic to reduce the influence of bias in the study (Haynes, 2012). With respect to trustworthiness, this study adopted Guba's (1981) elements of quality criteria for naturalistic inquiry to assess the transparency and trustworthiness of qualitative research. These criteria included (1) dependability, a criterion concerned with the stability of results over time, (2) confirmability, which focuses on the degree to which findings of an inquiry are a function of the participants and not the biases, motivations and interests of the researcher, (3) transferability, for findings that may have applicability in other research contexts and participants, and (4) credibility, which focuses on establishing confidence in the "truth" of the findings of participants (Guba, 1981). Furthermore, the researchers ensured that the following protocols were adhered to; (1) making use of a semi-structured process for interviewing focus groups and key informants, (2) recording interviews using a dictaphone, and (3) comparing findings of the interviewer with the those of the interviewee (Creswell, 2009). Procedures to ensure overall trustworthiness first included triangulation of themes and categories to compare and corroborate findings. Secondly, member checks as a technique, was utilized to decipher interpretations, descriptions and determine accuracy of findings, and thirdly, peer reviewing was used in a process of asking questions and inquiring about the interpretations of the researcher (Creswell & Miller, 2000).

Ethics approval

The Senate Research Committee of the University of the Western Cape provided ethics approval for the study (Registration number: SR14/4/35). Study approval was also received from the South African Gymnastics Federation and the Western Cape Gymnastics Association. Before each participant was included in the study, they were required to sign written informed consent and assent (for gymnasts aged between 7-17 years old) forms. Confidentiality and anonymity were ensured during the data collection process. To ensure anonymity in reporting the research findings, participants were identified by pseudonyms, aliases and codes. Participation in the focus group discussions and key informant interviews was voluntary, and participants were informed that they could withdraw at any stage of the the data collection process without repercussion.

Results

Studies report that young people who participate in play and sport allow for the development of creativity, imagination, dexterity and strength on physical, emotional and cognitive levels (Ginsburg, 2007). For the purposes of this study,

data analyzed are reported within the domain of the “Person” to illustrate findings of associated physical, cognitive and socio-emotional benefits experienced through gymnastics participation.

Physical benefits experienced through gymnastics participation

Physical development, with regards to strength, flexibility and coordination, was found to be a direct result of gymnastics participation. Parents expressed that they have witnessed the physical improvements their children experienced through regular participation in gymnastics. A parent shared that his child had started to benefit from increased strength, improved coordination and flexibility, over time. His initial reason for enrolling his daughter in gymnastics was, *“for the strength and just the general physical development of gymnastics.”* Key informants of the study reflected on this topic and supported the sentiments of parents by resonating that, *“they grow in strength, flexibility, and self-awareness... and gymnastics is a grounding sport for all sports.”* Gymnasts expressed that, *“I like to experience new skills on the apparatus... it keeps me fit and if you do gym, then you always have enough energy to do the skills on the apparatus.”* Another coach reiterates in similar words that, *“children who participate in gymnastics stay focused, and from a physical aspect, it keeps them busy and it’s one of the few sports that works on almost everything and forms a great foundation.”*

Cognitive benefits experienced through gymnastics participation

Focus group discussions with gymnasts and parents of gymnasts yielded findings related to positive learning and cognitive benefits. A parent shares that, *“gymnastics adds value to her learning processes in school and at the gymnasium.”* The process of learning choreography and prescribed routines is facilitated through gymnastics. Learning how to execute skills on the different apparatus also assists with the learning process and an understanding of the gymnast’s body in space, developing coordination, and spatial awareness. A gymnast expresses that when her coach adapts stimuli for greater responses to improve ability levels, their physical and *“cognitive development progresses positively.”* Another gymnast shares that she experiences an improvement in cognitive function and behaviour as *“gymnastics teaches you to remember things and it teaches you to behave.”* Parents have also reported that the cognitive benefits and changes are evident in their children, that with regular gymnastics classes and competitions in the Western Cape, they noticed their children *“displaying the skills of hard work, dedication, perseverance and discipline, due to her training.”*

Coaches suggested that attendance of gymnastics practice be encouraged. One coach explained that she monitors attendance because she is aware that when gymnasts do not attend practice, they miss an opportunity to learn and improve

their skills in gymnastics. She stated that, *“the more they are at gym, the more they learn the new skills and they become better at what they are doing.”* Engaging in sport during childhood has been shown to contribute largely to physical and mental development, as well as developing healthy and active children through contact with sport and interaction with coaches. It is reported that children’s participation in large amounts of sport-specific recreation may promote an improvement in tactical skills, compared to participation in less sport-specific play and recreation activities (Forsman, Blomqvist, Davids, Konttinen & Liukkonen, 2016).

Socio-emotional benefits experienced through gymnastics participation

Gymnasts in the study shared experiences of *“positive shifts in their emotions, expressions and behaviour”* because of participating in gymnastics. Socio-emotional development is aided positively through sport and can help a participant to move from a mindset of negativity to positivity, as expressed by another gymnast who mentioned that she *“used to be a negative person”*. Another gymnast shared that, *“ever since I started gymnastics, I have been helping a lot of people. I used to be selfish, but I have started to help more people.”* Regarding confidence, participation in gymnastics was regarded as a factor in improving confidence in children by boosting their self-esteem. A gymnast shares that she is very positive, her confidence is *“booming”* and that *“gymnastics helps with her self-esteem.”*

Parents of gymnasts had expressed that, *“gymnastics is good for social inclusion”* and that the *“gymnastics club is a great place to make friends.”* Participants stated that the gymnasium provides a healthy space for children to learn important social skills through interactions with peers throughout training sessions. Gymnastics federation officials and parents both agreed that gymnastics presented opportunities to teach children discipline and that it keeps them out of *“mischief”* or negative social activities.

All participants in the study agreed that, *“gymnastics plays a role in inclusion, social belonging and the development of meaningful relationships.”* In his reflection, a coach stated that the gymnasium offers a space for a child to *“manifest and model a future for themselves through the learning of skills.”* A key informant also reported that, *“being in the gym and being around positive people influence children positively in comparison to what they might be witnessing in their communities with people on the streets, smoking and doing drugs, and then actually being in the gym and knowing that ‘I’ want to be like my coach, who is studying and giving back to the community by helping children,”* is also a motivating factor. The aspects of *“fun, friendship, fundamentals and fellowship”* are present in gymnastics and gymnasts reaffirmed this by reporting that the

gymnasium “*becomes a place that they can call home, as the coach and teammates have become like a second family.*”

Discussion

Research states that positive attitudes to sport and physical activity increase the likelihood of continued participation in sport (Cope, Bailey, Parnell & Kirk, 2018). Gymnastics is known as a sport used for developing the body, especially for instilling discipline, bodily control and overall physical preparedness (Stahl, 2016). Physical activity and sport, specifically gymnastics, play a positive role in improving children’s self-esteem, and this takes place through repetitive learning of skills, routines and gymnastic tumbling in the gymnasium with the guidance of the coach and support of teammates. This, alongside regular physical activity, reports of reduced stress, anxiety, and depression (Salmon, 2001) are common benefits experienced through participation. A unique benefit of gymnastics participation is the opportunity for the participant to experience an array of movement patterns which includes changes experienced in range of motion, and an increased understanding of the spatial loadings and changes (both muscular and non-muscular), and skills and shapes associated with gymnastics. These components all contribute to a unique experience of physical activity and movement, providing kinesthetic stimuli, which cannot be truly duplicated in other human activities and sports (Dowdell, 2013). Thus, it can be suggested that a well-planned programme incorporating exercises and physical activity in gymnastics has the potential to positively influence a child’s health (Bailey, 2006). With many societies witnessing increased sedentary lifestyles and reduced physical activity, progress seen in technological development, and limited outdoor activities have contributed to the reduction of physical exercise among children and adolescents (Barbieri & Zaccagni, 2013). In the present study, parents of gymnasts felt motivated to keep their children in gymnastics due to the physical, cognitive and socio-emotional benefits experienced when participating in gymnastics. Parents of gymnasts also indicated that children’s space to develop, evolve through sport, and experience socialization for physical and emotional development patterns to be established via frequent contact with peers and coaches. Physically, children adopt specific fine and gross motor skills, and development is experienced in strength, agility, flexibility and coordination (Dowdell, 2013). Researchers report that children participating in gymnastics and are exposed to the type of training which promotes the learning of functional movement skills (e.g. running, kicking, climbing, jumping), have been found to produce above average stability (Lemos, Wulf, Lewthwaite & Chiviacousky, 2017).

Both parents of gymnasts and gymnastics coaches in this study, expressed their views that gymnastics can be used as a medium for developing physical literacy in learning fundamental movement skills, and well-being as gymnastics is seen to serve as a basis for any other sporting disciplines or codes. Dowdell (2013) reports

that gymnastics is an excellent vehicle for teaching basic motor skills and promoting health-related fitness in children of all ages. Many studies report that regular moderate intensity exercise and sport presents significant health benefits for young people, and that regular physical activity benefits physical, psychological and social growth, maturation and development, and assists with weight regulation among young people (Barbieri & Zaccagni, 2013).

For long-term athlete development, and for promoting overall physical literacy of children, gymnastics coaches teach fundamental movement and sport skills. As a result, gymnasts' skillsets are developed through experiencing the physical sporting environment, and physical learning takes place through active execution of specific sport skills at practice and during competition. Gymnasts develop these attributes through their coaches's guidance, and by anticipating movement needs and responding appropriately with intelligence and imagination during continued sport participation (Balyi, Way, & Higgs, 2018).

The present findings also indicated that gymnastics coaches take into consideration the different rates at which an individual matures, on a physical, emotional, cognitive/mental level. In addition, this study found that coaches demonstrate awareness and sensitivity which are required for understanding that growth and maturation rates differ with regards to the development of gross/fine motor skills, cognition and social-emotional skills. This principle is based on long-term athlete development plan that encourages coaches to utilize a holistic approach to coaching children in sport, and to consider the day-to-day emotional and social factors experienced as a result of participating in gymnastics (Balyi, et al., 2018).

Regarding cognition and mental development, this study found that gymnasts' cognition improved in remembering and retaining information and becoming better behaved through displaying traits of dedication, perseverance, improved work ethic, and discipline. Therefore, physical activity participation can be linked to memory consolidation and skilled actions, thus contributing to positive cognitive performance (Donnelly, Hillman, Castelli, Etnier, Lee, Tomporowski, Lambourne & Szabo-Reed, 2017). The findings in this study therefore, show that gymnasts experienced changes in their responses to certain situations, and that the way they handle emotions, had improved.

This study also found that gymnasts experienced a shift from negative to positive feelings about training and other aspects of life. On a social and emotional level of development, in order for individuals to navigate the expression and management of emotions with others, gymnastics provides a positive setting for individuals to establish positive relationships with others as it encompasses both intra- and interpersonal processes (Cohen, Onunaku, Clothier & Poppe, 2005). It is reported that emotional development comprises particular core features which

include the ability to; (1) understand feelings of the self, and to comprehensively assess and read the emotional positions and states of others; (2) to balance and manage strong feelings and emotions, along with expressing these in an appropriate manner; (3) to regulate behaviour and have empathy for others, and (4) to maintain relationships (National Scientific Council on the Developing Child, 2004). There is also evidence that suggests that children participating in gymnastics possess enhanced orientation and stabilization skills leading to developing skill competence (Rudd, 2016). A positive correlation between cognition, achievement in school work, and exercise/physical activity has been a noteworthy finding in many previous studies (Aggio, Smith, Fisher & Hamer, 2016).

Gymnastics training has been reported to facilitate an effect on spatial working memory in children, on both the behavioural and neurophysiological domains, which highlights the importance of physical activity and sport participation involving cognitive-motor interactions, such as gymnastics, in the development of cognition during childhood (Hsieh, Lin, Chang, Huang & Hung, 2017). As found in our study, participation in sport allows the individual to take advantage of associated health benefits through physical activity. Additionally, it has been reported that those who participate in regular physical activity are at less risk for psychological difficulties and benefit from an improved quality of life compared with individuals who are less physically active (Gardner, Magee & Vella, 2017).

Conclusion

Based on the findings of this study, it is concluded that gymnastics teaches children discipline through the learning of routines, participating in strength and flexibility conditioning and the learning of skills. In addition, children learn about the lifeskill of perseverance through continuous practice in executing skills and improving strength and flexibility. Participation in gymnastics assists with self-esteem, and serves as a good foundation sport for developing young people in and through physical activity. Experienced benefits associated with physical activity and sport includes positive development through participation resulting in the promotion of socialization via peer interaction and sport-learning activities presented by gymnastics coaches (Hills, King & Armstrong, 2007). The following key findings are noteworthy:

1. Participation in gymnastics presented opportunities for development on a socio-emotional level with respect to positive attitude shifts, respecting peers and coaches, and a feeling of social inclusion.
2. Gymnastics as a sport and physical activity was beneficial for physical skills development, musculoskeletal growth, and the development of strength and flexibility in children.

3. Improved cognition is experienced through sport participation, positively influencing academic achievement and the learning of new physical skills.

Therefore, based on the data collected and analysed within the PPCT paradigm, it can be concluded that health benefits such as physical, cognitive and socio-emotional wellbeing are experienced through participation in gymnastics and promote overall child development.

Gymnastics coaching implications

The positive learning environment of the gymnasium, coupled with the experienced health benefits found to exist through participation in gymnastics for children, present idiosyncratic coaching development opportunities. The utilization of these findings may promote continuity of children's participation in gymnastics, as well as improved training programme variations structured to further promote gymnastics participation for health outcomes beneficial to young people.

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References

- Aggio, D., Smith, L., Fisher, A. & Hamer, M. (2016). Context-specific associations of physical activity and sedentary behavior with cognition in children. *American Journal of Epidemiology*, 183(12), 1075-1082.
- Bailey, R. (2006). Physical education and sport in schools: A review of benefits and outcomes. *Journal of School Health*, 76(8), 397-401.
- Balyi, I., Way, R. & Higgs, C. (2018). *Long-term Athlete Development*. Champaign, IL: Human Kinetics.
- Barbieri, D. & Zaccagni, L. (2013). Strength training for children and adolescents: Benefits and risks. *Collegium Antropologicum*, 37(2), 219-225.

- Barnett, L.M., Van Beurden, E., Morgan, P.J., Brooks, L. O. & Beard, J.R. (2008). Does childhood motor skill proficiency predict adolescent fitness? *Medicine & Science in Sports & Exercise*, 40(12), 2137-2144.
- Braun, V. & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77-101.
- Bronfenbrenner, U. & Morris, P. (2006). "The bioecological model of human development." In *Theoretical Models of Human Development* (pp. 793-828). New York: Wiley.
- Brustad, R. J. (2003). Parental roles and involvement in youth sports: Psychosocial outcomes for children. In *Youth Sports: Perspectives for a New Century* (pp. 127-138). California: Monterey.
- Cairney, J., Dudley, D., Kwan, M., Bulten, R. & Kriellaars, D. (2019). Physical literacy, physical activity and health: Toward an evidence-informed conceptual model. *Sports Medicine*, 1-13.
- Coelho, J. (2010). Gymnastics and movement instruction: Fighting the decline in motor fitness. *Journal of Physical Education, Recreation & Dance*, 81(1), 14-18.
- Cohen, J., Onunaku, N., Clothier, S. & Poppe, J. (2005). Helping young children succeed: Strategies to promote early childhood social and emotional development. In *Research and Policy Report*. Washington, DC: National Conference of State Legislatures.
- Cope, E., Bailey, R., Parnell, D. & Kirk, B. (2018). What young children identify as the outcomes of their participation in sport and physical activity. *Health Behavior and Policy Review*, 5(1), 103-113.
- Creswell, J.W. (2009). Research design: Qualitative, quantitative, and mixed methods approaches. *Canadian Journal of University Continuing Education*, 35(2), 721-723.
- Creswell, J.W. & Miller, D. L. (2000). Determining validity in qualitative inquiry. *Theory Into Practice*, 39(3), 124-130.
- Davis, L. & Jowett, S. (2010). Investigating the interpersonal dynamics between coaches and athletes based on fundamental principles of attachment. *Journal of Clinical Sport Psychology*, 4(2), 112-132.
- Department of Health (2010). *Healthy Lives, Healthy People: Our Strategy for Public Health in England* (Vol. 7985). London: The Stationery Office.
- Donham-Foutch, S. (2007). Teaching skills and health-related fitness through a preservice gymnastics program. *Journal of Physical Education, Recreation & Dance*, 78(5), 35-44.
- Donnelly, J.E., Hillman, C.H., Castelli, D., Etnier, J.L., Lee, S., Tomporowski, P., Lambourne, K. & Szabo-Reed, A.N. (2017). Physical activity, fitness, cognitive function, and academic achievement in children: A systematic review. *Medicine and Science in Sports and Exercise*, 48(6), 1197.
- Dowdell, T. (2013). Benefits of gymnastics participation for school age children. *Education*, 16, 1-17.
- Draper, C., Basset, S., De Villiers, A., Lambert, E. V. & HAKSA Writing Group (2014). Results from South Africa's 2014 report card on physical activity for children and youth. *Journal of Physical Activity and Health*, 11(s1), S98-S104.

- Forsman, H., Gråstén, A., Blomqvist, M., Davids, K., Liukkonen, J. & Kontinen, N. (2016). Development of perceived competence, tactical skills, motivation, technical skills, and speed and agility in young soccer players. *Journal of Sports Sciences*, 34(14), 1311-1318.
- Friese, S. (2019). *Qualitative Data Analysis with ATLAS. ti*. London: Sage.
- Gardner, L.A., Vella, S.A. & Magee, C.A. (2017). Continued participation in youth sports: The role of achievement motivation. *Journal of Applied Sport Psychology*, 29(1), 17-31.
- Ginsburg, K. R. (2007). The importance of play in promoting healthy child development and maintaining strong parent-child bonds. *Pediatrics*, 119(1), 182-191.
- Guba, E. G. (1981). Criteria for assessing the trustworthiness of naturalistic inquiries. *Educational Communication and Technology Journal*, 29(2), 75.
- Green, A. E., & Aarons, G. A. (2011). A comparison of policy and direct practice stakeholder perceptions of factors affecting evidence-based practice implementation using concept mapping. *Implementation Science*, 6(1), 104.
- Haynes, K. (2012). "Reflexivity." In C. Cassell and G. Symon (Eds.), *The Practice of Qualitative Organizational Research: Core Methods and Current Challenges*. London: Sage.
- Hardy, L.L., King, L., Farrell, L., Macniven, R. & Howlett, S. (2010). Fundamental movement skills among Australian preschool children. *Journal of Science and Medicine in Sport*, 13(5), 503-508.
- Hills, A. P., King, N. A. & Armstrong, T. P. (2007). The contribution of physical activity and sedentary behaviours to the growth and development of children and adolescents. *Sports Medicine*, 37(6), 533-545.
- Hsieh, S.S., Lin, C.C., Chang, Y. K., Huang, C.J. & Hung, T.M. (2017). Effects of childhood gymnastics program on spatial working memory. *Medicine & Science in Sports & Exercise*, 49(12), 2537-2547.
- Lemos, A., Wulf, G., Lewthwaite, R. & Chiviacowsky, S. (2017). Autonomy support enhances performance expectancies, positive affect, and motor learning. *Psychology of Sport and Exercise*, 31, 28-34.
- Moore, M.J. & Werch, C.E. (2005), Sport and physical activity participation and substance use among adolescents. *Journal of Adolescent Health*, 36 (6), 486–493.
- National Scientific Council on the Developing Child (2004). Social-Emotional Development Domain, Retrieved from: <https://www.cde.ca.gov/sp/cd/re/itf09socemodev.asp>
- Olszewski-Kubilius, P. (2018). The role of the family in talent development. In *Handbook of giftedness in children* (pp. 129-147). Springer, Cham.
- Palinkas, L. A., Horwitz, S. M., Green, C. A., Wisdom, J. P., Duan, N. & Hoagwood, K. (2015). Purposeful sampling for qualitative data collection and analysis in mixed method implementation research. *Administration and Policy in Mental Health and Mental Health Services Research*, 42(5), 533-544.

- Patton, M. Q. (2002). *Qualitative research and evaluation methods*. Thousand Oaks, Cal.: Sage Publications.
- Ritchie, J. & Spencer, L. (2002). Qualitative data analysis for applied policy research. *The qualitative researcher's companion*, 573(2002), 305-29.
- Roman, N. V., Davids, E. L., Moyo, A., Schilder, L., Lacante, M. & Lens, W. (2015). Parenting styles and psychological needs influences on adolescent life goals and aspirations in a South African setting. *Journal of Psychology in Africa*, 25(4), 305-312.
- Ryan, G. W. & Bernard, H. R. (2000). Techniques to identify themes in qualitative data. *Handbook of Qualitative Research* (2nd ed.). Thousand Oaks, CA: Sage Publications.
- Rudd, J. (2016). The efficacy of gymnastics to improve movement skill competence in children (Doctoral Thesis). Melbourne, Australia: Victoria University.
- Salmon, P. (2001). Effects of physical exercise on anxiety, depression, and sensitivity to stress: A unifying theory. *Clinical Psychology Review*, 21(1), 33-61.
- Sánchez-Miguel, P. A., Leo, F. M., Sánchez-Oliva, D., Amado, D. & García-Calvo, T. (2013). The Importance of Parents' Behavior in their Children's Enjoyment and Amotivation in Sports. *Journal of human kinetics*, 36, 169–177. doi:10.2478/hukin-2013-0017.
- Smoll, F. L., Cumming, S. P. & Smith, R. E. (2011). Enhancing coach-parent relationships in youth sports: Increasing harmony and minimizing hassle. *International Journal of Sports Science & Coaching*, 6(1), 13-26.
- South African Gymnastics Federation (2012). Retrieved July 2019, 02, from South African Gymnastics Federation: <http://www.sagf.co.za/about-us/>
- Stahl, K. (2016). *Progressive Gymnastics: American Physical Education, Military Training, and International Sport at the Turn of the Nineteenth Century* (MA Thesis). San Marcos: California State University.
- Tomporowski, P. D., Lambourne, K. & Okumura, M. S. (2011). Physical activity interventions and children's mental function: An introduction and overview. *Preventive Medicine*, 52, S3-S9.
- World Health Organization (2016). *Global Recommendations on Physical Activity for Health*. Geneva, Switzerland: World Health Organization.
- Xu, H., Wen, L.M. & Rissel, C. (2015). Associations of parental influences with physical activity and screen time among young children: A systematic review. *Journal of obesity*, 1-23. Published online 546925. doi:10.1155/2015/546925.