TERRITORY SPORTS ACADEMY
COACH DEVELOPMENT PROGRAM

1. Introduction

The successful delivery of junior sport programs relies on the engagement and ongoing development of good coaches (ICCE, 2014). Every year across Australia individuals from a range of backgrounds including parents, siblings, teachers, and current or ex-competitors put their hand up to coach youth sport programs (i.e. a coach of athletes aged 5 to 19 years). These individuals, many of whom coach voluntarily and with limited formal training (Gould, Giannini, Krane, & Hodge, 1990; Ewing, Seefeldt & Brown, 1996; Harman & Doherty, 2014), have the responsibility for improving the sport-related fitness, skills and behaviours of hundreds of thousands of young people (Shields, Brendemeier, La Voi & Power, 2005; Smoll & Smith, 2002), through positive developmental experiences that will hopefully facilitate life-long involvement in sport (Bailey, Collins, Ford, McNamara, Toms, & Pearce, 2010).

However, across all sports the quality and approach to the delivery of good, effective coaching, particularly with youth athletes is inconsistent (MacNamara & Collins 2013) and plagued by the diversity and self-interest of individual coaches, clubs, academies, and sporting organisations (Turner, 2016). This, coupled with a reduction in the quality of physical education programs in schools (Tester, Ackland, & Houghton, 2014) and decreasing levels of physical activity by young Australians (National Heart Foundation of Australia , 2014), has resulted in a decline in the level of skill and physical competence of Australian youth at all levels of participation. This is further emphasised by recent research indicating many teenagers are spending more than 27 hours per week online (Ofcom, 2015). A consequence of cultural shift, the Australian high performance sport system, arguably, is now forced to rely on the development of elite athletes by serendipity rather than design. As a result, pathway progression is largely determined by population size (Woolcock & Burke, 2013) and coaching practices biased towards the early maturing athlete rather than efficient, individualised, long-term athlete development approaches (Cripps, Hopper & Joyce, 2016). Thus, the need for coaches to be skilled and capable of improving the environments for Australian youth (AIS, 2017) is now in sharp focus.

Researchers acknowledge that a youth athlete's personal development and on-going involvement in sport is significantly influenced by their coach (Evans, McGuckin, Gainfort, Bruner & Cote, 2015) and parents (Shields et al., 2005). The importance of the process and practice of coaching holistic athlete development is signified by a growing evidence base (Bergeron et al. 2015; Buekers, Borry, & Rowe, 2015), however, volunteer and paid coaches of youth athletes (regardless of coach accreditation level) typically do not receive the formal training and development necessary to create engaging and effective learning environments in context (Gould et al., 1990; Ewing et al., 1996). Once accredited, coaches (in particular volunteers and those lowly paid) are often left to their own devices with minimal ongoing quality control or formal development support. Experience in the Northern Territory has demonstrated that this approach does not support coaches learning how best to deliver developmentally appropriate coaching practices at all levels of participation. Instead, coaches of youth athletes tend to coach how they were coached (at the highest level they competed at as an athlete) or observe and try to mimic how the "best" coaches in their sport (usually those with success at the elite/senior level) operate. This often means that unsuitable methods and practices are employed under the mistaken belief (with the best intentions in mind) that applying what works at the adult/mature/elite athlete level, to young participants, will get children better, faster. This includes inappropriately imposing adult competition formats and schedules on juniors, all of which leads to young, developing athletes often being under trained and over competed, with training practices geared for competition outcomes (winning) rather than focusing on enjoyment, improvement and long-term personal development.
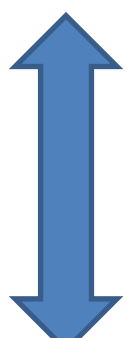
Many sporting organisation's incorrectly assume that asking volunteers (e.g., most coaches) to do more training/development will turn them away from helping, resulting in them not getting the ongoing support and direction needed to improve and be better at what they do. This is despite evidence that volunteers who have been well trained and provided with the tools to enjoy roles like coaching more, come back year after year (even after their own children move on) (Bouchet & Lehe, 2010). Thus, systems and programs are needed that ensure accredited coaches of youth athletes (whether they are volunteers or paid) are provided with the necessary support to design and deliver best practice development programs with the resources available, not leaving them alone post accreditation and assuming they know what they are doing or that they are doing a good job; an approach that would never be tolerated with teachers or nurses, for example, but seems perfectly acceptable for thousands of coaches each week who also have responsibility for the health, wellbeing and safety of millions of young people. Similarly, parents and teachers not formally accredited as coaches would benefit from being able to readily access key information and assistance to help them better understand the role they play at each stage of a child's development and be reminded of what they can do to facilitate an environment that develops competencies and confidence and promotes learning in fun and enjoyable ways. Improving the knowledge and capabilities of coaches working with youth athletes will inevitably lead to higher retention rates (Barnett, Smoll & Smith, 1992) and better athletes. In turn, with the right guidance and support (from significant others) many of these athletes will have the opportunity to realise their talent, remain on the pathway and have a better chance of competing successfully on the national and world stage.

It is important to recognise there is a clear distinction between the coach education process and coach development. In Australia coach education, as we know it, consists of the National Coach Accreditation Scheme (NCAS) and the typical Level 1-4/Beginner-Advanced courses that sports use to license coaches. In this formal coach education system learning is chronological, hierarchical and assessed; content, format and timing are imposed on the learner and progression is aligned to the elite level environment. NCAS accreditation covers general principles that are common to all sports and focuses on coach education (knowledge) in a broad sense and often does not emphasise to an appropriate degree a holistic development approach when working with youth. Coach development includes the essential coach education component (i.e., achieved through reading, lessons, workshops and assignments), but if this is all that occurs (which is generally the case for all bar some professional coaches) then coach development per se will not be optimised. Effective coach development is a long term process; a journey of discovery which includes a multitude of learning experiences on a day-to-day basis involving actual practice, research, feedback and evaluation by oneself as well as in conjunction with athletes, other coaches, mentors and expert practitioners (Nelson, Cushion & Potrac, 2006).

2. TSA Coach Development Program

In response to this issue, the Territory Sports Academy has developed a Coach Development Program (CDP) that offers participants – coaches (from volunteers through to highly accredited professionals), parents, teachers and any other interested individual with children and youth involved in sport, even those with tiny tots (1-5 years), an ongoing education and development experience that is created and tailored to each participant's specific needs and context (See Figure 1). This program promotes a situated learning approach where the individual is less involved with basic rote learning knowledge acquisition and more engaged in optimising their own day to day experiential learning/problem solving when dealing with athletes in the daily training and/or competition environment (Gilbert & Trudel, 2001). There are no pre-requisites or coaching standards required to be involved, aside from acknowledgement of the program's intent and relevance, an open-mind in regard to recognising there is always room for improvement, and a willingness to be actively involved in self-development.

The program encourages participants to apply and align their coaching philosophy to develop children and youth, as good citizens first (**holistic athlete development**) as well as providing opportunities and environments for their athletes to develop three key interrelated outcomes (**skill mastery, confidence and resilience and physical competence**) that are considered essential to facilitate them staying involved and successfully **navigating the journey** through sport and life. These athlete development outcomes align with the International Olympic Committee recommendations for Youth Athletic Development (Bergeron et. al., 2015), and are endorsed by the Australian Institute of Sport (AIS).

Stage of Coach Development	Populations being worked with/coached			
	Early Childhood Males & Females 1-4yrs	**Middle Childhood** Males 5-11yrs Females 5-9yrs	**Adolescence 1 - prepubescent to PHV** Males 12-16yrs Females 10-14yrs	**Adolescence 2 - Decline in Growth rate** Males 17-20yrs Females 15-19yrs
Master ↑				
Novice ↓				
	Pre-coaching sampling			
	Coaching Experience	**Sport Experience**		**Life Experience**

Figure 1. Stages of development specific to population being worked with as a significant other (i.e. coach, parent, sibling, teacher, extended family, friend etc) (Table adapted from International Sports Coaching Framework ICCE, 2014 and Lloyd & Oliver, 2012).

2.1 Holistic Athlete Development

Holistic athlete development describes the process and the intention to develop skills, attributes and values in participants that will assist them to achieve success in life, regardless of the level of success they achieve in sport. Youth sport has been identified as a valuable vehicle for positive youth development by building upon youths' naturally occurring skills to develop individuals who are healthy, engaged, and productive members of society, both in youth and later adulthood (Fraser-Thomas, Côté, & Deakin, 2005; Gould & Carson, 2008; Hamilton, Hamilton, & Pittman, 2004; Holt & Neely, 2012; Lerner et al, 2005). It ensures that technical and tactical development within any particular sport is not the only positive developmental outcome.

Holistic athlete development can and should occur for any person learning a sport. For example, learning to catch a ball (in basketball, cricket, netball, etc.) involves an ongoing series of successful and unsuccessful attempts (trial and error). All of us exist on the catching competence continuum somewhere between the 'tiny tot' stage – when we first learn how to track a ball – through to the elite level where skills are executed under intense pressure without any conscious thought and are made to look easy. This learning journey can implicitly instil attitudes, behaviours and strategies of persistence, perseverance and resilience that then assists learning

in other areas of life, and is often why sport is touted as a great vehicle for 'citizen development'. Other commonly known holistic development outcomes include:

- Adherence to teamwork, team values, and rules and regulations;
- Social and leadership skills;
- Physical literacy and general athleticism for life long involvement in sport and physical activity;
- Life skills such as cooking and eating healthy, personal hygiene and awareness of good sleep, rest and recovery practices;
- Organisation and time management skills

The development of these life skills can only occur when these skills are systematically imbedded into programs by competent adults who use direct and indirect strategies (Gould & Westfall, 2014). Unfortunately, coaches of young athletes are rarely informed of methods to develop participants holistically, with methods and practices in general, geared towards winning at all costs and being successful rather than enjoyment and athlete development. A cost of this method is many children drop out from this high pressured and potentially negative sport experience (Fraser-Thomas, Côté, & Deakin, 2008), and is a major factor behind the decline in sport and physical activity participation nationally and within the NT. Those young athletes who do stay involved for longer, often due to being labelled as 'talented', end up being under-trained, under-developed holistically, and over-competed, which leads to increased rates of injury, burnout and dropout (Fraser-Thomas et al., 2008).

2.1.1 Holistic Athlete Development: Learning Outcomes

Facilitate goals and values of Sportsmanship, playing by the rules and personal responsibility

- Demonstrate group/time management; personal presentation and being prepared and organised for each session for the development of key values & standards coach expects.
- Facilitate a positive culture of mutual respect and the adherence of common rules and desired behaviours.
- Demonstrate an Autonomy Supportive Approach, inclusive of listening and encouraging athlete input and acting upon athlete insights.
- Demonstrate a promotion of the goals and values of personal responsibility for athlete development.

Modelling behaviours

- Explain the importance of coaches displaying a passion and motivation for athlete development.
- Demonstrate positive behaviours, language and attitudes for athletes to adopt.
- Demonstrate a level of consistency and flexibility in interactions with athletes.

Facilitate Social Interaction and Leadership development

- Encourage player leadership qualities by creating an environment which promotes fun and opportunities for athletes to contribute to the decision-making process of the coaching session goals, rules, respect, values, and culture.
- Demonstrate an ability to foster positive athlete-athlete and Coach-Athlete relations and care for athlete welfare both in and out of sport.

Provide Healthy Living education

- Use methods to calculate kilojoule content of individual foods and meals and daily energy requirements against bodyweight and activity levels and delivers this to athletes through practical applied experiences.
- Create opportunities for input into rules and desired group behaviours on nutrition and sleep where athletes learn experientially.

2.2 Guiding the Journey

The primary goal of any 'significant other' (coach, teacher, parent, family member, and friend) involved in junior sport should be to inspire participants towards lifelong involvement in sport and physical activity (Davison, Cutting, & Birch, 2003; Yang, Telama, & Laakso, 1996). Regular physical activity contributes to good health across all life stages (Goran, Reynolds, & Lindquist, 1999) and it is essential that we increase opportunities for all children regardless of athletic ability, to participate in sports.

However, across Australia participation rates in sport and physical activity are declining (Eime, Harvey, Charity, & Payne, 2016), whilst at the same time the country is finding it harder than ever to produce teams and individuals that consistently succeed on the world stage. At a local level, many sports in the NT are unable to fill representative teams (particularly as ages increase), often having to select athletes who are not ready for this level of competition, prop teams up with interstate recruits, or forfeit competitions altogether. A major contributor to this trend is the junior sport system that prioritises winning and impatience within and across sports to capture future champion athletes.

Being as impressionable as they are, young sports participants are easily sold the promise, and the rewards (i.e., riches), of being a champion athlete through being labelled or badged as 'talented'. However, despite their best efforts, young athletes are not physically robust enough to handle adult athlete training approaches and competition schedules. Using such strategies, which promote the physical development of aspects not trainable until youth athletes are more mature, increases the risk of injuries and athletes dropping out from the sport altogether (DiFiori, et al., 2014; Walters, Read, & Estes, 2017).

Related to this, is an expectation on young athletes to display a mindset and behaviours of elite adult athletes. This mindset can be developed and nurtured as young athletes grow and develop, but it cannot be 'predicted' or 'forced' and efforts to do so, are rarely, if ever, successful in the long term. It occurs at an individually self-determined time later in a participant's growth and maturation; usually well after puberty, often not until full maturity and in response to unique environmental influences. Meanwhile, 'talented' young athletes learn to fake their behaviours to impress the adults in their sport and stay involved (Tibbert, Andersen, & Morris, 2015).

Whilst many junior participants navigate this system to stay involved into adulthood, 'talented' junior athletes rarely, if ever, make the transition to 'champion adult'. Researchers have found junior sporting success is a poor predictor for elite adult sporting success (Barreiros, Côté, & Fonseca, 2014; Cripps, Hopper, Joyce, & Veale, 2015), and advocate the importance of experience in a diverse range of sports throughout adolescence (Anderson & Mayo, 2015; Baker, 2003). The over prioritisation of elite adult outcomes, at the expense of the processes and experiences of trial and error self-improvement, positive encouragement and fun, results in 'burning out' the early developers or those born in the first half of the year, and early specialisers (also known as: the Talent Curse) and high drop-out rates in general, especially around 15-17 years of age (Anderson & Mayo, 2015; Baker, 2003; Baker, Cobley, Fraser-Thomas, 2009; Côté, Horton, MacDonald, & Wilkes, 2009; DiFiori et al., 2014; Wall & Côté, 2007). This worrying trend, and the inappropriate behaviours that tend to accompany a "win-at-all-costs" mentality (e.g., abuse of officials and players) is at the heart of the "Let Kids be Kids" campaign (Play By The Rules - www.playbytherules.net.au). While many sports associations assume they are competing against each other for participants (and fans), and hence the rush to lock children in as

early as possible to a sport, in reality, due to high drop-out rates, there are way too many young people not engaging (as a participant or fan) in regular, organised sport.

As it stands, Australia's junior sport system provides many obstacles young participants need to navigate in order to stay involved. Guiding them through this system necessitates that those involved in the running of junior sport programs, critically reflect on their practice (including their previous experiences as a participant, coach, or spectator in sport) and their own personal beliefs, values and practices, so they are better informed and able to safeguard young people and develop them holistically.

2.2.1 Guiding the Journey: Learning Outcomes

Assess, Plan and Cater for Individual Differences in Relative Age, Maturation age, Genetics and Prior Learning

- Demonstrate knowledge of and ability to cater for differences in relative age, maturation age, genetics and prior learning of their athletes in the learning environment.
- Explain Peak Height Velocity (PHV) and demonstrate the relevance of measuring PHV and maturity offset.
- Demonstrate understanding of the impact of inherited genetic traits on athletic and sporting potential and it's interplay with learned experience.
- Demonstrate ability to plan the short and long term development of athletes holistically.

Engage with Significant Others and Model and Share Philosophy

- Communicate the importance of parent's, families, coach, teacher and peer influence on athlete social, emotional and sporting development.
- Implement strategies to engage with and influence significant others for the betterment of the athlete/child.

Encourage a Sport Sampling Approach

- Explain the pros and cons of early specialisation versus sport sampling and implement strategies to facilitate multi-lateral skill development.

2.3 Skill Mastery

Skill mastery can be referred to in two ways. Firstly, it can be the level of skill obtained and displayed by elite level athletes who execute errorless skills under intense pressure, without any conscious thought, and make it look easy (Baker & Young, 2014; Ross, Bruderle, & Meakim, 2015). For example, Roger Federer epitomises this concept. Whilst not all participants are motivated to become champion athletes, often the achievements of the best sportsmen/women that inspire young people to become and stay involved in sport (Weed et al., 2015). Second, skill mastery also relates to the types of environment that are essential to inspire self-motivated learning and encourage each individual to stay involved in sport (Hassan & Morgan, 2015). For Roger Federer, developmental skill mastery experiences were key to his motivation and the achievement of skill mastery. In other words, the same experiences that inspire life-long involvement in sport are the same that inspire champion athletes to reach for the stars.

Skill mastery experiences are those that meet the innate needs of humans to feel competent to handle what life presents in the physical environment (i.e. time, space, objects/equipment, other humans etc). Skill mastery experiences, especially those that connect people to social groups (e.g. friends and family) and help them to feel positive about their connection (i.e. social relatedness), are what make sport a great vehicle for citizen

development (Horn & Butt, 2014). Successful learning experiences (achieving competence) through ongoing trial and error inspire continued effort to improve and master progressively more demanding skills and skill challenges which assists learning in other areas of life (Trottier, & Robitaille, 2014).

The lack of skill mastery experiences provided to junior sports participants is a key contributor to declining participation and retention rates. The success driven approach or competence as uncontrollable outcomes (e.g. winning, championships, trophies and talent selection), rather than controllable processes (e.g. trial and error effort to improve skills), fails to motivate all but the few who by chance are advantaged by genetics, physical maturity and/or prior learning opportunities. Even for these athletes, motivation tends to wain when these comparison based outcomes and external rewards become harder to achieve (Anderson & Mayo, 2015; Baker, 2003; Baker et al., 2009; Côté et al., 2009; DiFiori et al., 2014; Wall & Côté, 2007).

Providing skill mastery experiences to young participants through a focus on skill execution success, optimal skill and game challenges and autonomy provides a non-competitive and nonthreatening learning environment. By using appropriate communication (e.g., instruction and positive reinforcement), feedback (e.g. factual and effort based praise and encouragement) and task challenges (e.g. manipulation of environmental and task constraints) to inspire each individual's self-motivated learning (Gould & Westfall, 2014), it ensures all participants have the opportunity to progress towards skill mastery. Not just the better ones!

2.3.1 Skill Mastery: Learning Outcomes

Assess, Plan and Cater delivery for individual Differences in Object Control Fundamental Movement Skills (FMS) and Sport Specific Skill

- Demonstrate understanding of the differences between auditory, visual and kinaesthetic learners, and uses strategies to create learning environments that support these learners.
- Demonstrate effective non-verbal communication techniques to enhance athlete learning and promote athlete engagement.
- Provide appropriate technical progression based on knowledge of elite level technical and tactical skill execution.
- Demonstrate understanding of space management and safety procedures and protocols to protect athletes from harm.

Create training and competitive environments and experiences that inspire participants to engage in self-driven learning through deliberate play and practice in and away from the daily training environment

- Demonstrate understanding of effective and ineffective coaching strategies (i.e., observation; explicit and implicit coaching; demonstrations) to promote FMS and sport-specific skill development (i.e., tactical specificity; game-based training; practice Variability).
- Demonstrate knowledge and understanding of effective use of constraints for FMS and sport-specific skill development.
- Demonstrate knowledge and ability in the use of Guided Discovery Learning techniques to promote athlete learning.

2.4 Confidence and Resilience

How motivated we are to undertake any given task is determined by how successful we believe we will be at that task. Confidence with a task is the belief in the ability to be successful (Clough & Strycharczyk, 2015; Vealey, 1986). Confidence exists on a continuum from 'supreme confidence' with complete absence of the negative emotions of fear and doubt to 'no confidence' where we are plagued by negative feelings (Vealey, 2001). Where we sit on the 'sport and physical activity' confidence continuum, therefore how motivated we are to engage in sport and physical activity, is a direct reflection of how competent we believe we are compared to how difficult the task is.

Competence is dependent on the quality and quantity of successful learning experiences (also known as: skill mastery experiences). If we have not had skill mastery experiences, learning is hindered and competence will be low. Fear and doubt will be present and this will decrease our confidence and motivation. Vice versa when we have had many of these experiences competence and confidence will be high. We cannot simply summon a high level of confidence and motivation to engage in sport and physical activity, eliminate our fear and doubt if we have no level of competence to base this on. Our confidence and motivation will reflect our level of competence (Beaumont, Maynard, & Butt, 2015). Our level of competence however, is determined by our levels of resilience.

Resilience is identified as one of the key psychological factors for successful youth performance (Holt & Dunn, 2004) as athletes are performing in challenging situations and required to self-regulate stress and adversity to accomplish their goals (Sarkar & Fletcher, 2013). Developing more resilient individuals has also been shown to enhance other related outcomes, such as mental health and wellbeing (Robertson et al., 2015); reduced negative moods (Arnetz et al., 2009); stress (Pipe et al., 2012); depression and anxiety (McCraty & Atkinson, 2012).

Put simply, resilience is a measure of our ability to handle or learn from the negative experiences and emotions within the learning journey (Rutter, 1985; Tugade & Fredrickson, 2004). Essential components of successful learning experiences are mistakes and failures. We need these negative experiences and the associated negative emotions of frustration, fear and doubt to provide feedback on what is required to succeed in the learning process. In sport and physical activity, this includes errors and mistakes in the execution of skills in practice and competition but also longer-term setbacks such as injury and illness, plateaus or declines in progress and performance and non-selection. Resilience, like confidence, is developed over time (Galli & Gonzalez, 2015; Sarkar & Fletcher, 2017). However, negative experiences within the learning journey are like spice in a stew; just the right amount will bring out the flavour, but too much will spoil it all together.

Whilst psychologists promote a range of approaches including self-regulation, mindfulness and cognitive-behavioural techniques (Sarkar & Fletcher, 2017) to develop resilience in young people, there are several other complementary strategies significant others can use on any participant regardless of their abilities (Beaumont et al., 2015). Firstly, we need to genuinely value controllable processes (e.g., trial and error effort and actions taken to improve skills) over uncontrollable outcomes (e.g., winning, championships, trophies and talent selection) in our communication, feedback and praise. This automatically increases confidence and resilience by promoting a growth mindset (Dweck, 2012). With a growth mindset, young children believe their ability can increase through hard work, they value learning over performance and will keep coming to practice (Dweck, 2012). Conversely, children with a fixed mindset are afraid to make mistakes, unlikely to put in the necessary effort, and most importantly, are unwilling to really practise because they believe that effort is something that only those who are not as good have to put in to achieve results (Dweck, 2012). It also ensures two things:

All participants, not just those advantaged by genetics, physical maturity and/or prior learning have an opportunity to develop competence, confidence and motivation; and

Those who do progress down the elite athlete pathway are able to persevere (be resilient) when comparison based outcomes and external rewards (uncontrollables) become harder to achieve.

Secondly, we need to cater for individual differences in physical and mental abilities and prescribe appropriate challenges (Fletcher & Sarkar, 2016). All children can achieve competence if they feel the tasks set are achievable with time and effort. Thirdly, we need to share in the joy of successful learning experiences and be empathetic to the negative emotions of errors, mistakes and the difficulty of learning. We need to encourage them to listen to their frustration, fear and doubt by questioning them and encouraging them to think for themselves and find the learning in every experience. Finally, we need to model attitudes and behaviours young people can aspire to.

In summary, to develop athletes who have the confidence and resilience to achieve to their best ability, significant others need to create a challenging and supportive environment, where athletes have input and strive to their goals, while learning from mistakes and failure, and successful decision making, action taken, and effort to improve is recognised and celebrated above all other outcome successes (Fletcher & Sarkar, 2016).

2.4.1 Confidence and Resilience: Learning Outcomes

Identify athletes' levels of confidence and resilience inclusive of understanding the link between it and their skill and physical competence

- Explain athlete confidence and resilience and its importance to athlete skill and physical competence.
- Demonstrate ability to recognise low and high confidence behaviours and low and high resilience behaviours in young athletes.
- Demonstrate ability to develop athlete confidence and resilience through prescription of 'practice/compete up' or 'practice/compete down' to achieve experiences that elicit the appropriate feelings of success and failure for any one individual.

Interpersonal and Group/Team Relationship Building, Feedback and Praise

- Demonstrate use of appropriate Praise, Reward, Reinforcement, Empathy, and Questioning techniques in response to success and failure experiences of individuals and teams.
- Demonstrate ability to foster interpersonal trust and rapport where athletes feel comfortable to express their emotions.
- Demonstrate knowledge and ability to apply appropriate feedback techniques, which fosters athlete learning.
- Create coaching environments that promote athlete decision making and allows athletes to have input into individual and/or group/team goal setting.

2.5 Physical Competence

Physical competence is a measure of proficiency in the execution of tasks involving the body and the physical environment (i.e. time, space, objects/equipment, participants) (Gabbard, 2011; Gallahue, Ozmun & Goodway, 2012). Physical competence is underlined by the ability to perform FMS that underpin physical activity and sport. There are three interrelated categories of FMS: Locomotor Movements (i.e. running, jumping, leaping, hoping, galloping, and dodging); Object Control Movements (i.e. kicking, catching, striking,

and throwing); and Balance Movements (i.e. body posture and coordination) (Rudd et al., 2015). Developing competence in these three areas, through unstructured and structured play in a wide variety of contexts, is not only crucial to confidence and motivation, but also form the basis for high level elite sporting success (Lloyd, Saunders, Bremer, & Tremblay, 2014). The development and refinement of FMS is encouraged through multi-sport/activity participation, as the transfer of learning from fundamental movement to sport specific skill enhances athletic potential. This is another reason why specialising early in one specific sport rarely, if ever, translates to elite success (Barreiros et al., 2014; Mostafavifar, Best, & Myer, 2013).

How athletes execute specialised sport skills is impacted by their flexibility, strength and stability. These qualities can be developed through foundation movements (e.g., squat, lunge, push, pull, hinge, rotate and brace) and progressed to advanced body weight or externally resisted movements. Each of these qualities is essential to the development of coordination and competence as the difficulty of sport specific skills increases (Tompsett, Burkett, & McKean, 2014).

The lack of basic physical competence is a key contributor to declining participation rates (Rudd et al., 2015). A lack of free play, an ineffective physical education curriculum, loss of determination and resilience coupled with the advent of multi-media has produced a generation of young people that exist in a simulated world with a sedentary lifestyle. Many now lack the physical competence to participate in sport whilst many others are not given the opportunity to develop the competency required to underpin ongoing learning and progression to more difficult sporting skills. The result of this can be a lack of confidence and motivation to stay involved in physical activity pursuits.

2.5.1 Physical Competence and Running Technique

The development of an efficient running technique is highly dependent on physical competence. Gait is the cornerstone of movement skill with the most advanced version being running (Vaughan, 1983). Physical competence deficiencies such as inflexibility, lack of lumbo-pelvic control, or lower limb strength and stability are at the heart of poor running technique (Snow-Harter, Bouxsein, Lewis, Carter & Marcus, 1992), with poor running technique associated with greater stress, strain and loads placed on the body (Rolf, 1995).

Running is an essential skill in a majority of sports. As such, running should be seen as a generic skill to be attained in early developing years, not necessarily as a specialisation skill in later years. Generally young athletes are told how fast, how far and which direction, but not how to run. Possible reasons for the limited teaching of proper running technique may be due to coaches lack of knowledge or patience required to coach efficient running mechanics. Consequently, most young athletes adopt a poor running technique which is difficult to correct in later stages of development. A further issue associated with poor running technique is the potential for lower limb injuries. Researchers have found that 90% of all youth sport injuries are to the lower limbs and the most significant mechanism to injury is running with inadequate technique (Price, Hawkins, Hulse, & Hodson, 2004). While many coaches perceive limitations in running performance as under-developed, or poor energy systems (i.e. cardio-vascular system) the further prescription of volume based drills can compound running technique deficiencies and further contribute to overuse injuries.

With respect to many sports, equal priority should be placed on teaching running skills and sport-specific technical skills with developmental field sport athletes. Namely as you have to *run to the ball* and the vast majority of the game involves movement without the ball (i.e. running into space, defending, supporting). As there is limited differences between running technique required for jogging, striding, and sprinting, initial approaches should teach generic straight line constant speed running mechanics at different speeds to developmental athletes. The benefit of this approach is generally the most amount of time will be spent in this type of running in the future depending on the sport, but it also develops lower and upper body coordination,

timing and connection that underpins the optimal techniques for acceleration, deceleration and change of direction.

By developing running technical skill in the early developing years it can broaden sport choices available to emerging athletes and enable talent transfer across sports in later years. (e.g. from water-based to running sports). Also, running is a common and valued training modality for many different athletes, even if the main form of locomotion is not running (e.g. swimmers and water polo athletes).

2.5.2 Physical Competence: Learning Outcomes

Assess and Plan for Individual Differences in Physical Competence

- Explain physical competence and its relevance to sport and physical activity participation.
- Outline the relationship between range of movement, stability, strength and control in foundation movements to fundamental movement and sport specific skills.
- Assess and develop physical competence to optimise running skill development.
- Administer relevant physical competence and running technique assessments/tests and document results.
- Identify elements of running and acceleration mechanics and agility and how to assess and develop them.

Individualised Delivery of Physical Competence Development

- Apply competency-based progressions from simple double and single leg exercises to jump, leap and hop progressions.
- Apply competency-based progressions in flexibility, trunk, and upper body exercises.
- Demonstrate awareness of what developmental stages to prioritise neural and energy system development.
- Incorporate running technique and speed development into training sessions and warm up routines.
.

References

Anderson D., I., & Mayo A., M. (2015) A Skill Acquisition Perspective on Early Specialization in Sport. *Kinesiology Review, 4,* 230 -247

Arnetz, B. B., Nevedal, D. C., Lumley, M. A., Backman, L., & Lublin, A. (2009). Trauma resilience training for police: Psychophysiological and performance effects. *Journal of Police and Criminal Psychology*, *24*(1), 1-9.

ASC (2017) Clearinghouse : Talent 1, 2, 3 and 4 [online] (2017). Available at: https://www.clearinghouseforsport.gov.au/knowledge_base/high.../talent [Accessed 10th April, 2017]

Bailey, R., Collins, D., Ford, P., McNamara, A., Toms, M. & Pearce, G. (2010) Participant development in sport: an academic review. Sportscoach UK

Baker, J. (2003). Early specialization in youth sport: A requirement for adult expertise?. *High Ability Studies*, *14*(1), 85-94.

Baker, J., Cobley, S., & Fraser-Thomas, J. (2009). What do we know about early sport specialization? Not much!. *High Ability Studies*, *20*(1), 77-89.

Baker, J., & Young, B. (2014). 20 years later: deliberate practice and the development of expertise in sport. *International Review of Sport & Exercise Psychology*, *7*(1), 135-157.

Barreiros, A., Côté, J., & Fonseca, A. M. (2014). From early to adult sport success: Analysing athletes' progression in national squads. *European Journal of Sport Science*, *14*(sup1), S178-S182.

Barnett, N. P., Smoll, F. L., & Smith, R. E. (1992). Effects of enhancing coach-athlete relationships on youth sport attrition. *Sport Psychologist*, *6*(2).

Bergeron, M.F., Mountjoy, M., Armstrong, N., Chia, M., Côté, J., Emery, C. A., Faigenbaum, A., Hall, Jr, G., Kriemler, S., Léglise, M., Malina, R. M., Pensgaard, A. M., Sanchez, A., Soligard, T., Sundgot-Borgen, J., van Mechelen, W., Weissensteiner, J. R., & Engebretsen L. (2015) International Olympic Committee consensus statement on youth athletic development. *British Journal of Sports Medicine 49*, 843-851

Beaumont, C., Maynard, I. W., & Butt, J. (2015). Effective ways to develop and maintain robust sport-confidence: Strategies advocated by sport psychology consultants. *Journal of Applied Sport Psychology*, *27*(3), 301-318.

Bouchet, A., & Lehe, A. (2010) Volunteer coaches in youth sports organizations: their values, motivations & how to recruit, & retain. *Journal of Youth Sports, 5, (1),* 21-24

Buekers, M., Borry, P., & Rowe, P. (2015) Talent in sports. Some reflections about the search for future champions. *Movement & Sport Sciences, 88,* 3–12

Clough, P., & Strycharczyk, D. (2015). *Developing mental toughness: Coaching strategies to improve performance, resilience and wellbeing*. Kogan Page Publishers.

Coté, J., Horton, S., MacDonald, D., & Wilkes, S. (2009). The benefits of sampling sports during childhood. *Physical & Health Education Journal*, *74*(4), 6.

Cripps, A., Hopper, L.S., & Joyce, C. (2016) Coaches' perceptions of long-term potential are biased by maturational variation. *International Journal of Sports Science & Coaching, 11,* (4), 478-481.

Cripps, A., Hopper, L. S., Joyce, C., & Veale, J. (2015). Pathway efficiency and relative age in the Australian football league talent pathway. *Talent Development & Excellence*, *7*(1), 3-11

Davison, K. K., Cutting, T. M., & Birch, L. L. (2003). Parents' activity-related parenting practices predict girls' physical activity. *Medicine & Science in Sports & Exercise*, *35*(9), 1589.

DiFiori, J. P., Benjamin, H. J., Brenner, J. S., Gregory, A., Jayanthi, N., Landry, G. L., & Luke, A. (2014). Overuse injuries and burnout in youth sports: a position statement from the American Medical Society for Sports Medicine. *British Journal of Sports Medicine*, *48*(4), 287-288.

Dweck, C. S. (2012*). Mindset: How you can fulfill your potential*. Constable and Robinson.

Eime, R. M., Harvey, J. T., Charity, M. J., & Payne, W. R. (2016). Population levels of sport participation: implications for sport policy. *BMC Public Health*, *16*(1), 752.

Ewing, M. E., Seefeldt, V. D., & Brown, T. P. (1996). Role of organized sport in the education and health of American children and youth. *The Role of Sports in Youth Development*, *67* (1), 1-1.

Evans, M. B., McGuckin, M., Gainforth, H. L., Bruner, M. W., & Côté, J. (2015). Coach development programmes to improve interpersonal coach behaviours: a systematic review using the re-aim framework. *British Journal of Sports Medicine*, *49*(13), 871-877.

Fletcher, D., & Sarkar, M. (2016). Mental fortitude training: An evidence-based approach to developing psychological resilience for sustained success. *Journal of Sport Psychology in Action*, *7*(3), 135-157.

Fraser-Thomas, J. L., Côté, J., & Deakin, J. (2005). Youth sport programs: An avenue to foster positive youth development. *Physical Education & Sport Pedagogy*, *10*(1), 19-40.

Fraser-Thomas, J., Côté, J., & Deakin, J. (2008). Understanding dropout and prolonged engagement in adolescent competitive sport. *Psychology of Sport & Exercise*, *9*(5), 645-662.

Gabbard, C. P. (2011). *Lifelong motor development*. Pearson Higher Ed.

Gallahue, D. L., Ozmun, J. C, & Goodway, J. D. (2012). *Understanding Motor Development: Infants, Children, Adolescents, Adults*. New York: McGraw-Hill.

Galli, N., & Gonzalez, S. P. (2015). Psychological resilience in sport: A review of the literature and implications for research and practice. *International Journal of Sport & Exercise Psychology*, *13*(3), 243-257.

Goran, M. I., Reynolds, K. D., & Lindquist, C. H. (1999). Role of physical activity in the prevention of obesity in children. *International Journal of Obesity & Related Metabolic Disorders*, *23*.

Gould, D., & Carson, S. (2008). Life skills development through sport: Current status and future directions. *International Review of Sport & Exercise Psychology*, 1, 58–78

Gould, D., Giannini, J., Krane, V., & Hodge, K. (1990). Educational needs of elite US national team, Pan American, and Olympic coaches. *Journal of Teaching in Physical Education*, *9*(4), 332-344.

Gould, D., & Westfall, S. (2014). Promoting life skills in children and youth: Applications to sport contexts. *Positive Human Functioning from a Multidimensional Perspective: Promoting Healthy Lifestyles*, *2*, 53-77.

Hamilton, S. F., Hamilton, M. A., & Pittman, K. (2004). Principles for youth development in: S. F. Hamilton & M. A. Hamilton (Eds). *The youth development handbook. Coming of age in American communities.* Thousand Oaks CA *Sage*.

Hassan, M. F. H., & Morgan, K. (2015). Effects of a mastery intervention programme on the motivational climate and achievement goals in sport coaching: A pilot study. *International Journal of Sports Science & Coaching*, *10*(2-3), 487-503.

Harman, A. & Doherty, A. (2014). The psychological contract of volunteer youth sport coaches. *Journal of Sport Management, 28,* 687-699.

Holt, N. L., & Dunn, J. G. (2004). Toward a grounded theory of the psychosocial competencies and environmental conditions associated with soccer success. *Journal of Applied Sport Psychology*, *16*(3), 199-219.

Holt, N.L., & Neely, K.C. (2012). Positive youth development through sport: A review. *Revista Iberoamericana de Psicologia de Ejercicio y el Deporte, 6,* 299–316.

Horn, T. S., & Butt, J. (2014). Developmental perspectives on sport and physical activity participation. *Routledge companion to sport and exercise psychology: Global perspectives and fundamental concepts*, *3*, 3.

ICCE (2014) International Council for Coaching Excellence. *International Coach Developer Framework, Version 1.1*, 1-43.

Lloyd, R. S., & Oliver, J. L. (2012). The youth physical development model: A new approach to long-term athletic development. *Strength & Conditioning Journal*, *34*(3), 61-72.

Lloyd, M., Saunders, T. J., Bremer, E., & Tremblay, M. S. (2014). Long-term importance of fundamental motor skills: A 20-year follow-up study. *Adapted physical activity quarterly*, *31*(1), 67-78.

Lerner, R., Lerner, J., Almerigi, J., Theokas, C., Phelps, E., Gestsdottir, S., Nadeua, S.,… von Eye, A.(2005). Positive youth development. Participation in community youth development programs, and community contributions of fifth-grade adolescents: Findings from the first wave of the 4-H study of positive youth development. *Journal of Early Adolescence*, *25*, 17–71.

MacNamara, A. & Collins, D. (2013) Do mental skills make champions? Examining the discriminant function of the psychological characteristics of developing excellence questionnaire. *Journal of Sports Sciences, 31*, (7) 736-744

McCraty, R., & Atkinson, M. (2012). Resilience training program reduces physiological and psychological stress in police officers. *Global Advances in Health and Medicine*, *1*(5), 44-66.

Mostafavifar, A. M., Best, T. M., & Myer, G. D. (2013). Early sport specialisation, does it lead to long-term problems? *British Journal of Sports Medicine, 47*, 1060-1061

Heart Foundation of Australia, (2014) Blueprint for an active Australia (2nd Ed.) 1-84. [online] Available at: http://www.heartfoundation.org.au/.../Blueprint-for-an-active-Australia-second-edition [Accessed 10th April, 2017]

Nelson, L., Cushion, C., & Potrac, P. (2006). Formal, nonformal and informal coach learning: A holistic conceptualisation. *International Journal of Sports Science & Coaching*, *1*(3), 247-259.

Ofcom. (2015). Ofcom, Adults Media Use and Attitudes: Report 2015. London, UK.

Pipe, T. B., Buchda, V. L., Launder, S., Hudak, B., Hulvey, L., Karns, K. E., & Pendergast, D. (2012). Building personal and professional resources of resilience and agility in the healthcare workplace. *Stress and Health*, *28*(1), 11-22.

Price, R. J., Hawkins, R. D., Hulse, M. A., & Hodson, A. (2004). The Football Association medical research programme: an audit of injuries in academy youth football. *British Journal of Sports Medicine*, *38*(4), 466-471.

Robertson, I. T., Cooper, C. L., Sarkar, M., & Curran, T. (2015). Resilience training in the workplace from 2003 to 2014: A systematic review. *Journal of Occupational and Organizational Psychology*, *88*(3), 533-562.

Rolf, C. (1995). Overuse injuries of the lower extremity in runners. *Scandinavian Journal of Medicine & Science in Sports*, *5*(4), 181-190.

Ross, J. G., Bruderle, E., & Meakim, C. (2015). Integration of deliberate practice and peer mentoring to enhance students' mastery and retention of essential skills. *Journal of Nursing Education*, *54*(3), S52-S54.

Rutter, M. (1985). Resilience in the face of adversity. Protective factors and resistance to psychiatric disorder. *The British Journal of Psychiatry*, *147*(6), 598-611.

Rudd, J. R., Barnett, L. M., Butson, M. L., Farrow, D., Berry, J., & Polman, R. C. (2015). Fundamental movement skills are more than run, throw and catch: the role of stability skills. *PloS One*, *10*(10), e0140224.

Sarkar, M., & Fletcher, D. (2013). How should we measure psychological resilience in sport performers?. *Measurement in Physical Education and Exercise Science*, *17*(4), 264-280.

Sarkar, M., & Fletcher, D. (2017). How resilience training can enhance wellbeing and performance. In M. F. Crane (Ed.), *Managing for Resilience: A Practical Guide for Employee Wellbeing and Organizational Performance*, 227 - 237. London, UK: Routledge.

Shields, D. L., Bredemeier, B. L., LaVoi, N. M., & Power, F. C. (2005). The sport behavior of youth, parents, and coaches: The good, the bad, and the ugly. *Journal of Research in Character Education*, *3*(1), 43.

Snow-Harter, C., Bouxsein, M. L., Lewis, B. T., Carter, D. R., & Marcus, R. (1992). Effects of resistance and endurance exercise on bone mineral status of young women: a randomized exercise intervention trial. *Journal of Bone & Mineral Research*, 7(7), 761-769

Smoll, F. L., & Smith, R. E. (2002). Coaching behavior research and intervention in youth sports. *Children and Youth in Sport: A Biopsychosocial Perspective*, 2, 211-234.

Tester, G., Ackland, T.R., & Houghton, L. (2014). A 30-year journey of monitoring fitness and skill outcomes in Physical Education: lessons learned and a focus on the future. *Advances in Physical Education, 4,* 127-137.

Tibbert, S. J., Andersen, M. B., & Morris, T. (2015). What a difference a "Mentally Toughening" year makes: The acculturation of a rookie. *Psychology of Sport & Exercise*, 17, 68-78.

Tompsett, C., Burkett, B. J., & McKean, M. (2014). Development of physical literacy and movement competency: A literature review. *Journal of Fitness Research*, 3(2), 53-74.

Trottier, C., & Robitaille, S. (2014). Fostering life skills development in high school and community sport: A comparative analysis of the coach's role. *The Sport Psychologist*, 28(1), 10-21.

Tugade, M. M., & Fredrickson, B. L. (2004). Resilient individuals use positive emotions to bounce back from negative emotional experiences. *Journal of personality & social psychology*, 86(2), 320.

Turner, G. (2016) *Talent mentalities: Young people's experience of being in a sports talent development programme*. LJMU E-Theses Collection

Vaughan, C. L. (1983). Biomechanics of running gait. *Critical Reviews in Biomedical Engineering*, 12(1), 1-48.

Vealey, R. S. (1986). Conceptualization of sport-confidence and competitive orientation: Preliminary investigation and instrument development. *Journal of Sport Psychology*, 8(3).

Vealey, R. S. (2001). *Understanding and enhancing self-confidence in athletes*. In R. Singer, H. Hausenblaus, & C. Janelle (Eds.), Handbook of sport psychology (2nd ed., pp. 550-563). New York: McMillan

Wall, M., & Côté, J. (2007). Developmental activities that lead to dropout and investment in sport. *Physical Education & Sport Pedagogy*, 12(1), 77-87.

Walters, B. K., Read, C. R., & Estes, A. R. (2017). Effects of resistance training, overtraining, and early specialization on youth athletes. *The Journal of Sports Medicine & Physical Fitness*.

Weed, M., Coren, E., Fiore, J., Wellard, I., Chatziefstathiou, D., Mansfield, L., & Dowse, S. (2015). The Olympic Games and raising sport participation: a systematic review of evidence and an interrogation of policy for a demonstration effect. *European Sport Management Quarterly*, 15(2), 195-226.

Woolcock, G., & Burke., (2013) Measuring spatial variations in sports talent development: the approach, methods and measures of 'Talent Tracker'. *Australian Geographer, 44, (1)*, 23-39.

Yang, X. L., Telama, R., & Laakso, L. (1996). Parents' physical activity, socioeconomic status and education as predictors of physical activity and sport among children and youths-A 12-year follow-up study. *International Review for the Sociology of Sport*, 31(3), 273-291.