

Mike MacKay

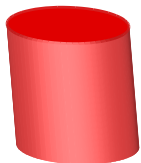
Long Term Athlete Development (LTAD) – a simplified approach

This document is meant to go with a visual demonstration using cups, block and cylinders to assist people in understanding some of the more complex concepts of LTAD. Many of the examples are generalizations of situations that are occurring in youth basketball. Its purpose is to get people to think about our current practices and the impact they are having on our youth.

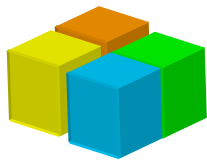
Components of the athlete's development:



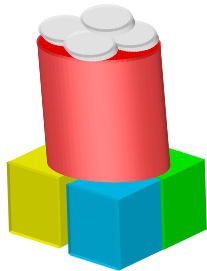
1. **Stress and strains (foam cylinders):** these are the things that impact on an athlete daily. They are of a physical, mental, and social emotional quality. They includes such things as school, practice, friends, parents, work etc.



2. **Nature (plastic IKEA cups):** This is the genetic make up of the athlete. Some are naturally bigger than others. Girls tend to be bigger than boys early on but boys become bigger after puberty.



3. **Nurture (wooden blocks):** These are the four cornerstones that we want all athletes to develop. These allow the athlete to deal with the daily stresses and strains they will face. A weakness in any one area will cause instability which will cause a collapse when faced with stress and strain over time. The four corner stones are: **Basketball** (fundamental skills, technical skills, strategies, tactics and competition), **Physical** (energy systems, movement skills, agility, balance, flexibility, power, coordination, strength), **Mental** (goals, concentration, dealing with distractions, confidence, enjoyment), **Life Skills** (leadership, responsibility, cooperation, communication, trust, self-reliance)

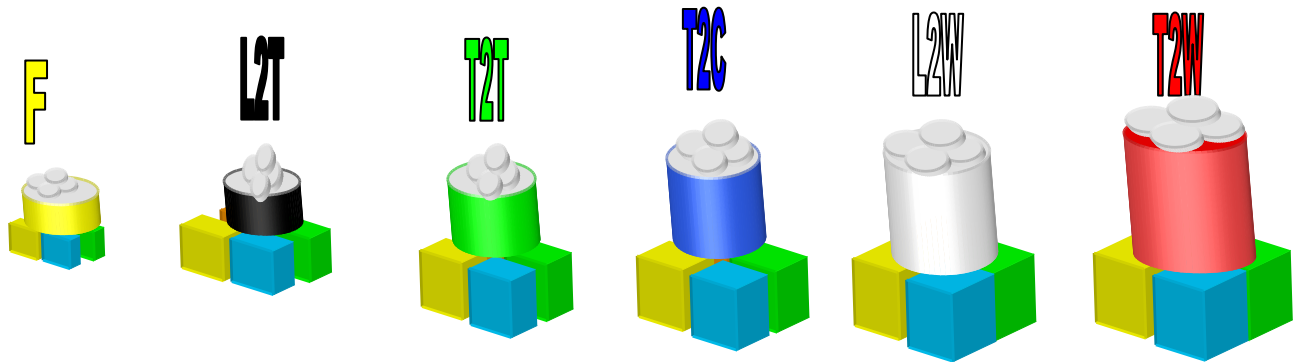


At each stage of development there needs to be a proper sized base to support the size of the cup and the stresses and strains faced by that individual.

There are eight stages of LTAD

- Train to Win (T2W); males / females 22+
- Learn to Win (L2W); males / females 18-21
- Train to Compete (T2C); males / females 16-18
- Train to Train (T2T); males/females 12-15, age is growth spurt dependent
- Learn to Train (L2T); males 9-12, females 8-11
- Fundamentals (F); 8-9 years old
- Active Start (AS); 0-5 years old
- Active for life (AFL) – all ages

The six cups represents the relative size of an individual (nature) in relation to each stage (We will not be dealing with Active Start and Active for Life in this demonstration).

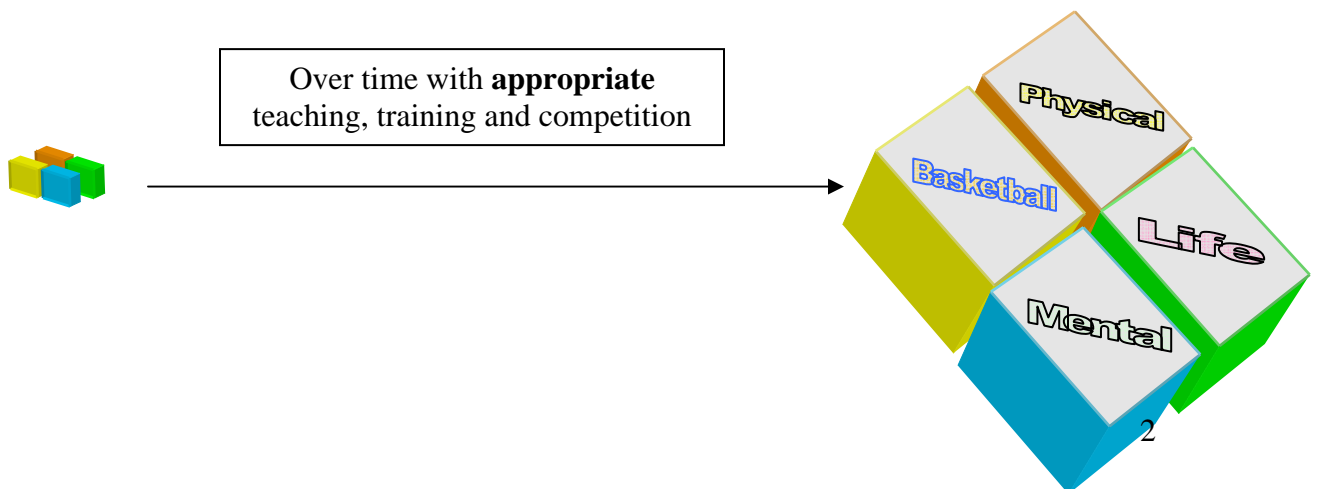


10 key principles

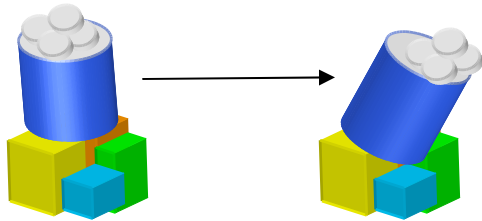
1. Developing the whole athlete

LTAD is about developing the complete athlete. Canada Basketball’s four cornerstones form the foundation of its LTAD model. These stones are laid during the FUNdamental stage of the LTAD. Over time with appropriate teaching, training and competition the athlete will continue to develop these cornerstones. If done properly the athlete will be able to face the normal stresses and strains that go with each stage the LTAD. If improperly done instabilities are created which will eventually be the place where the athlete’s collapse will occur when stressed. It should be noted that the size of the stresses and strains, the cups and the blocks are relative to the stage of development.

2. Periodization is time management. It is ensuring that the four corner stones are being addressed across the entire season / career of an athlete.



Without planning pieces get missed, over emphasized or taught at the wrong time. When all four cornerstones are taught properly we establish a firm foundation for the athlete. This strong base allows the athlete to withstand the heavy demands placed on him/her at the highest levels. Any instability causes a weak point in the foundation which eventually will collapse.

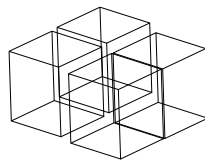
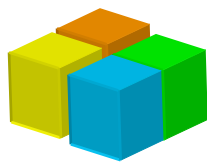


Since the mental and life skills were not developed at an equal rate as the basketball and physical skills and imbalance is created. With time and the normal stresses and strains the athletes will collapse in the area of those weaknesses.

If you try to increase the size of the base to quickly it is wasted energy. Children are not ready at younger ages to develop an adult size base. It is similar to learning math in school. The simple concepts learned in grade one are the building blocks for all math learned at higher levels. You cannot skip these concepts and move immediate to the most advanced phase.

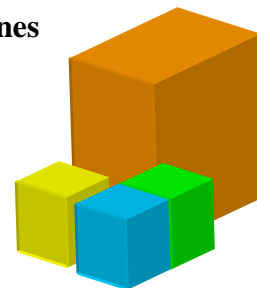
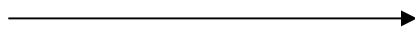
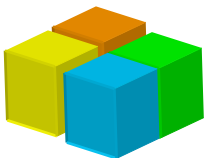
3. Fundamentals

Players need to be taught the basic fundamental of all four cornerstones. This takes time. It is extremely important in the early stages, F, L2T that time is taken to ensure the beginning seeds are planted. They form the core of the cornerstones. With out them the stones will be hollow and not support the weight at a latter stage. Too often coaches will skip this important step. During the T2t, T2C, L2W and T2W stages their needs to be time when these fundamental skills are review and improved upon. Perfect examples are fundamental movement skills. Players need to be taught proper running form at young ages. As the players progress this skill must constantly be reviewed and improved.



Without the fundamentals the cornerstones are just a hollow frame.

4. Specialization: Overemphasis on one of the cornerstones

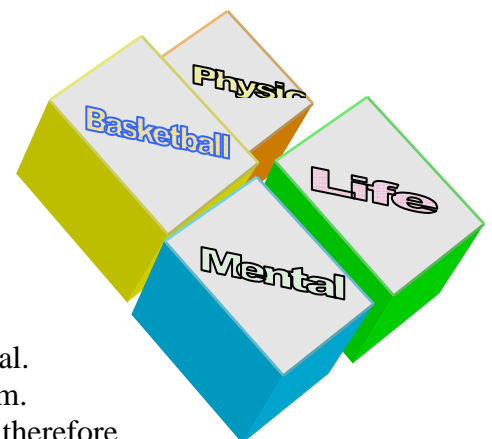
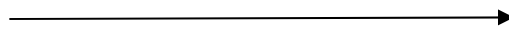
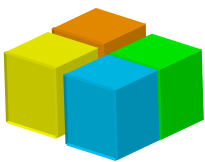


In this example only the basketball is being emphasized. Some may argue that the other cornerstones will be developed through the basketball. Research has not shown this to be true. Planned actions must occur to ensure the development of each cornerstone. Very often the fundamentals of the other cornerstones are ignored. For example goal setting is missed from the mental side, leadership skills are missed from life skills. This can cause them to shrink in size over time. For example if the life skill of self-reliance is not emphasized the player may develop an unhealthy expectation from sport. If I am good at sport people will always give me a break. This player will collapse in the direction of life skills because of this weakness.

Too often basketball coaches emphasize the **basketball systems** and not the **energy systems**. This leads to an athlete at the end of the season that is not at their physical peak. The coach must learn to “**train through competition**”. The coach must look at where the athlete is in the training plan and let this be the guide, not the next game. In practice the coach must take into account the volume and intensity of the basketball drills to determine which energy system is being developed or maintained. Again if this is not planned and preparation for the next game dominates you end up at the end of the year with a physically underdeveloped athlete. Coaches who use bulk of practice time to run plays or scout teams are very susceptible to this phenomenon; especially if this habit starts at the beginning of the season.

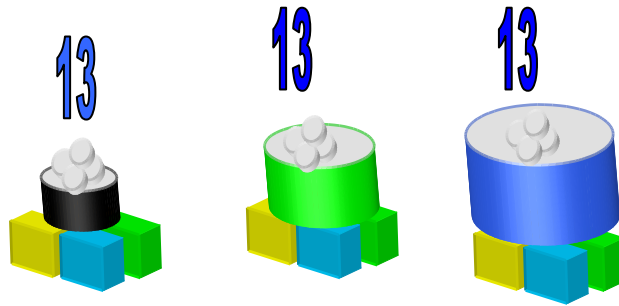
Specialization is also choosing one sport too early. The problem with this is that the child may not develop enough of the basic fundamental movement skills required to build a strong foundation. If a child specializes in soccer only at a young age this child may not learn tracking skills with his/her hands. If at a later time the child decides to try another sport there can be glaring holes in his/her development. Again we develop a weak area that will be a problem later on. Also with our sport coaches make younger player specialize by position too early. This causes the same sort of imbalances in skill development. A tall player being told not to dribble is a classic example.

5. Trainability: Teaching at the right time



There are windows of opportunity when certain physical movement skills should be taught to best maximize their potential. If missed the child may never develop these skills to the optimum. These windows are based on the maturation of the child and are therefore can vary from individual to individual. Again the base is not stable and may not be able to support the heavier demands placed on the athlete at the highest levels. The player collapses because of weakness in his/her movement skill

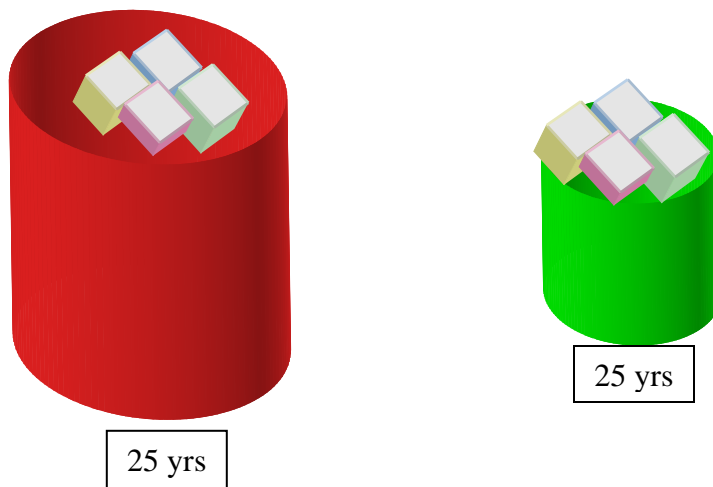
6. Developmental age vs. chronological age



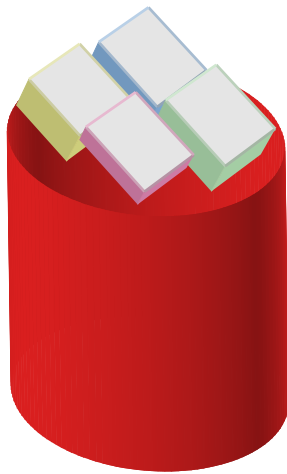
Because of puberty children develop at different times. In the above example all three athletes are 12 years old. The stresses and strains are the same. Also the four cornerstones are the same in size. What is different is the size of their bodies. This becomes apparent when we do athlete selection for teams.

Athlete selection / identification

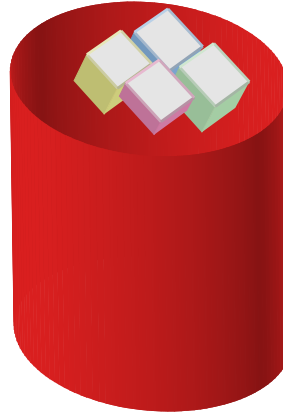
The size of the cup represents the genetic make up (nature) of the athlete. The content of the cup is the learning's that the athlete has accumulated over time (nurture). For this analogy we will also assume that the athlete's output is based upon the amount of content; therefore the bigger the content the bigger the output. In basketball we want big athletes with a full cup, made up of all four components. This is easy to determine when dealing with the fully mature athlete. Below we have two 25 year old athletes. The content is the same size. They are exactly the same in basketball, mental, physical, and life skills. There is no question that you would choose the bigger athlete to be on your team.



If the buckets are the same size and one player has a larger content the decision is again very easy, take the player with the larger content.



25 yrs



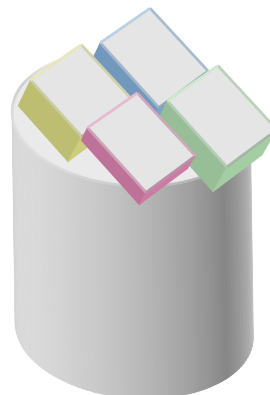
25 yrs

The decisions get more difficult when we start to have different size of buckets and different amounts of content.

Big bucket small content vs. smaller bucket big content. This is where the coaching staff must start to be more subjective in building the team. What are the needs of the team?



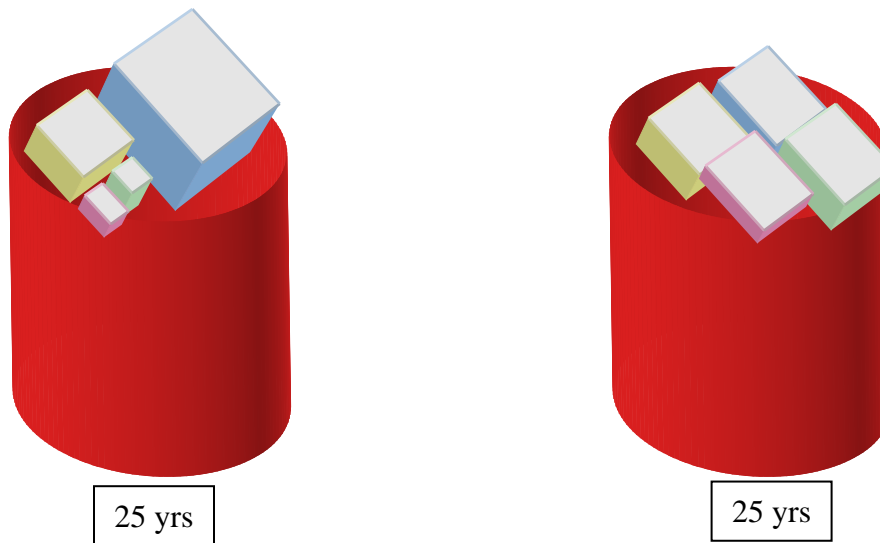
25 yrs



25 yrs

Same size buckets different amounts of content. In the example below we have athletes of similar size. The athlete on the right has a tremendous amount of basketball and a lot of physical. This athlete has miniscule mental and social emotion skills. The

athlete on the right has good balance of all four components. Again the coach has to make a more subjective decision based on the needs of the team.



Athlete selection / identification when dealing with developmental athletes

The problem when dealing with athletes who have not matured is to predict what they will become in the future. The future can be over one season over the athletes entire career. Predictions need to be made around the **nature of the athlete**; how big will he/she become plus their **nurture**; how much content can he/she develop and therefore output. When doing selection it is recommended that coaches make note of both the current and predicted nature and nurture. Research needs to be done in our sport to assist coaches on these predictions. Too often we pick athletes during these stages of development using the same criteria that was used with a fully developed athlete. The problem is that once an athlete is selected he/she usually receives superior opportunities from the non-selected athlete. As my good friend Jason Andrade likes to say: “You can’t just pick all the yellow bananas now. We need to have a few green bananas to make sure we have some ripe for later.”

Concerns regarding Nature

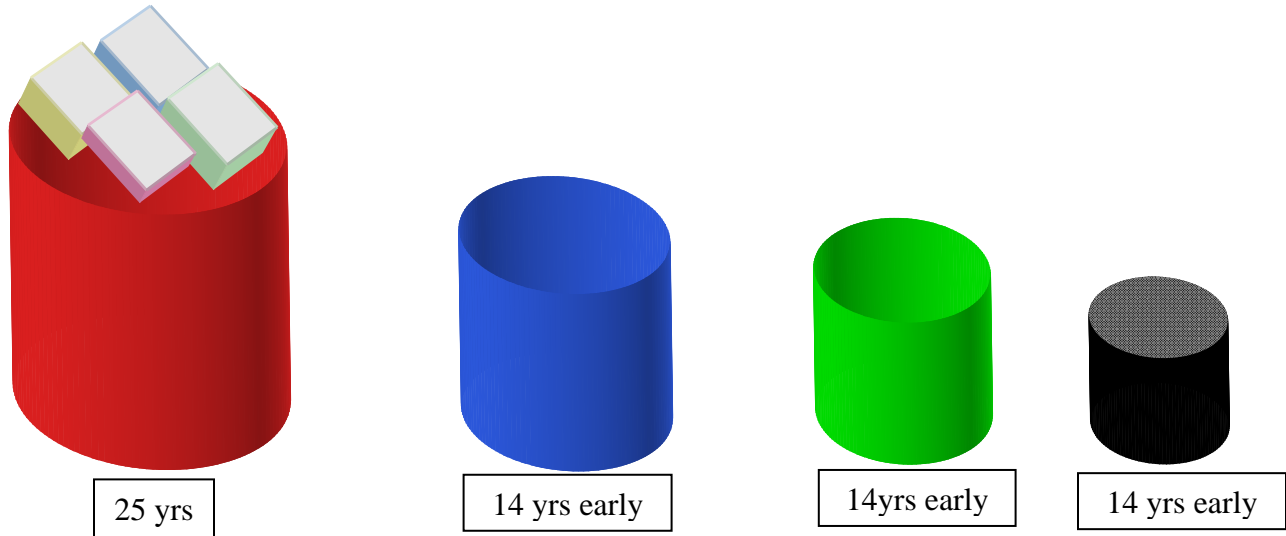
- Peak height velocity (PHV) – use of anthropometric measurements (height, wing span, sitting height to predict PHV)
- Look at parents
- Developmental age vs. chronological age early, late and middle maturer
- Relative age effect – using birth date as a cut off

Concerns regarding Nurture

- Amount of training, willingness to train
- Quality of coaching
- Competition / practice ratios
- Fundamental movements

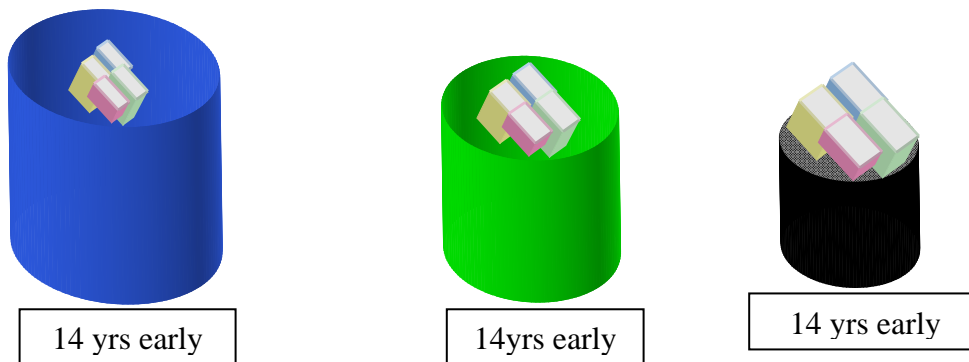
- Cultural factors – social support system, life skills
- Financial factors

Early maturing athlete



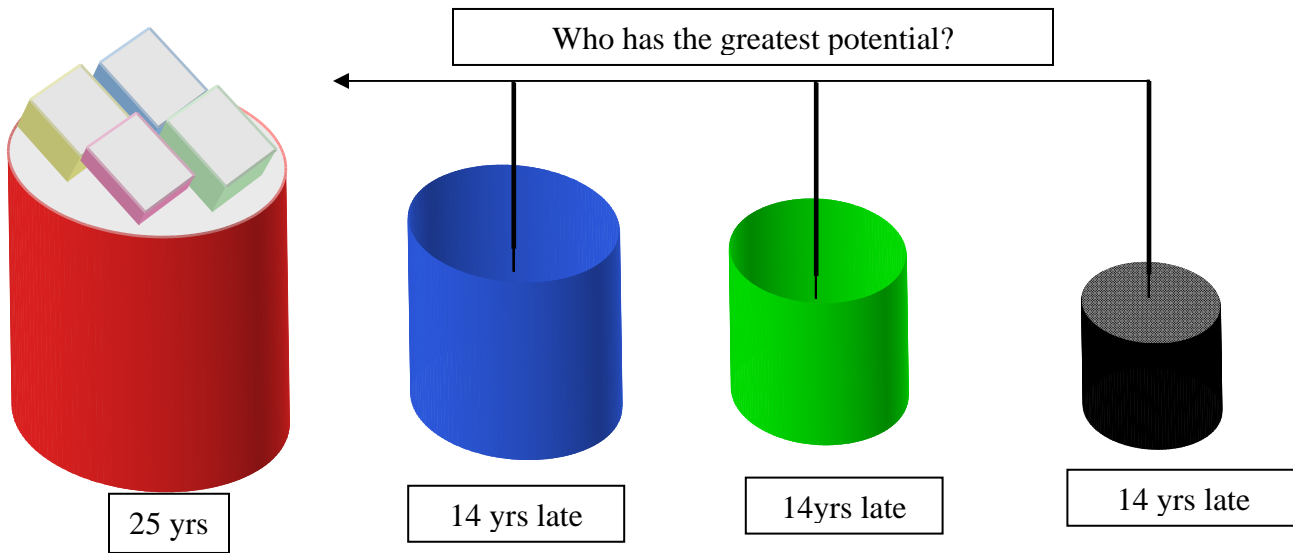
In the above example all three 14 year old athletes are early maturers. This means that they have reached their adult height. If the content is the same the decision should be easy on which athlete to select, the bigger body.

If all of the athletes are early matures and the content is different the coach makes a subjective decision. The coach must balance off the size of the athlete with the current content. More importantly the coach needs to include the predicted nurture that can be obtained in the future. If the big athlete has the potential to improve his or her content this athlete needs to have an opportunity to be selected.

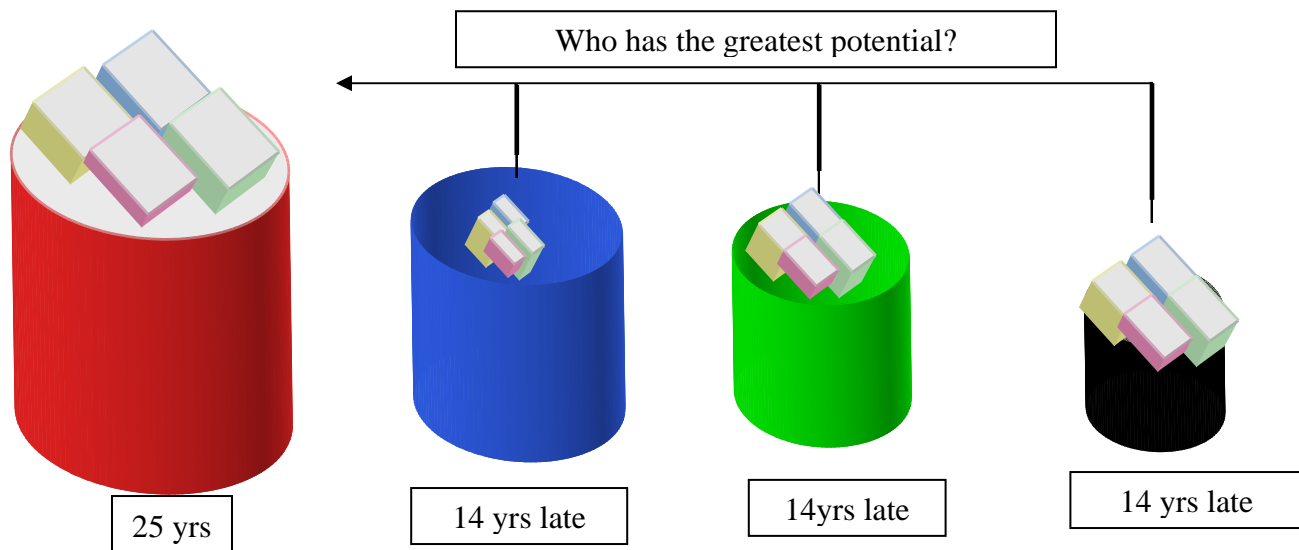


When the athletes are late maturer the decision making process is even more difficult. If the content is equal the coach must predict which of the athletes has the potential to reach the maximum size. The coach must also still predict who will continue to develop their

content also as these athletes are still developing. Most coaches would base their decision on how the athlete is playing now. In this case the bigger player would make the team. The problem is we are not considering the future.

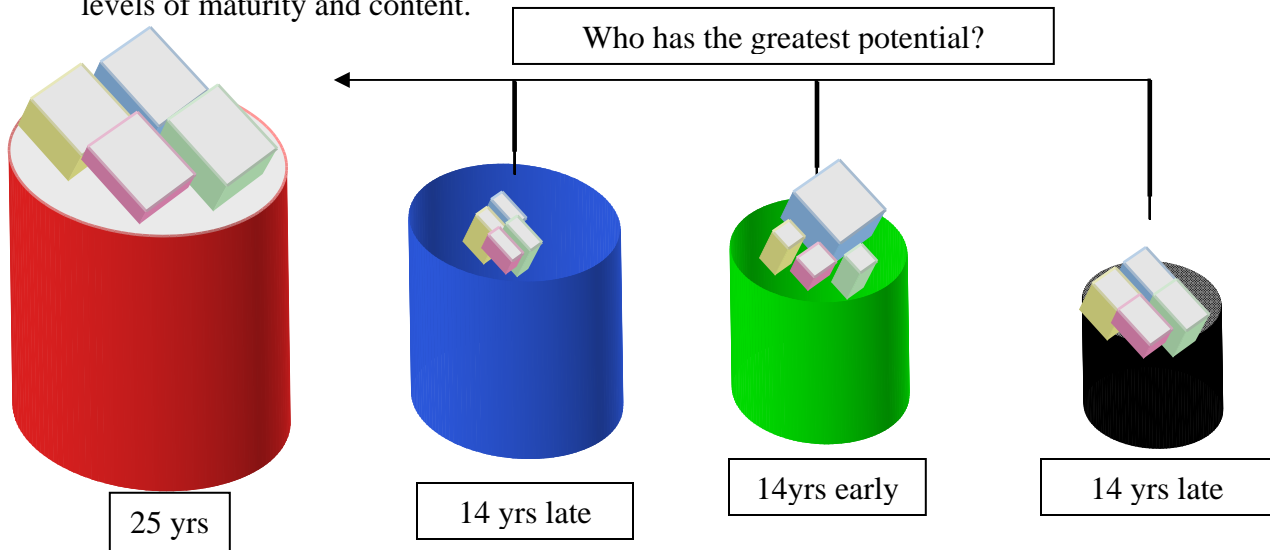


When the content is not equal and the athletes are all early maturers the decision is even more difficult. It is also compounded by the fact that the biggest athlete may not be the best player right now.



In the above diagram you can see the smallest player has the greatest amount of content where the biggest player has the smallest amount. The problem is that the coach must predict not only how big the player will become, but also the ability of each athlete to develop his/her content. It is much easier to just pick the player who is performing the best now. It is also easier to justify this decision to others. The question is it the best thing to do.

The final problem which is the most common is when you have athletes at different levels of maturity and content.



In the above diagram the first athlete is the classic tall skinny athlete who is not yet matured and has very little content, but all four components are present. The middle athlete is the classic early maturing athlete who is very good at basketball for his/her age. A lot of this “talent” is because he/she is physically stronger than the other players he/she is competing against. Some of the other content is lacking especially things like willingness to train; everything has always come easy to this athlete. The third athlete is the late maturer who is very small but has a full abundance of all qualities. He or she is very good, but just very small.

When it comes to selection the coach can **win now** with the middle athlete. The problem is that this athlete will not grow any more. Also the deficiencies in content may also prevent this athlete from reach his/her potential in the future. The question with the other two athletes is how much they will grow and how much can they improve.

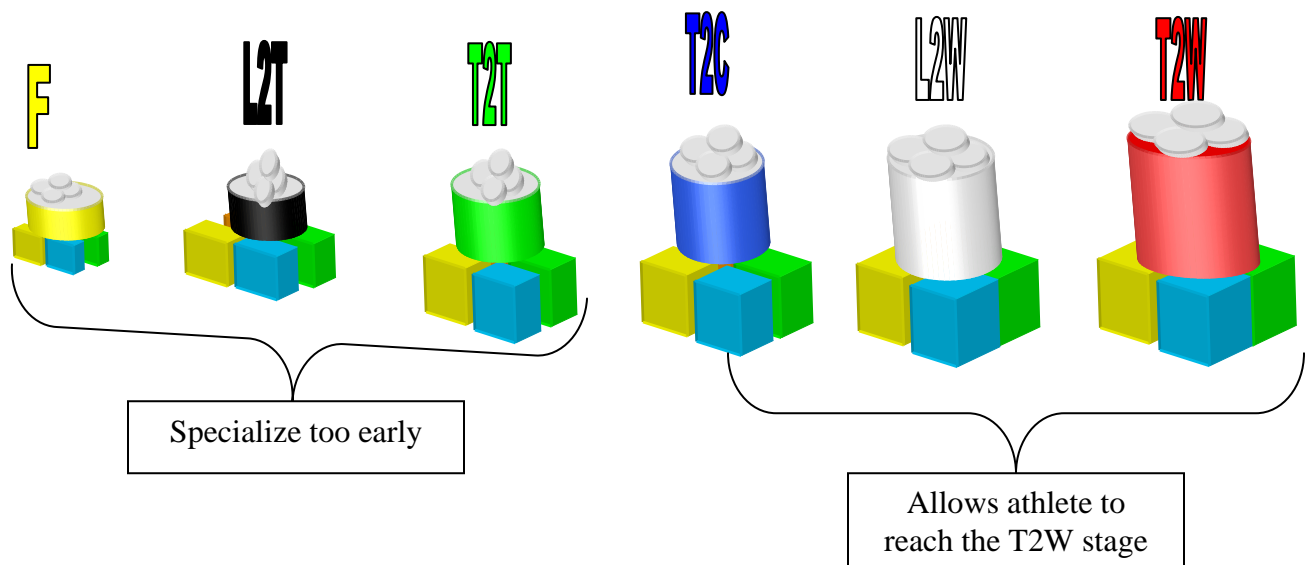
The intent is not to simplify the selection process but to educate coaches in seeing the big picture when making athlete selection/ identification. As we all know there are many different qualities that go into the nurture of an athlete. This document has talked in generalities and over simplified the situation. I do have the following recommendations:

- a) Keep anthropometric measurements so we can start to predict PHV. I have included a website from the University of Saskatchewan

http://athena.usask.ca/growthutility/phv_ui.cfm?type=2

- b) In athlete selection coaches need to begin documentation as to the nature and nurture of an athlete. This needs to be tracked over time. For example just including if the athlete is early late or middle maturer.
- c) We need to treat early, late and middle maturers differently in all components of the game. Each one has a variety of needs. In general a late maturers self confidence will not be as strong that of an early maturer.
- d) We must treat the female athlete differently than the male.
- e) We need more research. The greatest enemy of greatest is being good. We do a good job now but if we do not continue to probe we will never become great.
- f) Education. We must continue at all times to educate coaches, parents and administrators about LTAD.

7. 10 year rule



Once an athlete decides he or she wants to become an elite athlete the process takes over ten years. It does not happen over night. If started too early you risk burnout. Young children who specialize also often miss the windows of opportunity in many movement skills that are not emphasized in their chosen sport.

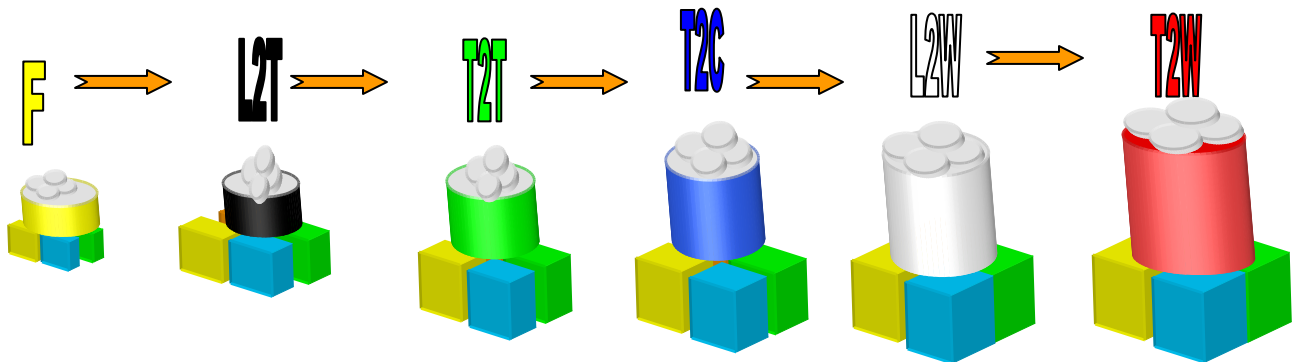
8. Competition: Calendar Planning

A trend is developing in our athlete's developmental pathway. Athletes are being misled into believing that by playing many games they will develop the necessary foundation to reach the highest level in their sport. Many athletes are playing on more than one team with the major focus of each team being games. Players are also being lured into the somewhat false belief that by being exposed to recruiters through games you will be seen selected to play at the next stage of development. Games alone do not

develop the four cornerstones. In fact too many games shrink the size of the cornerstones. Skills break down, the body fatigues the mind grows tired etc. Imbalances develop. Players who have survived on a diet of games only often find that do not have the necessary skills required to play at the next stage of development.

In order to increase the size of the cornerstones recovery must occur. Appropriate training must happen. Training is not just basketball systems development (team offence and defence).

9. System alignment

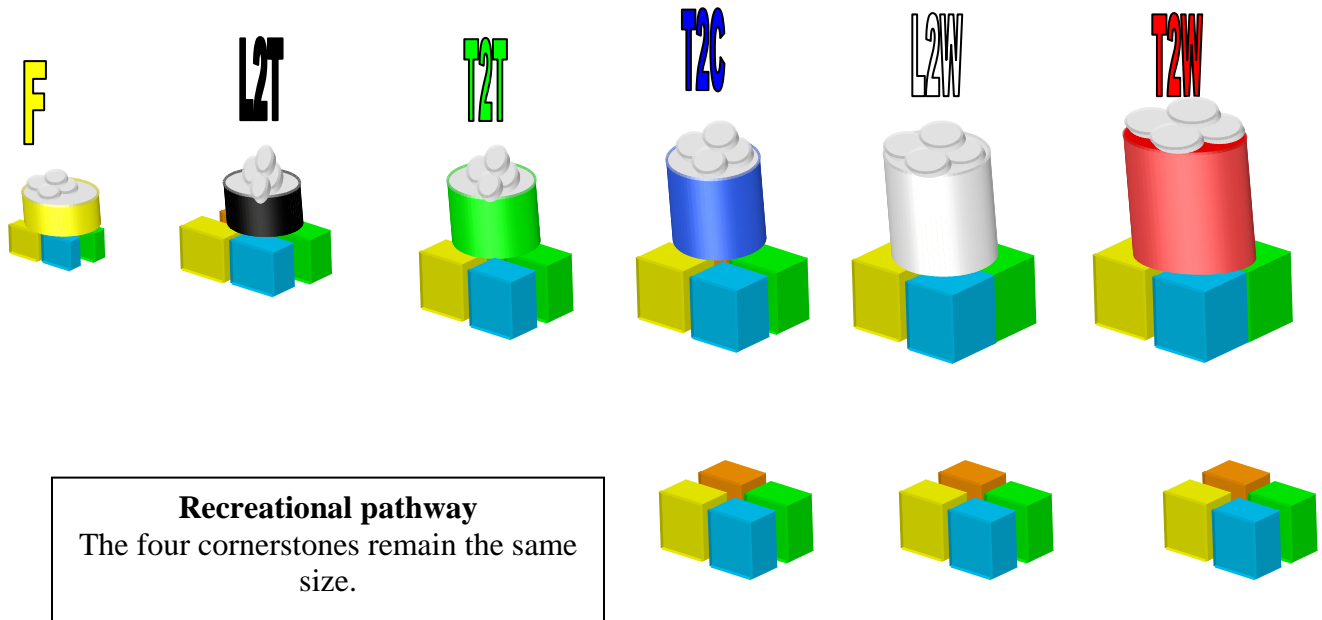


In an ideal system there needs to be visible connections between each stage of development. If these connections do not exist very often the athlete's needs are not met. Groups that operate in isolation very often do not think about big picture or the athlete's entire athletic career, they have a very narrow view that is centered on the short term, small picture. In short, when an athlete completes one stage of development, if he/she wishes to move to the next stage of development, he/she should have developed the four cornerstones to meet the stresses and strains of that stage. Groups that work in isolation often do not accomplish this goal.

Recreational pathway – some athletes decide to move into a more recreational pathway. This is fine. In LTAD this is seen as the active for life stage. It is important to remember:

- All children need to develop the four cornerstones in the fundamental and L2T stages. If this does not occur they will not be able to enjoy a health active for life stage.
- Many athletes are misled into believing that they are developing in an elite system when actually it is more recreational. The goal of recreation is to have fun and provide a basic level of fitness. The size of the cornerstones are often maintained. They do not develop to support the next stage of LTAD through a recreational approach. An athlete who has been trained through a recreational approach will not be able to handle the normal stresses and strains of a higher elite stage. In an elite program that is developmental in nature the coach should be increasing the

size of the four cornerstones to handle the weight of the stresses and strains of the next stage.



10. Continuous improvement

The entire basketball development model is constantly being monitored to find ways to improve or look for innovations that will help the athletes. It is crucial that we do research that allows us to study what is happening. Continuous education is a crucial to the on going improvement.

Parent's role – Parents play a key role in helping decide if programs during the fundamental and L2T stage are providing cornerstone development. They must also make sure the program is safe. As the child progresses into the T2T and T2C stages the parent's role slowly shifts as the athlete will become more involved in determining what level of programming he/she desires. Parents work closely with the coach to support the athlete in his /her development. Patents should be a driving force in ensuring that coaches and associations are implementing LTAD. Canada Basketball has developed outlines for each stage of development. Parents need to become educated as to what should be occurring at each stage of development. Coaches who are not following LTAD need to be challenged to become educated and demonstrate competency in appropriate practices. Programs and coaches that operate in isolation, not sponsored by the sport governing bodies, need to be approached with some caution. Parents must determine if the program can provide the appropriate pathway for their child's four cornerstone development.

The parents play a major role in assisting the athlete in his/her decision making about the choice of post secondary education. The parent must understand that it is the athlete's decision. The parent needs to make sure the athlete is asking all the right questions of the right people. It is very easy to get mislead or to get caught up in the small picture.