National Coaching Certification Program

Planning a Practice 2
Reference Manual

Coaching Association of Canada

Association canadienne des entraîneurs

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1.   INTRODUCTION

1.1   Purpose of the Document

This *Reference Manual* contains material related to the Coach Workbook. You receive *Reference Material* along with this Coach Workbook when you register for the Planning a Practice 2 workshop.

This module is one of many offered in the National Coaching Certification Program. For more information on the NCCP and the workshops it offers, see the CAC website's Coach Training information coach.ca/multi-sport-training-s15501.

This document will help you – as a future CSPA competition coach – plan a practice in a more effective way for your athletes in the **Learn to Compete** (L2C), **Train to Compete** (T2C) and **Train to Win** (T2W) stages of CSPA's Long Term Athlete Development (LTAD) program.

This manual contains reference material related to the five topics on planning a practice in the companion Workbook:

1. Factors affecting your practice

2. Consistency among practices, microcycles, and the yearly plan

3. Exercise sequence in a practice

4. Adjusting exercises

5. Training a technical or tactical ability over several microcycles

2.   FACTORS AFFECTING YOUR PRACTICE

2.1   Identifying the Factors and their Effects

The factors in the left-hand column in the table below are factors that might come into play when you are planning your practices and your season.

The examples below use both team situations and solo disciplines.

Factors That Affect My Practice	Description of the Factor as It Applies to My Practices	Potential Effects of the Factor on My Practice Plan
Example: Work schedule	Athlete has a shift schedule that has him working some weekends during summer.	The athlete's practice time may be limited during the training season. The athlete can train more in the winter
Competition schedule	There are no lead-up competitions this season. Or The lead-up competitions are too close to the decisive event.	Practices can be set up to simulate competition, perhaps by asking other team, local or remote, to do the same draw. Or The lead-up competition need to be bypassed or used as a training session with training goals.
Goals for the season	Team-mates have not agreed on team goals, or have conflicting goals disagree.	Individuals not working to full potential on areas outside their personal goals.
Number of athletes	The team is having a difficult time getting commitment from all members.	Reduced enthusiasm during training/competition.
Level of athletes	One athlete has lower technical skills than the others. Athlete(s) are not familiar with the dive pool.	Frustration on both the more and less technical athletes with each other/situation. Delays in the training plan.
Work schedule	Athlete is a working skydiver and has a hard time training during the weekends.	Design the yearly plan to take advantage of less busy shoulder seasons and then just maintain through the busy season.
Risk factors	Injury	Stoppage in training or modified training regimen.
Equipment	A jumper has a reserve ride or a jumpsuit problem at the start of a training day.	Athlete remains distracted after the situation. Delay while getting equipment serviced.

Factors That Affect My Practice	Description of the Factor as It Applies to My Practices	Potential Effects of the Factor on My Practice Plan
Facilities	Packing area is too far a walk to make a backup easily.	Changes the tempo of the day, forces modification to training plan.
Support staff	Manifest is not cooperating.	Can't get the loads we want; pace of day becomes awkward.
Weather	Unable to jump due to weather, or long holds followed by a need to quickly get ready.	Need to bring out alternate plans. eg. Creeping, exits, technical training.
Aircraft availability	Aircraft are busy, resulting in turnarounds that are too slow (or too fast).	Modify plan to maintain arousal levels. Pull off loads if too fast.
Weather	Jumpers disagree on wind limits for grounding the team.	Plan that anyone can say stop due to conditions, have backup exercises in place.
Tunnel	Athlete has used tunnel so much that fatigue is affecting jump performance.	Prevent by: prior fitness training, planned rest days, appropriate level to weakest team mate or modified tunnel usage.
Tunnel	Athlete is a competent body flyer due to tunnel training but is behind on canopy skills. Risk of injury or delays in training day.	Longer breaks between jumps to reduce rushing.
Hydration and Nutrition	Athlete is slow mentally and/or physically due to lack of energy or water.	Proper planning of hydration and nutrition for the usually long length of practices in parachuting.
Other?		

2.2   Visualization (Excerpted from Dan Brodsky-Chenfeld)

Visualization is the ability to create clear, detailed and accurate images in your mind of something that you want to reproduce as physical reality. In essence, quality visualization is much like a very well trained imagination. The images created by people who have practiced this skill are complete, precise and specific. We see the image and feel the movement and even the emotion so vividly that it almost seems as if we are actually doing it.

A great deal of experience and research has proven (references) that people with highly advanced visualization skills can create through visualization the same experience in their mind as that of the actual physical activity. Our minds don't recognize much difference between full sensory visualization and actual physical training. Time spent practicing our skills through visualization can be equally as beneficial as the real thing.

Training your visualization skills is very similar to training your physical skills.

❑ Find a quiet place where you can be without distractions. Relax, calm your mind and slow down before you begin.

❑ Have a clear picture that you want to start with. For instance, if you are an ice skater it would benefit you to have an actual photo of yourself at the moment when you are paused in preparation of attempting a particular move. Having this picture will help you to recreate the same image in your mind. It will then be easier to visualize a frame by frame execution of this move because you have a vivid image to start from.

❑ It is also very useful to previously have watched moving images of yourself, or other people performing the move you want to visualize. Watching a DVD of yourself or others executing the same skills will put a blue print in your mind of the pictures that you want to paint.

❑ Take the time you need to produce the correct picture in your mind. Start with something simple. The more complex the image, the more time it will take. This can be frustrating, be patient. If the picture in your head gets scrambled stop, erase it, calm down and start again. Don't try to force it.

❑ As you begin to visualize a particular action try it first in slow motion. As with training physical skills, your initial visualization training will require you to think through each part of a particular move as you create the image of that move in your mind.

❑ Once you are able to really *see* the correct technical move in your mind repeat the process again and again.

❑ With repetitions and practice your mind, like your body, will start to learn the particular skill on its own. It will develop its own mental muscle memory. Soon you will be able to think less because your mind is familiar with the picture and creates it effortlessly.

❑ After training the ability to visualize particular images you will be able to create these images in your mind with minimal preparation. You won't need to find a quiet place or take time to slow down and relax. You will be able to flip the switch and clearly visualize what you have practiced in any place and at any time you choose to.

Turning new skills and habits into instinct can only be done through repetition. There are no short cuts. Quality visualization allows you the opportunity to dramatically increase the amount of repetitions you can do. It gives you the chance to practice the perfect move a hundred times in only a few minutes. If your visualization skills are well trained, this practice you do in your head can be just as valuable as actual training time.

To get the most benefit do the visualization training along side the physical training. Work on visualizing the same skills in the evening that you are practicing during the day. As your visualization skills improve so will your actual performance. As your performance skills improves so goes your visualization. By working your visualization skills in parallel with your physical training you will reach your performance goals in a far lesser time.

Learning to visualize requires the same commitment as learning physical skills. The benefits are every bit as valuable. Some would even argue that at times the skill of creating vivid, full sensory, positive images in your mind can be just as powerful as training the physical skills themselves. I personally had two experiences which proved this to me.

> # Positive visualization can guide you towards reaching your full potential.

I had been competing in 4-Way Formation Skydiving for 12 years and my visualization skills were excellent. I could close my eyes and see myself and the rest of the team in perfect detail. I could see my moves done correctly as well as the technically perfect choreography of the entire team. I could see the jump from above (the judging video angle), from my own eyes and even from any teammates point of view. I was able to run it in slow motion, or fast speed with the same precision. I didn't need to slow down and relax. I could immediately create the images at any moment even while involved in other activities. I didn't even need to close my eyes. I could see the correct pictures as if they were superimposed over what I was actually looking at. All of my senses were active. I could feel the jump in my muscles and my mind would anticipate one move ahead. I was aware of my breathing and the mental calmness the sport requires. My visualization even had the confident, competitive attitude I wanted to exhibit on the skydive. For all practical purposes, I was doing the jumps. It felt the same in nearly every way.

The funny thing was that I took all of this completely for granted. I had no idea how good my visualization skills actually were or how crucial they were to my performance. I had practiced them frequently and thoroughly but mostly by accident. It was fun and seemed like the right thing to do. I hadn't had a specific visualization training plan as such.

My team Arizona Airspeed won the National and World Championships in the 4-Way Formation Skydiving event two years in row. In addition to continuing with 4-Way we decided to also enter the 8-Way event.

In 8-Way the rules are the same and it requires mostly the same individual flying skills. The real difference is the actual pictures that we see. 8-Way formations are twice as big as 4-Way formations. To see an entire 8-Way formation we must look much further and greatly expand our awareness. During the transitions from one formation to another there is twice as much going on and people are moving twice as far. All in all, when you add it all up, 8-way was exponentially busier and noisier than 4-way. All of this activity made it very difficult to create the same clear images in my head that I had in 4-Way. But since I took for granted how good my visualization skills were in 4-way, I also discounted how weak they were in 8-Way.

As a 4-way competitor I was fast, precise and confident in my abilities. I deserved to be, we had just won two consecutive National and World Championships. I was sure this would carry over to 8-way. I was wrong.

When we started training 8-Way I basically stunk. I was making mistakes that could only come from a novice competitor. My flying was soft and my anticipation dull. During the video reviews of the jumps I was embarrassed. What had happened to me? I'm a World Champion. Had I lost it? Should I have quit while I was ahead? I punished myself with as much self doubt as I could come up with.

The next day we were in the airplane on the way up for an 8-Way jump. I was visualizing the jump as I always do on the ride to altitude when it hit me. I wasn't seeing anything. There weren't even 8 people on the screen in my mind. There was just me, fumbling through a mass of bodies. I couldn't even see what the formation looked like. I suddenly realized that I had no visualization skills for 8-Way.

If I couldn't see, or even imagine, what a good jump was going to look like, the odds weren't very good that it was actually going to happen. And if it did, it would be due to nothing but pure luck. I certainly couldn't make much of a contribution to a good effort if I didn't know what one looked like.

Our team had two weeks off. During that time I spent two hours (eight 15 minute sessions) a day dedicated to visualization training. I didn't have to learn the skill of visualizing, I had extensive experience in practicing the skill with 4-way. I just had to apply that skill to a different event.

I looked at video and photographs of the formations that were taken from above and then practiced creating the same still photos in my head. I switched the "camera angle" to my point of view and practiced creating the image that I would see while in the same formation. Once I was able to see these still photos I added movement and began working on producing the picture of what the team looked like when transitioning from one formation to another. I had to slow it way down so that I had time to paint the picture in my mind.

At first it was difficult and took quite a bit of time for each picture. But once I had accurately created the picture the first time it became much easier. With frequent, consistent training, the skill of producing the 8-way images in my mind was quickly learned.

On our first jump back after the break I was again visualizing the jump we were about to do while on the ride to altitude. I could see everything perfectly. I knew exactly how the jump was supposed to go, what I had to do to make it go that way and that I could make it go that way. I could see every detail of every person during every transition to every formation. It had a calming effect on me. The images were so clear that it felt like I had done them hundreds of times before. I knew from experience that if I could visualize the jump this clearly, all I had to do was calm myself down and let it happen. The rest would be automatic. My confidence soared.

We exited the airplane and the jump went just as planned, just as I had seen it in my head. It was amazing. I had visualized a performance level in 8-Way before actually ever performing up to that level.

During our two weeks off my athletic potential didn't change. I was the same athlete with the same skills and abilities. I already had the potential to be a good 8-Way competitor. The visualization training helped me to reach my full potential in a fraction of the time it would have taken otherwise. It happened in my head first, and my physical reality followed in line. Through

visualization training I reached the same performance level that would probably have taken hundreds of jumps to achieve. And I did it in two weeks instead of two months.

Visualization can even replace training if it has to.

I was the player/coach on the team AIRMOVES when I was seriously injured in the middle of the training year. I wasn't able to jump and was very limited in the physical activity I could participate in. The National Championships were only a few months away. Given my condition I had to be replaced on the team by another jumper.

When we arrived at the meet there were still certain types of jumps the team was weak at. We decided that because of my experience it would be a benefit to the team if on these jumps we could substitute me in for one of the other team members.

The long recovery time had greatly reduced my strength, endurance and flexibility. I was still wearing support equipment to protect injuries and was 20 pounds under my "fighting" weight. How could it be possible that I would improve the team's performance, or even be ready to compete at the National Championships at all, when my physical condition was marginal at best and I had barely made a jump in six months?

During my recovery I was constantly looking at videos, visualizing skydives and dreaming about jumping. As their coach I had watched every jump the team had made at least 50 times. It felt like I was almost on the jumps with them. For these six months I had spent more time visualizing than I had ever done before, much more.

When I stepped in on the jumps I was in a different position each time. I was the skydiving equivalent of the quarterback on one jump and a wide receiver on another.

My physical condition and currency in the air were greatly compromised. The only thing in my favor was the extensive amount of visualization I had done. As it turned out, the visualization proved to be worth more than the actual training could have been. In the airplane I was able to visualize the jumps perfectly. I felt confident and ready to do any job required of me. It seemed like I had done all of these moves only yesterday because basically I had. All the positions and moves felt familiar.

Even though all the physical evidence would dictate otherwise, when visualizing in the plane I felt like I had every reason to expect we'd have great jump and my confidence was high.

In essence, the extensive visualization training I had done basically replaced the lack of any significant physical training. I don't recommend this as a training plan, but it does demonstrate how powerful quality visualization can be. Don't underestimate it. Be sure and give visualization training a valuable place in your training program.

3.   CONSISTENCY AMONG PRACTICES, MICROCYCLES, AND THE YEARLY PLAN

3.1   Athletic Abilities and Training Objectives

The following examples of how to complete the workbook exercises are based on the Performance Planning example plan for 4-way RW for the team "Performance XL." Examples of specific activities to meet the training objectives are in section 3.2.

The three examples are from 1) a ground training practice day, 2) a camp practice day and 3) a competition day during the Nationals. When reading the examples, consider where in the mesocycle the microcycle fits. Note that a microcycle is more than one day, and that each practice day may—but probably will not—be identical to others within the microcycle.

Worksheet 1: Athletic Abilities and Training Objectives for a Microcycle

Phase: General PreparationMicrocycle #:   8   Dates: Feb 22-28

Athletic Ability	Training Objective
Technical skill	Learn block mechanics (note: objectives should have a verb in the statement)
Tactical skill	Establish team pace
Psychology	Practice visualization
Aerobic stamina	Develop stamina
Anaerobic stamina	n/a at this microcycle
Speed (limb) The ability to move a limb(s) once in space at high speed without resistance and with precision (*1 sec or less*).	Boost limb speed
Speed Endurance (The ability to sustain efforts at near-maximum speed for as long as possible *(normally, very intense efforts lasting between 8 and 60 seconds).*)	Develop speed endurance
Strength Endurance (The ability to perform repeated muscle contractions at intensities below maximum strength *(normally, 15-30 repetitions or more).*)	Boost strength endurance
Suppleness	Develop suppleness
Nutrition	Evaluate recovery foods

Worksheet 2: Athletic Abilities and Training Objectives for a Microcycle

Phase: Specific Preparation   **Microcycle #:** ___21___   **Dates:** ___May 20-26___

Athletic Ability	Training Objective
Technical skill	Refine non-repeaters (slot switching)
Tactical skill	Develop competition speed
Psychology	Develop distraction control
Aerobic stamina	Boost stamina during training day
Anaerobic stamina	Develop stamina
Speed (limb)	Maximize limb speed
Speed Endurance	Maximize speed endurance
Strength Endurance	Maximize strength endurance
Suppleness	Develop suppleness
Nutrition	Evaluate required carb intake for training day

Worksheet 3: Athletic Abilities and Training Objectives for a Microcycle

Phase: Regular Competition   **Microcycle #:** ___31___   **Dates:** ___Aug. 2-7___

Athletic Ability	Training Objective
Technical skill	Maintain technical skill
Tactical skill	Implement strategies previously practiced (e.g. competition plan)
Psychology	Develop and practice arousal control
Aerobic stamina	Maintain
Anaerobic stamina	Maintain
Speed (limb)	Maintain
Speed Endurance	Maintain
Strength Endurance	Maintain
Suppleness	Maintain
Nutrition	Implement diet routine tested in practice; evaluate effectiveness in competition

3.2   Exercises for Your Practices

The following examples correspond to Worksheet 4 in the Workbook.

Worksheet 4 - Example: References for a Practice in Three Microcycles (General Preparation, Specific Preparation and General Competition Phases)

Exercise 1:	General Preparation Phase	Specific Preparation Phase	Regular Competition Phase
Athletic Ability to be Trained	Technical skills	Technical Skills	Technical Skills
Objective of Training the Athletic Ability	Block mechanics – spin blocks	Refining Slot Switching	Introducing Competition Altitude
Brief Description of the Exercise	Review mechanics of blocks 7, 9, 14, 15 of top teams from video. Coach should analyse all positions and the athlete should analyse their specific position. Then go and walk and/or creep as appropriate.	50% of skydives during this training camp will involve switchers. Blocks primarily to be trained are: 3, 5, 10, 12, 16, 17.	Rather than using full training altitude, competition altitude is used. This tends to bring up anticipation level and intensity as less working time is available.
I put this exercise 3<u>rd</u> because...	It is a mid range in the block complexity and needs to be covered early in the day when people are mentally sharp.	Fairly advanced skill set that requires the team to be communicating well together in the air.	At the beginning of the competition phase to increase training intensity going into competition.

Exercise 2:	**General Preparation Phase**	**Specific Preparation Phase**	**Regular Competition Phase**
Athletic Ability to be Trained	Aerobic Stamina	Aerobic Stamina	Aerobic Stamina
Objective of Training the Athletic Ability	Jogging at a pace that allows a 30-minute run, athletes need to know this will be extending to 1 hour over the year.	Jogging at a pace that allows a 60-minute run.	Jogging at a pace that allows a 30-minute run.
Brief Description of the Exercise	The athletes need to make a commitment to each other; exercising and warming up together in the morning helps to bring the team together.	A group run, extended in time, warming up and working together.	A group run to warm the team up together for the competition
I put this exercise _1st_ because...	It helps to bring the team together and warm them up in the morning.	It helps to bring the team together and warm them up in the morning	It helps to bring the team together and warm them up in the morning

Exercise 3:	**General Preparation Phase**	**Specific Preparation Phase**	**Regular Competition Phase**
Athletic Ability to be Trained	Suppleness	Suppleness	Suppleness
Objective of Training the Athletic Ability	Increase flexibility to allow greater range of motion and reduce injury.	Increase flexibility to allow greater range of motion and reduce injury.	Maintain flexibility and reduce competition soreness and injury. Not attempting to increase range of motion.
Brief Description of the Exercise	Half hour stretching time led by a different member of the team each day.	Half hour stretching time led by a different member of the team each day.	Half hour stretching time led by a different member of the team each day.
I put this exercise _2nd_ because	To occur after warm up.	To occur after warm up	To occur after warm up.

4.   EXERCISE SEQUENCE IN A PRACTICE

4.1   Choosing the Sequence

See Worksheet 4.

4.2   Comparing with the Sequencing Research

Reference sections 7.2, 7.3 and 7.4 of this manual for theoretical information related to the sequencing of training activities for skydiving.

5.   ADJUSTING EXERCISES

Follow the activities in Section 5.1 for non-cyclical sports such as skydiving (other examples of non-cyclical sports include: team sports, artistic sports, combat sports, and racquet sports). Review: Cyclical sports are ones which—for the duration of the competition—you will be repeating the same motion over and over (such as a swim stroke); non-cyclical is a variety of skills are used over the course of the competition. Skydiving is a non-cyclical sport.

5.1   Non-cyclical Sports

The following examples corresponds to Worksheet 9 in the Workbook.

Worksheet 9: Adjusting an Exercise in a Non-cyclical Sport

Practice Date: _____   **Microcycle #:** _____

Exercise Name (Pick one from your *Worksheet 4*) Refining Slot Switching (Jumping day)

Technical or Tactical Objective

Improve the team's ability to manage the whole dive pool so that a full draw feels natural.

Description of the Exercise (Use a diagram if it helps)

Design the jumps for each day with at least half of the dives including one of blocks 3, 5, 10, 12, 16, 17. (OR just run some dives in B's the whole time.)

Standard of Performance (Success criteria)

Score in slot-switching (aka non-repeating) dives will be no more than 10% lower than for repeaters, on average.

(Note: the difference between scores for slot-switchers vs. standard jumps will depend on the extent to which the team has trained B-slots in general. The idea is to measure success in the non-standard slots against performance in the standard slots.

Adjustments to Make This Exercise Easier	Why This Adjustment Makes The Exercise Easier
Alternate slot-switching dives with standard position dives.	Reduces the mental effort as well as creeping/prep time and effort every second dive. Team gets a little rest.
Design the dives only with randoms or straight-forward other blocks.	Eliminates need to put effort into remembering B-slot blocks; team can focus on getting the pace right.
Design some dives as drills with only 1 or 2 randoms.	Allows the team to put their focus on the block technique for the slot-switching blocks in an isolated environment, so that they have the basic technique semi-autonomous later when the block appears in more complicated dives, and they can then focus more on the result of the switch.

Adjustments to Make this Exercise Harder	Why This Adjustment Makes the Exercise Harder
Put several slot-switchers in a row followed by one standard sequence then a couple more switchers.	Increases effort in physical and mental prep over a longer period of time. Adding just one standard jump breaks the rhythm of the slot-switchers and makes it harder to get back into the more complicated dives. (Note: for some individuals, this won't be true.)
Put the harder slot-switchers in at the team's least optimal time of day.	Puts the increased mental effort during the team's least effective performance time. (Time will differ by team, but typically 2/3 through the day, or first jump in the day.)
Do a full draw but design it so that the dives have a mix of dive types (some 1-block 4-random, some 3B, some 2B+1R, some 2B+2R, etc.).	Giving teams a full draw that is engineered to be difficult and have some awkward transitions, as well as no good way to un-switch, increases the difficulty.

5.2   Correcting a Common Error

Read Correcting a Common Error *in the* Reference Material (Section 7.5)*.*

6. TRAINING A TECHNICAL OR TACTICAL ABILITY OVER SEVERAL MICROCYCLES

6.1 Exercises for Developing a Technical or Tactical Ability

The following examples correspond to Exercise in section 6.1.1 of the Workbook.

Exercises to Train a Technical or Tactical Ability over Four Microcycles

Technical or Tactical Ability	Goal	Training Needed for a Training Effect
Technical ability: Block mechanics: move/stop technique for 2-person pieces.	Correct flying technique for execution of blocks 1, 5, 6, 8, 10, 11, 12 (?) 16 (?) 18, 19, 20 (centres), 21, 22.	Tunnel and/or in-air work on solo flying skills followed by pair flying. Sequence tunnel first then in-air and repeat as needed to refine.
Standard of Performance (Success Criteria): Able to stop individual movement while still flying with a piece partner who is completing their move.		

Technical or Tactical Ability	Goal	Training Needed for a Training Effect
Tactical ability: Establish team pace for random work.	Consistent performance speed of random sequences no matter how they appear in a draw.	Tunnel and/or in-air work on random pages followed by training of random sets within other types of dives.
Standard of Performance (Success Criteria): Random pace consistently established is compared to pace of best sequences performed.		

Exercise #	Description of Exercise
1. Solo flying technique	In wind tunnel, have athletes practice aggressive movements in all dimensions and directions followed by solid/hovering stops.
2. Practice block 6 in stages, without grips	In tunnel, have team perform block 6 with stops at the half-way point, give clear initiation of second move, no grips.
3. Practice holding position while rotating	2-person exercise, possibly first with a coach, to practice contact with piece-partner while they translate but athlete maintains position while allowing rotation (as in block 6).
4. Practice block 6 in stages, with grips	In tunnel, have team perform block 6 with stops at the half-way point, clear initiation of second move (pause at interim), this time with grips.
5. Practice block 6 smoothly	In tunnel, have team perform block 6 with hard but brief stops at the half-way point and continuing without pause for key. Still emphasize timing between pieces. Fly with grips.
6. Practice the block in air	Repeat exercise 4 in air (could do as part of a stop drill jump, or just drill the block).
7. Perform block in air	Repeat exercise 5 in air.
8. Practice block 6 with power (advanced technique)	Add a 'squeeze' at the start and end of the block, and a power assist from the stationary partner to the moving partner (posting). Practice both in tunnel and in air (potentially as a 2-on-2).

Note: Repeat this progression for technical skills of all this type of block.

Read Activity Progression *in the* Reference Material *(section 7.4).*

The following examples correspond to Worksheet 12 in the Workbook.

Worksheet 12: Sequencing Exercises over a Series of Practices in Four Microcycles

Note: In this exercise a "practice" is one jumping day because technical/tactical skills will generally involve in-air practice. A micro-cycle is assumed to be four or five days of a training camp (depending on the schedule). This schedule assumes that each day consists of 30 minutes tunnel plus 6 jumps.

The exercise numbers in this example refer to the exercise numbers in Worksheet 11. The layout of this table is not identical to the one in Section 7. There will be other exercises in the practice which are not related to this skill (e.g. spin blocks or random work).

Subsequent microcycles will continue the pattern of working through this type of block, combining new blocks with refreshers of blocks already trained.

	Exercise #	Practice 1	Practice 2	Practice 3	Practice 4	Practice 5
Microcycle #1	1	Exercise			Exercise	
	2	Block 6	Blocks 1 & 21	Blocks 19, 10 & 8		
	3	Exercise			Exercise	
	4	Block 6	Blocks 1 & 21	Blocks 19, 10 & 8		Repeat for weaker blocks
	5	Block 6	Block 6	Blocks 19, 10 & 8	All blocks to date	
	6		Block 6	Blocks 1 & 21	Blocks 19 & 8	Block 10
	7		Block 6	Blocks 1 & 21	Blocks 6, 19 & 8	Blocks 10, 1 & 21
	8					

7. REFERENCE MATERIAL

More reference material could be added to this section in time. The Pilot will help identify gaps in knowledge and reference material.

7.1   Definitions of Planning Terms

Throughout the season, each practice session is part of a training phase or period focusing on specific goals. See the following table for definitions used in this module.

Objectives of Periods and Phases of Seasonal Sport Programs

Period	Phase	Objectives And Priorities	Training Methods
Preparation	General Preparation Phase Recommended length: 6 to 8 weeks, or more	General development of physical, motor, and mental athletic abilities Acquisition of new technical abilities and skills Consolidation of already acquired technical and tactical abilities Progressive increase in the quantity of work done during practices Improvement of athletes' weak points Development of interpersonal bonds within the group Establishment of general objectives related to athletic development	Large proportion of general activities and exercises; small proportion of specific and competition activities and exercises Training and practice conditions fairly stable and predictable, or controlled by the coach Average intensity lower than that of later phases
	Specific Preparation Phase Recommended length: 3 to 5 weeks, or more	Progressive development of physical conditioning adapted to the sport Specific development of the primary physical, motor, and mental athletic abilities required in the sport Improvement of athletes' weak points Consolidation of already acquired technical and tactical abilities Acquisition of new tactical abilities and knowledge Progressive increase in the quantity of work done during practices Progressive increase in activity intensity, approaching competition-level intensity toward the end of this phase	Greater proportion of specific or competition exercises, decrease in the proportion of general activities and exercises More specific and less predictable training and practice conditions; conditions controlled by the coach more frequent than random conditions

Period	Phase	Objectives And Priorities	Training Methods
	Pre-Competition Phase Recommended length: 2 to 3 weeks, or more	Preparation of athletes for future competitions Maintenance of physical, motor, and mental athletic abilities of low or moderate importance in the sport Specific development of the primary physical, motor, and mental athletic abilities required in the sport Consolidation of already acquired technical and tactical abilities Increase in activity intensity, to be at competition-level intensity toward the end of the phase Stabilization of the quantity of work done during practices Identification of more specific performance objectives Stress management and emotional control when outcome is important Cooperation within the group First selection activities (if applicable)	Large proportion of specific or competition exercises, and small proportion of general activities and exercises Specific training and practice conditions Conditions controlled by the coach more frequent than random conditions Participation in a few preparatory and "non-official" competitions
Competition	Regular Competition Phase Length: variable	Validation and confirmation of learning and progress made by athletes during training Achievement of performance goals Maintenance of the primary physical, motor, and mental athletic abilities required in the sport Consolidation of already acquired technical and tactical abilities; maintenance of recently acquired ones Stabilization of or decrease in the quantity of work done during practices and maintenance of an intensity similar to that found in competition Stress management and emotional control when outcome is important Acquisition/implementation of game/combat/race plan Cooperation within the group Other selection events (if applicable)	Very large proportion of specific or competition exercises, and very small proportion of general activities and exercises, unless the latter are required to correct persistent shortcomings Specific training and practice conditions similar to those of competition; conditions controlled by the coach less frequent than random conditions Practice simulation of situations likely to be encountered in major competitions Use of specific competition situations or of less important competitions as difficult practices or as tests in which athletes experiment; include psychological stress during training only when athletes have a high success rate in the execution of technical skills

Period	Phase	Objectives And Priorities	Training Methods
	Major Competition Phase	Implementation of game/combat/race plan with the aim of achieving a performance in competition Achievement of performance goals when the stakes or competition level are higher Stress management and emotional control when outcome is very important Recovery from fatigue and stress due to participation in regular and major competitions Rather than trying to increase the length of practices, make sure that their frequency is maintained and the intensity remains high High success rate when performing actions in training (precision and consistency); high cooperation within the group Final selections (if applicable)	Very large proportion of specific exercises Random conditions more frequent than conditions controlled by the coach Exercises and activities intended to refine preparation Insertion of frequent breaks in practices so as to avoid fatigue and maintain a high degree of intensity
Transition	Length: variable (2 to 8 weeks)	Recovery and regeneration Healing of injuries sustained during the Competition Period Decrease in the length, frequency, and intensity of sport activities	Active rest Very large proportion of general activities and exercises Participation in activities other than organized competitive activities Participation in sports with different physical and motor requirements, with or without competition, without stress

7.2   Exercise Sequence within a Practice — General Considerations

❑ Each practice focuses on the goals specific to the period in which it takes place.

❑ The sequence of activities in a practice addresses the need to:

- Optimize technical or tactical learning
- Optimize physical and psychological development

❑ Activities in a practice must therefore be sequenced as follows:

1. Activities pertaining to technical skills, co-ordination, and balance
2. Activities pertaining to speed
3. Activities pertaining to muscle development
4. Activities pertaining to endurance and flexibility

❑ Activities relating to tactical and strategic learning must be performed when the athlete is well rested and able to concentrate properly. That's why they're often done at the start of a practice. By contrast, activities designed to consolidate tactics and strategies already acquired are best performed at the end of the practice so that athletes can develop endurance.

❑ Activities that call on psychological abilities such as concentration, emotional control, and exercise tolerance can be performed at different times during the practice, depending on the rest they require.

❑ There is very little scientific information on the optimal sequencing of training loads within a microcycle or training day. The following sequencing should therefore be considered as a guideline based on current best practices:

- **Technical** training — acquiring or refining motor skills — should always occur before other forms of training, when the neuromuscular system is not tired. This means the beginning of the practice, after the warm-up.
- **Pure speed** training should occur before the development of other athletic abilities.
- **Anaerobic alactic** training should occur before lactic or aerobic training.
- **Anaerobic lactic** training should occur before aerobic training.
- **Higher intensity aerobic** training should occur before endurance training.
- **Specific-speed aerobic endurance** should take precedence over slow continuous training.
- A break of at least 36 hours should occur between practices causing a significant depletion of muscle glycogen; this allows recovery to occur.
- Ideas on Ideas on effective cross-training sports for 4-way FS: Swimming, climbing, badminton, squash, juggling, circuit training.

❑ In general, the development of motor abilities should occur before the development of physical abilities during a practice.

❑ When different physiological systems are trained, athletic abilities related to these systems, such as power and capacity, should be trained in the following order:

1. Alactic power
2. Alactic capacity
3. Lactic power
4. Lactic capacity
5. Aerobic power
6. Aerobic capacity (endurance)

❑ Training the same element more than once in the day is NOT recommended.

❑ If several practices are planned for successive days, the considerations listed above should also apply. For example:

- On the morning of the first day of a microcycle *following a day of rest*, perform activities aiming to develop speed, technique, or alactic anaerobic system power. The central nervous system is in an optimal state to respond to these types of activities.

- In the afternoon session, aim to develop or maintain another physical ability.

Important Note: The preceding information does NOT refer to the order in which to develop athletic abilities within seasonal or annual planning. Rather, it relates to the sequence of activities within one practice or within a series of practices taking place over a few days (week).

In sum:

<div align="center">

Early in the Main Part of the Practice...

</div>

Athletes are not tired, so try to plan for:

❑ Activities to acquire new techniques, skills, or motor patterns

❑ Activities that develop or require co-ordination or balance

❑ Activities that develop or require speed

<div align="center">

Then Consider...

</div>

❑ Activities to develop or require speed-endurance

❑ Activities that develop or require strength

❑ Activities that develop or require strength-endurance

<div align="center">

Later in the Main Part of the Practice...

</div>

Athletes may be tired, so try to plan for:

❑ Activities to consolidate skills already acquired

❑ Activities that develop or require aerobic endurance

❑ Activities to develop flexibility

## 7.3   Exercise Sequence for Team, Combat, and Duel Sports

	First Portion of the Main Part of the Practice	**Second Portion of the Main Part of the Practice**	**Third Portion of the Main Part of the Practice**
Purpose	Technical and tactical/strategic training	Refinement of existing abilities	Load capacity/stress
Goals	Learn Develop Correct	Stabilize Maintain Refine	Fatigue resistance Stress Speed-endurance
Content/task	Whole technical movement OR part/movement OR tactical component	Basic motor know-how OR tactical/strategic notions	Technical movements Tactical components
Design of the training task	Series of repetitions for the same training task	Series of repetitions for the same task OR establishment of a link between movements OR response to a situation	Establishment of a link between movements OR response to a situation at hand (reading the situation and reacting with the correct motor response)
Key performance expectation	Proper execution OR success rate when performing the movement	No deterioration of motor skills High rate of success when performing the movement	Self-control Willpower Concentration Success at different rates of movement
Requirements	Concentration plus well-rested central nervous system		

7.4 Activity Progression

Depending on the learning required and the desired result, the coach determines:

❑ The number of activities required

❑ Their distribution in time

❑ Their frequency in comparison with other activities

Here is an example of an activity progression over several practices. In this example, a coach chooses eight activities for athletes to do in a specific order over ten practices; *1* refers to the activity the athlete does first, *2* to the activity the athlete does second, and so on through the eight activities.
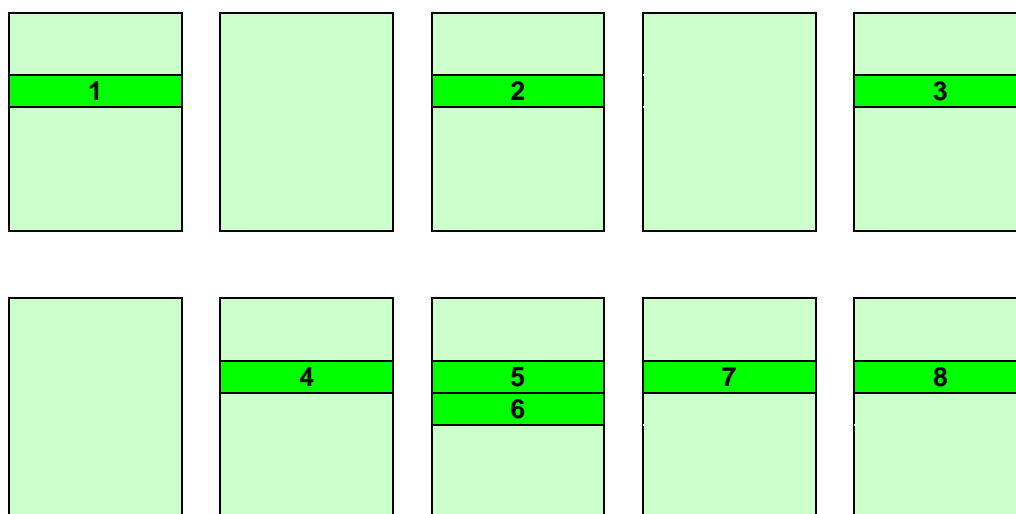
The order in which athletes do the activities is based on research about how learning occurs for those types of activities.

Types of Activities

To optimize their learning, athletes need to train the following four types of activities in the order shown:

- 1st: Motor activities (technical, tactical, individual, group)
- 2nd: Speed activities
- 3rd: Muscular activities
- 4th: Endurance activities

Athletes typically train these four types of activities in their practices. Cognitive and psychological abilities also need to be trained and are covered in other NCCP modules.

Here's one example of how to distribute motor, speed, muscular, and endurance activities across ten practices to optimize athletes' learning.

Introduction	Introduction	Introduction	Introduction	Introduction
Warm-up	Warm-up	Warm-up	Warm-up	Warm-up
1	2	2	5	3
1	3	2	5	6
1	4	3	3	7
1	2	4	4	5
Cool-down	Cool-down	Cool-down	Cool-down	Cool-down

Introduction	Introduction	Introduction	Introduction	Introduction
Warm-up	Warm-up	Warm-up	Warm-up	Warm-up
6	4	5	8	9
7	9	6	9	10
8	6	7	10	10
8	7	8	9	11
Cool-down	Cool-down	Cool-down	Cool-down	Cool-down

Motor Activities

Speed Activities

Muscular Activities

Endurance Activities

Summary Table: Training Methods

Athletic Ability	Training Objective	Number of Weeks Required for Significant Improvement	Training Frequency	Training Time (Minutes)	
				Minimum:	Up to:
Technique	Initiation	1-2; variable	3 or +	30	60
	Acquisition	4-6	3 or +	30	60-90
	Consolidation	3-4	2 or +	20	60-90
	Refinement	Variable; probably several months or more	2-3 or +	??; most likely at least 20-30	60-90
Tactics	Acquisition	4-6	2	20	45
	Consolidation	Variable; 3-4	2	20	45-60
	Decision-making	??; probably several	2	??	??
Aerobic Endurance	Development	6	2-3	20-30	60-75
	Maintenance	*Not applicable*	1	20-25	60-75
Aerobic Power	Development	6	2-3	20	55-60
	Maintenance	*Not applicable*	1	12-15	55-60
Speed	Development	4	2-3	15	45-50
	Maintenance	*Not applicable*	1	10	45-50
Speed-endurance	Development	4	2-3	18-20	45-50
	Maintenance	*Not applicable*	1		45-50
Maximum Strength	Development	*Seeking systematic development of this athletic ability in young athletes is NOT recommended*			
	Maintenance				
Strength-endurance	Development	4-5	2	10	30-35
	Maintenance	*Not applicable*	1	10	30-35
Speed-strength	Development	4-5	2	5	12
	Maintenance	*Not applicable*	1	5	12
Flexibility	Development	3-5	2-3 or +	12-15	50-55
	Maintenance	*Not applicable*	1	5-8	50-55
Motor Abilities (agility, balance, coordination)	Development	??; probably several	2-3 or +	??; probably at least 10-15	??; probably 20-45
	Maintenance	*Not applicable*	??; probably at least one	??; probably at least 10-15	??; probably 20-45

7.5   Correcting a Common Error

Bompa's Training Factors Pyramid[1]

Ps

Tactical

Technical

Physical

Order to follow to correct the errors
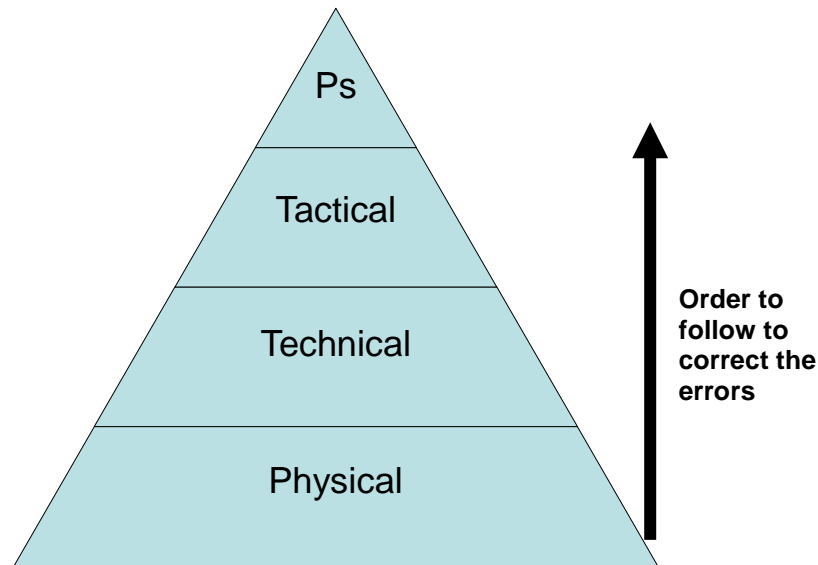
❑   To help you answer exercise 5.2, read through the following example about correcting a common error in basketball.

Step 1: Describe the coaching context

❑   Age of athletes: Young women, 17 to 19

❑   Competition level: Collegiate AA (provincial circuit)

❑   Years of experience: 5 years on average

Step 2: Choose a common error in your sport that has a significant impact on performance

❑   The opponent often blocks the athlete's throws during attack.

Step 3: Ensure that the chosen error affects at least two of the three dimensions of performance (physical, technical, tactical)

❑   Three dimensions can explain why an error has a major impact on performance:

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[1] Tudor Bompa, Ph.D. *Periodization: Theory and Methodology of Training.* 4th edition. 1999: Human Kinetics. In the graphic shown above, *Ps* refers to psychological and mental training.

- **Physical.** The athlete does not have enough relative maximum strength and speed-strength in her lower body, and she does not have enough momentum to throw the ball over the defence player.

- **Technical.** The athlete has poor technique: she holds the ball too low when she initiates her throw (instead of lifting the ball over her shoulders), which allows the defence player to easily block it.

- **Tactical.** The athlete's tactical decisions are inadequate. For example, she never throws at the right moment, that is, when she can free herself from the defence. This is probably due to a lack of understanding of the defence's intentions and a lack of anticipation of the defence movements.

❑ The error can be rooted in all three dimensions. To determine which dimension or dimensions cause the error, you need to observe the athlete in a game situation and pay special attention to why her throws are blocked.

Step 4: Identify the sequence to follow to correct that error

❑ Using Bompa's Training Factors Pyramid, first correct the *physical dimension* of the error, i.e., the lack of strength (maximum and speed) in the athlete's lower body. Develop relative maximum strength first, then speed-strength.

❑ When the physical dimension is corrected, turn to the *technical dimension* of the throw. Correct the technical elements in a specific order because each part of the movement has an impact on the next parts (biomechanical principles). Here's the sequence to follow to correct the throw (you can add images to illustrate these points):

- **Starting Position:** Facing the basket; dominant foot pointing toward the basket; shoulders and hips perpendicular to the target; ball positioned in front of the dominant shoulder (the right one if the athlete is right-handed).

- **Executing the Throw:** Fluid movement in the following sequence: extension of ankles, legs, hips, shoulder, elbow, and wrist.

❑ A list of errors frequently observed while a throw is performed is provided below, along with the exact order in which they must be corrected:

- Inadequate use of leg strength, either because of insufficient flexion or lack of co-ordination between leg movement and upper body movement

- Dominant arm movement initiating the throw at hip level rather than at shoulder level

- Elbow of the dominant arm not pointing toward the target, which causes the wrist to extend in the wrong direction

- Dominant arm movement not ending in complete extension, decreasing the strength of the throw OR dominant arm extending horizontally instead of vertically, resulting in a bad angle between the ball and the basket

- Wrist does not complete its flexion toward the target or does not flex at all, affecting the precision of the throw

❑ Correction of the *tactical dimension* comes last.[2] Here's the sequence to follow to help the athlete make the appropriate decisions:

- Clearly define the decisions your athlete needs to make when she's in an attack situation with the ball. The decisions must be specific to the sport and situation at hand (make the throw or not); they must also identify the cognitive skills required to perform at a high level.

- Identify and describe the drills or activities that allow the optimal training of the decision options listed above; the chosen activities must reflect the competition situation as accurately as possible.

- Choose the tool or tools that will best contribute to decision-making training during the activities.

Step 5: Use the sequence identified in Step 4 to create a series of activities to correct the error

❑ **Physical Dimension:** Use an appropriate test to assess your athlete's lower-body strength. Then suggest a training program that will develop the athlete's relative maximum strength, followed by her speed-strength. Propose activities that allow simultaneous training of speed-strength and one technical element.

- At this point, make sure the proposed activities reflect the training protocols for the ability you want to train.

❑ **Technical Dimension:** Develop a series of activities to correct the error identified in Step 4. Establish a timeline for these activities.

❑ **Tactical Dimension:** Use appropriate training tools[3] for decision-making, and establish a timeline for your activities.

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[2] The sequence used here is based on Joan Vickers's research on decision training.

[3] For one example of such tools, see Joan Vickers's research on decision training.

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