



Can Freestyle Club & Coach Resource

Section 6.3

Air Module 3

Introducing Acrobatic Skills On Skis On Air Bag and Water Ramp
April 2013



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INTRODUCTION

In the Air Module 3 Coaches will be trained to teach the Air 1 & Air 2 introductory and advanced acrobatics / freestyle skills up to twisting singles; on and off axis on a water ramp and air bag facilities.

Coaches must pass the Air 3 coach competency evaluation to teach both introductory and advanced acrobatic skills at a training facility.

Coaches and athletes are applying acrobatic mechanics learned in Air 1 and 2.

ACKNOWLEDGEMENTS

CFSA gratefully acknowledges the support of the Canadian Acrobatic Sports Group currently including Gymnastics, Diving, Freestyle Skiing and Snowboarding. The Air 1 and Air 2 Acrobatics Projects have been made possible with the support and leadership of Canadian Sport For Life and Sport Canada.

In the Air 1 and Air 2 Modules we set out to distill the most up to date technical information in Trampoline, Traditional and New School Freestyle Skiing, and Snowboarding. This required expertise and innovation from a wide variety of top coaches and learning facilitators.

The resulting courses develop acrobatic excellence for a broad group of sports, and the content is designed to be shared to support the acrobatics sector of our Canadian sport system. It represents a leap forward in developing core skills in athletes 6 to 16 through the Long Term Athlete Development Model.

Also, we would like to thank the following contributors who drafted the Air 3 and 4 curriculum.

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AIR 3 MODULE OVERVIEW

Introduce Air Skills with Skis in a Freestyle Specific Training Facilities

Goal: Teach advanced acrobatics/gymnastic skills up to twisting singles on a water ramp and/or air bag facility.

Equipment: Ski Clothing, Freestyle Ski Equipment, Helmet

Performance Expectations: Have a good understanding of all air 2 rotational movements and mechanics. Candidates will be asked, but not required, to attempt inverted maneuvers and progression and demonstrate knowledge of moves and progressions through coaching.

Prerequisites: Air 2, CFSA membership license

Equivalents: Gymnastics Canada Tramp 2 + Air 2 update + evaluation (available summer 2012)

How to Find a Course: Contact local PSO

Recommended Cost: \$300

Number of Days: 3

Coach Scope of Practice on Certification: The coach competency evaluation form will specify if there are any exclusions to being able to coach any single inverted spinning moves covered in the Air 2 material including Cork, Misty, Rodeo, Flat Spin, Lincoln Loop and Classic Category moves. Air 3 A certification will allow the coach to supervise and to qualify Cork 720, front and back tuck position flips only in the environment in which the coach is certified.

A "Trained" Air 3A coach may operate an air training facility with PSO and CFSA approval. A "Certified" full Air 3 may operate an Air Bag or Water Ramp following CFSA sanction policies without applying to CFSA/PSO for special approval.

AIR COACH PATHWAY

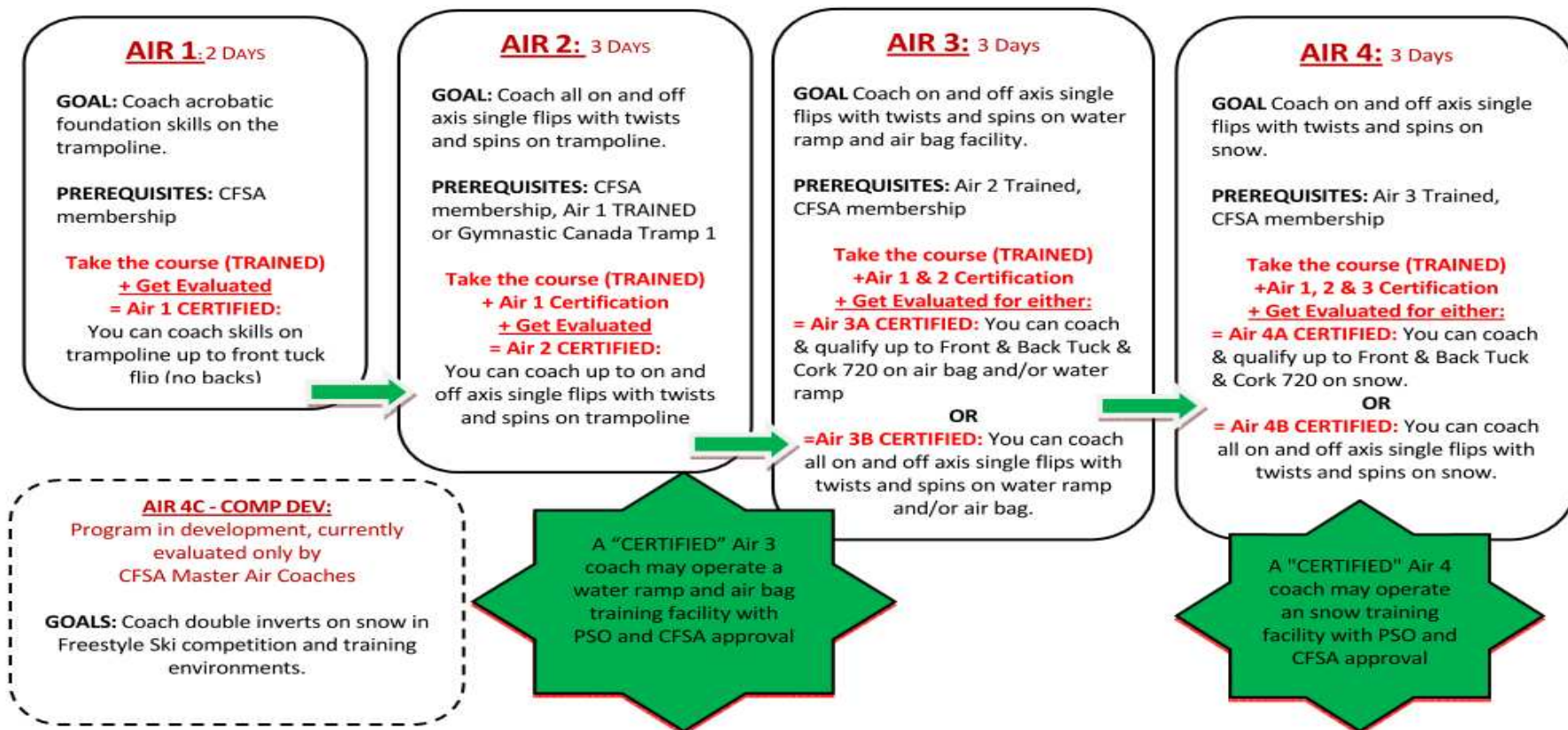


NEW CFSA AIR COACH PATHWAY

Part of the Competition Introduction SUPERCOACH Program



CFSA is targeting to have the new Air Coach system fully implemented by May 2014. At that time the old Level 2 Air Coach and Air Qualifier Status will be obsolete. Coaches can only qualify their own athletes, this is currently in effect. The athlete skills taught in this program are used with the Freestylerz program.



ROLE OF THE COACH

The management of athletes in a training environment is the responsibility of the coach. Safety is the primary goal. The delivery or communication of skill progression that will properly develop an athlete is also the responsibility of the coach.

The following material covered in the Air 3 Module is designed to inform the coach of the available types of training environments and the varied use of each to deliver air technique safely and effectively to athletes.

The Air 3 module will cover entry level to advanced acrobatics including off axis and flipping rotations with skis on the feet. This module will introduce the air skills covered in the Air 1 and Air 2 trampoline material to athletes in the ski training environment, and then on to snow.

Coaching Emphasis

In the following A3 course material, you will continue to develop your coaching education with an emphasis on 3 areas.

1. Progression

Progressing an athlete through a series of development skills takes a deep understanding of not only spin rotation and flipping mechanics, but when to introduce them. The Air 3 material develops your application of trampoline mechanics to acrobatic skiing maneuvers and basic fundamentals through progression. Your athletes' use of progression will be the key to develop skills safely and effectively all levels and disciplines of Freestyle Skiing.

2. Performance

It is important to use consistent terminology as covered in the Air 3 material in your coaching feedback. Consistent, clear, and positive feedback will increase the athlete's level of understanding and improve performance. The quality of each maneuver should be emphasized over quantity. The responsibility of the coach is to assess and develop each learned skill with acceptable technique being performed by the athlete.

*CFSA requires that before an athlete is allowed to perform a skill on snow they must demonstrate good quality performance of that skill on demand in a variety of training environments.

3. Mileage

Mileage is a very important aspect of coaching and needs to be monitored and gauged. Quality and then quantity can produce positive results in athlete development by quick and accurate assess and development of technique, at the

early stages of learning. Athletes with poor mechanics that go unchecked by a coach, become more difficult to change over time.

SAFETY

Administration Start Up

Pre-Requisites Coach

- ✓ Coach CFSA Membership- required for any coach to cover any athletes on ramp (*term June 1-May31 12 months)
***Even if a membership was obtained in winter it expires on June 1st each year**
- ✓ All athlete's need to have updated CFSA membership, visiting coaches included. Any athlete ramping without CFSA license can shut down training sites for the season.
- ✓ Coach Qualification (supervising coach needs to be old Level 2 Air Coach Water or new CFSA Air 3 certified)
- ✓ All rules governing sanctioned training environment covered in **ARQ Manual** section 5. You can find this on the CFSA website in Officials downloads section.

Sanctioning

- ✓ Contact PSO directly to set yearly training environment sanctioning
- ✓ Designated ramp coach or manager should be in attendance of sanctioning inspection for details of rules and regulations
This needs to be completed before ramp can open

HELMET REQUIRED FOR ALL VENUES UNDER CFSA SANCTIONING

Water Ramp

The water ramp environment has been the most common area for advanced acrobatic training for many years. It has proven to provide one of the safest environments for training. With the advancement of the "bubbler" air systems in the water landing athletes can perform single, double and triple flips with many repetitions and low risk of injury.

On-going inspection should include the following observations:

Water Quality-Discoloration

Surface Repair Required

Liner Leaks (Water Ramp)

Protection from Theft / Break-In

Fence Damage

Low Wax/Iron Needs

Tramp Repair/Padding Needs

Water Ramp Start up and Coach Responsibilities

The priority of the coach is to manage athletes in the various training environments. Safety awareness starts with inspection. When the coach becomes familiar with the training environment, risk can be assessed and the venue requirements or rules will be followed.

Ramp Closure Policy: (weather/attendance/breakdown issues)

- Any thunder or lightening reported or seen in the area
- Driving rain that hinders the vision of the athlete's on the in-run (light drizzle is subject to ramp coach discretion)
- High winds
- Sprinkler system failure (dry ramp surface damages the meanies)
Poor Water Quality

Any and all ramp issues need to be reported to Club or Organization for the training venue, Air Bag or Water Ramp.

Ramp Inspection

Daily inspection of the entire facility (Walk Through)

- ❑ Water or pool area clear of possible debris
- ❑ Check for lifting screws on surface
- ❑ Visual/odor identification of water quality (chlorine test kit available on site)
 - Water height to proper operating level to sanctioning standards
 - Ramp chains opened
 - Tramp pit visually checked for debris in the bottom of tramp pit
 - Tramp pads pulled around trampoline
- ❑ Rope tied to Water Rescue Ring Buoy near coaching station (easy access and line untangled)
 - First Aid Kit located and Floatable Backboard on deck of ramp with easy access

System Start Up/Shut Down

- ❑ Air Bubbler System (complete run through by the facility/ramp manager)
- ❑ Sprinkler System turned on or primed (review shut down requirements)

Athlete Equipment Check List

- ❑ Life Jacket (mandatory)
- ❑ Gloves (mandatory-with grabs and metal stairs, these should not be optional)
- ❑ Helmet (mandatory-ear holes *Duct Taped for ear drum protection)
- ❑ Ski Straps (string or fastening system)
- ❑ Wetsuit (optional in hot weather)

Coach observational awareness:

- Edges that are torn out and dangling are a hazard to the athlete's in-run stability and can also damage the ramp surface break them off or tear them out
- PFD certified lifejackets only! Some wake board vests are not certified and do not support weight of skis & boots in water
- Dry Suit Life Jackets (some athlete's wear them under their dry suits and have forgotten to put them on) A quick pat on the back or shoulders will let you know if they have them on. It is very important to have life vests on with all dry suits as zipper failure will result in sinking
- Helmet straps snug around the chin.

Athlete Preparation and Ramp Performance (Jumping)

- All athlete's need to wax before every session
- All new athletes to a water ramp need to ride the ramp before going off the jump and before attempting tricks.
- NO SPEED CHECKING!
- No ski boots on the transition surface.
- Transition is also to be kept free of mud and debris.

General Rules:

- Athlete's are permitted to swim in pool area with CFSA General Membership, under supervision and with life jackets
- Any dogs/animals on leash in ramping area.
- Coaching area next to kicker should be clear of waiting athletes.
- Entire ramp needs to be clear in case the athlete falls off the ramp somehow

Air Bag Start Up- Coach Responsibilities

The inflatable air bag is one of the most versatile training venues because of its mobility and relatively low maintenance. Air Bag can be used with both a simulated snow and real snow in-run. Air Bag can provide a great transition from the training to snow environment by using a similar in-run and jump shape. It is important to follow the manufacturer's directions for set up, and have training supervised by qualified Air 3, or old level 2 air coaches.

The following will impact the use and safety of the air bag training facility:

- Size/dimensions of the air bag
- Shape of the air bag and the jump.
- In Run speed
- Skill of the athletes
- Weather and snow conditions

AIR BAGS DO PRESENT RISK

- **Site Inspection**

Daily inspection of the entire facility (Walk Through)

Check no obstacles in spill off zone

- Check spill off zone is closed off to skier traffic
- Ensure generator is running well and has enough fuel for session
- Make sure bag inflates properly and is free of major tears
- Ensure speed is adequate for session
- Ensure jump is appropriate distance from Air Bag –e.g. ideally no gap between ramp and bag.
- Ensure athletes can see knoll master and know open and closed and speed check signs.
- Electric supply is reliable and all cables are up to code.

- **System Start Up/Shut Down**

Air inflation of air bag to follow **Manufacturers Specifications!**

Air Bag Construction or Chamber Types varies between manufactures and coach should understand operation variables in each type or the one they are coaching on

Athlete Equipment Check List:

Gloves

Helmet

No Ski Poles Allowed

Coach observational awareness:

-Ski equipment can be the same as in the snow environment

- Ski edges should be checked for potential damage to air bag
- Helmet straps snug around the chin
- Wax improves consistency and performance (do not scrape)

General Air Bag Rules:

- Only one jumper permitted on in run and airbag at a time
- Jumper must wait until clearance is given from the coach / knoll master before dropping in.
- No jumping or in runs are permitted if the coach/knoll master is not present on the knoll.
- Proper equipment must be used at all times.
- At any time the coach or staff member may deny jumping due to lack of adequate equipment such as broken edges or inappropriate behavior
- Ski poles are not permitted
- Long sleeves, pants, and certified helmet are mandatory
- Inverts are permitted with coach's consent
- Obey all signs
- Step up your game!

EAP & Injury Report

- Coach responsible for having cell phone on site with local ambulance emergency numbers
- Each venue needs to have a published Emergency Action Plan which is shared with the coaches and knoll master.
- Coach should have familiarity with floatable backboard for water ramp, and use of basic first aid kit and its location at the training facility.
- Coach responsible for filing accident report form with CFSA, available at <http://freestyleski.com/wp/member-services/insurance/via>
Email form to: info@freestyleski.com

Other Training Environments

A foam pit can also be used for a training environment with a simulated or fake snow in-run and jump. Caution must be taken to make sure the foam pit is properly set up and maintained.

Snow (Jump and Landing)

The CFSA Can Free Air 4 Modules goes through the process of taking an athlete from the Water Ramp and Air Bag training environments to the snow training environment.

Once the desired goals of the training environment are achieved by athlete and coach, the athlete will need to adapt the learned technique to the snow environment. As the athlete has progressed safely on air bag and water ramp, basic to advanced acrobatics are now ready to be performed on snow following CFSA guidelines of qualification if needed in the ARQ Manual.

TRAINING TOOLS

Trampoline

Although the training environment with skis on feet is our final outcome, applied mechanics on trampoline can be developed as a compliment to ramp and on snow. Trampoline is a part of the training environment that when used correctly, can have an immediate impact on athlete performance.

To create an ideal training environment the use of a trampoline is highly recommended to compliment water ramp and air bag. An athletes spatial and body awareness increases with more repetitions or mileage. On trampoline an athlete can execute 50-100 similar mechanical movements in one session under coach supervision whereas water, air bag or snow might only see 10-15 jumps of training in one session. Additionally the tramp is a great tool to isolate mechanics of flipping and spin rotation.

Video

The use of video in a training session can be a powerful development tool. Different camera positions and point of view (POV) should be used. Disciplines with static judging positions should ensure the same key POV, but creating alternative shooting positions will further explore and diversify the coaching feedback.

Video sessions cut through all the communication barriers with your athlete as they can see themselves in real time performance and slow motion isolation. Be cautious, video review can create negative reinforcement and an athlete can be discouraged if improvement is slow, or if the coach is always focusing on what is wrong.

Athletes watching and analyzing specific jumps being performed by other athletes can also help to create a vision or mental picture of correct positioning. Analyzing footage of top athletes is also a great development tool.

Creating a Positive Environment

Group Session

A responsibility of the coach that is often overlooked is the attitude of their athletes. "Sessioning" is a term referred to a group of athlete's in a positive training environment helping each other push their abilities to the fullest. The coach controls the environment by setting the tone and encouraging effort through positive reinforcement. When your athlete's are having fun, they want to learn.

MECHANICAL DEFINITIONS

Angular Momentum:	Direction of movement
Action & Reaction:	Force applied has an equal force created in the opposite direction
Contact Twist:	Where force is applied against jump to create rotation
Core :	Center of the body (Chest, abdominals & hips)
Dynamic Core Movement:	The use of the core to create variations of spin and flip
Spatial Awareness:	Orientation in the air
Set:	The combination of movements at take-off to create a specific maneuver
CG Point:	Center of Gravity
Base Of Support:	Contact point(s) where the body mass is supported

ROTATION MANAGEMENT

Freestyle Ski coaches and athletes use a variety of techniques to control rotation and spin, and to help minimize any “pilot error.” The following is a description of some of the more common techniques you may wish to add to your coaching toolbox.

Calling

You can communicate with your athletes in the air, using pre-set words which you have practiced. This is very valuable when introducing athletes to front and back flips, and if athletes lose sense of their location relative to the ground. Calls should be made clearly and calmly.

Coach Calls to the athlete in the Air

- “Stretch”:** Used if the coach sees the athlete is going to over rotate. The athlete lengthens their body and stretches arms overhead to slow down rotation of the flip.
- “Pull”:** Used if the coach sees the athlete is going to under rotate. The athlete pulls the knees into chest to shorten the body and speed up the rotation of the flip.
- “Out”:** Used to help an athlete learn to control rotation speed. An athlete quickly stretches out of the tuck to a lay-out position to slow rotation and create more control for landing.

Adjustment Techniques To Help With Landing

Hollow Out: The athlete relaxes the chest and rolls shoulders forward in an attempt to slow down the rotation.

Reach: In preparation for landing when an athlete passes the point of being fully inverted, if they reach their hands in the direction of the landing it will help to make the fine adjustments required for a balanced landing position.

AIR SKILL ANALYSIS BY PHASE

In-Run

The in-run is the point when the skier is traveling into the intended jump.

Four in-run positions

1. Straight
2. Straight Carve
3. Switch Straight
4. Switch Carve

Tracking into take-off

Skiers need to understand how the path they carve on the in-run will impact speed, take-off, and trajectory. A narrow carve will carry the athlete more direct to the landing zone, where a wide carve will increase the distance to the landing zone.

Transition

Transition is the point where compression begins and force needs to be applied to resist the collapse of body joints. Transitions vary in length and slope degree. Attention to athlete performance of timing and coordination is emphasized.

Take-Off

Take-off is the last point of contact with the skis on snow before maneuver. Although the set for specific maneuvers may change, the take off is the beginning of the aerial phase. The take-off is the most critical part in the skill focus. All of the work is done at this point to achieve a successful jump. It is also important to note that all angular momentum is created during this phase.

Maneuver

Maneuver is any skill performed while in the air. The maneuver is determined by the set on take-off. Minor adjustments can be made while in flight to a maneuver but all of the angular momentum is generated and released on take-off. Angular momentum is only managed during this phase.

Landing

Landing is when the feet make contact with the ground. Landing is directly connected to the effort on the take-off. If the effort is weak or performed with poor timing, the landing will result in added adjustments to compensate and can result in a fall. When the effort is strong on take-off and executed with correct timing the athlete will have a much higher rate of success.

SKILLS PROGRESSION

Jump Inspection (getting started)

Riding the Jump- A coach can learn a lot about an athlete just by watching them ride a jump in any training environment. Riding the jump should always be done to develop familiarity of the ramping/jumping environment, feel timing of transition, achieving correct body position and vision. This is also required for water ramp in the switch position for first time ramping switch. It is always good practice to ride the jump before any training session.

Straight Air or Straight Pop- The goal to successfully execute a good set is full extension on takeoff of the lower body joints in combination with lift from the arms head and shoulders. In the "Y" set, commonly used in sport specific moguls, the arms come completely over shoulders and head in a "Y" shape.

Uprights

Grabs- Grabs should only be performed after full extension is achieved on take-off. In a variety of grabs the legs should lift toward the core as the arms come down to the skis. A correctly performed grab resembles an accordion with equal movement from upper and lower body meeting at the CG point.

Positional Uprights- A well executed spread eagle, twister, daffy or kosak uses the same basic mechanics of the straight air. After initiation of extension the hips continue to engage, pressing forward and the leg movements lift or rotate to adjust for each maneuver.

Spinning Zone

At any level of Freestyle Skiing, rotation in *both directions should be encouraged.

*In the sport specific mogul event, one direction spinning is preferred as there are no additional points scored for rotation in both directions. Mogul skiers would not need to place a heavy emphasis on landing switch as it does not apply in their discipline.

Spinning Progression-(it is important to note that spinning progression at 180 degree intervals is very important for control of dynamic core movement and spacial awareness)

STRAIGHT SPINS

180- The initiation of a 180 degree rotation should always start with the shoulders and hips using slight contact twist to set the spin. The vision, however, should not continue with rotation as the athlete never loses sight of the landing. Counter rotation of the shoulders and hips occurs, or cat twist, will allow this to happen. Full rotation of a 180 will result in a backward landing with vision up the hill.

360- The shoulders and hips open in the direction of desired rotation as extension occurs. As a progression of the 180, the vision now moves in the direction of the spin, there is no counter rotation. The head remains neutral, with slight bias to spinning direction of the shoulder movement. The shoulder remains open until the landing comes into view. To slow rotation, the hips and shoulders hollow out, and arms get wide. At this point the vision is not directly down at the feet, but looking to the point of contact. As skis and feet reach point of contact the vision comes up and hands open and reach down hill, in the intended direction of travel. With the feet at shoulder width apart, the lower body joints absorb impact and the head and chest remain upright.

540- The set for the 540 is similar to the 360 in relation of effort to produce rotation. Counter rotation is added at 360 as the hips continue in the direction of rotation to complete the 540. Vision remains to the point of contact, or downhill, as head slightly turns with the shoulders to prepare for landing switch. As the feet make contact with the snow, all lower body joints become flexed as ankle flexion and forward pressure in the front of the boots to load up the skis for control. A slight lead change may occur on landing, but is not necessarily emphasized.

720- Unlike the method of setting 360 to 540, when performing two complete rotations, the athlete will need to increase the pace of shoulders and hips during take-off to set 720. The vision is quickly moving in the direction of rotation, extension occurs and lift is achieved as the shoulders and hips generate spin from contact twist with the feet on the jump. The athlete should have good spatial awareness of the landing zone with a quick visual cue at 360, as the head continues in the direction of rotation. The shoulders and hips stay committed to the direction of rotation going by 540, as the head is looking for the point of contact. As the landing zone approaches, the athlete hollows out shoulders and hips to slow rotation reaching down hill, in the intended direction of travel.

900- As with the progression of 360-540, when performing a 900 the athlete's sets 720. After 720 is performed, counter rotation occurs in the hips and shoulders to advance the feet to 900. The vision continues to look at 720, as the lower body counter rotates or cat twist, and joints become flexed to land at 900. As the landing zone approaches, the arms get wide and lead change may occur.

Switch Take Off

The goal of a switch take off is for the athlete to achieve the same hip angle in relation to the lip of the jump for each progression of spin performed. With the upper body leading the way through transition, neutral hip position should be consistent on the set of each maneuver. It is important to note that neutral hip position for each athlete will vary in relation to flexibility and level of comfort. Extension of the lower body joints should be achieved creating lift on takeoff. The upper body leads the direction of spin.

Zero Spin- As the athlete rides switch, hips remain neutral and no rotation is set with the upper body on takeoff. When in the aerial phase, the athlete may adjust with counter rotation of upper and lower body, or shifty, but the hips remain committed to the switch riding position. Vision never leaves contact with the landing zone and arms stay wide as lower body absorbs the landing. Lead change may occur.

Switch 180- As the hips remain neutral on takeoff, the shoulders open in the intended direction of spin rotation. Once in flight the lower body rotates to catch up with the upper body and becomes aligned for a forward landing to complete 180 degrees of rotation.

Switch 360- In a switch 360 the vision stays on the landing zone throughout the entire maneuver. The take off is set with shoulders leading the way and a commitment to 360 degrees of rotation. When shoulders and hips are square to the landing zone, counter rotation, or cat twist occurs to land in the switch position.

Switch 540- The hips remain neutral on takeoff as arms and shoulders set rotation. As the athlete passes through 180 the commitment resembles the straight 360 with head and shoulders leading the way. The athlete stays committed to the direction of the spin with vision looking for the landing zone.

Switch 720- The commitment of rotation is set on the takeoff with hips neutral at the lip of the jump. With head and shoulders hips leading the way, the core lines up at 540 and counter rotation of the shoulders and hips occurs, or cat twist, to complete the 720. Vision never leaves the landing zone at 540.

Cork Zone (backward action and forward action)

When an athlete has shown the ability to perform off axis on trampoline, as covered in the progressions of the A2 material, they are ready to perform in the training environment with skis on feet. A poor example of coaching would be to

bring an athlete into the water ramp or air bag training environment and allow them to attempt cork or bio rotations without a strong understanding of the process on trampoline. The end result can be trick confusion and hinder the development path of the athlete. Before performing cork with skis on, the athlete should have 50 -100 off axis rotations on trampoline for mileage and a firm understanding of the cork set. Trampoline training of off axis maneuvers will greatly increase successful execution with skis on feet.

Cork 720- Before progressing into a cork 720 an athlete needs to execute a solid straight 720, with grab, demonstrating good extension on takeoff and control of 2 full rotations. With the cork set, it comes from a lift by extending the lower body joints with good timing on the lip of the jump. There is a slight bias, on the cork set, to a backwards rotation, but the body is extended on takeoff and shin pressure in the front of the ski boots is always maintained. A common problem with a cork set is that the upper body pikes on takeoff at 180 or breaks at the waist to produce off axis rotation. This early incorrect off axis set usually results in a back seat landing, or an over rotation. On a correct cork 720 set, as lift occurs and the flat 180 with chest open to the landing area is achieved, the knees are pulled up slightly to the chest as the head and shoulders drive in the direction of rotation. As the athlete comes to 630 the arms head and vision drive to the landing area and legs are extended to prepare for impact. Correct timing of extension at 630 will ensure that the cork position will return to the upright position for landing. If the athlete stays with knees bent for too long, back seat landings result. Also, if the athlete does not bend the knees at the correct timing after the set, a complete backdrop landing will result having no cork or off axis rotation.

Bio 720- As stated in the cork 720 progression, an athlete needs to have a solid straight 720, with grab, before progressing into this maneuver. The bio 720 is a slight forward action set with the hips and shoulders lifting on takeoff with slight movement in front of the base of support. This weight transfer of hips and shoulders forward of the center of gravity, closely resembling a front drop on trampoline, is in combination with the shoulder opening in the direction of the spin. Immediately following this core dynamic set, the knees come towards the chest to achieve off axis between the first 90-180 degrees of rotation. The head and vision looking to 630, the athlete spots toward the landing, looking over the shoulder at this point, and begins to extend leaving the hips behind the center of gravity to come out of cork. If too much forward set is done on takeoff, the end result is more of a misty flip rather than a forward cork bio 720.

*Coaches note: Bio 720 is a great development tool for progression into misty 540. Bio 720 can also be used for spatial awareness and control for developing athletes.

Cork 540-Although this is an advanced maneuver, the skill is a great progression for control when introducing carve technique on take off. As some training venues of air bag and water ramp discourage carving on takeoff with relation to drifting, proper technique is emphasized and covered in the Air 4 material.

Inverted Maneuvers (Mechanical adjustment with skis on feet)

The inverted maneuvers in this section rely solely on trampoline mechanics covered in the A1 and A2 material. Athletes should be very familiar with the A1 and A2 trampoline skills and progressions. A very important bio mechanic is altered slightly when the weight of skis, boots, and bindings are on the feet. The center of gravity on the athlete lowers to the top of the hip area or pelvis and changes the emphasis of the mid section or core to produce rotation or flip. Also, it is important to note that angular momentum increases with the torque produced through the weight of skis, boots and bindings attached to feet. Simply stated, skis take more dynamic effort to get spinning and or flipping on takeoff from body movements.

Forward Actions Inverted

Forward maneuvers require the CG to move in front of the base of support. It is important to understand that the hips are the main force applied on takeoff to produce flipping rotation. In combination with the arms shoulders and chest, the hips power the flipping rotation. In a forward action the hips are driven up and back by the knees extending.

Front Tuck- A combination of hips and arms working to extend straight and forward on takeoff. The lower body joints extend, the hips push behind the CG, and arms extend up and in front of the head. After the toes push forward at point of takeoff, the heels push behind the CG in a sweeping motion as full extension is achieved with a commitment to the forward rotation. It is important to note that the vision is out and in front with a focus on the landing before the tuck can occur. To tuck, the knees come up to the chest and are immediately released as the vision looks toward the feet where the landing now appears. To stop or slow the rotation the arms extend in front and the hip closes with lower body joints flexed, to prepare for impact.

Misty 540- When performing a misty 540, the maneuver resembles a barrel roll around the frontal axis. The takeoff is straight with strong initiation from the hips and a slight bias to the shoulder opening in the direction of rotation for the first 90 degrees. As the feet pass over head, the hips and head should be in

line, perpendicular to the direction of travel. At this point in the barrel roll, the vision looks over the shoulder in the direction of spin and the landing comes into view. When the landing comes into view the athlete continues to open the shoulder and squares up to place the feet into the switch position. The shoulders slightly counter to prepare for impact and the vision is looking at the point of contact with the snow. After the athlete establishes a safe landing they look over the shoulder for ski away in the switch position..

Backward Actions Inverted

The backward action produced in the next few skills with skis on feet carry the same theme of creating lift through extension and achieving a more sustained apex. An efficient apex can only be produced by a properly timed takeoff. With backward actions, the timing is critical as many movements of the body need to be produced within the distance of the jump face. Only positive actions can be produced by body movements to maximize the efficiency of angular momentum. A negative action is any movement, arms body & head, going in the opposite direction of intended lift or flip rotation.

Back Tuck- From the balanced athletic body position, the athlete places arms in a position 45 degrees down and in front. As they pass through transition, the arms lift and the knees and ankles extend as the hips drive forward in front of the CG. At this point on the takeoff, the athlete is not arched with chest out, but aligned and stacked with the hips pushing forward, head neutral and arms lifting coming up and in front not to the side. Weight is allowed to move slightly from weight over ball of foot to weight over arch or neutral. This is not to be confused with backseat or weight over heel. Through transition and on the jump face, the athlete is perpendicular to jump shape with weight over arch and shoulders aligned to the body. After the athlete has set rotation the hips continue to press to apex and the tuck occurs. To maximize apex, hips remain open as the knees quickly lift up to the chest. At apex, the athlete boots out or extends, closing the hip as the head looks for the landing.. The arms lift and reach for the bottom of the landing hill as the chest hollows out to slow rotation. Lower body joints are flexed in preparation for impact.

Back Layout- The similarity in the timing and coordination of the back layout is consistent with the takeoff for the back tuck. To set the layout position, the hip press is emphasized in combination with a tight lock out of the lower body joints at the point of takeoff. The layout is achieved at this point. With a strong takeoff as correct timing is achieved, the hips continue to press to apex as the head remains neutral. The arms at this point can come down to the sides to aid in the direction of rotation. As apex is achieved, the head looks to the landing

zone. The arms reach to the bottom of the landing hill as the shoulders come forward and chest hollows or relaxes to slow rotation. Feet become shoulder width apart to prepare for landing.

Back Full- The mechanics for performing a back full is explained in the A2 material. With skis on feet and a snow jump takeoff, the emphasis of setting back layout before spin rotation is critical. Once the layout is set with the arms up and the biceps are by the ears, the direction of spin is determined by the arm that is brought down. As describing the back full to the left, the left arm is brought down towards the side, consistent with tilt twisting technique. The emphasis is on opening the shoulder and initiating spin or tilt twist after takeoff. As the athlete approaches apex the arms and shoulders become symmetrical and the athlete is facing the jump, completely inverted and immediately performs a barani by dropping the right arm and spotting the landing zone. The hips return to neutral and chest relaxes by hollowing out and arms reach for bottom of the landing hill back in symmetry as the left arm catches up to the right. Completion of back full is done by squaring up the shoulders to point of impact and bringing up the chest by following through with the hips to produce the proper alignment of the stacked lower body joints, for landing.

D-Spin 720- The d-spin is a basically an inverted cork 720. Although the initiation resembles the back full, the similarities stop there. As the athlete skis through transition, lift is produced with the arms and chest, as the hips set the flipping rotation, and as the skis pass the lip of the jump, the shoulder opens and vision looks immediately to the point of take off. At this point the athlete looks over the shoulder in the direction of spin and is blind to the landing for a brief moment as the knees come toward the chest. Off axis is achieved, through 630 degrees of rotation and the vision quickly meets up with the intended landing zone. Extension occurs during the final 90 degrees of spin and filp rotation allowing the chest to come up as the shoulders become square to the landing hill with eyes to the point of contact.. Hands are always in front except when adding a grab.

Lincoln Loop (Introducing the cartwheel Axis)

Lincoln loop is rotation produced from the hips and shoulders around the cartwheel axis axis. The rotation of the flip is without spin and the core remains forward at all times. To aid in this, vision will stay focused and fixed on a point out and in front that the athlete will see rotate 360 degrees for the entire maneuver. It is important with all inverts on takeoff to produce lift and an eventual apex. With Lincoln, the rotation is produced by the hip extension up and out slightly to the desired direction. As the hip lifts higher on the side of desired rotation, the shoulder lifts equally and higher on that side as well. The arms and hands are symmetrical and in front thought the entire maneuver. The position is slightly crouched or gorilla once in flight with knees bent. As landing

zone approaches, athlete extends knees and opens core to prepare for contact with the snow. Vision looks down at point of snow contact and then on to the bottom of the landing hill.

Flat Spin/Rodeo 540- The set for a flat spin or rodeo is developed from the Lincoln Loop progression as stated in the A2 material. The hip position is the determining factor in whether the maneuver is inverted or not. On takeoff the core slightly rotates to open the hips to the desired direction of the rotation. At this point the hip set is closed to the 90 degree position for flat spin or opens for rodeo and continues for an inverted rotation. The shoulders on both the flat and the rodeo lead the way with the lead shoulder always open. The timing on takeoff is critical for committing to the angle of the hip set. If the hips are late the athlete will not have an apex and will result in a low trajectory and short on landing. The arms come into play on the flat spin set with the Japan grab aiding in a more flat set with the right hand reaching down to the inside left heel. This movement effectively closes the hip and lifts or opens the chest to flatten the rotation. As the athlete executes 360 degrees of rotation, the vision looks to the landing and the shoulder continues to open. Counter rotation occurs with the lower body to complete the 540 as vision stays on the landing. The athlete lands switch.

*On the flat spin and rodeo, the actions are very similar, the rodeo is just inverted. The hip drive on the set determines if the maneuver is inverted or not.

Flair (in HP) A Flair is usually performed in the Half Pipe. Flair is a backward rotation and depending on the initiation can resemble a 90 Lincoln Loop 90 when performed. The lower body, on the lip of the HP wall, remains committed to the backward rotation as the upper body counter rotates to the direction of the spin, down the pipe, as rotation is produced. The athlete needs to be careful not to pop or extend the lower body with too much force as the trajectory will take them to the bottom of the pipe. As the initiation of flip rotation comes from the hips with flex in the lower body joints and controlled extension, the upper body turns 90 degrees and lifts, down the lip of the pipe, opening the shoulder to the intended direction of spin. After the Lincoln is complete, the lip of the pipe comes into view. At this point the shoulder continues to open in the intended direction of travel back down the pipe and the 90 degree spin is completed. The chest and head lift with vision looking down the pipe wall. Arms are in front and lower body joints prepare for point of contact. It is important to note, that line selection when performing a flair is critical in relation to the amount of flip needed to be produced to land on the vert or desired location on the pipe. Also, opening the chest down the pipe wall is a flair. An Ollie Oop flair is spinning with the chest and shoulders towards the top of the pipe.

Under Flip- An under flip resembles the Arabian fully explained in the Air 2 trampoline material. The athlete initiates a backward rotation and immediately opens the shoulder in the direction of rotation 180 degrees to produce a side or

Lincoln into forward action. At the end of the under flip resembles the end of a front flip with the vision on the landing as the athlete lands switch. The commitment to this maneuver as with all inverted actions is critical as rotation is initiated on takeoff.

Entry Level Switch Flip

Switch Rodeo 540- Only when the athlete is very confident with skiing switch in the snow environment and can perform with complete confidence and skill should the switch rode 540 even be attempted in the training environment. Also, some water ramps are not ideal for riding switch, a snow jump into an air bag is the best practice for learning this skill. From the switch position, the athlete travels through transition and counter movement of the upper body may occur. When the arms rotate and open toward the direction of flip the hips push in front at 90 degree to set off axis. The athlete should be generating flip at this point as the commitment to rodeo is completed and the landing comes into view. The athlete lands forward down the landing hill. A trailing hand safety grab will aid in flip rotation for first time execution.

MILEAGE

Skill Acquisition- During the initial phase of learning a new maneuver, the athlete will need to repeat attempts, in succession, a minimum of 5-10 times.. If the athlete experiences a digression in performance during skill acquisition of this new maneuver, the coach needs to be pro-active in moving the athlete on to another skill.. Revisiting it during another session and backing up mechanics on the trampoline is a good way to take advantage of the learning environment.

Entry Level Inverts- When the athlete is entering into their first inverts in the training environment, please refer to ARQ manual for training numbers. As a suggestion, the numbers should be mixed with different training environments between air bag and water and also varying in speed of in-run. Training numbers should also be adapted to different athletes and their individual needs.

Progressions

Straight Air	Straight Air	180 Left	360	360	360
Straight Air with Position	360	360 Left	540	cork 720	cork 720
Spins (straight & w/ grab)	720	540 Left	720	Lincoln Loop	Back Tuck
180	Front Tuck	720 Left	Bio 720	Flat Spin 540	Back Layout
360	Back Tuck	180 Right	Misty 540	Rodeo 540	Back Full
540		360 Right			D-Spin
720		540 Right			
Cork 720		720 Right			

COACH EVALUATION (April 2013)



CFSA AIR MODULE 3 COACH EVALUATION CANADIAN FREESTYLE SKI ASSOCIATION

Coach Name:
NCCP Number:
Evaluation Location:
Evaluator Name:
Evaluation Date:

AIR COACH STATUS Coach is certified to train/qualify athletes within the scope of the competency outlined in this section.

Coach must meet the attain a minimum score of 121

Air 3A Water Ramp: Coach can train Cork 720, Front Tuck and Back Tuck ON WATER	
Air 3A Air Bag: Coach can train Cork 720, Front Tuck and Back Tuck AIRBAG	
Air 3B Water Ramp: Coach can train single inverts with spins ON WATER	
Air 3B Air Bag: Candidate can train single inverts with spins ON AIR BAG	

CERTIFIED = Coach can TRAIN & QUALIFY their athletes in the specified environment
TRAINED = Coach needs to get re-evaluated before training inverts with their athletes

OVERALL COMMENTS:

The coach's license and certification can be revoked if working beyond their certified scope of practice.

EVALUATION SCALE

Needs Improvement: 1, Meets Expectations: 2, Excellent: 3
 All candidates must "MEET EXPECTATIONS" in their evaluation to pass

TECHNICAL

CRITERIA	EVIDENCE		
FUNDAMENTAL Skills	Coach observes correct technique with ride the jump, forward and switch		2
	Skill progressions followed, straight air/pop, grabs, positional uprights		2
	Coach introduces both spinning direction		2
	Spins up to 720; basic spin mechanics communicated in increments of 180		2
	Coach uses grabs or positions within the spin to produce control in athlete		2
	Coach helps athlete develop understanding of, counter rotation or shifty with identifying upper and lower body separation		2
AIR 3A introduction skill technical understanding	Cork 720- correct emphasis on extension to achieve off axis		2
	Front Tuck- extension on take off and vision looking out and in front		2
	Backward Tuck- lift through the mid section with hip pressing to create flip		2

Air 3B advanced skill technical understanding	Lincoln Loop- vision in front on fixed point, cartwheel axis maintained		1
	Misty 540-Extension with slight shoulder turn on takeoff, flat back at apex		
	Back Layout- extension with all of the joints flexed and tight, rigid body line		2
	Back Full-Layout emphasised before tilt or contact occurs to create spin		2
	D-Spin-coach relates the relationship to cork 720 as more inverted		2
	Flatspin- hips remain neutral and upperbody drives the flat spin		2
	Rodeo 540-coach fully explains the movements to achieve cartwheel axis		2
	Flare/Underflip-mechanics of flare skill used in the pipe, underflip in SS		1
	Bio 720- slight movement forward as set is non inverted misty		2
	Switch Rodeo 540- skill needs to be performed with safe switch in-run		1
Cork 540-technical skill requiring carve takeoff to perform safely		1	
Competency Obtained			34

COMMENTS

WATER RAMP FACILITY

CRITERIA	EVIDENCE		
Coach implements appropriate safety standards, facility set up and athlete preparations in the Water Ramp facility	Coach goes through an inspection of the entire facility (walk through)		2
	Coach is familiar with the location of first aid and backboard flotation device		2
	Coach is current with CFSA membership including all athletes in the facility		2
	Coach respects Ramp Management Policy specific to that facility		2
	Coach is aware of the general guidelines in the ARQ manual		2
	Coach is aware of CFSA SANCTIONING requirements		2
	Equipment (Personal Floating Device approved!) REQUIRED! Communicated		2
	Equipment, helmet with coverings on the ear holes required		2
	Coach is competent with start up/shut down of air bubbler system, if applicable		2
Competency Obtained			18

COMMENTS

AIR BAG FACILITY MANAGEMENT

CRITERIA	EVIDENCE		
Coach implements appropriate safety standards, facility set up and athlete preparations in the Air Bag facilit	Coach goes through an inspection of the entire facility (walk through)		2
	Manufacturers Operating Procedures Followed (helmet required)		2
	Air bag properly secured with anchors		2
	On-going management of air bag inflation and bag surface wear and tear		2
	Maintenance of jump and inrun		2

	Management of in- run speed		2
	Management of athlete trajectory including carving		2
	Management of generator or electricity supply and other on site tools		2
	Equipment requirements followed; no poles or skis with jagged edges		2
Competency Obtained			18
COMMENTS			
QUALIFIER EVALUATION:			
Observation of a Qualification -			
CRITERIA	EVIDENCE		
Qualifier leads and implements an appropriately structured, safe and organized qualification process.	Outlines the process to the athlete: number of jumps required and rules		1
	The qualifier's directions are positive, professional and appropriately timed		2
	The qualifier does not "coach" the candidate with technical interventions		2
	Coach is prepared with qualification forms		1
	Ensures the environment is safe prior to jumping and mitigates risk		2
	Qualifier is able to assess errors that would compromise athlete safety		2
	The qualifier produces an Emergency Action Plan		2
Competency Obtained			12
Understand the training required and the process of evaluation to achieve "Qualifier" status	Coach implemented the 5 jump qualification process properly		2
	Coach has a good understanding of pass or fail for a qualified jump		
	Coach observed accurate technical errors		2
	Coach identified the strengths appropriately in the 5 qualification jumps		2
	Coach identified the weaknesses appropriately in the 5 jumps		2
	Coach implemented appropriate technical feedback in a constructive manner for the 5 jumps		2
Competency Obtained			10
Manage administrative aspects of the qualification process	CFSA Athlete Qualification form completed properly		2
	Air Passport completed properly		2
	Has copy of ARQ and is familiar with it.		1
	Aware of and knows where to get the CFSA Accident Form		1
	Coach filed the athlete qualification forms appropriately: PSO + CFSA + Athlete's Coach + a copy for themselves		2
Competency Obtained			8
COACHING INTERVENTIONS			
-			
TEACHING			
	Coach describes skill properly		2
	Coach is effective in explanation of the skill and drill		2
	Coach ensures participants are engaged		2

DETECTIONS	Coach detects the correct error		2
	The detection is related to the given skill, it may not be because the given detection may be more of a factor in NOT achieving		1
	Coach considers other affecting factors		2
CORRECTIONS	Coaching interventions are related to skills: drills, objectives		2
	Coach chooses appropriate intervention environment		2
	Intervention is progressive for the athlete		2
FEEDBACK	Coach provides clear, concise and provides appropriate feedback		2
	Coach provides constructive demonstrations as needed		2
Competency Obtained			21
COACHES TOTAL SCORE & MINIMUM STANDARD			121