



**FREESTYLE  
SKI  
ACROBATIQUE**

## **Can Freestyle Club & Coach Resource Section 6.2**

### **Air Module 2**

Advanced Acrobatic Skills Training  
On Trampoline

Coaching  
Association  
of Canada



Association  
canadienne  
des entraîneurs

**National  
Coaching  
Certification  
Program**



**Programme  
national de  
certification des  
entraîneurs**

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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 skilling, 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 acrobatic sector of our Canadian sport system. It represents a leap forward in developing core skills in athletes age 6 to 16 through the Long Term Athlete Development Model.

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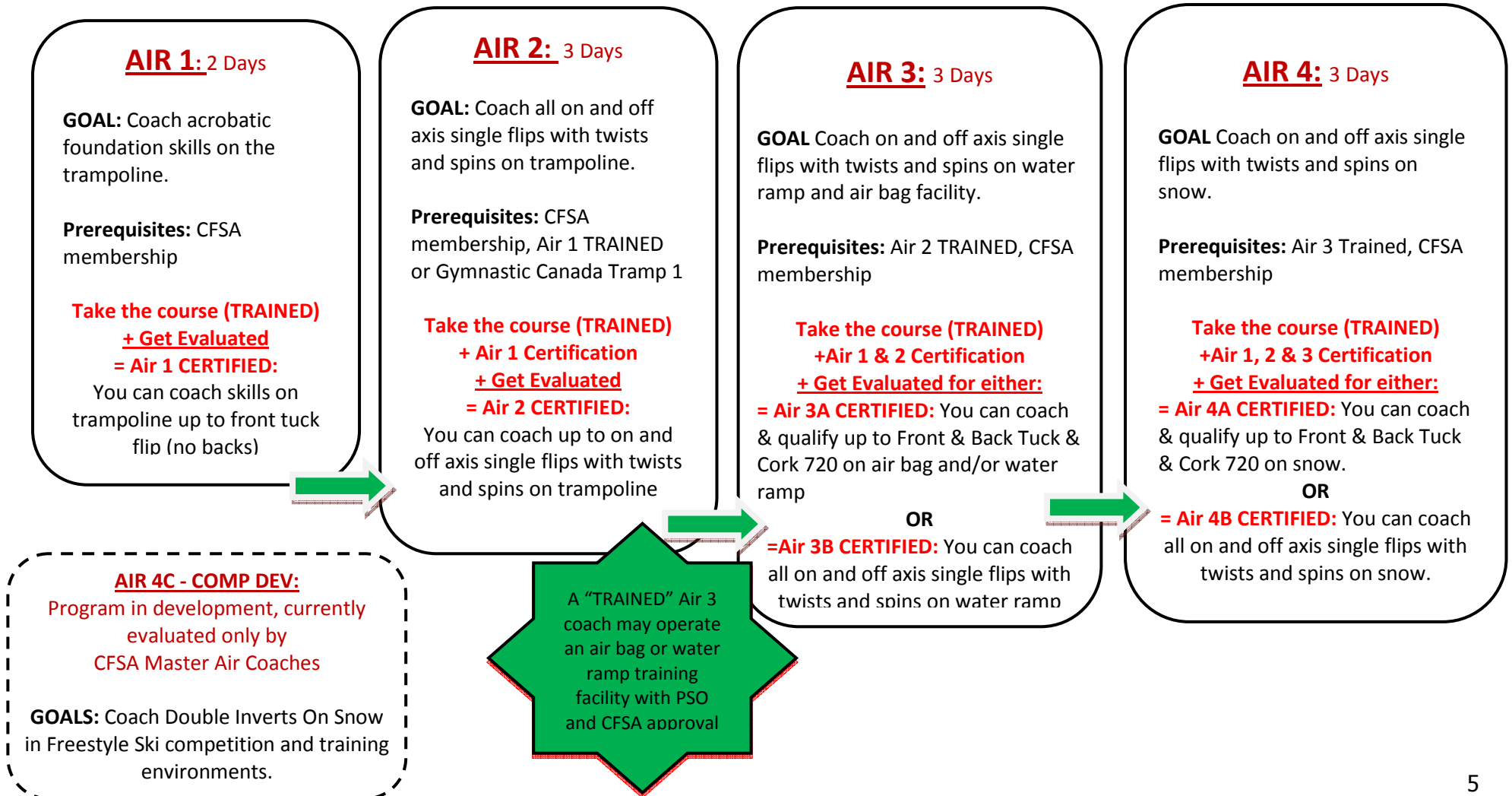
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# Introduction

## 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 Air 2 Module – Advanced Acrobatics covers basic on- and off-axis single flips up to Back full.

Coaches need to be aware that not everyone is able to perform flips. And that athletes need to be well trained in the Air 1 Module – Basic Acrobatics skills and must develop good safety habits before progressing to flipping on the trampoline.

The proper learning of the acrobatic skills in this module will be the basis for future learning and progression toward double flips. All steps and progressions should be followed to ensure a solid foundation in advanced acrobatics.

## Safety

Athlete safety is the number one responsibility of a coach. Ensure a safe environment, establish safety rules, and teach athletes to respect and follow safe practices.

### Establish Safety Rules

Always do a stop bounce:

- Before getting down
- When too close to the side
- When learning a new skill

Two foot rule:

- Always land on two feet at the same time and on the same surface

Never put the arms out when falling (forward or backward)

- An athlete should not land on their hands on the trampoline

Establish control before going higher.

Wear proper clothing (that will not get caught or restrict movement) and hair tied up.

Take off all jewellery including:

- Rings
- Necklaces
- Earrings and other piercings (nose, belly button, etc.)
- Watch
- Bracelets (except for "medic alert" which may be taped for safety)

No chewing gum, no food while jumping.

Only one person on the trampoline at a time, except for games supervised by the coach.

Never bounce under the influence of alcohol or drugs.

### Emergency Action Plan

Make sure your emergency action plan includes safe extraction of an injured athlete from a trampoline (something for emergency personnel to stand on without moving the athlete on the trampoline bed). Consider a similar plan for foam pits or any other equipment you may be using.

## **Safety Related to the Equipment**

### **Equipment should be inspected regularly for:**

- Frame level, including both ends
- Legs attached properly
- The whole structure in proper place
- Allen screws on the legs and on the frame are tightened
- Spring hooks pointing down
- Frame pads fixed properly and well padded
- Trampoline bed in a good condition
- Landing mats at both ends of the trampoline
- Floor mats around the trampoline
- Spotting decks at the end of trampoline are strongly suggested
- No obstacles beside or above trampoline (walls, mirrors, windows, beams, lights)
- Trampolines should be locked when not in use and without proper supervision

### **When training outside, be aware of the following:**

- Avoid jumping at dawn, dusk or at night (Depth perception is severely affected when the bed is not properly lit)
- In full daylight, make sure that the sun doesn't blind the athletes
- Allow the athletes to adapt to the environment.
- Do not jump in strong winds
- Make sure the trampoline is on a surface where it will not slide or move

### **Avoid injuries during set-up and take-down of trampoline equipment:**

- Use at least two people for set up or take down (highly recommended)
- Always wear shoes during the trampoline set up or take down
- Never go under the trampoline when it is partially set up
- Keep fingers away from the hinges
- TRAMPOLINES ON WHEELS TIP OVER EASILY AND ARE VERY HEAVY!
- Always roll the trampoline lengthwise when moving it and make sure that the wheels are facing the proper way before pushing it.
- Never pull on the roller stands to move the trampoline
- If a trampoline is falling, get out of the way
- When opening the trampoline: The second end will be under tension, control it carefully until it is completely unfolded to avoid having it snap shut.
- Never put anything under the trampoline including the trampoline wheels.
- When folding in the frame ends: KEEP YOUR ELBOWS STRAIGHT so they don't get caught between the two sections of frame. Go slowly and control the frame the whole way down. The first end is under tension and will spring closed if not controlled.
- When tipping the trampoline up onto its wheels, make sure the outside end of the trampoline frame is pointing down (it will stay closed easily when done properly)



## **Proper Teaching for Safety**

### **Coach's position:**

The coach needs to be in a position to see all the athletes at all times.

### **Learning methods:**

The best way to reduce risk is to ensure that the athletes go through proper progressions, and that the coach is able to recognize when is the right moment to switch to the next step.

### **Appropriate use of safety mats:**

A mat placed on the trampoline bed is an excellent way to increase the safety when teaching beginner trampoline skills. It reduces abrasions and cushions the landing allowing for small errors to be corrected before attempting the skill on the bed.

### **Respecting the athlete's capabilities:**

The coach must take into account the athlete's physical state and mental state during training. It is also essential to respect medical advice from health professionals.

### **Good planning and discipline:**

The coach is responsible to apply the discipline required to keep athletes safe during training and to make athletes aware of the possible dangers in practicing trampoline.

### **Proper warm up:**

Every training session must begin with a warm up. It is essential to plan and to supervise a good warm up in order to prepare the body and the mind for the training session.

### **Clothing to protect the skin:**

To prevent skin abrasions, athletes may wear long pants and shirts with long sleeves, especially when learning front drop landings. Cut-off socks over the elbows can prevent abrasions, or can help keep bandaids on while jumping.

### **Visual cues:**

The athletes must look at the bed whenever possible. This is essential for developing aerial awareness. When first introduced to trampoline, they need to learn to bounce facing lengthwise on the trampoline bed. Continue to ask the athletes on a regular basis, what they see when they are performing skills on the trampoline.

### **Getting off trampoline Safely:**

- Athletes must stop their bounce then walk towards the side of the trampoline
- Sit down on the trampoline frame, turn around and climb down carefully
- For young children, the coach should help them get down
- Athletes should never jump off the trampoline

## Safe landings for advanced acrobatics

### Falling Safely

- Teach athletes how to do forward and backward rolls, shoulder rolls and break falls (Safety rolls)
- Safety rolls should be well trained by the time skiers are learning Air 2 skills on trampoline
- Safety rolls are used to stop when a skill lands off balance and near the edge of the trampoline
- Safety rolls allow the athlete to land in a controlled roll or break fall, directing their energy down onto the mats rather than rebounding off the trampoline

### Safe “Bailouts”

- Best landing is to get two feet down and do a stop bounce
- 2<sup>nd</sup> best option is a landing on the back because there is greater margin for error than other bed landings (practice getting to back drop from almost anywhere)
- Avoid seat drop as a bailout because it is difficult to control
- Avoid front drop as a bailout because it has a low margin for error

### Important Safety Tips

- Always keep knees apart when learning flips (space for your face)
- Remind athletes to keep arms in if they are falling forward or backward (go to backdrop if falling backward, do a 180 to back drop if falling forward)
- Skills with a lot of spin should always land with a stop bounce because the rebound can be unpredictable
- Off-axis skills should always land with a stop bounce because the skier is often still slightly off axis on the landing (when skiing they can carve out of a landing, but on trampoline a rebound may send them off the trampoline)

## Preparation for flipping on trampoline

### Coach skill: Spotting preparation and timing the bed

To safely teach the first attempts at back tuck the coach must use direct hand spotting. The coach needs to practice controlling and using the timing of the trampoline bed.

- Being able to bounce at the same time as the athlete, with balance and control
- Being able to “kip” the athlete to give the desired amount of height
- Being able to take away the bounce from the athlete to help them stop after the skill

Review the following spotting drills to practice working with the timing of the trampoline bed:

- Learn to kip: Put a medicine ball on the trampoline, try to kip it from standing
- Take away an athlete’s bounce while they are jumping on their feet
- Jumping at the same time as the athlete while holding their hips
- Jumping at the same time as the athlete while holding him by the hips
- Jumping together, then on the count of three “kipping” the athlete gently to spot them for a tuck jump while killing your own bounce, absorb athlete’s bounce on the landing

### Coach decision: Is this athlete ready to flip?

- Your job as a coach is to ensure that athletes have good body control and spatial awareness with the non-inverted Air 1 skills before you even consider teaching them to flip
- It is your responsibility as a coach to decide when the athlete is ready and not to simply let them convince you, most kids will tell you they have “done it before” but that doesn’t mean they are well prepared or that they have learned correctly or safely
- Make your own informed decision based on their demonstrated skill level, not what they have told you they can do!

## **Review non-inverted skills from Air 1:**

### **Positions and grabs**

- Review basic positions and grabs
- Athletes should be comfortable with these as they will also be used during flipping skills

### **Seat drop, Front drop, Back drop (basic landing positions)**

- Check for safe landings and that are consistent
- Athletes should be very confident with these skills before flipping
- Ask athletes to perform a routine using all three landing positions before they start learning flips on trampoline

### **Misty drop and Misty rollover**

- These skills are important progressions for learning Misty 540 and are a component of the progressions for Cork 720 and other off-axis skills as well

### **180 to back drop, Cradle and Cradle to Misty drop (for safe “bailouts”)**

- These are important skills to practice and to become very comfortable with
- They ensure that athletes have a way to avoid landing in an arched or over-rotated front drop, and that they can avoid putting their arms out (which is a common error and cause of injury when learning front flips)

## **Review 10 steps to a front tuck**

### **Step 1: Base skills and “bail-outs”**

- Seat drop, Swivel hips
- Front drop, To Feet
- Back drop, 180 to feet
- 180 to back drop
- Baby Cradle (Seat drop, 180 to back drop) to show mid-air twist

### **Step 2: Forward roll on the floor**

- Egg rolls
- Forward roll down an incline (knees apart)
- Forward roll on the floor mat (knees apart)

### **Step 3: Stretch front drop**

- Practice with a mat on the trampoline
- Feet start on the cross, waist lands on the cross, body stays straight
- athlete must initiate the correct amount of forward rotation during the takeoff

### **Step 4: Donkey kicks**

- hands remain on the trampoline, look at trampoline throughout the donkey kick
- Push with feet/shins on the trampoline to kick hips up over the hands/shoulders
- finish on hands & knees

### **Step 5: Mini-flip to seat drop**

- Start with Hand-knee position to forward roll on a mat on the floor
- On the trampoline, start in Hand-knee position, do hand and knee roll on trampoline, look at the trampoline, push with the hands so head doesn't touch
- NO BOUNCE: drop to Seat drop, to Hand-knee drop, mini-flip to seat drop
- Always land with knees apart (space for your face), and grab shins to tuck

### **Step 6: Mini-flip to seat drop drills**

- The athlete should TUCK (grab shins), and land with KNEES APART for safety
- Watch for skin abrasions, athlete should wear long pants if needed
- Drill 1: Standing Seat drop, Hand-knee drop, Mini-flip to seat, Swivel hips (repeat)
- Drill 2: Standing Seat drop, Hand-knee drop, Mini-flip to seat, Hand-knee drop, Mini-flip to seat (repeat)

### **Step 7: Mini-flip to feet**

- Start from standing, Seat drop, To hand-knee drop, Mini-flip to feet
- KNEES APART, Tuck by grabbing the shins to help speed rotation

### **Step 8: Baby flip to seat drop (starting on the feet)**

- Start by doing a forward roll onto the mat, end with KNEES APART
- Gradually add more bounce until athlete is doing a baby flip landing in seat drop
- Add a TUCK in the air before landing in seat drop (still land with KNEES APART)
- LOOK forward at the end of the trampoline during the seat drop landing

### **Step 9: Front tuck with a mat**

- Start with the ARMS UP overhead (numerous reminders may be needed)
- Start like Baby flip to seat drop but faster flip, and grab shins (tuck) in the air to be in a good position to land on the feet with KNEES APART
- Look for the end of the trampoline during landing

### **Step 10: Front tuck!!**

- When landings are consistent on the mat the athlete can make the transition to doing the Front tuck alone on the trampoline
- Remember: ARMS UP overhead on takeoff, TUCK (grab shins) in the air, KNEES APART and LOOK at the end of the trampoline during landing
- Always land with a STOP BOUNCE

## Spotting Methods

Spotting can increase safety when learning skills on trampoline. Coaches must learn to spot properly and to choose spotting methods appropriate to the athlete and the skill being taught.

**NOTE:** Coaches should be aware of ethical spotting and respect the athlete's personal boundaries. Physical contact should be clear, efficient, and based on technical necessity, and such actions should not leave the intentions of the coach open to misinterpretation.

### Direct Hand Spotting

The spotter bounces on the trampoline in synchronization with and in contact with the athlete. The coaches feet stay in contact with the trampoline bed during the skill so that they can assist with takeoff, manipulate the skill, and assist with the landing. Direct hand spotting should continue until the takeoff is very consistent.

Spotter's tasks and responsibilities:

- Take off jewellery and keep nails short
- Keep feet in contact with the trampoline bed during the athlete's aerial phase
- Keep a steady position (wide stance)
- Anticipate and follow the athlete's travel
- Stay in front of the athlete's centre of gravity
- Establish clear communication with the athlete for the take off (athlete counts 1, coach says 2, and the take off is on 3)
- Give confidence to the athlete
- Control the kipping action of the trampoline bed
- Synchronize with the athlete's bounce
- Keep the jumps low

### Step In Hand Spotting

This method is used when the athlete is closer to performing a skill alone and no longer needs spotting on the takeoff of the skill. The coach is standing on the trampoline frame, and steps on the bed as soon as the athlete begins the aerial phase. This method is a transition from direct hand spotting before the athlete does the skill alone. The athlete might still need some help to execute the skill safely at this stage. Step in spotting should continue until the athlete is very consistent with both takeoff and landing of the skill.

Spotter's tasks and responsibilities:

- Take off jewellery and keep nails short
- Stand on the frame and not on the springs
- Establish clear communication with the athlete for the take off (athlete counts 1, coach says 2, the take off is on 3)
- Ask the athlete to keep the bounces low
- Ask the athlete to kill the bounce on landing
- Step onto the bed soon after take off, but without taking away the athlete's bounce
- Get close to the athlete to be able to manipulate effectively
- Anticipate and follow the athlete's travel
- Have a steady position during the aerial phase and at the landing (wide stance)

## Throw Mat

- The throw mat is a large safety mat or smaller spotter mat that is thrown onto the trampoline bed for athletes to land on while learning new skills
- *It absorbs some of the impact on landing and therefore **it reduces the risks of injuries, but it doesn't eliminate them***

### Size of the throw mat:

The size of the mat should depend on the skill being learned.

- A large "safety mat" should be used for learning new skills (size is approx. 5' x 8' x 10")
- A smaller "spotter mat" may be used as a transition from using a safety mat before doing the skill on the trampoline bed (size is approximately 4' X 6' X 5")

### Tips for spotters who are throwing the safety mat

- Establish a clear communication with the athlete for the take off: (athlete counts 1, coach says 2, and the take off is at 3).
- If the athlete travels on the take off, the spotters must ensure that the throw mat is placed under the athlete on landing. Throw mats with handles will help the spotters to manipulate the mat more accurately.
- Spotter should wait until the athlete is clear of the bed before throwing the mat
- Sometimes the athlete forgets to count or takes off on the wrong count, it is very important for the spotter to focus on the athlete to be prepared for any such surprises
- For skills landing on the stomach or on the back priority mat placement is under the upper body, and head
- The safety mat is often thrown by one or two athletes supervised by the coach, ensure that the athletes are tall enough and responsible enough to manipulate the mat safely

## Spotting Preparation & Practice

### Throw Mat

Coaches practice throwing in:

- Safety mat (large mat) with two coaches throwing
- Safety mat (large mat) with one coach throwing
- Spotter mat (small mat) with one coach throwing

### Spotting "Bedwork"

Coaches practice:

- Taking away bounce
- Adding bounce
- Neutral bounce (standing on trampoline and bouncing with an athlete)

### Hands-on Spotting Preparation

- Bounce with the "athlete" as you will when spotting, practice timing the push with the feet to make the bounce feel as normal as possible for the athlete
- Continue as above, and athlete does tuck jump on 3, the coach "spots" the tuck jump while keeping their feet on the trampoline and helps the athlete stop their bounce during the landing
- Coach stands on side of the trampoline, then steps in and catches athlete's tuck jump

## 8 steps to a Back tuck

### STEP 1: Basic skills and “bail-outs”

Ensure the following BASE SKILLS have been solidly learned. This is a necessary step, not to be skipped! These safety skills and landing positions may be needed while learning back tuck.

Review:

- Seat drop, Swivel hips
- Front drop, To feet
- Back drop, 180 to feet
- 180 to back drop (mid-air twist)
- Baby Cradle (Seat drop, 180 to back drop) to show mid-air twist
- Front drop, to Back drop

### STEP 2: Backward roll on the floor

- Start with “egg rolls” (rolling on the back with back rounded)

Backward roll down an incline:

- Start at top of incline, crouch with back rounded, place hands on shoulders, ready to help with rolling over the head
- LOOK forward during the first part of the roll and keep head tucked in, chin on chest
- Try to finish standing on the feet (not on knees)

Backward roll on the floor mat:

- Remember to keep back rounded and look forward at the start
- Try to stand up on feet at the end, while looking down at the mat

### STEP 3: Stretch back drop

Stretch back drop demonstrates that the athlete has learned how to “kick” effectively and accurately to initiate backward rotation on trampoline.

- Practice stretch back drop with a mat on the trampoline to avoid discomfort on imperfect landings
- Feet start on the cross, waist lands on the cross (a cross can be marked on mat with chalk)
- Upper body stays vertical during take off and arms swing to produce height (added spring)
- Backward somersault rotation comes from the force applied by the athlete’s feet. The feet push backward on the trampoline; the trampoline pushes back on the feet sending them forward (this is called an off-centre force) which creates backward rotation.
- A “Stretch Back Drop” stays straight without adjusting position until just before the landing, the athlete must initiate the correct amount of backward rotation during the takeoff



#### **STEP 4: Back pullover**

Going upside-down! **BACK PULLOVER**

- Start in a crouched position with hands on the shoulders. Do a backward roll on the trampoline
- Add bounce: Keep hands on shoulders (to help get over the head if needed.) Start in crouched position and **KEEP BACK ROUNDED**. Gradually go faster and add a bit of bounce until the athlete is bouncing over their head instead of rolling
- **LOOK** forward at the start and during the pullover. **LOOK** down at the cross during the landing

Coaches' Notes:

- Pullover does not use a normal Back drop landing! The athlete must have a **ROUNDED BACK** and the landing rolls from lower to upper back as they bounce into the pullover.
- The legs must kick around and down to get the feet down on the trampoline bed for the landing. Top priority is to get around; almost no height is needed (do not kick feet toward ceiling!)

#### **STEP 5: Pullover variations and drills**

**PULLOVER** variations and drills help to develop spatial orientation and balance while flipping and teach athletes to deal with varying degrees of rotation so they can control their landings.

Pullover to seat drop:

- Start with pullover to feet, seat drop, then try to go directly to seat

Pullover to back drop:

- Start with pullover to seat drop, to back drop. Use a mat when trying the whole thing

Pullover to front drop:

- Start by doing Pullover to hand-knee drop, to Front drop
- Do the same as above but only do the hand-knee position in the air then straighten out to Front drop just before landing
- Revert to Hand-knee drop landing if in doubt about landing well on the front drop
- **CAUTION**, make sure the athlete does not straighten out too early! (avoid landing on the head)

Drill #1:

- Pullover to front drop, to Back drop, Pullover to front drop, to Back drop, etc

Drill #2:

- Pullovers to back drop in a row

#### **STEP 6: Back tuck with full hand-spotting**

- Always start with **ARMS UP** overhead and **LOOK FORWARD** during the takeoff.
- **TUCK** (grab shins) while in the air.
- **LOOK** for the cross on the way down (without throwing the head back to do so) and do a **STOP BOUNCE** on the landing.

Coaches' Notes (THIS STEP REQUIRES A COMPETENT COACH TO HANDSPOT)

- First attempts at back tuck should **ALWAYS** be done with a full hand-spot on the trampoline
- On-the-bed spotting should continue until the athlete is setting the backward rotation themselves

### **STEP 7: Back tuck with step-in spot**

Starting the flip alone: BACK TUCK with a step-in spot (REQUIRES A COMPETENT COACH)

- Start with the ARMS UP overhead for the takeoff (numerous reminders may be needed)
- The coach steps in to spot after the takeoff and can add rotation, and help control the landing
- Look for the cross for the landing and do a STOP BOUNCE

Coaches' notes

- Be prepared to step in quickly and spot heavily on the first attempts, sometimes athletes get nervous and change their takeoff unexpectedly!

### **STEP 8: Back tuck!!**

Coaches' Notes:

- Before doing the skill alone, the athlete must demonstrate that they are consistently rotating the right amount, that they can see where they are during landing and can do a good STOP BOUNCE
- When the coach is no longer "helping" while spotting, steps can be taken to remove spotting, Using a throw-in mat is a good transition from direct hand spotting before doing Back tuck alone
- Remember: ARMS up and look forward during takeoff, TUCK in the air, LOOK for the trampoline on the way down, and do a STOP BOUNCE landing

## **Air 2 Skills**

The following pages have detailed descriptions, prerequisites, progressions, safety notes and coaching tips for all the Air 2 skills.

This is an important resource for coaches and should be used on an ongoing basis while coaching on trampoline.

This information will also be available in its most up-to-date form on the CanFree Wiki.

# Skills

## Air Module 2

### Front tuck

#### Description

- A forward flipping 360° rotation around the somersault axis
- During the takeoff phase the hips are slightly piked to create forward rotation around the somersault axis, the arms begin up then reach for the tuck position, eyes spot the end of the trampoline during takeoff
- During the aerial phase the body passes through vertical while in the tuck position, eyes look over the knees in preparation to see the end of the trampoline
- During the landing phase the body extends to slow down rotation, feet come down and the shoulders finish over the feet, eyes spot the end of the trampoline
- Lands facing same direction as takeoff

**Prerequisites** – Seat drop, Front drop, Back drop, Cradle, Forward roll on floor, Mini-flip to seat drop (See 10 steps to front tuck in Air 1)

**Progressions** (See 10 steps to front tuck from Air 1 for more detail)

1. Forward roll on floor, end with knees apart (space for your face).
2. *From standing:* Seat drop, Hand-knee drop, Mini-flip to back drop.
3. *From standing:* Seat drop, Hand-knee drop, Mini-flip to seat drop (knees apart on landing).
4. *From standing with throw-mat:* Seat drop, Hand-knee drop, Mini-flip to feet with throw mat (knees apart on landing).
5. *Use mat on the trampoline:* Forward roll on the safety mat on the trampoline.
6. *Use mat on the trampoline:* Low “Baby flip” to back drop on the mat.
7. *Use mat:* “Baby flip” to seat drop. Show tuck position in the air to help rotation. Land with knees apart (especially important at this step)!
8. *Use mat:* Front tuck to feet. Look for the end of the trampoline and keep knees apart for landing.
9. Front tuck on the trampoline with a stop bounce.
10. Front tuck on the trampoline with a controlled rebound.

#### Safety note

- Always keep knees apart for landing when learning front tuck (space for your face)
- Always do a stop bounce landing

#### Coaching tips

- Ask the athlete to look for the end of the trampoline or end-deck during landing
- Make sure they grab their shins during the tuck (helps to get around)

# Skills

## Air Module 2

### Front pike (and Front layout)

#### Description

- A forward flipping 360° rotation around the somersault axis
- During the takeoff phase the hips are slightly piked to create forward rotation around the somersault axis, the arms begin up then reach for the tuck position, eyes spot the end of the trampoline during takeoff
- During the aerial phase the body passes through vertical while in the pike (or layout) position, eyes look over the knees in preparation to see the end of the trampoline
- During the landing phase the body extends to slow down rotation, feet come down and the shoulders finish over the feet, eyes spot the end of the trampoline
- Lands facing same direction as takeoff

**Prerequisites** – Front tuck with a consistent landing, Pike position, Layout position

#### Progressions for Front pike

1. Front tuck with a stop bounce.
2. *Use mat:* Front tuck with a kickout.
3. *Use mat:* Front tuck that grabs behind the knees instead of shins. Gradually straighten legs more on each attempt.
4. *Use mat:* Straighten legs more and grab closer to ankles to achieve Front pike.
5. Front pike on trampoline with stop bounce.
6. Front pike on trampoline with controlled rebound.

#### Progressions for Front layout

1. Front pike with a stop bounce.
2. *Use mat:* Front pike with a kickout.
3. *Use mat:* Front pike that grabs behind the hamstrings. Gradually straighten hips more on each attempt.
4. *Use mat:* Straighten hips and line arms up at sides to achieve Front straight with a stop bounce.
5. Continue to use a mat and land with a stop bounce unless the athlete becomes very comfortable and consistent landing this skill.

#### Safety note

- Always do a stop bounce landing when learning “blind” landing skills
- Look for the end of the trampoline to help with landing

#### Coaching tips

- Front layout is a difficult skill and may be learned much later than front pike
- Front layout is helpful to improve technique on Barani layout and other forward takeoffs

# Skills

## Air Module 2

### Back tuck

#### Back tuck description

- A backward flipping 360° rotation around the somersault axis
- During the takeoff phase the hips are slightly extended as feet lift directly in front of the body, eyes spot the end of the trampoline in front of the athlete during takeoff
- During the aerial phase the body passes through vertical in a tuck position with the feet and hips directly above the head and shoulders, eyes begin to look toward the cross
- During the landing phase the feet come down and the shoulders lift, eyes follow the centre line to spot the end of the trampoline during landing
- Lands facing the same direction as takeoff

**Prerequisites** – Seat drop, Front drop, “Stretch” back drop, Cradle, Backward roll on floor, Pullover variations and combinations (See 8 steps to back tuck)

**Progressions** (See “8 steps to Back tuck” for more detail)

1. Backward roll on floor with knees apart (space for your face).
2. Back pullover to feet, practice seeing the cross to prepare for landing.
3. Practice back tuck “set” with spotter or stacked mats (to initiate backward rotation)
4. *Use mat and handspot:* Back tuck with heavy handspotting (on first attempts coach must be prepared to carry the athlete past their head if they don’t flip enough!)
5. Back tuck with handspot.
6. Back tuck with step-in spot and throw mat.
7. Back tuck with large throw mat.
8. Back tuck with small throw mat.
9. Back tuck on the trampoline with a stop bounce.
10. Back tuck on the trampoline with a controlled rebound.

#### Safety note

- First attempts at back tuck should always be hand spotted by a competent spotter!
- Always do a stop bounce landing

#### Coaching tips

- Always start with arms up when learning Back tuck to develop a consistent takeoff
- Look at the end of the trampoline in front of the athlete during takeoff (fix this while learning to avoid bad habits in the long term)
- Make sure the athlete grabs their shins during the tuck (helps to get around)
- Ask the athlete to look for the cross to prepare for landing

# Skills

## Air Module 2

### Back pike (and Back layout)

#### Description

- A backward flipping 360° rotation around the somersault axis
- During the takeoff phase the hips are slightly extended as feet lift directly in front of the body, eyes spot the end of the trampoline during takeoff
- During the aerial phase the body passes through vertical in a pike (or straight) position with the feet and hips directly above the head and shoulders, eyes begin to spot the cross to prepare for landing
- During the landing phase the feet come down and the shoulders lift, eyes follow the centre line to spot the end of the trampoline during landing
- Lands facing the same direction as takeoff

**Prerequisites** – Back pullover, Back tuck with a kickout

#### Progressions for Back pike

1. Perform Back tuck in a variety of routines over a number of training sessions before learning Back pike.
2. *Use throw-mat:* Back Tuck with an open tuck position to stop bounce.
3. *Use throw-mat:* Gradually straighten legs and grab lower on each attempt.
4. Back pike on the trampoline with a stop bounce.
5. Back pike on the trampoline with a controlled rebound.

#### Progressions for Back layout

1. Learn Back pike with a kickout, and perform Back pike in a variety of routines over a number of training sessions before learning Back layout
2. *Use throw-mat:* Back Pike touching the knees during the pike (slightly open pike)
3. *Use throw-mat:* As above but gradually straighten the hips more on each attempt.
4. Back layout on the trampoline with a stop bounce.
5. Back Layout on the trampoline with a controlled rebound.

#### Safety note

- Remind athletes to tuck in if they are feeling stuck on their Back pike or layout
- Always land in a stop bounce when learning new skills

#### Coaching tips

- Arms should always be up on the takeoff, then come down to touch the shins (pike) or to the sides of the body (layout) for the majority of the flip
- If athlete is struggling to produce enough rotation tell them to imagine they are kicking a soccer ball really hard with both feet during the takeoff (use a mat because often they will over-rotate when they try this!)

# Skills

## Air Module 2

### Barani tuck (and Barani pike)

#### Description

- A forward flipping 360° rotation around the somersault axis with a 180° twist
- During the takeoff phase the hips are slightly piked to create forward rotation, the arms begin up, but then reach for the tuck (or pike) position, eyes spot the end of the trampoline during takeoff
- During the aerial phase the body passes through vertical and extends into a straight kickout position with the feet and hips directly above the head and shoulders, this extension creates a 180-degree tilt twist, eyes spot the cross throughout the skill
- During the landing phase the feet come down and the shoulders lift, eyes follow along the centre line from the cross to the end of the trampoline during landing
- Lands facing opposite direction to takeoff

**Prerequisites** – Front tuck, Front pike, Cradle with a tuck (or pike) position before twisting

#### Progressions for Barani tuck

1. Use throw-mat: Front tuck with kick-out (body extends into a straight position just past vertical)
2. Use throw-mat: Front tuck on mat, but add a straight 180 on the rebound
3. Use throw-mat: Begin to add twist into the flip just before landing. Start with 45° then progress through to the full 180° twist. Always land in a stop bounce.
4. Barani tuck on the trampoline with a stop bounce.
5. Barani tuck on the trampoline with a controlled rebound.

#### Safety note

- Always land in a stop bounce when adding twist
- Feet should always both land at the same time throughout all progressions

#### Coaching tips

- Arms should always be vertical overhead during the takeoff
- Be aware of your athletes natural twisting direction when teaching this skill, it is easier to learn skills in the natural direction first
- For Barani pike follow the same progressions as above replacing tuck with pike positions
- Some athletes find it easier to learn Barani pike first because it is easier to twist
- The twist becomes more efficient when the arms are at the sides of the body during the “kick out and twist” phase

# Skills

## Air Module 2

### Barani layout

#### Description

- A forward flipping 360° rotation around the somersault axis with a 180° twist
- During the takeoff phase the hips are slightly piked to create forward rotation, the arms begin up and start to slowly come down towards the sides of the body, eyes spot the end of the trampoline during takeoff
- During the aerial phase the body is close to vertical and remains in a straight position with the feet and hips directly above the head and shoulders, this is when the arms reach sides of the body, creating the 180° tilt twist, eyes have spotted along the centre line to the cross
- During the landing phase the feet come down and the shoulders lift, eyes follow the centre line from the cross to the opposite end of the trampoline
- Lands facing opposite direction to takeoff

**Prerequisites** – Barani pike, Layout cradle

#### Progressions

1. Barani pike touching below knees in the pike position (a normal Barani Pike)
2. *Use throw-mat:* Athlete opens the pike position a little by touching the thighs throughout the Barani, and gradually straightens the hips more on each attempt.
3. *Use throw-mat:* Barani in a layout position. The twist is created as arms are brought towards the side of the body.
4. Barani layout on the trampoline with a stop bounce.
5. Barani layout on the trampoline with a controlled rebound.

#### Safety note

- Always land in a stop bounce when learning new skills

#### Coaching tips

- The eyes should focus on the end of the trampoline during takeoff, then follow the center line to see the cross while in the air, then continue to follow along the centre line to the opposite end of the trampoline for the landing
- Arms should always be overhead for takeoff
- Be aware of your athlete's natural twisting direction when teaching this skill, it is easier to learn skills in the natural direction first
- If the Barani is traveling sideways on the trampoline, have the athlete lift more before executing the twist to avoid contact twist (twisting too early is a common error)
- Practicing Front layout with a throw mat can help athletes learn to initiate flip effectively without showing too much pike after takeoff



# Skills

## Air Module 2

### 1¼ Back tuck

#### Description

- A backward flipping 450° rotation around the somersault axis that takes off from the feet and lands on the back
- During the takeoff phase the hips are slightly extended as feet lift directly in front of the body, eyes spot the end of the trampoline during takeoff
- During the aerial phase the body passes through vertical in a tuck position with the hips and feet directly above the head and shoulders, eyes spot the cross after the apex
- During the landing phase the body pikes in preparation for landing on the back, eyes spot the cross then the end of the trampoline preparation for landing
- Lands in a back drop in the same direction faced for takeoff

**Prerequisites** – Back tuck, Back layout, Pullover, Pullover to back drop

#### Progressions

1. Use throw-mat: Back tuck with no kickout landing on the mat, stop bounce into low Back drop on the mat.
2. Use throw-mat: Back tuck to seat drop on the mat. Make sure hands are beside the hips on landing (never behind the athlete).
3. Use throw-mat: Back tuck to seat drop on the mat then bounce to back drop on the rebound (still on mat).
4. Use throw-mat: As above, however athlete continues their rotation to a flatback landing on the mat.
5. Use throw-mat: Athlete now speeds up their rotation slightly to perform 1¼ Back tuck to a back drop landing on the throw mat (knees apart). Repeat until consistent.
6. 1¼ Back tuck is now landed directly on the trampoline bed. Use a throw-mat or spot the rebound to feet, until athlete is accustomed to the power off the back landing.
7. 1¼ Back tuck on the trampoline with a controlled rebound to feet.
8. 1¼ Back tuck, pullover (spot or throw the mat for the first pullover).

#### Safety note

- Remind athletes to have hands facing forward in their seat drop landing
- Remind athletes to have their arms in front of their body and knees apart (space for your face) when landing in Back drop
- Always use a throw mat for the seat and flatback landings

#### Coaching tips

- This skill is very important as a progression for double back flips

#### Variations

- 1¼ Back pike (use same progressions but replace tuck with pike)

# Skills

## Air Module 2

### **3/4 Back tuck**

#### **Description**

- A backward flipping 270° rotation around somersault axis that takes off from the feet and lands in front drop position
- During the takeoff phase the hips are slightly extended as the feet lift directly in front of the body, eyes spot the end of the trampoline during takeoff
- During the aerial phase the body passes through vertical with the feet and hips directly above the head and shoulders, eyes look for the cross
- During the landing phase the body approaches the front drop landing, eyes follow the centre line from the cross to look at the end of the trampoline during landing
- Lands in a front drop facing the same direction as takeoff

**Prerequisites** – Back tuck, Back pike, Back layout, Back pullover to front drop

#### **Progressions (for 3/4 Back tuck)**

1. Back tuck, stop bounce, to low Front drop.
2. *Use mat:* Do a slow Back tuck landing on the feet, then dropping to Hand-knee position, then to Front drop on the mat
3. *Use mat:* As above but Back tuck is slowed down even more so the athlete lands directly in hand-knee position on the mat, then drops to Front drop on the rebound. Repeat until the landing is consistent, with a balanced hand-knee landing.
4. *Use mat:* As above, but the athlete can land directly in front drop position on the mat. If the landing is not balanced they can choose hand-knee landing instead. Repeat until the athlete is landing consistently in a comfortable front drop position.
5. 3/4 Back tuck on the trampoline with a controlled rebound to feet.

#### **Safety note**

- Remind athletes to tuck back in if they are feeling stuck or stalled out in their 3/4 Back
- When learning plan to land in hand-knee drop and only go to front if landing will be good
- Throw mat must be used until the athlete shows good control on a consistent basis

#### **Coaching tips**

- Arms should always be overhead on the takeoff and at the sides of the body or grabbing shins for the majority of the flip
- Athlete will need to watch the end longer on the takeoff compared with the back flip, this helps to slow down the rotation and stay centered on the trampoline
- Avoid travelling backwards which will make it harder to land well

#### **Variations**

- For 3/4 Back pike follow the same progressions using Back pike as the base skill
- For 3/4 Back layout, gradually straighten out the hips on the 3/4 Back pike

# Skills

## Air Module 2

### Gainer back tuck

#### Description

- A forward travelling, backward flipping 360° rotation around somersault axis that takes off from the feet and lands on the feet
- During the takeoff phase the hips are extended and the body leans slightly forward, more torque needs to be applied than for back tuck to compensate for the lean and generate enough backward rotation, eyes spot the end of the trampoline during takeoff
- During the aerial phase the body passes through vertical with the feet and hips directly above the head and shoulders, eyes look for the cross
- During the landing phase the body extends to land, eyes spot the trampoline where the athlete wishes to land (will likely be in front of the cross due to forward travel)
- Lands on the feet in front of the takeoff point, facing the same direction faced for takeoff

**Prerequisites** – Back tuck, Back pike, Back layout

#### Progressions

1. *Place mat on trampoline in front of athlete:* Gainer back drop, travelling forward to land completely on mat (head included).
2. Back tuck starting and landing on the cross.
3. Back layout starting and landing on the cross.
4. *Handspot and throw-mat:* Add forward travel from Progression 1 to the Back layout takeoff from Progression 3, then tuck in as needed to speed up the rotation in the air and get around to the feet. Repeat until the spotter is no longer needed.
5. *Use throw-mat:* Gainer back tuck onto mat (follow the athlete as they travel).
6. Gainer back tuck on trampoline with a stop bounce.

#### Safety note

- First attempts at Gainer back tuck should always be handspotted because athletes often do not flip enough when adding the forward travel, coach should be prepared to add flip to get the athlete past their head

#### Coaching tips

- Practicing many Gainer back drops helps in preparing for a successful Gainer back tuck

#### Variations

- This skill is often used off a mini-tramp or double mini-trampoline
- Once the gainer takeoff is learned it can be applied to other backward flipping skills

# Skills

## Air Module 2

### Lincoln loop

#### Description

- A 360° sideward rotation around the cartwheel axis
- During all phases of the skill the body is facing completely forward and the eyes are spotting a point in front of the athlete throughout the entire skill
- During the takeoff phase the legs come directly up the side
- During the aerial phase the hips pass directly overhead
- During the landing phase the legs come down the other side
- Lands facing the same direction as takeoff

**Prerequisites** – Front tuck, Back tuck, Barani tuck

#### Progressions (for left Lincoln Loop)

1. Use throw-mat: Front tuck with a late 90° twist to the RIGHT. Stop bounce.
2. Use throw-mat: Starting sideward on the trampoline do a LEFT 90° degree twist into a front tuck. Stop bounce.
3. Use throw-mat: Join progressions 1 and 2 together to do a LEFT 90° twist into front tuck, RIGHT 90° twist out. Stop bounce.
4. Use throw-mat: Repeat step above, but with eyes focused on a spot at the side of the trampoline.
5. Option: Coach can spot the whole Lincoln Loop. Go to <http://www.canfreestyle.com/wiki/lincoln-loop/> for a video of the spotting method
6. Lincoln loop without mat with a stop bounce.
7. Lincoln loop without mat with a controlled rebound.
8. Lincoln loop facing the end of the trampoline (once travel is eliminated)

#### Safety note

- When spotting, both the athlete's and the coach's arms should be flexed and strong
- When spotting, the coach's feet must remain on the trampoline bed
- Both feet should always land at the same time on the trampoline. This is why it is essential to use the throw mat throughout progressions 1-4

#### Coaching tips

- Athlete should look at a fixed spot in front of them to avoid twisting during takeoff and landing
- Athlete can start with the arm up in the direction that they are rotating (left arm up for left Lincoln loop) then switch arms on takeoff so that the left arm moves down towards the athlete's side, and simultaneously the outside (right) arm lifts up.

#### Variations

- After the skill is mastered, grabs may be added
- Add twist for Lincoln 180

# Skills

## Air Module 2

### Lincoln 180

#### Description

- A 360° sideward rotation around the cartwheel axis, with 180° of twist
- During the takeoff phase the legs come directly up the side
- During the aerial phase the hips pass directly overhead
- During the landing phase the body rotates 180° around the twist axis and the legs come down the other side for landing
- Lands facing opposite to the takeoff direction

**Prerequisites** – Straight 180, Lincoln loop, Barani tuck

#### Progressions

1. *Use throw-mat:* Lincoln loop on the mat, Straight 180 on the rebound (still on mat)
2. *Use throw-mat:* As above but begin to add 90° twist just before landing, stop bounce. The beginning of the skill stays the same, only the very end is changed.
3. *Use throw-mat:* Gradually add more twist until the athlete is doing a Lincoln with a late 180° twist. Stop bounce
4. *Use throw-mat:* Lincoln 180 with a stop bounce onto the mat until consistent.
5. Lincoln 180 on the trampoline with a stop bounce.
6. Lincoln 180 on the trampoline with a controlled rebound.

#### Safety note

- Always land in a stop bounce when adding twist
- Feet should always both land at the same time throughout all progressions

#### Coaching tips

- If the athlete gets confused always go back to the original skill (Lincoln loop) and build back up adding twist only at the very end
- Adding twist is easier if the athlete looks in the direction they want to be facing for the landing

# Skills

## Air Module 2

### Misty 540

#### Description (for left Misty 540)

- A forward rotating 540° spin
- During the takeoff phase the hips are slightly piked. Athlete begins looking at the end of the trampoline and then spots the cross under their left armpit. Simultaneously the hips are lifting up and to the right side
- During the aerial phase the body is close to horizontal in the air and perpendicular to the take off direction
- During the landing phase the body extends as the spin is completed, eyes spot the trampoline bed then look up toward the end of the trampoline
- Lands facing opposite direction to takeoff

**Prerequisites** – Front pike, Straight 540, Back drop roller, Side drop on mat, Misty drop, Misty rollover

#### Progressions (for left Misty 540)

1. Have athlete start by connecting their Misty drop to a Misty rollover.
2. *Use mat across trampoline in front of the athlete:* Have them perform more spin in the Misty drop to land in a side drop on the mat. Athlete should now be landing slightly past perpendicular to the centre line of the trampoline.
3. *Use crossways mat:* As above, however athlete continues the spin to hand-knee position on the mat. Now they should be landing 45 degrees less than the completed skill.
4. *Use crossways mat:* As above, but the athlete continues the Misty 540 to feet on the mat completing the whole spin, with a stop bounce.
5. Misty 540 on the trampoline with a stop bounce.
6. Misty 540 on the trampoline with a controlled rebound.

#### Safety note

- Side drop and hand-knee landings should always be done with the mat
- Always land in a stop bounce when learning new skills

#### Coaching tips

- Misty should be taught in a “gorilla” position
- Misty drop should land directly perpendicular to the center line of the trampoline as this will produce a better Misty 540

# Skills

## Air Module 2

### Misty 720

#### Description

- A forward rotating 720° spin
- The takeoff and aerial phases are similar to the Misty 540, however 180° of spin are added to the landing phase
- Lands facing same as direction takeoff

**Prerequisites** – Misty 540, Mute grab, Straight 720, Safety grab

#### Progressions (for left Misty 720)

1. Start with a high Misty 540 in gorilla position that takes off and lands on the cross.
2. Use mat: Add a mute grab into the Misty 540.
3. Misty 540 with mute grab on the trampoline with a stop bounce.
4. Misty 540 with mute grab on the trampoline with a controlled rebound.
5. Use mat: Misty 540 on the mat, Straight 180 on the rebound (still on mat).
6. Use mat: Add 90° spin to the end of the Misty 540, stop bounce on mat. Repeat this until the athlete looks comfortable and controlled spinning past the 540.
7. Use mat: Repeat with another 90° spin added to the end of the skill to make the Misty 720, landing in a “stop bounce” on the mat.
8. Misty 720 on the trampoline with a stop bounce.
9. Misty 720 on the trampoline with a controlled rebound.

#### Safety note

- Always land in a “stop bounce” when adding spin

#### Coaching tips

- Right hand safety Grab is also good for teaching Progression steps 1-4
- Spin is added in 90° increments, as by this stage athletes should be comfortable with spinning 540/720's in a variety of directions

#### Variations

- After the skill is mastered, a variety of grabs may be added
- Progressions for Switch Cork 720 are the same as above, except the vision point during takeoff will be at the opposite end of the trampoline
- Use same progression method to go from Misty 720 to Misty 900

# Skills

## Air Module 2

### Cork 720

#### Description (for left Cork 720)

- A backward rotating 720° spin
- During the takeoff phase the athlete looks forward at the end of the trampoline then spots the cross over their left shoulder, simultaneously the hips are extended and lifting to the left as the body rotates backward into the spin
- During the aerial phase the body is close to horizontal with hips below the shoulders throughout the skill
- During the landing phase the body extends as the spin is completed, eyes spot the cross then look toward the end of the trampoline during landing
- Lands facing the same direction as takeoff

**Prerequisites** –180 to front drop, Straight 720, Misty rollover, Side drop on mat, Back layout, Misty 720

#### Progressions

1. *Use mat across the trampoline behind athlete:* Do a backward rotating 270 degree spin to front drop landing on the mat (lands perpendicular to centre line). Feet stay close to the trampoline throughout (hips below shoulders).
2. *Use crossways mat:* Repeat as above, on the rebound do a 180 rollover to Flatback on the mat (also perpendicular).
3. *Use crossways mat:* Repeat as above but with the rollover in the air prior to landing, to complete a 450 spin to flatback (landing perpendicular on the mat). Feet still stay low, with hips below shoulders throughout.
4. *Use crossways mat:* Repeat 450 spin to flatback, but add a bit more at the end to land in side drop on the mat (just past perpendicular).
5. *Use crossways mat:* As above but athlete continues the spin to hand-knee position on the mat. Now they should be landing 45 degrees less than the completed skill.
6. *Use mat:* As above, but athlete continues the Cork to feet on the mat, completing the full 720° spin.
7. Cork 720 on the trampoline with a stop bounce.
8. Cork 720 on the trampoline with a controlled rebound.

#### Safety note

- Side Drop and hand-knee position should always be done with the mat
- Always land in a stop bounce when learning new skills

#### Coaching tips

- Cork should be taught in a "gorilla" position
- 450 to flatback should land on the mat directly perpendicular to the center line of the trampoline as this will produce a better Cork 720



- Have athletes imagine passing the “front drop” at 270 while spotting the bed. This will help them stay horizontal throughout the cork

### **Variations**

- Cork 540 has less spin than Cork 720 and can be learned by working backward from Cork 720, taking away spin from the end using a bit-by-bit progression method
- Progressions for Switch Misty 720 are the same as above, except the vision point on takeoff will be at the opposite end of the trampoline on takeoff

# Skills

## Air Module 2

### Cork 900

#### Description

- A backward rotating 900° spin
- The takeoff and aerial phases are similar to the Cork 720 with 180° of spin added to the landing phase
- Lands facing opposite to direction of takeoff

**Prerequisites** – Cork 720, Mute grab, Straight 900, Safety grab, Tail grab

#### Progressions (for left Cork 900)

1. High Cork 720 in gorilla position that takes off and lands on the cross
2. Use throw-mat: Add a Safety grab into the Cork 720
3. Cork 720 safety grab on trampoline with a stop bounce
4. Cork 720 safety grab on trampoline with a controlled rebound
5. Use throw-mat: Cork 720 on the mat, Straight 180 on the rebound (still on mat).
6. Use throw-mat: Add 90° spin to the end of the Cork 720 and land in a stop bounce. Repeat this until athlete looks comfortable and controlled spinning past the 720.
7. Use throw-mat: Add a further 90° spin to the end of the last progression and land with a stop bounce to make it a Cork 900. Repeat until landing well consistently.
8. Cork 900 on the trampoline with a stop bounce.
9. Cork 900 on the trampoline with a controlled rebound.

#### Safety note

- Always land in a “stop bounce” when adding spin

#### Coaching tips

- Tail Grab is also good for teaching Progression steps 1-4

#### Variations

- After skill is mastered a variety of grabs may be added
- Progressions for Switch misty 900 are the same as above, except the vision point on takeoff will be at the opposite end of the trampoline
- Use same progression method to go from Cork 900 to Cork 1080

# Skills

## Air Module 2

### Bio 540

#### Description (for left Bio 540)

- A forward rotating 540° non-inverted spin
- During the takeoff phase the hips very slightly piked, hips are lifting up and the right side, eyes spot toward the end of the trampoline, chest stays above the level of the hips
- During the aerial phase the head and shoulders are above the hips, eyes spot the cross as the spin comes around to prepare for landing
- During the landing phase the body extends as the spin is completed, eyes spot the trampoline bed then look up for the end of the trampoline during landing
- Lands facing opposite to direction takeoff

**Prerequisites** – Straight 540, Misty 720

#### Progressions

1. *Use mat across trampoline in front of athlete:* "Bio seat drop" progression is similar to Misty drop but the axis is closer to straight so that it lands in seat drop instead of back drop (perpendicular to the centre line)
2. Once the progression above is landing consistently in a seat drop, remove the mat and do: Bio seat drop (270 spin to see drop as above) connected to "Bio rollover" to feet (270 spin to feet from the perpendicular seat drop)
3. *Use mat across trampoline in front of athlete:* Repeat Progression 1, however athlete continues the spin to hand-knee position on the mat. Now they should be landing 45 degrees less than the completed skill. Hand-knee position may be slightly more upright than normal so shoulders are higher than the hips.
4. *Use mat across trampoline in front of athlete:* As above, but athlete continues the Bio 540 to feet on the mat, completing the full 540 degrees.
5. Bio 540 on trampoline with a stop bounce.
6. Bio 540 on trampoline with a controlled rebound.

#### Safety note

- Side drop is NOT used for these progressions because the axis for Bio is more vertical and the side drop landing would not be flat
- This is a difficult skills to perform well on trampoline and often lands still off-axis (leaning) so use a mat for a long time and ask athletes to do a good stop bounce

#### Coaching tips

- Doing progressions in the Gorilla position often helps for learning Bio 540
- Single or double safety grab, or mute grab can be added

#### Variations

- After skill is completed on the trampoline bed, grabs and then extra spin can be added

# Skills

## Air Module 2

### Rodeo 540

#### Description (for a left Rodeo)

- A sideward rotating 540° spin
- During the takeoff phase the legs come up the side and the body twists 90° to the left
- During the aerial phase the hips are above the shoulders. Torso axis is about 45 degrees from vertical. As the spin was performed early on take-off, the body now feels like it is rotating backward, but it is perpendicular to takeoff direction.
- During the landing phase the body spins another 90° as the body extends for the landing. Eyes spot the trampoline bed then look up for the end
- Lands facing the opposite direction to takeoff

**Prerequisites** – Japan grab, Back tuck, Lincoln loop, Straight 540

#### Progressions (for Left Rodeo)

1. Lincoln loop to the right facing sideward on the trampoline.
2. Back tuck facing the end of the trampoline (feet should kick toward same end of the trampoline on the Lincoln loop and the Back tuck)
3. *Use throw-mat:* Facing sideward on the trampoline (same as for Lincoln loop), the athlete begins with sideward rotation and adds a 90° left turn to the start of the back tuck and lands in a stop bounce on the mat. This progression starts facing sideward and lands facing the end on the trampoline.
4. *Use throw-mat:* Repeat above progression, but add an additional 90° spin in the left direction out of the back flip portion of the skill to land facing the opposite direction to which they started.
5. *Use throw-mat:* Repeat above progression, but add Japan grab to help maintain proper axis.
6. Rodeo 540 on the trampoline bed with a stop bounce.
7. Rodeo 540 on the trampoline with a controlled rebound.
8. When Rodeo 540 is landing consistently without travel the athlete can turn to face the end of the trampoline on takeoff instead of facing sideward.

#### Safety note

- Always land in a stop bounce when learning new skills

#### Coaching tips

- Remind athlete to spot the horizon while in the aerial phase of a Rodeo 540
- Chest and shoulders must be open throughout all takeoffs during the progressions and complete skill

## Variations

- Progressions for Switch rodeo 540 are the same as above, except the vision point will be at the opposite end of the trampoline on takeoff

# Skills

## Air Module 2

### Flare 540

#### Description (for left Flare)

- A backward rotating 540° spin which can be broken down into a 90° spin into the Lincoln loop and 90° spin out
- During the takeoff phase the body turns 90° degrees as the feet lift in front of the body, the hips are slightly extended and turning to the left
- The aerial phase is the same as the aerial phase of a Lincoln loop, where the hips and feet are above the head and shoulders rotating on the cartwheel axis, vision is fixed to a point at the side of the trampoline
- During the landing phase the body extends and spins the remaining 90°, eyes now spot the opposite end of the trampoline
- Lands facing opposite to direction faced for takeoff

**Prerequisites** – Back layout, Lincoln loop, Back half (on axis)

#### Progressions (for left Flare)

1. Left Lincoln loop facing sideward on the trampoline.
2. *Use mat:* Now start facing towards the end of the trampoline. As they begin to rotate backwards a 90° left turn is added into the “sideways” Lincoln Loop to land in a stop bounce on the mat. This progression starts facing forwards and lands facing sideways on the trampoline.
3. *Use mat:* Repeat above progression with the throw mat, however the athlete adds an additional 90° spin in the left direction as they open out from the “Lincoln loop” portion of the skill to land facing the opposite direction to which they started.
4. Flare 540 on the trampoline with a stop bounce.
5. Flare 540 on the trampoline with a controlled rebound.

#### Safety note

- Always land in a stop bounce when learning new skills
- Remind athletes to land 2 feet at the same time, this is a common error so the mat must be used with while learning this skill to avoid injury

#### Coaching tips

- Have athlete look at a fixed spot to the side of the trampoline while in the aerial phase of the skill

#### Variations

- After skill is mastered a variety of grabs may be added

# Skills

## Air Module 2

### Flat spin 360

#### Description

- A backward leaning 360° spin around the cartwheel axis
- During the takeoff phase the body rotates backwards and turns 90°, hips are slightly extended as they lift and turn up toward the roof, eyes spot the end of the trampoline
- During the aerial phase the body is rotating around the cartwheel axis with the torso as close to horizontal as possible
- During the landing phase the body continues to turn 90° to square off for landing, eyes spot the trampoline bed then the end of the trampoline
- Lands facing the same direction as takeoff

**Prerequisites** – Cork 720, Back tuck, Lincoln loop, Straight 360, Misty rollover

#### Progressions – Method 1 (for left Flat Spin)

1. *Place mat across trampoline behind the athlete:* Perform a backward 90° rotation to the left into a back drop landing perpendicular to the centre line. Hips must be extended as they lift toward the roof.
2. Athlete performs above progression without mat and on the rebound continues the left rotation into a Misty rollover.
3. Choose one of the following three base skills:

Lincoln loop	Back layout	Straight 360
3. Perform Lincoln loop with Japan grab. Land on throw mat.	3. Perform Back layout with a Japan grab to make it a "corked" back flip. Land on throw mat.	3. Perform Straight 360 with Gorilla position to land on the mat placed behind the athlete on the trampoline.
4. Add above takeoff from Progression 1 into a Lincoln loop with Japan grab. Land on throw mat.	4. Add above takeoff from Progression 1 into "corked" back flip. Land on throw mat.	4. Add above takeoff from Progression 1 into Gorilla 360. Land on throw mat.

1. Flat spin 360 on the trampoline with a stop bounce.
2. Flat spin 360 on the trampoline with a controlled rebound.

## Progressions – Method 2 (for left Flat spin)

1. Use mat across trampoline behind the athlete: Perform a backward 90° rotation to the left into a back drop landing perpendicular to the centre line. Hips must be extended as they lift toward the roof.
2. Athlete performs above progression without mat and on the rebound continues the left rotation into a Misty rollover.
3. Use mat across trampoline behind the athlete: Follow Progression 1, however athlete performs more spin to land in a side drop on the mat (athlete is no longer landing perpendicular to the centre line).
4. Use mat across trampoline behind the athlete: As above however athlete continues the spin to land in hand-knee position on the mat. Now they should be landing 45 degrees less than the completed skill.
5. Use mat across trampoline behind the athlete: As above, but athlete continues the Flat spin to feet on the mat, completing the full 360.
6. Flat spin 360 on trampoline with a stop bounce.
7. Flat spin 360 on trampoline with a controlled rebound.

## Safety note

- Side Drop and hand-knee position should always be done with the mat
- Always land in a stop bounce when learning new skills

## Coaching tips

- All of the above progression methods are effective for teaching Flat 360, as this is a difficult skill to master it is advised to remember all methods
- Hips must be extended for takeoffs throughout all progressions



# Skills

## Air Module 2

### Flat spin 540

#### Description

- A backward leaning 540° spin based around the cartwheel axis
- The takeoff and aerial phases are similar to the Flat spin 360 with 180° of spin added to the landing phase
- Lands facing opposite to the direction of takeoff

**Prerequisites** – Flat spin 360, Japan grab, Straight 540

#### Progressions (for left Flat Spin)

1. Warm up with high Flat 360 that takes off and land on the cross.
2. *Use throw-mat:* Add a Japan grab into the Flat spin 360
3. Flat spin 360 Japan grab on the trampoline with a stop bounce.
4. Flat spin 360 Japan grab on the trampoline with a controlled rebound.
5. *Use throw-mat:* Add a 90° spin to the end of the Flat Spin 360. Repeat until athlete looks comfortable and controlled spinning past the 360.
6. *Use throw-mat:* Add a further 90° spin to Progression 5 to complete the Flat Spin 540, landing in a “stop bounce” on the mat.
7. Flat spin 540 on the trampoline with a stop bounce.
8. Flat spin 540 on the trampoline with a controlled rebound.

#### Safety note

- Always land in a “stop bounce” when adding spin

#### Coaching tips

- Flat spin 540 is easy to perform once athlete can do Flat spin 360, so when teaching the 540, always review and have athlete do a few Flat spin 360's in between progressions

#### Variations

- Use same progression method to go from Flat spin 540 to Flat spin 720. Flat spin 720 is difficult to master on trampoline and often does not look as good as Flat spin 360 or 540.

# Skills

## Air Module 2

### 3/4 Front layout

#### Description

- A forward flipping 270° rotation around the somersault axis that takes off from the feet and lands in back drop
- During the takeoff phase the hips are slightly piked as feet lift directly behind the body, eyes spot the end of the trampoline during takeoff
- During the aerial phase the body passes through vertical with the feet and hips directly above the head and shoulders, eyes are now spotting the cross until landing, body is in a layout position with arms stretched overhead
- During the landing phase the hips are brought down towards the trampoline in preparation for the back drop landing, eyes spot the cross for as long as possible
- Lands in a back drop facing same direction as takeoff

**Prerequisites** – Stretched front drop, Front tuck, Donkey kick to back drop, “Baby flip to seat drop” (as learned in “10 steps to teach a front flip” – Air 1 content)

#### Progressions

1. Use mat on the trampoline in front of the athlete: Do forward roll onto the mat, looking at the mat between the hands before rolling over.
2. Use mat on the trampoline in front of the athlete: Repeat as above but stop the roll in back drop position with arms and legs vertical.
3. Use mat on the trampoline in front of the athlete: Start standing but add a small bounce to roll in the air and finish in back drop, looking at the mat as long as possible (do not tuck head in). Gradually add more bounce.
4. Use throw-mat: Repeat as above but start and land on the cross (no forward travel). Make sure the arms are vertical during takeoff and that the athlete is looking at the cross during the aerial phase.
5. Use throw-mat: Gradually straighten the body more in the air to work toward a layout position with the arms at the ears. This will take many tries over many sessions to perfect. The athlete will need to increase power by kicking their heels backward while keeping their hamstrings/glutes tight. Remind them to watch the end during takeoff and then see the cross for as long as possible before landing.
6. 3/4 Front layout on the trampoline bed. Use a throw mat or handspot the rebound as the athlete may get more power from the rebound than they are expecting.
7. 3/4 Front layout on the trampoline with a controlled rebound to feet.

#### Safety note

- Athletes should always look at the trampoline, this helps them know where they are relative to the trampoline so they can adjust to avoid landing headfirst
- For Progression 1-4, remind athletes to have their arms in front of their body when landing in Back Drop.

### **Coaching tips**

- Although athletes will want to tuck their head in it is much safer and produces a better final skill when they look at the trampoline the whole time, this allows them to adjust for the landing based on how much rotation they have
- From Progression 2 onwards, legs should not tuck in unless athletes are lacking rotation. Having straight legs will help the athlete have a better back drop landing

### **Variations**

- A Stretched  $\frac{3}{4}$  Front layout, or "Swan dive" is a progression for Superman front flip

# Skills

## Air Module 2

### Porpoise (back drop front flip to back drop)

#### Description

- A forward flipping 360° rotation around the somersault axis that takes off from the back and lands on the back
- During the takeoff phase the hips extend to push the shoulders down into the trampoline bed as it rises, the arms move forward as the body begins to tuck. Eyes spot forward to see the cross as early as possible
- During the aerial phase the body passes through vertical with the feet and hips directly above the head and shoulders, eyes spot the cross throughout
- During the landing phase the body extends to slow down rotation for the landing on the back, eyes spot the cross for as long as possible
- Lands on the back facing in the same direction as takeoff

**Prerequisites** – Forward roll on floor, Back drop to Front drop (straight body), Front tuck,  $\frac{3}{4}$  Front layout

#### Progressions

3. Standing Back drop to feet, immediately touch feet with hands and roll over to back on the mat.
4. *Place mat on trampoline in front of athlete:* Add speed to Progression 1. Athlete will begin to miss their feet completely and go straight over to their back, landing on the mat. REMIND them to always have their hands touching their feet (to avoid landing on their head).
5. Use throw-mat: Add more height to the Porpoise (Back drop, front flip to Back drop). Make sure they are seeing the cross for as long as possible.
6. Porpoise on the trampoline.

#### Safety note

- These progressions must be done very low (start standing)
- All progressions must be closely supervised by the coach to be sure they don't land on their head
- Use the throw mat throughout most progressions
- Hands must be touching feet in Progressions 1 and 2.

#### Coaching tips

- Arms will help with the rotation, so be sure they are vertical in the Back drop takeoff
- Make sure athletes are looking at the trampoline so they can adjust for the landing

# Skills

## Air Module 2

### Ballout tuck

#### Description

- A forward flipping 450° rotation around the somersault axis that takes off from the back and lands on the feet
- During the takeoff phase the hips extend to push the shoulders down into the trampoline bed as it rises, the arms move forward as the body begins to tuck. Eyes spot forward toward the end of the trampoline and then the cross after takeoff
- During the aerial phase the body passes through vertical and remains in a tuck position with the feet and hips passing directly above the head and shoulders
- During the landing phase the body extends to slow down rotation for the landing on the feet, eyes spot forward to the end of the trampoline
- Lands on feet facing the same direction as takeoff

**Prerequisites** – Back drop to Front drop (Straight body),  $\frac{3}{4}$  Front layout, Porpoise tuck, Front tuck

#### Progressions

1. Porpoise on the trampoline.
2. Perform Porpoise in a variety of routines or series (minimum 2-3 Porpoises in a row) before learning a Ballout tuck.
3. *Use throw-mat:* Porpoise tuck to seat drop. Knees apart for landing on mat.
4. *Use throw-mat:* Add more kick and a tighter tuck position to help increase the speed of rotation to have the Ballout tuck landing on feet on the mat (knees apart).
5. Ballout tuck to feet on the trampoline bed with a stop bounce.
6. Ballout tuck to feet on the trampoline bed with a controlled rebound.

#### Safety note

- Use the throw mat
- Keep knees apart for landing (space for your face!)

#### Coaching tips

- Tight bodies bounce better, make sure athlete is tight on the Back drop as well as through their extension from the trampoline bed
- Arms will help with the rotation, so be sure they are vertical in the Back drop takeoff

#### Variations

- Ballout pike

# Skills

## Air Module 2

### Superman front flip

#### Description

- A forward traveling, forward flipping 360° rotation around the somersault axis showing the layout position with arms overhead during takeoff and then tucking during the aerial phase to speed up rotation
- During the takeoff phase the hips are slightly piked to create forward rotation around the somersault axis, the arms reach back into a “swan position” as the heel kick up directly behind the athlete to initiate the forward flip, eyes spot the end of the trampoline for as long as possible during takeoff
- During the aerial phase the body passes through vertical with feet and hips directly over the head and shoulders, athlete tucks in briefly just before the apex, speeding up the somersault rotation, then prepares to open again to slow rotation for landing
- During the landing phase the body extends to slow down rotation, eyes spot the end of the trampoline during landing, feet come down and the shoulders finish over the feet
- Lands facing same direction as takeoff

**Prerequisites** –  $\frac{3}{4}$  Front layout showing “swan position” in the air, Front tuck

#### Progressions

1. Use mat on trampoline in front of athlete: Swan Dive landing on the mat (=3/4 Front layout showing a “swan position” in the air)
2. Use thick mat on trampoline in front of athlete: Swan Dive landing on the mat, tuck up to feet and spot the end of the trampoline on the rebound (still on mat).
3. Use thick mat on trampoline in front of athlete: Go slightly higher, do Swan Dive in the air then tuck briefly to speed rotation and get around to feet for the landing. Spot the end of the trampoline. KEEP KNEES APART (space for your face). Don’t
4. Use thick mat on trampoline in front of athlete: Go slightly higher, do Swan Dive in the air then tuck briefly to get to seat drop with KNEES APART (space for your face). Look for the end of the trampoline.
5. Use thick mat on trampoline in front of athlete: As above but try to land on the feet. Spot the end of the trampoline. KEEP KNEES APART (space for your face) in case of under-rotation. If over-rotating, turn to back drop, DON’T land on hands or arms.
6. Always use a mat for Superman front flip

#### Safety note

- Make sure athletes only tuck very briefly to avoid over-rotation
- Always keep knees apart for landing when learning (space for your face)
- Always do a stop bounce landing, and keep arms in and turn to back drop if over-rotating

#### Coaching tips

- Ask the athlete to look for the end of the trampoline or end-deck during landing
- This skill works well off a double or single mini-trampoline onto a thick mat

# Skills

## Air Module 2

### Arabian $\frac{3}{4}$

#### Description

- A backward flipping 270° rotation around the somersault axis with a 180° twist
- During the takeoff phase the arms are up, hips are slightly extended and the feet lift directly in front of the body, eyes spot the end of the trampoline in front of the athlete
- During the aerial phase the body completes 180° of twist, the body passes close to vertical, and the eyes look toward the cross to prepare for landing
- During the landing phase the body rotates toward back drop, eyes stay focused on the cross and the hips are pulled down to prepare for the landing
- Lands in back drop opposite the direction faced for takeoff

**Prerequisites** – 180 to front drop,  $\frac{3}{4}$  Back layout,  $\frac{3}{4}$  Front to flatback, Back layout

#### Progressions building from $\frac{3}{4}$ front layout (early twist)

1. *Use mat:* Review  $\frac{3}{4}$  Front layout to back drop. NOTE: The back drop landing will always face the same way for each step, the twist is added to the start of the skill.
  2. *Use mat:* Add 90° twist to the start. Begin facing sideways on the trampoline and do 90° twist into  $\frac{3}{4}$  Front. Land on the centre line (check direction of twist).
  3. *Use mat:* Add another 45° twist to the start to begin facing the corner of the trampoline. Do the 135° twist into  $\frac{3}{4}$  Front layout. Repeat until back drop landing is consistently lined up with the centre line of the trampoline.
  4. *Use mat:* Add the last 45° twist to the start to complete the Arabian  $\frac{3}{4}$  (getting to this step often takes a lot of practice over many training sessions).
  5. *Use throw-mat:* Gradually add more “kick” on the takeoff, look forward longer and twist slightly later (twist during the aerial phase instead of during takeoff)
- \* When the takeoff technique is good the athlete may choose to land in flatback as a progression for future skills (requires slightly more flip rotation than back drop).

#### Safety note

- Whenever the athlete gets confused or lands crooked on a progression go back to the previous step that they can do consistently and then build back up
- Remind athletes to look at the trampoline, and to tuck in if they are stuck or stalled out in their rotation
- Flatback landings should always be done in a mat to avoid kabooms

#### Coaching tips

- Arms should be vertical overhead during each takeoff
- For the completed skill, the athlete should aim to see the end of the trampoline during takeoff and then look along the side of the trampoline until they can see the cross during the aerial phase. This will help with spatial orientation on Back full

### Progressions building from $\frac{3}{4}$ back layout (late twist)

1. Use mat: Review  $\frac{3}{4}$  back layout (landing in front drop). NOTE: This takeoff will stay the same for each step because the twist is only added at the end of the skill.
2. Use mat:  $\frac{3}{4}$  back layout, land on the mat, add a 180° rollover to flatback on the rebound (still on the mat).
3. Use mat:  $\frac{3}{4}$  back layout, clap hands when body is approaching horizontal just before landing. Athlete must see the mat before clapping.
4. Use mat: Instead of clapping add a late 180 to flatback. Athlete must see the mat and twist just before landing. If the twist is too early go back to the previous step.
5. Use mat:  $\frac{3}{4}$  back with late 180 to flatback. Gradually allow the twist to move earlier (twist during the aerial phase instead of at the very end of the skill) as long as the flatback landing is consistent.
6. Use mat: To land in back drop instead of flatback, gradually try to keep the legs more vertical during the back landing on the mat.
7. Use mat on the rebound: Arabian  $\frac{3}{4}$  on the trampoline bed, controlled rebound.

### Safety note

- Twist should only be added if the athlete has the correct amount of flip (to avoid landing on their head!)
- Give the option of doing  $\frac{3}{4}$  back layout anytime they aren't comfortable adding the twist
- Flatback landings should be done in a mat to avoid kabooms

### Coaching tips

- Arms should be vertical overhead during each takeoff
- For the completed skill, the athlete should aim to see the end of the trampoline during takeoff and then look along the side of the trampoline until they can see the cross during the aerial phase. This will help with spatial orientation on Back full

### Variations

- Arabian  $\frac{3}{4}$  can be performed to a back drop or a flatback landing depending on the purpose. Progressions for future skills often use flatback landing to prepare for adding more rotation.



# Skills

## Air Module 2

### Underflip 540

#### Description

- A backward rotating 540° spin, Underflip is similar to an Arabian but is slightly off-axis
- During the takeoff phase the hips are slightly extended and the body rotates backwards while spinning 140° around the twist axis, eyes spot the opposite end to takeoff before the body tucks in
- During the aerial phase the body is tucked and torso is approximately 45° off vertical
- During the landing phase the last 40° of spin is completed while the body extends to square off for landing, eyes spot the end of the trampoline during landing
- Lands facing opposite direction to takeoff

**Prerequisites** - 180 to front drop, Front tuck,  $\frac{3}{4}$  Front, Back layout,

#### Progressions (left Underflip)

1. Use mat on trampoline: Begin facing the mat. Warm up a  $\frac{3}{4}$  Front onto the mat.
2. Use mat on trampoline: Start facing sideward on trampoline and perform a left 90° spin into the  $\frac{3}{4}$  Front to land on the mat.
3. Use mat on trampoline: Start facing away from the mat. Perform a 140° spin into the  $\frac{3}{4}$  Front. The body no longer needs to land facing exactly toward the end, but can be slightly under-twisted (about 40° from the centre line).
4. Use throw-mat: Repeat as above but add a tuck to land on the feet facing towards the closest corner behind them. Land in a stop bounce on the mat. KEEP KNEES APART!
5. Use throw-mat: Repeat as above, landing on the feet facing the corner, until the landing is consistent. When they are able they can gradually add the remaining 40° spin to complete the Underflip, landing with a stop bounce on the mat.
6. Underflip 540 on the trampoline with a stop bounce.
7. Underflip 540 on the trampoline with a controlled rebound.

#### Safety note

- Always land in a stop bounce when learning new skills
- TWO FOOT RULE: Remind athletes to land on both feet on the same surface at the same time, this is a common error so the mat must be used with while learning this skill

#### Coaching tips

- Underflip can be taught in a "closed gorilla" or tuck position

#### Variations

- After skill is mastered a variety of grabs may be added

# Skills

## Air Module 2

### D-Spin 720

#### Description

- A backward rotating 720° degree spin
- During the takeoff phase the hips are slightly extended and the feet kick up towards the corner of the trampoline (left corner for left spin), eyes spot the end of the trampoline in front of the athlete
- During the aerial phase the hips and feet are above the shoulders and head with the torso about 45° from vertical, body is in a closed gorilla position
- During the landing phase the spin is completed while the shoulders lift and feet are come down for landing, eyes spot the cross on the way down then look up for the end of the trampoline during landing
- Lands facing the same direction as takeoff

**Prerequisites** – Closed gorilla position, Straight 720, 180 to front drop, 360 to back drop, Back layout, Misty 540, Arabian  $\frac{3}{4}$ , Underflip

#### Progressions - Method 1

1. Use throw-mat: Perform a high stretched 180 to front drop.
2. Use throw-mat: Apply this tighter stretched takeoff to an Underflip 540.
3. Use throw-mat: Add more power on the takeoff to change the position in the Underflip from a tuck to a closed gorilla position landing on throw mat.
4. Use throw-mat: Repeat Underflip 540 in closed gorilla position and add small amounts of spin to the end until a full 720 is performed (=D-spin 720). Always land in stop bounce when adding twist.
5. Once the D-spin 720 is landing consistently, the athlete can do it on the trampoline with a stop bounce.
6. D-spin 720 on the trampoline with a controlled rebound.

## Progressions - Method 2

1. 450 to back drop (landing sideways on the trampoline), Misty rollover to feet.
2. Use mat across the trampoline: 450 to back drop landing sideways on the mat, rollover to hand-knee position on the rebound (still on mat)
3. Use mat across the trampoline: Repeat as above, but add slightly more spin to the end to land in side drop on the mat. Athlete should now be landing slightly past perpendicular to the centre line of the trampoline.
4. Use mat across the trampoline: Repeat as above but athlete continues the spin to hand-knee position on the mat, landing 45 degrees less than the completed skill.
5. Use mat: Athlete continues the D-spin 720 to feet on the mat completing the whole spin. Land with a stop bounce.
6. D-spin on trampoline with a stop bounce.
7. D-spin on trampoline with a controlled rebound.

## Safety note

- Always land in a stop bounce when learning new skills

## Coaching tips

- D-spin should be taught in a "closed gorilla" position to help with a faster spin

## Variations

- After skill is mastered a variety of grabs may be added

# Skills

## Air Module 2

### Back half

#### Description

- A backward flipping 360° rotation around the somersault axis with a 180° twist
- During the takeoff phase the hips are slightly extended and the feet lift directly in front of the body, arms are up, eyes spot forward toward the end of the trampoline
- During the aerial phase the body passes close to vertical, arms are brought down close to the sides of the body and the athlete twists 180°
- During the landing phase eyes spot the cross the end of the trampoline during landing
- Lands facing opposite to the takeoff direction

**Prerequisites** – Front drop 180 to feet, Back layout

#### Progressions

1. Back layout, Straight 180. Check for tight body position on back layout and controlled rebound into Straight 180. Check direction of twist.
2. *Use throw-mat:* Back layout onto the mat, straight 180 on the rebound (still on mat)
3. *Use throw-mat:* Back layout add 90° twist just prior to landing, do a stop bounce landing on the mat (lands facing the side)
4. *Use throw-mat:* Repeat but add 90° more twist just prior to landing on the mat. Stop bounce. Look at the end of the trampoline during landing.
5. *Use throw-mat:* Back half. Gradually move twist so that it is fairly symmetrical (90 before the apex, 90 after)
6. Back half with a stop bounce on the trampoline bed.
7. Back half with a controlled rebound on the trampoline bed.

#### Safety note

- Always land in a stop bounce when adding twist to new skills

#### Coaching tips

- Arms should be vertical overhead on the takeoff and are brought to the sides in the air during the twist

# Skills

## Air Module 2

### Back Full

#### Description

- A backward flipping 360° rotation around the somersault axis with a 360° twist
- During the takeoff phase the hips are slightly extended and the feet lift directly in front of the body, arms are up, eyes spot forward to the end of the trampoline
- During the aerial phase the body passes close to vertical, the twist is initiated through a tilt action with the arms that creates a 360° spin around the twist axis
- During the landing phase arms lift to un-tilt the body for landing, eyes spot the cross on the way down and the end of the trampoline during landing
- Lands the facing the same direction as take off

**Prerequisites** – 360 to back drop, ¾ back layout, Back layout, Barani layout

#### Back full progressions - Adding twist to end of Back half

1. Back half, Straight 180. Check direction of twist.
2. Use throw-mat: Back half with arms up at ears the whole time (requires more flip).
3. Use throw-mat: Back half with arms up landing on mat, Straight 180 on rebound (still on mat)
4. Use throw-mat: Back half but add another 90° twist just prior to landing, do a stop bounce landing on the mat (lands facing the side). Arms can come in to help with the additional twist. Look toward the direction they want to face for landing.
8. Use throw-mat: Repeat but add 45-90° more twist just prior to landing on the mat. Stop bounce. Keep adding twist in small increments as they are able to. Always look toward the end of the trampoline that they want to face for landing.
9. Use throw-mat: Back full. Gradually move twist so that it is fairly symmetrical throughout the skill, the athlete should start to see the trampoline throughout.
10. Back full with a stop bounce on the trampoline bed.
11. Back full with a controlled rebound on the trampoline bed.

#### Safety note

- Always land in a stop bounce when adding twist to new skills

#### Coaching tips

- Only add twist at the very end, the beginning of the skill stays the same
- Arms should always be vertical overhead on the takeoff
- Adding twist can speed up the backward somersault rotation as the "tilt" brings the body closer to its CG, if an athlete is over-rotating to their back then they will need to watch the end longer during takeoff and lift more before beginning the flip
- This method helps athletes to kick straight overhead during the takeoff

### Back full progressions – Adding twist to Arabian 3/4

1. Arabian  $\frac{3}{4}$ . Straight body, and look at the end of the trampoline during takeoff.
2. Use thick throw-mat: Arabian  $\frac{3}{4}$  to flatback on the mat. Check for flat landing.
3. Use thick throw-mat: Arabian  $\frac{3}{4}$  to flatback on the mat, add 180 rolover to hand-knee position on the rebound (still on mat).
4. Use thick throw-mat: Arabian  $\frac{3}{4}$  add 180 to hand-knee drop just prior to landing (only add the 180 if athlete is confident of landing well, otherwise do Arabian  $\frac{3}{4}$ ). Avoid adding twist too early due to danger of landing on head.
5. Use thick throw-mat: When the skill is consistently landing in hand-knee position and the athlete has good spatial orientation during the landing they can try to put their feet down for the landing.
6. Use throw-mat: Back full. Gradually work on seeing the trampoline throughout the skill. Continue with the mat until the landing is very consistent.
7. Back full with a stop bounce on the trampoline.
8. Back full with a controlled rebound on the trampoline.

### Safety note

- Use a thick throw mat (11 inch)
- Always land in a stop bounce when adding twist to new skills
- The takeoff should start the same as for the Arabian  $\frac{3}{4}$  to ensure the athlete has enough somersault rotation to get past their head

### Coaching tips

- Arms should always be vertical overhead during the takeoff
- This method helps athletes learn to spot the bed throughout the Back full
- Be aware of your athletes natural twist direction when teaching this skill. It is easier to learn skills in the natural direction first

# Mechanics of Acrobatics

## Stationary mechanical concepts (Review):

**Mass** is a measure of the quantity of matter in a body. Weight and mass can be used interchangeably for the purpose of studying biomechanics in freestyle skiing. Measured in kilograms (kg)

**Centre of gravity (=centre of mass)** is the point about which all of the body's mass is distributed equally in all directions.

The location of the centre of gravity

- is dependent on the shape of the athlete and the distribution of their mass
- can change depending on the position of the athlete's body and limbs
- does not have to lie within the athlete's body

An athlete's **base of support** is the length and width of their body's contact points with the ground that support their mass.

- A person standing on one foot has a small base of support
- A wider stance on two feet will increase the base of support
- Skis increase an athlete's base of support since they are much longer than a human foot

The **line of gravity** is an imaginary vertical line from the athlete's centre of gravity to the ground.

**Balance** is achieved by controlling the body's equilibrium by maintaining the line of gravity within the base of support.

**Stability** is the measure of the athlete's resistance to losing balance.

Stability is increased by:

- Increasing size of the base of support
- Lowering the centre of gravity
- Keeping the line of gravity closer to the centre of the base of support

## Types of Motion

**General Motion** is a simplified view of motion that only tracks movements of the athlete's centre of gravity. For example, a skier's centre of gravity can be travelling in a straight line even if they use various motions of the limbs to control edge and balance

**Linear Motion** is motion along a straight line. Examples are jumping up and down in one place or skiing in a straight line.

**Angular motion** is circular motion around an axis (Rotation).

When that axis of rotation passes through the athlete's centre of gravity, this is specifically referred to as **Spin motion**.

An athlete twisting or flipping in mid-air has spin motion, which is a type angular motion.



## Linear Motion (Review)

**Linear motion** is motion along a straight line.

Generally when analyzing the linear motion we track the motion of the athlete's centre of gravity. This is called **general linear motion**.

**Translation** is movement resulting from a force that acts through the centre of gravity.

**Distance** is the length of the path a body follows. May be measured in meters (m).

**Speed** and **Velocity** describe how fast an object is moving.

$$\text{Speed} = (\text{distance}) \div (\text{time})$$

$$\text{Velocity} = (\text{displacement}) \div (\text{time})$$

We are interested in instantaneous speed or velocity so for practical purposes they can be used interchangeably. May be measured in meters/second (m/s) or kilometers/hour (km/h)

**Momentum** is a measure of how much motion a body has, and how persistent the body is to continue moving in the same direction.

- A skier with a greater mass will have more momentum
- A skier traveling at a greater speed will have more momentum
- A skier at rest (stopped) has a momentum of zero

$$\text{Momentum} = (\text{mass}) \times (\text{velocity})$$

**Force** is a pushing or pulling action that causes a change in the momentum of a body. May be measured in Newtons (N).

**Acceleration** describes the rate of change of the speed of a body over time. May be measured in meters per second per second ( $\text{m/s}^2$ )

Note: A body in the air has constant downward acceleration due to gravity ( $9.81 \text{ m/s}^2$ )

## **Mechanics of Linear Motion – Newton’s Laws**

### **1. Law of Inertia**

Inertia is the reluctance of a body to change whatever it is doing (resting or moving)

As long as no net force is applied, a body at rest will remain at rest and a body in motion will remain in motion.

Mass is the general measure of inertia. The larger the athlete’s mass, the greater the inertia and the harder it is to change the athlete’s state of motion.

### **2. Law of Acceleration**

The acceleration of an object is directly proportional to the force applied, and inversely proportional to its mass.

$$\text{Force} = (\text{mass}) \times (\text{acceleration})$$

An individual skier’s mass is constant, so the harder they push (force) the faster they speed up (acceleration)

If two athletes are landing on the ground from the same height, the athlete with more mass will need to apply a greater force.

### **3. Law of Reaction**

For every action force there is an equal and opposite reaction force.

If an athlete applies a downward force on the ground, the ground applies an equal force upward on the athlete.

## Mechanics of Spin Motion (Rotation)

**Angular velocity** is the speed of rotation, or the “rate of rotation of a body around a particular axis.”

May be measured in revolutions per second (RPS) or revolutions per minute (RPM)

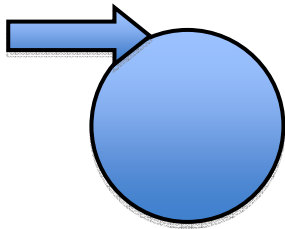
**Torque** is the tendency of a force to rotate an object about its axis.

$$\text{Torque} = (\text{force}) \times (\text{distance from axis of rotation})$$

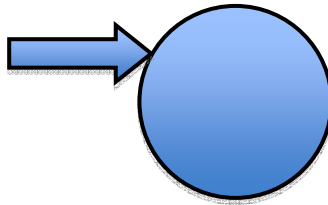
A skier can increase the torque during a takeoff by increasing the force, or by applying that force further from the axis of rotation. Any force acting directly through the athlete’s centre of gravity will not produce a torque.

An **off-centre force** is a force that does not act directly through the athlete’s centre of gravity. This type of force causes both rotational and linear movement (translation) of the body.

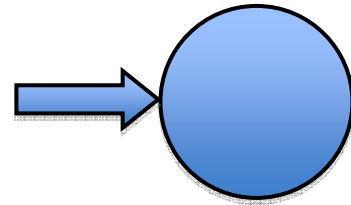
- A force that is directed farther off-centre produces more rotation with less translation
- A force that is directed only slightly off-centre produces less rotation and more translation
- A force acting directly through the centre of gravity will cause only translation (NO rotation)



More rotation  
Less translation



Less rotation  
More translation



No rotation  
Only translation

A **force couple** is a pair of equal forces that are opposite in direction, acting at equal distances from the athlete's centre of gravity. A force couple produces rotation with no linear movement.



A force couple is very effective for upright spins such as upright 180 or upright 360 on trampoline. The athlete pushes forward with one foot and backward with the other, this force couple combines to produce spin while canceling out any forward or backward translation so that the athlete remains upright on the same spot.

**Moment of inertia** describes how difficult it is to change the angular motion of a body around a given axis.

Moment of inertia is determined by the mass of the body and how far that mass is concentrated from the object's axis of rotation.

$$\text{Moment of inertia} = (\text{mass}) \times (\text{distance from axis of rotation})^2$$

The farther out a athlete's mass is from his axis of rotation, the more rotational inertia he has, and the more torque is required to change his rate of rotation.

- A layout position has a higher moment of inertia than a tuck position
- Longer, heavier skis increase a skier's moment of inertia more than shorter skis

**Angular momentum** measures how much angular motion a body has, and how persistent the body is to continue rotating in the same direction.

$$\text{Angular momentum} = (\text{angular velocity}) \times (\text{moment of inertia})$$

**Law of Conservation of Angular Momentum:** The angular momentum of a body remains constant unless an off-centre force or force couple is applied.

- Once an athlete is airborne, his angular momentum cannot change (no torque can be applied mid-air)
- In the air, an athlete can speed up rotation by drawing the limbs closer to the axis of rotation (Angular momentum does not change, but reducing the moment of inertia increases the angular velocity)
- In the air an athlete can slow down rotation by moving the limbs away from the axis of rotation (Angular momentum is constant, but increasing the moment of inertia decreases the angular velocity).

## Primary acrobatic axes of rotation (Review)

**Somersault axis:** Forward and backward rolls, and front and back flips rotate about this axis.

**Twist axis:** Straight 180, Straight 360, Seat roller and Back roller rotate about this axis.

**Cartwheel axis:** Turntables and Lincoln loops rotate about this axis

Most acrobatic skills have rotation around more than one axis at the same time.

### Tilt twist

It is possible to initiate twist mid-air using a tilt of the body to transfer rotation from one axis to another. The overall direction of rotation doesn't actually change, but the orientation of the athlete's body does. In this way, flip rotation can be changed to twist rotation.

Tilt twist is only possible if there is already somersault or cartwheel rotation present. It does not work for straight spins.

#### How to tilt

The most common way to tilt is by dropping or raising an arm. This arm movement is only effective if it is done perpendicular to the direction of rotation.

For a greater tilt athletes may drop one arm and raise the other simultaneously.

#### Learning how to tilt twist effectively

Back drop 540 to back drop (Trampoline Corkscrew) is a good skill to use for practicing tilt-twisting technique. It should be learned using the bit-by-bit method first, but then athlete can re-learn this skill with a pure tilt-twist.

For advanced athletes who can already do a back full, they can work on learning back full with a pure tilt twist.

#### Which arm to drop?

For backward flipping skills the athlete drops the same arm as the direction they want to twist (left arm for left twist).

For forward skills the athlete drops the opposite arm to the direction they want to twist (right arm for a left twist).

# Skills

## Air Module 2

### Back drop, 540 to back drop (Trampoline corkscrew)

#### Description

- A forward rotation of 180° around the somersault axis and a 540° twist, this skill starts and lands in back drop
- During the takeoff phase the hips extend to push the shoulders down into the trampoline bed as it rises, the straight arms move close to the side of the body on one side and up close to the head on the opposite side
- During the aerial phase the body is straight as it passes through vertical, the arms are switched directly to the side of the straight body to create a 540° tilt twist
- During the landing phase the body approaches horizontal as the arms lift to un-tilt in preparation for the back drop landing
- Lands in a back drop the opposite direction faced for takeoff

**Prerequisites** – Back drop to Front Drop (straight body), Cradle (Straight body), Straight 540

#### Step-by-Step Progressions (safer)

1. Use throw-mat: Back drop 180 to back drop with body straight while in the air.
2. Use throw-mat: Back drop 180 to back drop but land in flatback instead of back drop.
3. Use throw-mat: Repeat as above and land on the mat, then add 180 rollover to front drop on the rebound (still on the mat).
4. Use throw-mat: Back drop 360 to front drop. Starts the same way as the progression above but the additional 180° twist is added just before landing on the mat.
5. Use throw-mat: Back drop 360 to front drop landing on the mat, then add 180 rollover to back drop on the rebound (still on the mat)
6. Use throw-mat: Back drop 540 to back drop (Corkscrew). Starts the same as the previous progression but the additional 180° twist is added just before landing on the mat.
7. When landing is consistent the athlete can do the skill on the trampoline bed with a controlled rebound.

#### Tilt-Twist Progressions (for left twisting Corkscrew) ADVANCED

1. Use large throw-mat: Back drop to Front drop with body straight while in the air.
2. Use large throw-mat: Repeat as above, but hold right arm up straight and close to the head and left arm down straight next to the body.
3. Use large throw-mat: Stand on the trampoline and practice the “arm switch.” Arms stay straight, the left is brought up to the head and the right is simultaneously lowered to the side of the body. Arms move directly to the sides, perpendicular to the direction of somersault.
4. Use large throw-mat: Apply this “arm switch” at the apex of Progression 2. This will create the tilt of the body and approximately 540° of rotation around the twist axis.
5. Use large throw-mat: Repeat Back drop 540 to back drop with the mat until the amount of twist and the landings are consistent.
6. Back drop 540 to back drop on the trampoline bed with a controlled rebound to feet.

### Safety note

- Teach this skill with a thicker throw mat (11 inch mat)
- Only add twist to the very end of the skill for the step-by-step progressions, the start of the skill stays the same
- Use the step-by-step progression method for athlete who are new to the skill, the tilt twist progressions are much more advanced

### Coaching tips

- Tilt will only work if the body is straight and tight and arms are switched directly to the side of the body (not in front) perpendicular to the direction of somersault rotation.
- Tilt arms are opposite for forward rotating skills as they are for backward rotating skills

### Variations

- For advanced athletes more twist can be added to do "Back drop 900 to back drop" (Double corkscrew)

## Back full (pure tilt-twist method)

**Prerequisites** – Back full (learned using previous method outlined in this manual)

### Back full progressions – Tilt twist (for left twisting Back full) **ADVANCED**

1. Back layout with arms up at ears throughout the whole skill (requires more kick).
2. Use thick throw-mat: Back layout with left arm up close to head and right arm at the side of the body
3. Practice the "arm switch" while standing on the trampoline. Start with left arm up and right arm down, switch arms. Keep arms straight and to the sides of the body.
4. Use thick throw-mat: Back layout with left arm up close to head and right arm at the side of the body, just before the apex add the arm switch which will cause the body to tilt and producing approximately 360° twist. Athlete should be prepared for landing even if they are a bit "lost" in the air.
5. Use thick throw-mat: Repeat until the athlete is comfortable and consistent.

### Safety note

- Only very advanced athletes should attempt this method (after learning Back full by one of the other methods, and after learning a Back drop 540 to back drop using tilt twist)
- Use a thick throw mat (11 inch) and always land in stop bounce

### Coaching tips

- This method helps athletes learn effective tilt twist to improve back full technique
- Arms must move perpendicular to the direction of somersault rotation
- Tilt twist is more effective if the body and arms are tight
- Adding twist can speed up the backward somersault rotation as the "tilt" brings the body closer to its CG. If an athlete is over-rotating to their back then they will need to flip less

# Freestyle Trampoline Games

## Safety considerations for trampoline games:

- Allow only one person to jump on the trampoline at a time
- Athletes are always under control
- Athletes are required to use safe landings (stop bounce & two foot rule)

### Game: Slopestyle

#### Description

1. Coach or participants come up with an on-snow slopestyle course. For example cannon rail, large step up, spine, medium jump, large jump.
2. Athletes perform a run for this course. Switch takeoffs and landings, variety, style, difficulty of skills, as well as finishing the course will determine the winner. Participants or coach may choose winner.

#### Safety notes

- Skills should ideally be done in the middle of the trampoline
- Remind athletes of the importance of the 2 foot Rule for this game

#### Variations

- Athletes may be given more than one run per course, best run wins
- Game can be played using skills that the participants can already do on snow, or skills participants want to be doing on snow
- The amount of spin can be varied per course. For example, all skills must be done to a 540 (encouraging switch takeoffs and landings). Another example for a course may be first hit is a 360, second hit is 540, third hit is a 720 etc.



## Game: Add-on Rail

### Description

1. Round 1 - The first participant sets the "on" to the rail (for example "270 on"). The second participant adds-on the "on rail" section of the rail (for example "switch-up"). The third participant adds-on the "off" section of the rail (for example "450 off"). The skills should be as feet to feet skills.
2. All participants then have to copy this Add-on Rail correctly to be awarded a point.
3. Round 2 - This round is played the same as the last, however a different participant will set each part of the rail. Game is played until someone has collected the pre-set total number of points.

### Safety notes

- Group participants with similar abilities
- Skills should be performed to a stop bounce if newly learned for a participant

### Variations

- The type of rails can be changed each round

## Game: T-R-A-M-P

### Description

1. Round 1 - The first participant sets the skill. They must name the skill and grab before performing it for it to count. The skills should be as feet to feet skills.
2. The other participants have to copy this skill with correct grab and amount of rotation, otherwise they will get a letter (T).
3. Round 2 - This round is played the same as the last, however different participants will set the skill. Game is played until someone has spelled the word T-R-A-M-P by not being able to perform the "set" skills correctly.

### Safety notes

- Group participants with similar abilities together
- Skills should be performed to a stop bounce if newly learned

### Variations

- Game can be played off the double mini-trampoline
- Game can be played to include bed tricks, not just feet-to-feet skills

## Routines

Routines and skill combinations are essential for developing control and special orientation on the trampoline. They should be included in some form to most trampoline sessions. Routines can be any number of skills and be a variety of feet to feet skills or bed trick skills. Some examples of routines are as follows:

1. Back Tuck
2. Tuck jump
3. Straight 540
4. Japan grab
5. Misty 540

1. Barani Pike
2. Tuck Jump
3. Back Tuck
4. Straddle Jump
5. Crash Drive
6. 180 to feet

1. Lincoln Loop
2. Safety grab
3. Misty Drop
4. Misty Pullover
5. Tuck Jump
6. Underflip 540

1. Back Layout
2. Pike Jump
3.  $\frac{3}{4}$  Back
4. To feet
5. 360 Mute grab
6. Straddle Jump
7. Cork 720

1. Back Tuck
2. Misty 540
3. Tuck jump
4. Flat 360
5. Tweaked Mute grab
6. Straight 720

1. Crash Dive
2. Porpoise
3. 540 Cradle
4. Misty Drop (starting in Back Drop)
5. Misty Pullover

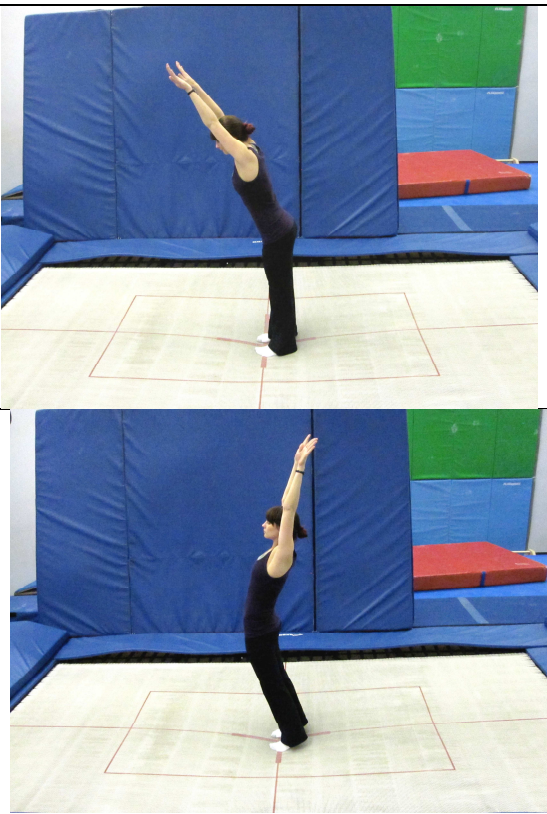
1.  $\frac{3}{4}$  Back
2. To Back drop
3. 540 cradle
4. Porpoise
5. Ballout

1. 1  $\frac{1}{4}$  Back
2. Pullover to Back Drop
3. Porpoise
4. Cradle
5. 540 to feet

## Chronological order of skills (for trampoline)

Forward		Backward		Sideward	
On Axis	Off Axis	On Axis	Off Axis	On Axis	Off Axis
Front tuck		Pullover		Lincoln loop	
Front pike	Misty 540	Back tuck		Lincoln 180	
Barani tuck	Misty 720	Back pike	Cork 720		
Barani pike	Misty 900	Back layout	Cork 900		
¾ Front layout	Bio 540	1¼ Back tuck	Flare 540		Rodeo 540
Front layout	Bio 720	¾ Back tuck			
Barani layout	Bio 900	¾ Back pike			
Porpoise		¾ Back layout			
Ballout		1¼ Back pike			
		Arabian ¾	Underflip		Flat 360
		Back half	D-Spin		Flat 540
		Back full			

## Glossary of terms

Description	Photo
<p><b>Forward rotation</b> – skills where the toes push forward into the bed as it rises to “kick heels backwards” and therefore creating forward rotation. Hips are piked on these takeoffs to help the toes push forward into the bed.</p>	
<p><b>Slightly Piked Hips</b> – The quad, hip flexors and abs are tight so that the hips are slightly behind of the body’s natural stance and Centre of Gravity. Also know as closed hips.</p>	
<p><b>Backward rotation</b> - skills where the toes push backward into the bed as it rises to “kick toes forwards” and therefore creating backward rotation. Hips are extended on these takeoffs to help the toes push backward into the bed.</p>	
<p><b>Slightly Extended Hips</b> - The hamstrings, gluts and lower back are tight so that the hips are slightly forward of the body’s natural stance and Centre of Gravity. Also known as open hips.</p>	

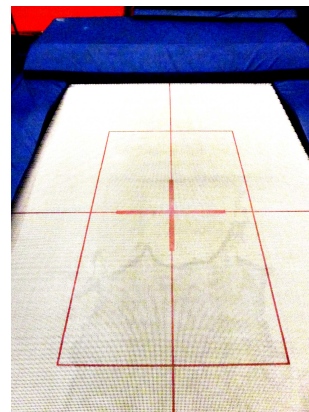
**Open shoulders** – the athlete demonstrates posture where there is an opening of the chest cavity by retracting the shoulders, cheating the shoulders to face in the direction of desired rotation



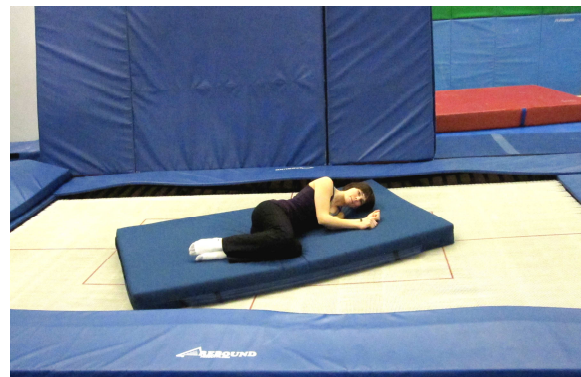
**Perpendicular to the centre line** – This is when the athlete lands directly sideways on the trampoline. This term can also refer to the placement of the throw mat.



**Cross** – Otherwise know as "x" is the centre of the trampoline



**Side drop** – Landing position that should only be done with a throw mat. The athlete lands on their side with their knees bent and their arms bent in front of the chest (not underneath the body).





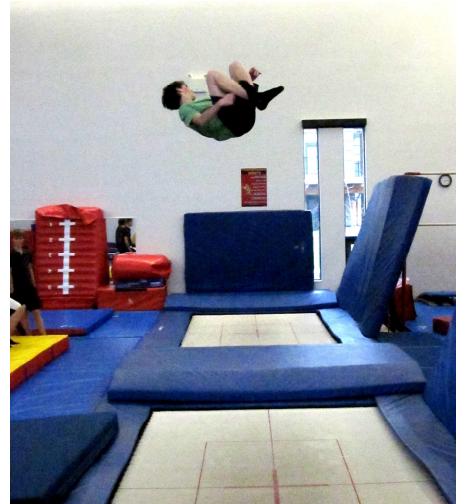
**Facing sideward** – Standing/Jumping towards the side of the trampoline

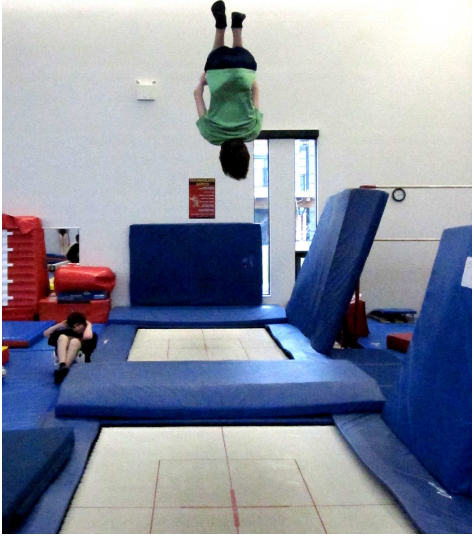


**Facing Forwards** – Jumping towards the end of the trampoline; Standing lengthways on the trampoline



**Off Axis** – Skills in which the trunk of the athlete's body does not reach vertical



<p><b>On Axis</b> – Skills in which the trunk of the athlete’s body lines up as close to vertical as possible</p>	
<p><b>Forward and Backward Flipping</b> – Refers to somersaults that are rotating about the on the somersault axis.</p>	
<p><b>Rebound</b> – refers to the bounce that directly follows a skill</p>	
<p><b>Stretched</b> – similar to a straight position that is slightly more out curved. Also referred to as “swan position” in the Air 1 manual</p>	