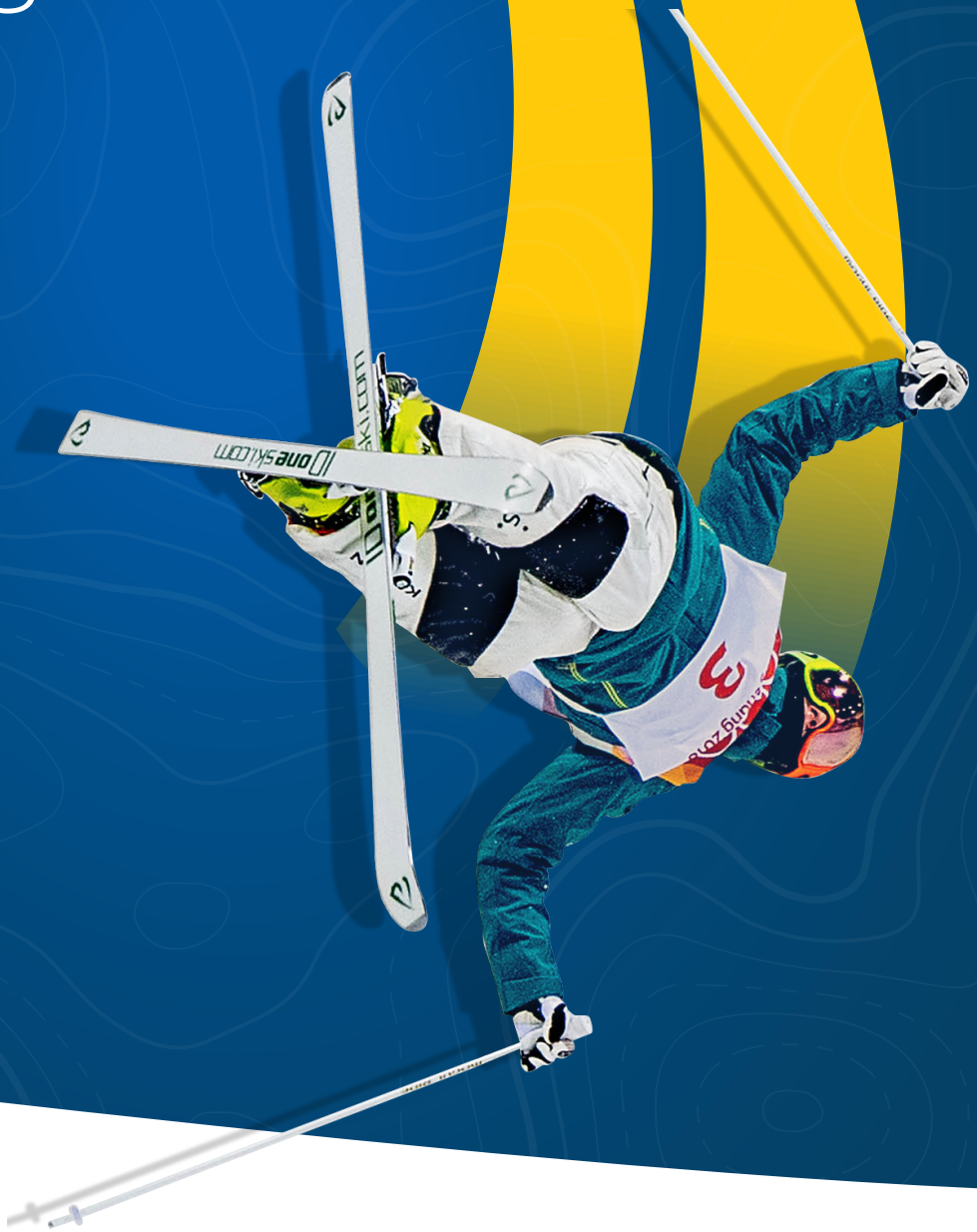
snow AUSTRALIA

NATIONAL SKILLS ASSESSMENT MOGULS

PARTICIPANT MANUAL

2021



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CONTENTS

INTRODUCTION

The Moguls Athlete profiling and Skills Assessments are designed to be conducted by Snow Australia Pathway Club Head Coaches and their assistant coaches.

The Moguls Skills Assessment include testing on a range of:

- On snow skiing skills
- Acrobatic skills on trampoline, water ramp and on snow
- Physical capacities and movement screenings

ABOUT ATHLETE PROFILING

Athlete profiling is a powerful tool which has been increasingly established within accomplished sport pathways world-wide, from grass roots to the high performance levels of respective sports.

The purpose of an athlete profile is:

To build a holistic formative picture of individual athletes to provide clarity on strengths, weaknesses and progress, including transparency on these items to the athletes, their families, coaches and the sport.

Athlete profiling includes (but not always limited to) collecting reliable, qualitative and quantitative data on an athlete's physical development, skill level and sport engagement factors. Formal skills assessments form a large part of this profiling process, particularly in high skill based sports like winter sports.

MISSION OF SNOW AUSTRALIA MOGULS PATHWAY

Culturally the mission of Snow Australia Moguls Pathway Programs is to maximise the skiing, acrobatic and performance potential of all club participants.

MOGUL SKIING DISCIPLINE SPECIFIC SKILLS ASSESSMENTS

It has long been identified that athletes with a higher level of fundamental skiing and acrobatic skills in development years have a higher chance at progressing through the performance pathway and achieving success in the sport. In more recent years some work has been done in determining some of the skills which are most relevant to the athletes potential to progress as well as how best to analyse these skills in isolation.

Additionally, recent findings suggest a link between development mogul skiing athletes functional strength and fundamental movement competency and their ability to learn those skiing and acrobatic skills which are most relevant to the athletes potential to progress.

ATHLETE PROFILING OF EMERGING AND DEVELOPING ATHLETES AND CLUB TO HIGH PERFORMANCE PATHWAY LINKS

With reference to the information above, in striving to operate a world's best Mogul Skiing athlete pathway from the ground up, Snow Australia requires the submission of skill assessment and physical capacity data for Emerging Talent and NSWIS athlete nominations.

Snow Australia and the National Freestyle Committee will work with and encourage pathway club programs in rolling out a nationally adopted skills assessment which will not only assist with talent identification and talent management for the high performance pathway but will assist clubs to provide all of their athletes who have performance goals at any level with clear, formative information on the athletes' progress, strengths and weaknesses.

Skills assessments as part of profiling of club level athletes should be regarded as 'an important one of multiple of factors which contribute to an athletes potential to progress in the pathway'. As club level athletes are not at the high performance level, hard data assists substantially in tracking and predicting an athletes progress, but does not take into account all internal and external influences on the athlete. It is best practice in sport pathway management to attempt to identify as many factors as possible that can contribute to an athletes potential to progress both through collection of reliable data and other creative means where possible. Together, these sources of information make up 'the athlete profile'.

SKIING ASSESSMENT

The on snow skiing skills identified as the most crucial basic fundamentals in an athletes ability to progress as a moguls skier.

The clarity in formalising the key fundamental skills and consistently assessing the competency level of those serves as a great platform for all coaches in a program and/or pathway to remain on the same page. It also serves as an educational tool for up-skilling the 'coaches eye' for the key skills and error detection to focus on with athletes.

1 – Short turns on one ski (performed and scored separately on each leg)

2 – Short turns through brush course

3 – Rollers (Absorption Tank)

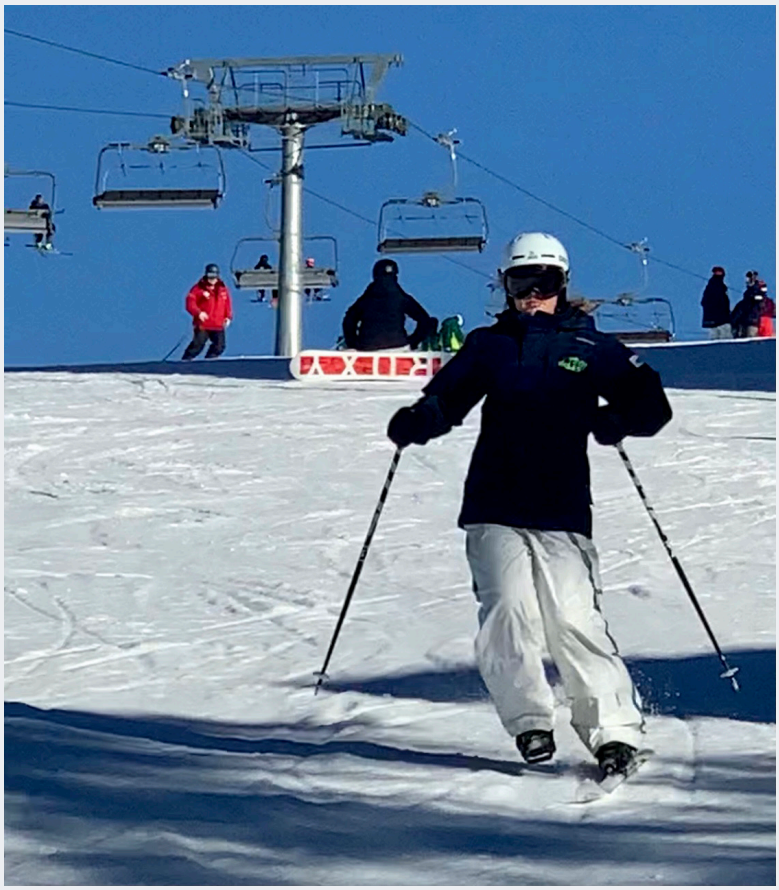
SKIING ASSESSMENT

1

SKILL:

Short turns on one ski

(performed and scored separately on each leg)



SKILL DESCRIPTION

Mogul specific short radius turn (on firm/groomed moderate blue run) with only one ski

SCORING

Qualitative assessment scored both on the left and right leg separately on proficiency of skill displaying correct stance/balance, edge change, steering, pole plant. Each athlete has two attempts – the best score of the two is taken.

KEY PILLARS

The following page shows the key pillars of the skill to be assessed (in order of weighting/priority left to right). An evaluation of each of these will give an overall result/score.

KEY PILLARS – SHORT TURNS ON ONE SKI

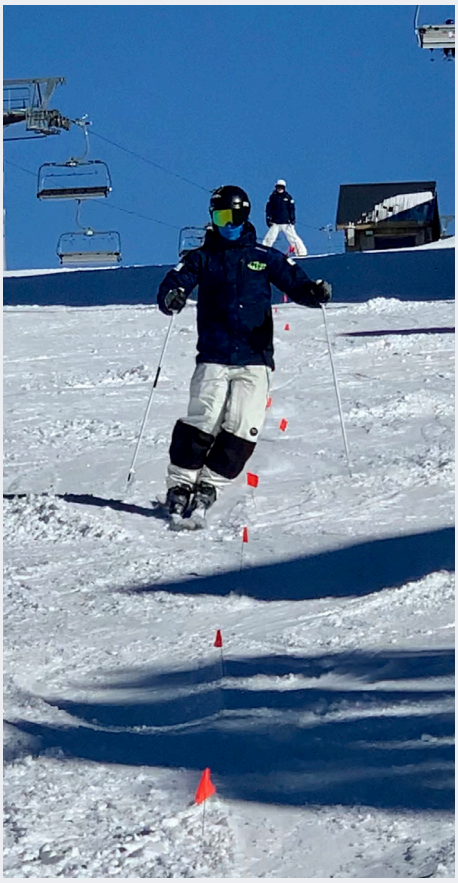
STANCE/BALANCE	EDGE CHANGE	STEERING	POLE PLANT
Score 1 to 10 (with 10 being the best)	Score 1 to 10 (with 10 being the best)	Score 1 to 10 (with 10 being the best)	Score 1 to 10 (with 10 being the best)
Central balanced and square stance, level shoulders, ankle closed, middle of foot, arm position, head up, upper body still. A particular emphasis placed on the athletes ability to control the fore/aft balance of their centre of mass without leveraging weight on the front or back of the ski boot ie COM remains in the middle of their feet with sound ankle joint control.	Ability to roll from arch of the foot to little toe edge with control. Higher end technique displays edge change from the foot within the boot resulting in lower leg angulation. Less desired technique in changing edge is a cross over with the hips only and unchanged foot position within the boot.	Ability to produce controlled progressive edge with pressure control for speed control, tightening the radius of the turn with tail following the path of the tip.	Still hand and arm position with light pole touches AFTER THE WEIGHT SHIFT BUT BEFORE THE STEERING PHASE. Highest range scorers will do this maintaining an arm/hand position with the wrists slightly flexed (knuckles facing slightly inwards) and a slight adduction of the writs to plant the pole rather than movement at the elbow (ie movement of the forearm).

SKIING ASSESSMENT

2

SKILL:

Short turns through brush course



SKILL DESCRIPTION

Mogul specific short turns through a 20 brush, 3.5 meter spaced, straight line brush course on the groomed/firm blue run. Skill assessor may need to use discretion when setting the spacing of the flags/ brushes depending on exactly how steep the pitch is and the snow condition i.e. sometimes 3.5 spacing may be too tight and 3.7 is more suitable to the conditions.

SCORING

Qualitative assessment scored on proficiency of skill displaying correct **stance/balance, weight shift & outside ski balance, edging, steering & pole plant**. Each athlete has two attempts – the best score of the two is taken.

KEY PILLARS – SHORT TURNS THROUGH BRUSH COURSE

STANCE/BALANCE	WEIGHT SHIFT & OUTSIDE SKI BALANCE	EDGE CHANGE	STEERING	POLE PLANT
Score 1 to 10 (with 10 being the best)	Score 1 to 10 (with 10 being the best)	Score 1 to 10 (with 10 being the best)	Score 1 to 10 (with 10 being the best)	Score 1 to 10 (with 10 being the best)
Central balanced and square stance, level shoulders, ankle closed, middle of foot, arm position, head up, upper body still. A particular emphasis placed on the athletes ability to control the fore/aft balance of their centre of mass without leveraging weight on the front or back of the ski boot ie COM remains in the middle of their feet with sound ankle joint control.	Weight shift occurs from outside ski to new outside ski at the very start of the turn. Successful weight shift will see the new outside foot be lower than the inside foot. Continued balance over the outside ski will be aided by level not inclined shoulders. Weight shift should be a shift of the COM without compensatory body movements such as a dip of the shoulders or hip. The shift should occur before the turn initiates with the athlete balanced on the outside ski throughout the whole turn.	Ability to roll onto arch of the outside foot and little toe edge of inside foot with control with higher end technique isolating this movement from the foot initiating and hips + upper body square and still resulting in a lower leg kink. Lower end / less desirable edge changes will be initiated by taking the hip across or even a shoulder lean into the turn.	Ability to produce controlled progressive edge with pressure control for speed control, tightening the radius of the turn with tail following the path of the tip. Smooth but progressive use of pressure through a blend of edging and rotary without a ski stivot to maintain a constant speed down the full brush line would be expected of a high scorer. Additionally, this needs to be done with a quiet upper body (sound upper/lower body separation) to score in the top range.	Still hand and arm position with light pole touches AFTER THE WEIGHT SHIFT BUT BEFORE THE STEERING PHASE. Highest range scorers will do this maintaining an arm/hand position with the wrists slightly flexed (knuckles facing slightly inwards) and a slight adduction of the writs to plant the pole rather than movement at the elbow (ie movement of the forearm).

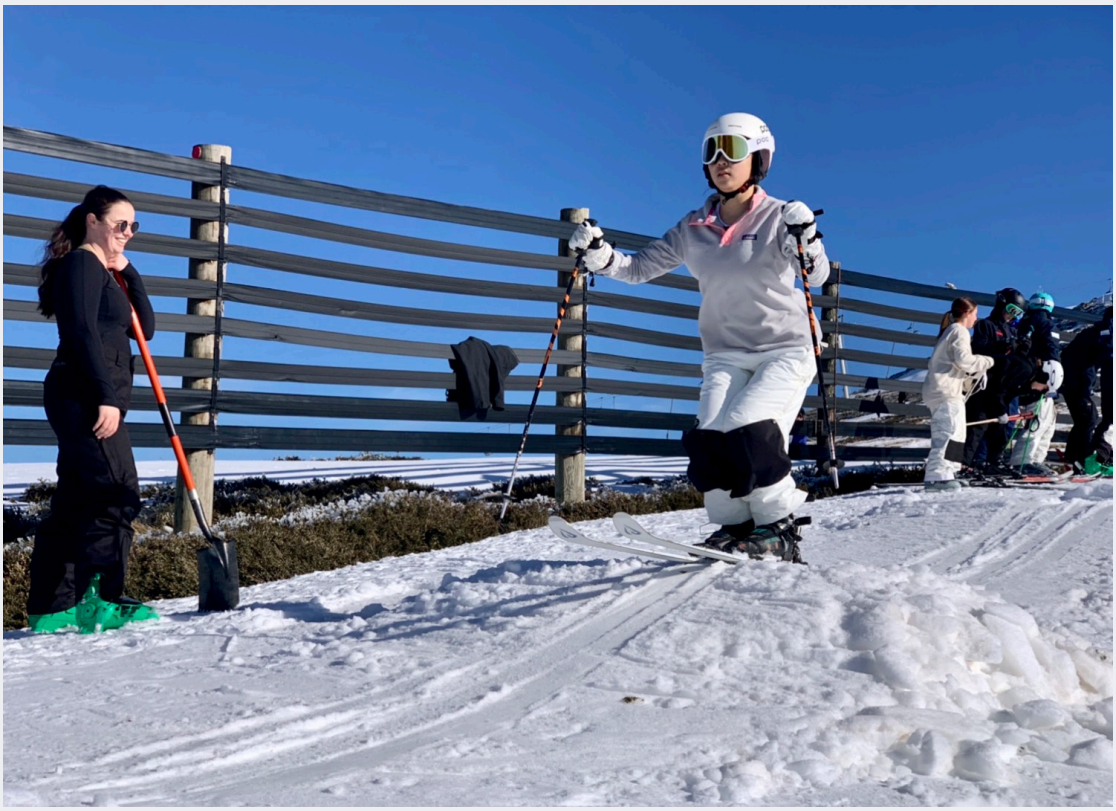
SKIING ASSESSMENT

3

SKILL:

Roller

(Absorption Tank)



SKILL DESCRIPTION

5-8 rollers spaced at 7m (approx 30-40cm high) on gentle pitch. Skier skis through the rollers in a straight line absorbing the rollers. Each athlete has two attempts – the best score of the two is taken.

SCORING

Qualitative assessment scored from side on ability to absorb rollers, maintaining a mogul stance with the upper body, order of joint movement (ankle, then knee, then hip), center of mass carried over the feet through the peak of absorption, smooth use of appropriate range and resetting to a neutral mogul stance with the COM over the middle of the foot between each roller. High end scores (>8) with range through >90 degrees/femur flat.

KEY PILLARS

The following page shows the key pillars of the skill to be assessed (in order of weighting/priority left to right). An evaluation of each of these will give an overall result/score.

KEY PILLARS – ROLLER (ABSORPTION TANK)

STANCE/BALANCE	JOINT MOVEMENT PATTERN	RANGE
Score 1 to 10 (with 10 being the best)	Score 1 to 10 (with 10 being the best)	Score 1 to 10 (with 10 being the best)
a) neutral/reset stance: tall, central weight over feet, spine vertical, arms in front with relaxed elbows & neutral head. b) through absorption: spine remaining vertical, arms and head remaining still, feet underneath COM	Important that the ankle moves into max flexion and is the first joint to move followed by the knee and hip joint	Ideal range is with the ankle at maximum flexion allowed by the ski boot and the femur coming up to at least flat

ACROBATIC ASSESSMENT

The fundamental trampoline and on skis stance and take off skills identified as most crucial in an athletes ability to progress as a moguls skier.

The trampoline and water jump skills identified as the most crucial basic fundamentals as indicators in an athletes ability to progress as a moguls skier.

1 – Straight Bounce Trampoline

2 – 180 Trampoline

3 – Back Drop Trampoline

4 – Upright Jumping On Skis

5 – Back Tuck On Skis

ACROBATIC ASSESSMENT

1

SKILL:

Straight Bounce Trampoline

SKILL DESCRIPTION

A set of 20 bounces. Straight bouncing on the trampoline bed (Olympic trampoline). Bouncing technique with an arm swing circle.

SCORING

Qualitative assessment scored on proficiency of skill displaying correct body positions (entry to bed, bottom of bed, exit from bed), body stacking, amplitude, balance, timing, body tension.

Score	Criteria
9 to 10	Able to bounce VERY high, remaining in the centre of the trampoline for the entire set with smooth flow, consistent full extension and a tall tight body line.
7 to 8	Able to bounce high, remaining in the centre of the trampoline for the entire set with smooth flow, consistent full extension and a tall tight body line.
6 to 5	Able to bounce high, remaining mostly in the centre of the trampoline for the entire set with smooth flow, consistent full extension and a tall tight body line.
4 to 3	Able to bounce low, remaining mostly in the centre of the trampoline for the entire set with smooth flow, consistent full extension and a tall tight body line.
2 to 1	Able to bounce low, remaining mostly in the centre of the trampoline for the entire set but without smooth flow, consistent full extension and a tall tight body line present.
0	Unable to demonstrate a full set of straight bouncing with an arm swing circle technique

ACROBATIC ASSESSMENT

2

SKILL:

180 Trampoline

SKILL DESCRIPTION

180 degree rotation on an Olympic trampoline with the focus on minimal spiral segmentation, smooth rotation, vertical axis and no drift from the center of the trampoline bed.

SCORING

Qualitative assessment scored on **amplitude, vertical body stacking, body tension, extension, axis, a high emphasis on minimal spiral segmentation!**

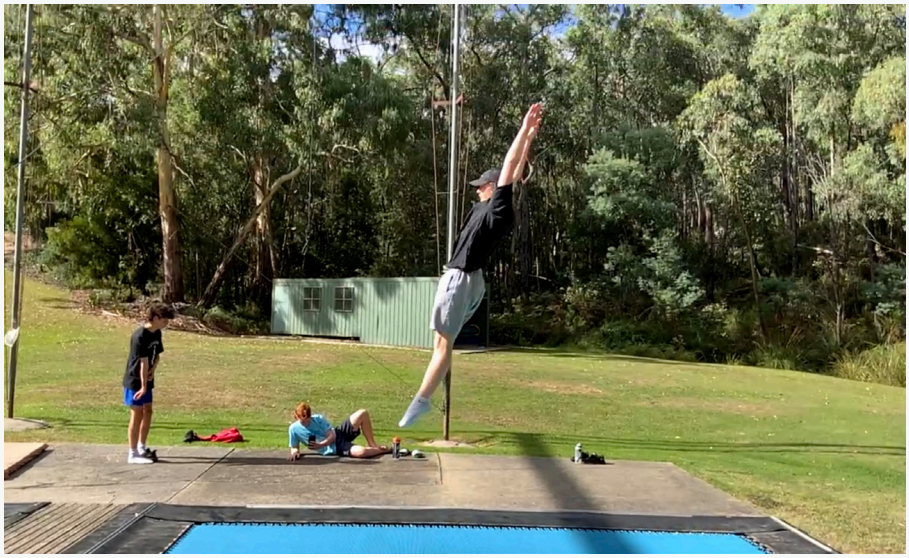
Score	Criteria
9 to 10	Able to execute a very smooth, high 180 with smooth rotation, on axis in the centre of the trampoline bed with almost no spiral segmentation identifiable even in slow motion video.
7 to 8	Able to execute a smooth, high 180 with smooth rotation, on axis in the centre of the trampoline bed with almost no spiral segmentation identifiable even in slow motion video.
6 to 5	Able to execute a smooth, high 180 with smooth rotation, on axis in the centre of the trampoline bed with minimal spiral segmentation identifiable.
4 to 3	Able to execute a smooth, high 180 with smooth rotation, on axis in the centre of the trampoline bed with spiral segmentation identifiable through take off.
2 to 1	Able to demonstrate a smooth 180 on the trampoline but spiralling, incorrect body stacking, and/or balance and axis are lacking.
0	Unable to demonstrate a 180 in the centre of the trampoline bed.

ACROBATIC ASSESSMENT

3

SKILL:

Back Drop Trampoline



SKILL DESCRIPTION

A back drop on the trampoline bed (Olympic trampoline)

SCORING

Qualitative assessment scored on proficiency of skill displaying vertical extension, body stacking, separation of take-off and in air adjustments for rotation and amplitude.

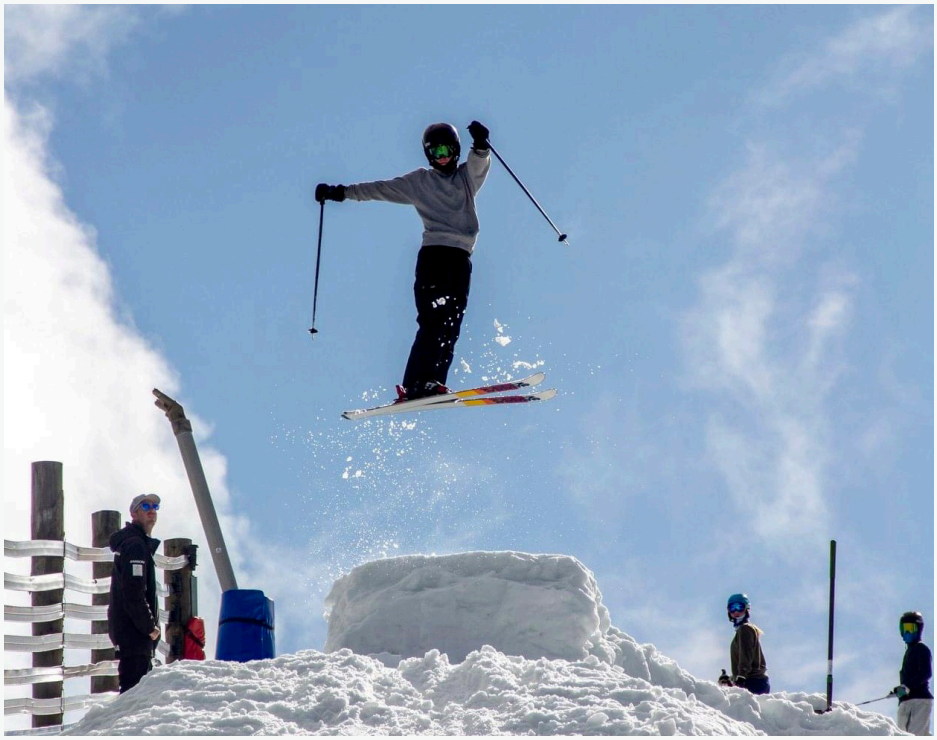
Score	Criteria
9 to 10	Able to smoothly execute a high amplitude back drop holding very close to a vertical line when leaving the trampoline bed and holding a straight line through to the apex before making body adjustments for rotation and landing smoothly in the middle of the back on the centre of the trampoline bed.
7 to 8	Able to smoothly execute a medium amplitude back drop holding very close to a vertical line when leaving the trampoline bed and holding a straight line through to the apex before making body adjustments for rotation and landing smoothly in the middle of the back on the centre of the trampoline bed.
6 to 5	Able to smoothly execute a low amplitude back drop holding very close to a vertical line when leaving the trampoline bed and holding a straight line through to the apex before making body adjustments for rotation and landing smoothly in the middle of the back on the centre of the trampoline bed.
4 to 3	Able to smoothly execute a back drop but unable to hold a vertical line when leaving the trampoline bed and/or separating take off extension and body adjustments for rotation to landing.
2 to 1	Able to execute a back drop which does not appear confident and unable to hold a vertical line when leaving the trampoline bed and/or separating take off extension and body adjustments for rotation to landing.
0	Unable to confidently execute a back drop on the trampoline.

ACROBATIC ASSESSMENT

4

SKILL:

Upright Jumping On Skis



SKILL DESCRIPTION

Execute (on water jump) t sets, twisters and daffys.

SCORING

Qualitative assessment scored from side on consistency of take off, a take off which loads and releases pressure level out of the curve, separation of take off and trick, animated execution of trick and landing technique

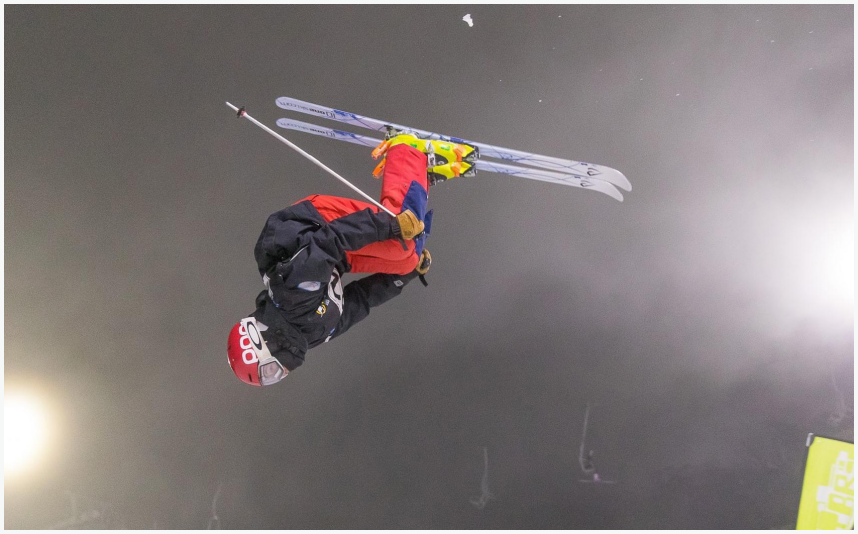
Score	Criteria
9 to 10	Able to consistently execute (with good load and release of pressure on take off) a t set, snappy separated twister and daffy
7 to 8	Able to inconsistently execute (with good load and release of pressure on take off) a t set, snappy separated twister and daffy.
6 to 5	Able to execute (with some load and release of pressure on take off) a t set, separated twister and daffy.
4 to 3	Able to execute (without any load and release of pressure on take off) a t set, separated twister and daffy.
2 to 1	Able to execute (without any load and release of pressure on take off) a t set, twister and daffy but with difficulty separating take off and trick.
0	Unable to execute one or more of t-set, twister, daffy.

ACROBATIC ASSESSMENT

5

SKILL:

Back Tuck On Skis



SKILL DESCRIPTION

(on water jump) a back tuck .

SCORING

Qualitative assessment scored from side on ability to consistently execute a back tuck by stacking the body vertically and loading and releasing pressure out of the curve / standing up on the take-off, holding the take-off, control flip rotation, clean and sharp execution of tuck and kick out to a tips into water landing.

Score	Criteria
9 to 10	Able to consistently execute a back tuck by stacking the body vertically and loading and releasing pressure out of the curve / standing up strong on the take-off, holding the take-off, controlling flip rotation, clean and sharp execution of tuck and kick out to a tips into water landing.
7 to 8	Able to inconsistently execute a back tuck by stacking the body vertically and loading and releasing pressure out of the curve / standing up strong on the take-off, holding the take-off, controlling flip rotation, clean and sharp execution of tuck and kick out to a tips into water landing.
6 to 5	Able to execute a back tuck by stacking the body vertically and building some pressure in the curve on the take-off, holding the take-off, controlling flip rotation, clean and sharp execution of tuck and kick out to a tips into water landing.
4 to 3	Able to execute a back tuck by stacking the body almost vertically but unable to hold pressure through the curve on the take-off, holding the take-off, inconsistent control of flip rotation, somewhat clean and sharp execution of tuck and kick out.
2 to 1	Able to execute a back tuck but does not stack body vertically through curve and unable to hold pressure through the curve on the take-off, does not holding the take-off, inconsistent control of flip rotation, not clean separation of tuck and kick out, inconsistent or not present tips into water landing.
0	Unable to execute a back tuck consistently on water to a level where it is safe to execute on snow.

FUNCTIONAL ASSESSMENT

A musculoskeletal & functional movement screening specifically designed to assess the most crucial physical attributes necessary for athletes to progress technically and safely In Moguls skiing.

This screening also identifies many of the key functional/physical flaws which may be preventing athletes from executing the skiing skills they're being asked to by coaches.

This screening identifies key weaknesses in functional strength and mobility which are academically proven to increase an athletes chance of a number of pathologies including (but not limited to) ALC rupture, idiopathic knee pathologies and pathologies associated with lower back pain including stress fractures.

Historically, this data (flaws especially leading to injury or low load tolerance) has not been identified until athletes enter the institute programs at which time they are held back from the expected training and competition load expected at that level for their first year in the institute system. Identifying and addressing such physical deficiencies at the emerging level should in theory allow for a more successful transition of athletes into institute programs

1 – Double Leg Squat Task

2 – Single Leg Squat Task

3 – Double Leg Landing Task

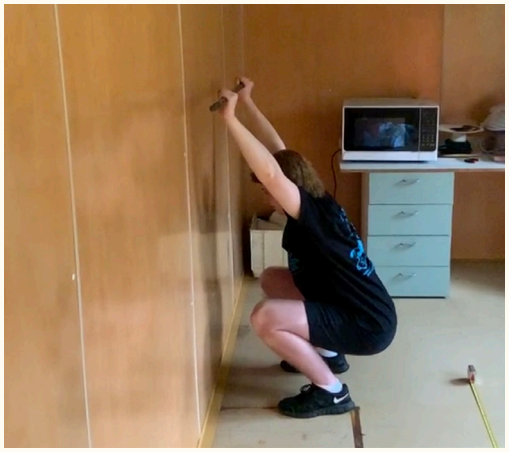
4 – Hop For Distance Test *(Myers, Jenkins, Killian, & Rundquist, 2014)*

FUNCTIONAL ASSESSMENT

1

SKILL:

Double Leg Squat Task



EQUIPMENT

Nil

INSTRUCTIONS

Stand facing a wall with toes half a foot length from the wall, with your feet hip distance apart, holding a broom handle overhead, squat down as far as you can in a slow, controlled tempo (aprox 3sec to squat to max depth), maintaining your balance and stand up again at the same slow, controlled tempo.

RECORDING

Qualitative assessment based on athletic stance, eccentric control, contribution of movement from hip/knee/ankle, knee tracking over second toe, depth of range, COM remaining over centre of feet, range in depth of squat.

SCORING

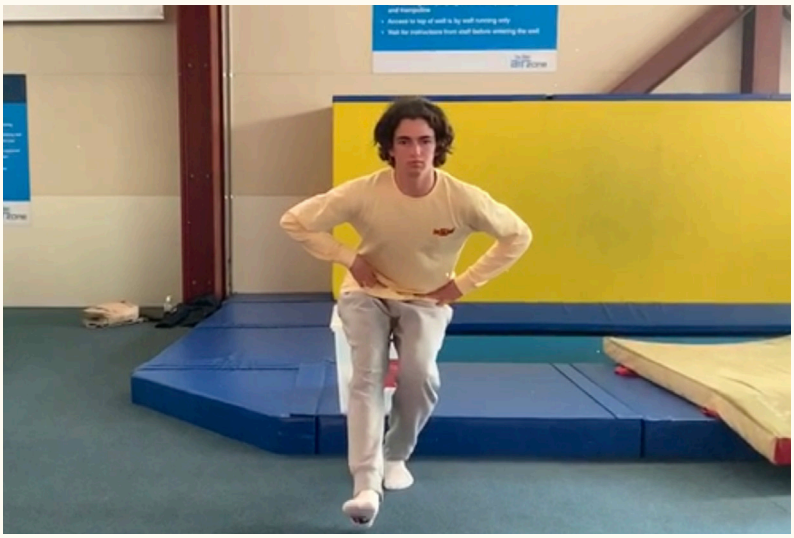
Score	Criteria
9 to 10	Able to demonstrate double leg squat with precision, consistently showing all key concepts through full range (with out butt wink scoring 10).
7 to 8	Able to demonstrate double leg squat with consistent show of most key concepts through 90 / flat femur.
6 to 5	Able to demonstrate double leg squat with satisfactory but inconsistent show of key concepts.
4 to 3	Able to demonstrate double leg squat with some of the key concepts beginning to appear.
2 to 1	Able to demonstrate double leg squat but the key technique concepts were not present.
0	Unable to demonstrate double leg squat.

FUNCTIONAL ASSESSMENT

2

SKILL:

Single Leg Squat Task



EQUIPMENT

Box (40cm high box as a guide for someone 165cm tall – adjust height for taller/shorter athlete)

INSTRUCTIONS

Standing on one leg on a box, arms out in front, squat down as far as you can in a slow, controlled manner, maintaining your balance

RECORDING

Qualitative assessment based on athletic stance, eccentric control, thoracic shift/rotation, pelvic shift/rotation, hip adduction, femoral internal rotation, knee valgus, COM remaining over centre of foot, depth of range & ankle stability.

SCORING

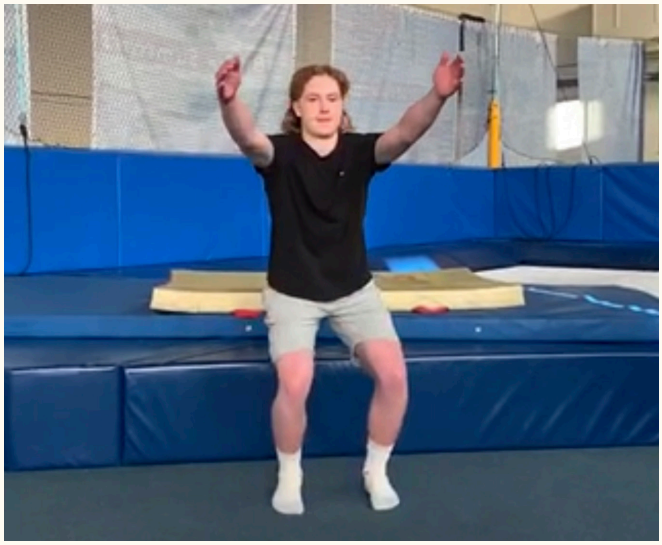
Score	Criteria
9 to 10	Able to demonstrate single leg squat with precision, consistently showing all key concepts.
7 to 8	Able to demonstrate single leg squat with consistent show of most key concepts.
6 to 5	Able to demonstrate single leg squat with satisfactory but inconsistent show of key concepts.
4 to 3	Able to demonstrate single leg squat with some of the key concepts beginning to appear.
2 to 1	Able to demonstrate single leg squat but the key technique concepts were not present.
0	Unable to demonstrate single leg squat.

FUNCTIONAL ASSESSMENT

3

SKILL:

Double Leg Landing Task



EQUIPMENT

40 cm bench/box

INSTRUCTIONS

Standing on a 40 cm bench/box with your feet hip width distance apart, arms out in front, step down onto the ground in a controlled manner, maintaining your balance.

RECORDING

Qualitative assessment based on athletic stance, smooth absorption, hip/knee/ankle stability, hip adduction, femoral internal rotation, knee valgus, COM remaining over centre of feet & ankle stability.

SCORING

Score	Criteria
9 to 10	Able to demonstrate double leg landing with precision, consistently showing all key concepts.
7 to 8	Able to demonstrate double leg landing with consistent show of most key concepts.
6 to 5	Able to demonstrate double leg landing with satisfactory but inconsistent show of key concepts.
4 to 3	Able to demonstrate double leg landing with some of the key concepts beginning to appear.
2 to 1	Able to demonstrate double leg landing but the key technique concepts were not present.
0	Unable to demonstrate double leg landing.

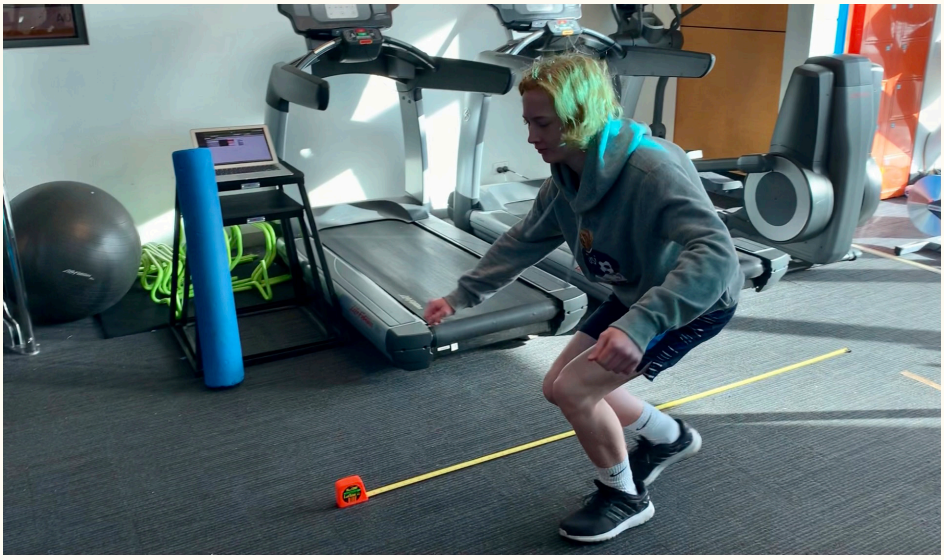
FUNCTIONAL ASSESSMENT

4

SKILL:

Hop For Distance Test

(Myers, Jenkins, Killian, & Rundquist, 2014)



EQUIPMENT

Nil

INSTRUCTIONS

Standing on one leg, hop as forward far as you can and land on the same leg using arms however you like

RECORDING

Measure toe to toe, three or more trials permitted, furthest distance recorded on each leg

SCORING

Score	Male	Female
9 to 10	≥ 210.00 + cm	≥ 170.00 cm
7 to 8	200.00-209.99 cm	160.00-169.99 cm
6 to 5	190.00-199.99 cm	150.00-159.99 cm
4 to 3	180.00-189.99 cm	140.00-149.99 cm
2 to 1	170.00-179.99 cm	130.00-139.99 cm
0	≤ 169.99 cm	≤ 129.99 cm

MOBILITY ASSESSMENT

1 – Sit & Reach Rest: hamstring flexibility

2 – Knee To Wall Test: Ankle mobility *(Hoch & McKeon, 2011)*

MOBILITY ASSESSMENT

1

SKILL:

Sit & Reach Rest: hamstring flexibility

EQUIPMENT

Measuring tape, step or box

INSTRUCTIONS

Sit with your feet up against the step, with one hand on top of the other and middle fingers aligned reach forward with both hands whilst keeping knees extended o Hold position for at least 2 second (no bouncing allowed).

RECORDING

Measure distance from distal aspect of great toe to tip of middle finger (value will be positive if athlete can reach beyond toes, and will be negative if athlete cannot reach beyond toes)

SCORING

Score	Criteria
9 to 10	≥ Positive 6.00 cm
7 to 8	8 Positive 0.01-5.99 cm
6 to 5	0 cm
4 to 3	Negative 0.01-5.99 cm
2 to 1	Negative 6.00-11.99 cm
0	≤ Negative 12.00 cm

MOBILITY ASSESSMENT

2

SKILL:

Knee To Wall Test: Ankle mobility

(Hoch & McKeon, 2011)

EQUIPMENT

Wall, measuring tape

INSTRUCTIONS

Standing facing a wall with the second toe, centre of heel and knee perpendicular to the wall, perform a lunge at a distance from the wall at which you can maintain heel contact and make knee contact with the wall

RECORDING

Measure distance from wall to the tip of the great toe

SCORING

Score	Criteria
9 to 10	≥ 15.00 cm
7 to 8	12.00-14.99 cm
6 to 5	10.00-11.99 cm
4 to 3	8.00-9.99 cm
2 to 1	5.00-7.99 cm
0	≤ 4.99 cm

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