



Synergy

ski coaching & alignment

T.E.P.P.

A comprehensive skier analysis tool

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This paper will offer a comprehensive look at skier analysis and four specific areas which influence skiing performance. These areas consist of **TECHNIQUE**, **EQUIPMENT**, **PSYCHOLOGY**, **PHYSIOLOGY**. We will explore these four areas familiar to all top athletes in all sports.

Athletes looking to improve their performance will constantly visit each of these four areas and focus their training accordingly to eliminate weaknesses. This is true for all athletes. Whether you realize it or not, you are constantly putting into improving your performance in these four areas. Learning to use this tool will help the instructor/coach better identify causes of poor performance and address the appropriate area to realize performance improvements. We can use this tool to continually self assess and eliminate our own weaknesses in each area to improve skiing performance, or use TEPP with our students or athletes to develop a structured strategy for performance enhancement.

Not all skiing performance problems are caused by poor technique

performance, areas to identify to minimize or exactly why we any effort we falls within one this tool to deficiencies will

A rookie instructor/coach will generally focus on Technique alone as the cause of all problems and address every issue with exercises to change movement patterns. Technique is used as a frame work to develop their teaching skills. As the instructor matures and moves through the certification process, they begin to gain a broader understanding of “cause and affect” relationships. We discover that not all skier performance issues are caused by poor technique.

Example: Sometimes a skier stuck in the back seat will not respond to “squish the bug with your toes” or “move your hands forward”. When these type of tasks seem fruitless a red flag should be raised indicating that perhaps poor technique is not the cause of performance issues. The problem lies somewhere else. Sometimes the root problem impeding performance gains could be psychological, where the anxiety level is too high and preventing the body from cooperating. This needs to be addressed before any progress can be made. Sometimes the root of the problem is caused by poorly set up and aligned equipment which needs to be addressed before any significant improvement in performance can occur. Lastly, this back seat skier may be suffering from physiological issues related to poor strength, flexibility, stamina, which again, need to be resolved before any significant improvement in performance will occur.

A level III certified instructor must have a deeper understanding of cause and effect and be able to identify where the primary issue lies and how to address it. The ski instructor evolves into a kind of general practitioner who is able to accurately diagnose the skier’s symptoms and either fix it or refer the student to a specialist who can provide a solution outside the realm of the instructor’s expertise.

In the second chapter we will look at Technique and how the movement patterns we choose in our beginner lessons will determine a student’s skiing destiny. We will offer a paradigm shift in how many instructors approach technique and the consequent affect on a skier’s potential and performance plateaus.

In the third chapter we will examine the role equipment has and how the 10 alignment parameters I outline will affect the body’s planes of motion and their relationship to the skiing skills of rotary, edging, and pressure control.

Chapter four will focus on the Psychological affect of INTENT to turn. Understanding how our subconscious intent affects our technique and performance. Do you turn to slow down or do you separate the intent to turn from the intent to brake?

Chapter five will look at the Physiological affects of fitness, flexibility, balance, strength, and agility have on skiing performance.

Chapter II

TECHNIQUE

Technique is how we move over our skis. These first embryonic movements we teach our students will influence their technique and determine whether they develop an offensive, fluid, gliding technique or a defensive, braking, harsh technique. Below I will highlight a few key ingredients to good accurate fundamental skiing movements.

How we first learn to move to control our speed and path down the mountain can influence our skiing success and performance plateaus. It has been this author's observation that over the past 25 years or so since PSIA's introduction of the Centerline concept, its intent and turn mechanics have not been fully understood or implemented by the general membership.

The Centerline's "common threads" identified sound, accurate, technical fundamentals of good skiing from beginner through expert and offered a tool for movement analysis. It created a reference of an efficient blend of skills seen in offensive, gliding turns, gliding turns. These fundamentals are the same exact movements or technique used in wedge turns as in expert skiers use in dynamic parallel skiing. There is nothing to unlearn later on. We use a wedge to teach expert movements and the only things that change are the speed, pitch, intensity, timing and accuracy of the movements needed to cope with the higher forces as the skier progresses.

Though there are many ways to blend the skiing skills, on any tangent from the Centerline, the Centerline represents the most efficient blend of skills to produce the most efficient, fluid turning. It is these common thread fundamentals that represent accurate skiing and can be introduced from the very first turns then honed into expert skiing without having to relearn any movement patterns later on. A wedge turn is initiated with the the same technique as a parallel turn. *The wedge position is merely training wheels for the parallel turn and as skills improve the wedge disappears. I don't teach wedge turns, I use a wedge to teach expert movements.*

The American Teaching System before the Centerline taught braking snowplows and Stem Christies which bore no relationship to the movement patterns needed to perform efficient parallel turns. Snowplows and stem christies were braking, defensive movements which moved the base of support underneath, away from the center of mass to change edges. This did not resemble the movements needed for parallel turn initiations, which require the center of mass to move over across the skis to change edges. So the skier had to "unlearn" the movement patterns they had been taught to embrace a crossover where the skis changed edges by the center of mass moved over the feet from the inside of one turn to the inside of a new turn. This proves to be a daunting task for many skiers. Using the Centerline's gliding based common threads the student began learning all the elements of a parallel turn in there embryonic stages. These movements require accuracy and a subtly suited for slower speeds but they are the same movements.

With this in mind, consider how you approach turning and speed control in the beginner zone? Ask yourself, why do I turn? If you turn to brake, I would urge you to rethink your approach. If you still teach using braking wedges or use wedges for speed control, I would argue your students have just been sent down a dead end street to plateaued

defensive skiing. Although focusing on wedge turns using active weight shifts achieve quick success in speed control and direction change, this short sighted approach leads to habitual movements which hinder good parallel turning and must be unlearned to discover expert skiing.

Think about your student's first experience with speed control and how their subconscious mind will cling to the first success at speed control. We all want to know where the brakes are before we push on the accelerator right?... So, If we demonstrate and instill a braking wedge as our first means of speed control, our students will anchor this method as their default bail out movement. If we build on this by encouraging active weight shifts to induce turning, we further ingrain these defensive braking movement patterns into the student's subconscious. Most instructors I observe use this method because it is the fastest easiest way to achieve turning and speed control, However; this is NOT the best path to parallel or expert skiing. These students will have great difficulty learning to release edges simultaneously and abandon the ingrained sequential stemming movements. We have a choice! We can choose to introduce a "GO" turn or a "Braking" turn. A GO turn has no elements of intentional braking or intent to "NOT go there". **We must separate the intent to turn from the intent to brake!**

Knowing the first experiences with speed control will likely be ingrained as the skier's default method for controlling their descents, how we choose to approach the very first experiences with speed control is key to which fork in the road we take along the stepping stone pathway to parallel.

By avoiding the introduction of a braking wedge to slow down and "active" weight shifts to induce turning, we can bypass these defensive movements and the braking habits they ingrain. Both of these movements are not conducive to offensive, gliding, "GO there" skiing. When we begin a turn, everything should go in the intended direction of the turn! So how do we do this?...

The "J" Turn Progression

An alternative pathway to parallel

The "J" turn progression never focuses on learning a wedge or braking wedge. Using the J turn progression has the students skiing across the fall line and turning up the hill, using a "slow line" to negate acceleration. When the body/mind realizes it can slow down by skiing up the hill, this becomes the default method for speed control. The key is to experience speed control through turning up the hill rather than using a braking wedge, as our students will anchor this method as their default, instinctive method to control speed! We develop "GO" turns vs. Braking turns.

A “J” turn begins with the skis pointing across the slope, in a shallow traverse, so that the skier will accelerate slowly. Then a slight turn up hill will produce the desired speed control. Using a “Centerline common threads” approach the instructor demonstrates a small wedge opening to begin and finishes in a christie by steering/guiding the inside ski to match. Initially there need be no mention of a wedge, simply demonstrate a very small wedge opening as you begin sliding forward, then match into a christie as the turn is finished to a stop. The important thing to demonstrate here is the J turn to a stop. This is our speed control and the students will discover this whether they perform the J turn in a wedge position the whole way or a parallel position the whole way through. A more tentative student may remain in a wedge the whole way to completion while a more athletic student may begin in a parallel position and remain parallel throughout the turn completion. It is not so important for the student to perform the wedge to christie demo, just that they experience slowing as a result of turning the skis up hill! Again there is no emphasis on using a wedge, it is merely an option to be used as necessary or training wheels if needed.

As we progress, these turns can be linked in garlands across the slope, first with a stop in between each turn and then, using the bullfighter turn, stepping back into a shallow traverse for another go. Once they have used up the width of the slope, a bull fighter turn will have students facing back across the slope ready for the other direction. With guided practice students can begin to take a steeper in-run to their christies. Once they begin to feel comfortable with the slowing caused by the uphill christie we can eliminate the stop between each turn and use a bit of momentum to help point the ski tips back toward the fall line with an EDGE RELEASE.

This is another key element of teaching offensive turning. We must teach our students to begin new turns by “RELEASING THE OLD TURN” rather than clinging to the slope with the down hill ski while stemming the up hill ski into the fall line (braking maneuver). **So the finish phase is important to introduce the desired method of speed control and the initiation phase is critical to instill the release of edges from the old turn permitting the ski tips to seek the fall line** rather than displacing the ski tails to stem or brake. We want to GO with everything we have into the new turn. Everything goes in the intended direction. Ski tips go down the hill which can only occur if we release our edges from the old turn. Just like a roller coaster going over the falls, there are no brakes, gravity rules! Also like roller coaster tracks, our turning paths become rounder and the speed subsides as we turn farther up the hill, just like the roller coaster slows as it turns upward toward the sky.

“The Release”

Teaching students to release edges can be accomplished by first demonstrating a good traverse body position and practice side slipping using ankles and knees rather than hips to flatten and release the edge’s grip. Then practice forward side slipping. Offer lots of guided practice to get them comfortable balancing over this moving slipping platform. Once they become comfortable with forward sideslipping introduce an edged

traverse released to a forward sideslip and then to transitioning back and forth between the two. Next you can add a bit of active lower leg steering to turn more aggressively down the slope as the edges are released. This occurs easily as the released ski edges offer little resistance to turning and are aided by gravity's pull. Usually less skilled skiers will turn the outside ski a bit faster than the inside ski consequently creating a wedge or converging stance.

This is a GO turn entry which exhibits no braking actions allowing the ski tips to seek the fall line, giving into gravity without hesitation! We can link very shallow garlands across the slope by moving from an edged traverse to a forward sideslip and back leaving a very lazy "S" path across the ski slope. Focus your attention on a good edge releases negating any tendency to stem the uphill ski (braking movement). Remember tips go down the hill rather than tails going up the hill. One is an offensive GO turn and the other a "Stop going that way" defensive braking movement.

Because we have initiated turning with a GO intent there is a natural passive weight shift toward the outside ski as the result of turning forces created. Acknowledge this weight shift and encourage balancing over this outside ski throughout the turn. Encourage your students to simultaneously extend the uphill leg and twist that foot into the turn as they release the downhill ski edge. This active rotary impulse will tighten the radius before they reach the fall line and reduce to amount of acceleration. The center of mass should move in the direction of the turn with the extension, rather than up and away from the intended turn, to aid releasing the old turn. (fulcrum turning)

When we can end one turn balanced strongly over the down hill ski, the edge release to begin a new turn can be easily achieved. If the skier leans into the hill with their head, the edge release is impossible and a stem will result to initiate a new turn. Understand the mechanics of a GO turn to guide your student's progress accurately.

So to review, the 3 primary steps to be taught with the J turn method are:

- 1) uphill christie
- 2) Bull fighter turn
- 3) Simultaneous edge release

Now we can progressively increase the starting traverse angle in our garlands until the skiers are eventually pointing straight down the fall line and turning out, linking garlands across the slope and leaving a trail looking like rounded stair steps. Once they reach this point they are ready for "C" turns which cross the fall line for the first time and finish back across the other way. A full turn! All this happens without ever using any type of braking movement. We are focusing on teaching students to release edges allowing the ski tips to seek the fall line to begin, and turning the skis across the fall line slow down. It is important to pay attention to how students get their ski tips into the fall line. Spend considerable time on releasing edge grip rather than stemming the uphill ski from a platformed down hill ski. We DO NOT want to encourage platforms to step or stem

from. When we initiate by releasing edges, stemming is almost impossible. Stemming requires a platform to push off from (**rotary push-off**). The goal is to encourage **RELEASING** the old turn allowing gravity to do it's thing. This is **KEY** to offensive parallel turning ("GO" turns).

Note: I would like to see a "shallow traverse" and "forward side slip" as two of our level I tasks and eliminate the "straight run to a gliding wedge to a braking wedge to a stop" task.

What I am proposing above is a paradigm shift in thinking and teaching for many instructors! Take time to digest and make sense of it, ask your fellow trainers for input, and practice the mechanics I have outlined. Practice alternative ways to introduce turning that avoid defensive braking movements. Teaching expert skiing movements from the beginning is a far nobler tact than succumbing to the urge to take the easy way out with braking wedges and active weight shifts to teach turning. Though your short term success may be much greater at first, once you learn multiple ways to introduce the subtle movements of expert skiing to your beginners you will find they quickly progress past wedges and discover the joys and freedoms of parallel skiing. Take the time to lay the good ground work and your students will reap the rewards. There is the easy way and there is the professional way..... Your choice!

How many Level II candidates do we see on the slopes who suffer from habitual sequential turn initiation movements?? Why is this you wonder? We, PSIA, abandoned the "stem" christie even before the advent of shaped skis. So why are instructors still skiing with a one, two edge change movement? None of our current exam demonstration milestones are sequential movements! The reason many candidates struggle with these demonstrations is they are stuck in sequential turn initiation movements. The Wedge turn, Wedge Christies and Parallel turn demonstration all incorporate initiations with an edge release rather than a platform and stem.

The Embryonic Stage of Expert Skiing "WEDGE TURNS"

Rotary Control: Fulcrum turning vs. Rotary Push-Off

The wedge turn demos should emphasize steering the skis with lower leg turning. This requires an efficient, appropriate blend of edge angle and rotary input to permit the skis to turn with the least amount of resistance or effort. Speed control is not derived from the wedge position rather the turn completion across the fall line. The wedge position merely provides the training wheels for parallel turning, allowing turn transitions without a crossover. The wedge is not a position to be reinforced rather abandoned like a set of training wheels on your first bike. To begin a new turn the downhill ski's edge grip is

reduced to allow the tips to go down hill complimented with active steering of both skis into the turn. Completion of the turn results with continued steering of the feet and lower legs, creating a slightly countered position at completion, with the predominance of weight over the down hill ski.

Pressure Control - Passive vs. Active weight shifts

As the skier links turns there is a passive weight shift resulting from turning forces created which shift the weight bias toward the outside of the turn. This is in stark contrast to an active weight shift which is a precursor to turning. An active weight shift causes a turn whereas a passive weight shift is the result of the skis turning to create forces that shift the weight. Just like your weight shifts in your car when you turn the wheel. The wheels turn first causing the weight shift just like a good turn initiation in skiing where the skis turn first, causing a simultaneous weight shift toward the outside. Using a passive weight shift does not require any movements up or away from the intended turn direction. This distinction may seem small and irrelevant, However; this subtle difference is one of the decisive forks in the road to either offensive GO turning or defensive “don’t go there” turning. Good gliding wedge turns incorporate PASSIVE weight shifts.

Pressure Control - Lateral Flexion vs. Vertical Flexion

Lateral flexion involves the pelvis moving more laterally over the skis rather than vertically up and down. Lateral flexion is evidenced by a long outside leg and a shorter inside leg vs. Vertical flexion evidenced by both legs flexing and extending more equally and simultaneously. Lateral flexion is used in response to centrifugal forces in a turn to maintain balance. Vertical flexion is used more appropriately to absorb terrain variations and extreme turning forces through edge change or turn transitions.

Why should we choose to emphasize lateral vs. Vertical flexion in a wedge turn? Because lateral flexion aligns more closely with expert skiing movements where arbitrarily flexing and extending both legs causes problems with stance by moving the hips back and down and causes unwanted hip rotation through the turns.

With lateral flexion the inside leg shortens as the hips move slightly laterally rather than back and down. This lateral flexion maintains a longer outside leg as the inside leg flexes to allow the pelvis to move inside the turn aiding balance against the turning forces present. Lateral flexion contributes to the inside ski moving slightly ahead of the outside ski as well as the inside hip ahead of the outside hip. This is important because these are the rudimentary moves of expert skiing. Consequently, from this countered position, a new turn is initiated by a slight rising of the hips as the downhill ski’s edge grip is released. The short leg begins to lengthen to aid the release and the pelvis

moves in the direction it is already facing. The lengthening new outside ski is actively steered toward the fall line as it lengthens to match the other leg momentarily until the now inside leg begins to flex to move the hips inside the arc slightly as the skier balances against the turning forces. Because the turning forces are small at beginner speeds the amount of inclination is small but nevertheless apparent.

Edging - Inclination vs. Angulation

Inclination is the general tipping or leaning of the body inside the turn to balance against the turning forces. This general inclination or balance axis matches the line of force or we fall over. Imagine riding your bicycle and tipping inside to balance against the forces of a turn. Early in a skier's skill development a wider stance helps maintain balance as the skier learns to anticipate the appropriate amount of inclination for a turn. As the skill level improves and speeds increase these inclination movements become more accurate. Inclining without angulation is known as "banking". Though inclination creates an edge angle, this angle can not be adjusted by inclination because there is only one appropriate angle of inclination at any point in a turn to maintain balance.

Inclination is a balancing move, angulation is an edge control move! The two have different roles and can not be interchanged.

Angulation involves adjusting the edge angle through a turn using body parts and joints to increase or decrease the edge angle. If during a ski turn I need a higher or lower edge angle than what the inclination angle offers, I must angulate to change this angle. We can angulate with the foot/ankle complex, knee, hips, and spine. Note that knee angulation occurs primarily from knee flexion and femur rotation as the knee has little to no lateral movement.

What causes a straight run gliding wedge to change direction?

Understanding these turn mechanics will improve your skiing performance! To better understand the turn mechanics in a wedge turn, let's look at what causes a wedge to turn!? From a straight run down the fall line in a gliding wedge, ask yourself what do I have to do to initiate a direction change?.... Some of you may say "increase the weight on the left ski to go right" and you would be correct! Others may suggest increasing the edge angle on the left ski to go right, and they would be correct. Still other may claim pointing the ski tips or steering the feet to one side would work, and they also would be correct! So.... What do these three methods have in common?.... They all create **MORE** deflection or friction under one ski to overcome the resistance coming from the other ski's interaction with the snow. **We must create a differential in deflection to cause a direction change!**

Perhaps here is an opportunity for a small epiphany....Rather than creating MORE deflection under the left ski to overpower the right ski to go right, why not REDUCE or take away the resistance or deflection from under the right ski to go right!? This method takes much less effort and movement to accomplish a turn. The skis turn more effortlessly! **This releasing of the ski's edge grip to begin a turn is KEY to offensive "GO" turning and should be nurtured from the very first introduction to turning!** RELEASE the right ski's edge grip to allow both skis to turn right!

Conversely, most skiers cling to the security of the inside edge of the down hill ski while simultaneously fighting to overcome it's deflection by stemming, or weighting the other ski. This antagonistic relationship creates defensive, fatiguing, "don't go there" skiing. Choose to teach expert movements from the beginning using a wedge to introduce the same movement patterns expert skiers use.

BASIC WEDGE CHRISTIE:

The Basic Wedge Christie should be initiated the same as a parallel turn initiation NOT a stem or bi-stem. The instructor should demonstrate a simultaneous release of both edges to exit the old turn into what resembles a momentary forward sideslip, which opens into a small wedge as a result of the outside ski turning slightly faster than the inside. This facilitates both tips seeking the fall line. (tips go down hill vs. Tails going up hill). There should be no braking effort. The intent is to enter the fall line full throttle with speed control coming from turn completion. When the turn is begun properly the match is quite natural because it is merely a continuation of the release movement that began the turn. At the slower speeds associated with the basic christie demo the match should occur in or after the fall line. You will discover however as you improve your edge release movements at the initiation you will have to force yourself to hold the wedge position until the fall line before you let them match. This let's you know you are doing it correctly. Because we are teaching the exact same turn mechanics of a parallel turn, our students who grasp the edge release movement at initiation will quickly discover open parallel turning with just a bit more speed. There is no need to learn anything new to parallel. This is untrue when the skier learns to turn using large wedges, stem openings, and active weight shifts.

The intent in every Centerline demonstration is to ski around the turn as fast as possible, skiing a slow enough line to eliminate the need to brake. While the lower level turns will show some skidding because of the rudimentary skill level, the goal is to minimize skidding. Keeping the skis moving forward along their longitudinal axis as much as possible minimizing excessive skidding while blending the skills appropriately to create the desired turn shape.

PARALLEL TURNS:

Parallel turn demos are the nemesis of many level one and two candidates largely because they have learned to ski using defensive, braking movements, the antithesis of a parallel turn initiation. Consequently, their every turn begins with a slight stemming sequential movement. In order to initiate a good parallel turn, the skier must relearn a new movement pattern!

Beginning from a good body position, balanced with the head over the down hill ski and carrying some forward momentum, the skier initiates the turn by releasing the edges grip on the mountain with the lower legs bringing the hips in line with the nose and the toes. There should be a momentary feeling of free falling as everything we have is moving WITH the forces pulling on us. Remaining in good dynamic balance the center of mass moves across the feet (crossover) toward the apex of the turn in a diagonal path to the skis path. The edges change and the weight is shifted to the new outside ski as the skier extends against the turning forces. Both skis are guided through the shaping phase using lower leg steering as the body inclines to the inside balancing the forces. As the turn is completed we ski into a slightly countered position with the skis finishing their arc as the hips begin to move toward the new turn apex releasing the skis edges and the old turn. This slightly countered or anticipated position arrived at in the turn completion facilitates the tips turning down hill when the edges are released. The pole tip is brought progressively forward throughout the turn to arrive ready to aid the edge change movement and is “touched” to the snow to coincide with the edge change aiding the delicate balance during the momentary free fall to the inside of the new turn.

When first learning parallel turns the edge change will occur sometime after the edges are actually released. Remember edge release simply means the edge angle is reduced enough to permit the skis to slip. An edge change occurs when the new edges actually engage. When we first learn to release our edges as in a forward side slip drill, we have not yet made an edge change. As speed and forward momentum increase in a parallel turn, the edge change occurs closer and closer to the release until we are making railroad track carved turns.

TECHNIQUE, how we move on skis, is one of the contributors to skiing performance. Using accurate, offensive, “GO” technique will improve skiing performance. We should teach the GO turn mechanics from the very beginning! Are you skiing the slow line fast?

Chapter III

Equipment

Virtually every sport uses some type of equipment which has an affect on performance. Skiing performance is very dependent on equipment and how it is set-up, tuned, aligned, fitted, and adjusted.

I have identified **10 parameters** affecting the angles in which our equipment supports us. There are four affecting the **Sagittal** plane (fore/aft balance), four affecting the **Frontal** plane (lateral balance) and two affecting the **Transverse** plane (rotational balance). Understanding, assessing, and adjusting these 10 angles in a sound methodological manner WILL improve skiing performance.

Examining each plane of motion will reveal a specific skiing skill that relates to the plane of motion and that changing these angles affecting a particular plane of motion will affect the skier's performance and movement characteristics.

Sagittal plane:

Affects fore/aft stance and balance

- 1) ramp angle: this angle is the angle of the internal boot board, or zeppa, in relation to the ground front to back. The goal here is to match the ramp angle and forward lean angle to the skier's ankle dorsiflexion needs.
- 2) Forward lean angle: this angle is determined by the cuff of the boot.
- 3) Delta angle this angle is created by the difference in stand height between the binding toe piece at the AFD and the heel piece stand height. The goal here is to position the knees and lower leg angle appropriately for the skier's height and build.
- 4) Binding mount position: this parameter affects where the skier is positioned over the sweet spot or balance point of the ski. The goal here is to find the personal preference position in relation to the ski's sweet spot.

Frontal plane:

Affects edging

- 5) footbed/bootboard longitudinal angles, the goal here is to support the foot and ankle in a subtler neutral position with well balanced tripod support.
- 6) Cuff cant, this adjustment is an accommodative adjustment to match the boot cuff angle as closely as possible to the skier's lower leg angle.
- 7) Boot sole cant, this angle is adjusted to align center of knee mass appropriately over the boot sole
- 8) Ski base bevel, this last adjustment is a fine tuning of ski edge engagement

Transverse plane:

Affects rotary

- 9) boot/binding abduction/adduction, this consideration affects internal and external rotation of the femurs and knee tracking.
- 10) Boot cuff axis tracking angle, this consideration affects knee tracking and edge pressure.

Instructors and coaches must understand that not all skier performance issues are based in technique, in fact many performance problems can be traced to equipment issues or misalignments requiring the skier to make compensatory movements evident

to the trained eye. These compensations affect performance and provide visual cues to the instructor/coach who understands their origin and cause. You will see as you read through these four areas of TEPP that cause and effect solutions lie in one of these four areas. A good coach/instructor will be able to work with an athlete/student and deduce where improvement can be achieved in each of the four areas of TEPP. Improve technique and performance improves. Eliminate issues with alignment and performance improves. Improve fitness, strength, balance, agility, flexibility and performance improves. Change psychological “intent to turn” or eliminate anxieties and performance improves. The top athletes in every sport continually assess and address issues in each of these four areas to improve their performance. Lyndsey and Tedd and all of the top racers in the world are constantly striving to improve their skiing performance by continually assessing and improving their technique, equipment, physiological and psychological condition. Consider any other sport that interests you and it becomes apparent these same four areas contribute to performance outcomes, to some degree, in every sport.

Accurate assessment and adjustment of these 10 parameters of equipment will have immediate positive effects on skiing performance. The other three areas of TEPP take longer periods of time to affect change in performance, dependent on motivation and time commitment. Proper alignment provides easier balance, more efficient edging, and easier turning, and better symmetry.

Chapter IV

Psychology

There are many facets to the psyche and sports performance. A skier must quickly learn to manage anxiety because skiing places us in an environment that can bombard the neophyte into sensory overload. It's cold, we are attached to foreign objects that obstruct our movements, the surface we are standing on is tilted and very slippery. Too much anxiety and we can no longer focus on balancing on skis. If all a skier can focus on is gripping the earth to avoid moving, there is little hope for achieving any success skiing. The skier must assess the real risks and manage a reasonable level of confidence. They must relax enough to listen to their body's kinesthetic feedback and move smoothly to manage balancing in motion.

We can not ski scared! “What if I can't stop?” “What if I fall?”, “What if I slide off the mountain?” Once you have committed to spending mental energy on these kinds of concerns, you are wasting valuable mental resources. Don't permit fears to compete for

space in your head. Rather than thinking about what if's, we need to focus on skiing. Helping students understand they can turn up the hill to stop will let them know where to find speed control when needed. Once they know this self preservation tactic, the mind can focus a bit more clearly on the task of releasing the turns to allow the skis to accelerate into the fall line. Success breeds confidence. Confidence is a psychological state that reduces anxiety. Anxiety is an important part of risk awareness. A certain level of anxiety actually improves performance, though too much detracts from performance. Too much anxiety causes muscle tension, making movements less fluid and more rigid. It also inhibits subtle sensory feedback from the feet. Too much tension causes large, and jerky movements creating difficulties with balancing. Worry is the thinking component of anxiety and detracts from using our mental resources for productive purposes. Learning to manage anxiety levels is one key to optimize skiing performance.

A more stealth psychological issue in skiing is INTENT to turn. This subconscious agenda is many times the root cause of performance plateaus and ingrained bad habits. These habits will not change until this psychological hurdle is overcome. What is intent to turn? This subconscious directive determines a skier's reason for turning. Many skiers turn with the intent to slow down. It is the reason they turn. Turning is associated and synonymous with braking, they turn to slow down. The two go hand in hand. They turn to "not go there". Consequently this intent causes skiers to stem, step, check, skid, scrape, chatter, and cause the skis to move more sideways across the direction of travel vs. Forward along the ski's length. This skier tends to over-initiate turns with excessive pivoting or tail tossing which creates a strong braking action. Speed control comes from large steering angle created and the subsequent scraping of the skis' edges across the snow surface.

On the flip side, an expert skier's intent to turn is to GO that way with everything he/she has into the turn. All movements to begin a turn go with gravity, giving into it's pull, with no effort whatsoever to slow down or brake. The tips go down the hill, there is no movement of any part of the body or skis up the hill or across the direction of travel. This skier skis a "slow enough line to control speed yet skis around that line as fast as possible. Turning and braking are not thought of as synonymous. This skier skis the slow line fast vs. The fast line slow. Sure there are times when the expert needs to brake, but they do not call this turning. The two intents are separated. The goal is to brake as little as possible and only when necessary. Skiing a round line crossing the fall line carrying momentum and speed up hill to control the rate of descent is the method of choice for speed control.

The "GO" intent is not a technique but a mindset, a subconscious intent to turn to "go there" vs. "not go there". Discovering and exploiting this intent will cause a marked change in skiing performance without ever addressing technique. This GO intent is what allows an expert to apparently dance with gravity vs. Fighting and clawing their

way down the mountain. Skiing becomes more fluid and effortless when we learn to use gravity to help us manage our descents rather than fight it all the way down the mountain.

Ask many skiers why they turn and you will get a stupid look and the answer something like, “Duh,.... To slow down fool” this is the wrong intent. Change the intent and change their skiing forever!

Teach a new skier using a GO intent from the beginning and they will discover parallel skiing more easily and without regressing to unlearn bad habits later. Teach students to “ski the slow line fast”, to release their edges to begin a turn, and they will habitualize expert skiing movements from day one.

Recommended references: “Psycho Cybernetics” by: Maxwell Waltz, “The Yikes Zone” by Mermer Blakesley, “Brilliant Skiing Every Day” by: Weems Westfeldt.

Chapter V

Physiology

Physical condition affects skiing performance. A skier’s fitness, flexibility, strength, stamina, balance, quickness all affect performance. Past and current injuries, asymmetries and disease also affect performance. Assessing and addressing physical deficiencies will improve performance.

Recommended references: “Ultimate skiing” by: Ron LeMaster, “Total Skiing” by: Chris Fellows