



LEVEL 1

GLOSSARY



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GLOSSARY

For a better understanding of the most frequently used terms in this book, their conventional meaning is detailed below in order to generate a language that can be understood by those who use it:

ABSORPTION: action of partial or total absorbing of the weight that supports the biomechanical skier-ski-snow system.

ACCELERATION: Variation in speed, according to time. It can be positive (a+) - produces an increase in speed- or negative (a-) produces a decrease in speed (deceleration).

ACTION: activity, movement or voluntary change exercised by the skier.

ALPINE SKIING: Alpine skiing is a controlled descent where the skier moves on two boards with firm grip of the boots both in tip and heel, regardless of the length or width of them.

ANGULATION: movement that regulates the angle of effect of the skis, on the snow.

BALANCE CENTRE: point located, in normal position, at the intersection of the projection line of the centre of mass and the transverse axis of the feet at the level of the arches of them.

BASIC BALANCE ATTITUDE (BBA): Dynamic pre-action readiness.

BODY AXES (imaginary):

1. **Longitudinal (vertical):** crosses the body from the head to the point where the heels join
2. **Transversal:** goes from right to left (or vice versa), from the body.
3. **Anterior - posterior:** crosses the body from "chest to back" or vice versa.

BODY PLANS (imaginary):

1. **Sagittal plane:** divides the body vertically into two symmetrical halves: right and left.
2. **Front plane:** divides the body in two halves: anterior and posterior.
3. **Transverse plane:** divides the body in two halves: upper and lower.

CENTRE OF GRAVITY: point located, in a normal position, approximately at the level of the third sacral vertebra, where all the forces acting on the body are considered 'applied'. It varies according to the physical type and any movement displaces it.

CENTRE OF MASS: point of the body that represents the totality of the parts.

CHAIN: (chaining) to join turns so that the beginning of the successive turn coincides with the end of the previous turn. The end/start is considered to be the moment when the tip of the skis passes from the edges of one side to the edges of the other side.

CHANGE OF EDGES: change the support side (right to left or vice versa)

COMPENSATE: contrasting the tendency, in order to maintain the right Dynamic Balance. To compensate means to equate or to equalise something that is unbalanced. This imbalance means that one of the two parts involved in the issue is damaged or diminished and therefore must be fixed from the direct action .

COMPRESSION: Tendency of the load/pressure to increase, due to the effect of the terrain or forces generated during the turns in the phase of convergence of the Centre of Mass (CM) with the Base of Support (BOS)

COUNTER-ROTATION: rotation of the body on its longitudinal axis, in the opposite direction to that of movement or turn.

CRITICAL POINTS: Points where the direction of increase or decrease of the speed in bend is inverted. It can be maximum or minimum. Therefore, the external forces supported by the skier are as well. It varies according to the type of turn, snow and driving quality. At that point, the value of the resultant of speed variation (acceleration) is equal to 0.

CUTTING: to make the edges have an effect on the snow fall, to regulate the support plane, and to reduce or eliminate skidding.

DECELERATION: slowing down of speed.

DEPRESSION: Tendency of the load/pressure to decrease, due to the terrain or the divergent path of the CM with the skis.

DOWNHILL: Ski or part of it, pole or part of the body, which is lower in relation to the slope.

DRIVE: voluntarily manoeuvre the vehicle in the desired tracks, predetermined by visual anticipation, properly dosing the Steering Actions.

DYNAMIC BALANCE: the efficiency of the dynamic balance, the one achieved by compensating the forces generated during the movements, in order to keep the CM projection within the parallelogram of support.

DYNAMIC CENTRALITY: Skier's posture during the manoeuvres, which facilitates EDGING: (edge-taking): action of arranging the skis on the uphill edges traverse and internal in turn, through angulation.

EFFECTIVENESS: ability to meet the set objectives.

EFFICIENCY: capacity to carry out manoeuvres efficiently, with economy of effort.

EFFORTS: isometric, isotonic or auxotonic (internal forces) muscle contractions to generate and control the desired actions.

EMPIRICAL: based on practical experiences.

EVERSION: movement of the outer foot in a turn or downhill traverse to increase the angle of the corresponding ski edge.

EXTENSION: increase of the articular angles. See technical definition.

EXTERNAL: Ski or part of it, pole or part of the body, in relation to the turn being made.

EXTERNAL FORCES: vector magnitudes that act on the dynamic system- skier, skis, inclined plane (slope), snow- during the slide and those generated as a reaction to the fundamental actions.

FALL LINE (FL): The steepest and most direct imaginary line of a given slope.

FLEXION: decrease of the articular angles. See technical definition.

HALF TURN: It is a 180° change of direction made in the same place.

IMPULSE: Acceleration of the CM in the desired direction, to cause the change of relative position. E.g.: Edge change from a diagonal displacement. Edge taking from the D.D.

INFLEXION POINT: point in a bend where the direction of its bending changes.

INTERNAL FORCES: Muscular efforts. See efforts.

INTERNAL: Ski or part of it, pole or part of the body, in relation to the turn being made.

INVERSION: movement of the inner foot in turn or downhill traverse to decrease the angle of the corresponding ski edge.

KINESTHESIA: perception of their own movements, muscular tensions, articular friction, peripheral tension (of the skin, dermis).

LEAN ON: Apply load or weight on a support.

LOAD: Intensity of force applied to the support surface.

MANOEUVRE: Intentional displacement of the vehicle.

MASS: (of the body): set of particles that make up the body. In articulated bodies, each part has its own centre, so the combination of all these is considered the Centre of Mass (CM), working in coordination or synergy. The parts can be dissociated voluntarily or involuntarily, through FA or affected by the forces generated.

METHOD: an orderly and systematic way of proceeding to reach a certain aim or result.

METHODIC PROGRESSION: Sequence of useful manoeuvres to facilitate the acquisition of the necessary coordinates and facilitate the discovery of the Dynamic Centre.

NARROW TRACE: position of the skis parallel to each other and slightly separated to allow adequate leg independence.

PARALLELOGRAM OF SUPPORT (support base): In normal position, the one formed by the imaginary lines that join the ends of the feet. In the plane, with skis, the length and width of the support platform.

PRESSURE: action of the mass against the support surface according to acceleration. It is directly proportional to the Force Applied and inversely proportional to the surface of application.

RELEASE OF THE EDGES: (action of): reduction of the angle of the EDGES in relation to the snow (decrease of the angulation). It decreases the value of the Centripetal Force. It adjusts the edge angle to the speed, in the deceleration phase.

ROLL: (referred to the roll of the ski /s): passage from one edge to another of the ski (s). It can be done with one ski at a time (independent way: elementary turn) or both at the same time (simultaneous way: parallel).

ROTATION/S: Change/s of direction of the skis, across the fall line twice, once in each direction: from left to right and vice versa.

ROTATION (of the body): rotation of the body or part of it, on its longitudinal axis, in the direction of the turn, at a higher speed than the supporting base (skis).

ROTATION (of the legs): action of turning the legs (pivoting the skis) in the direction of the turn, to actively modify the plane of support of the skis, for example when braking, gradually or abruptly.

SENSE: perception through the senses. To feel.

SKIDDING: Slide of the skis on their transverse axes, on the edges. It can be to the side, traverse, rounded, gradual or abrupt.

SKIING:

- **BOTTOM SKIING:** the one located below in relation to the slope of the run.
- **ABOVE SKIING:** the one located higher in relation to the slope of the run.
- **INTERNAL SKIING:** ski or part of it, pole or part of the body, in relation to the turn that is being done.
- **EXTERNAL SKIING:** ski or part of it, pole or part of the body, in relation to the turn that is being made.

SKIS AXES:

1. **Longitudinal:** goes from the tip to the tail.
2. **Transverse:** crosses the ski from right to left or vice versa.
3. **Sagittal:** perpendicular to the base of the skis.

SPEED: precise speed. In turn, tangential speed at a given point.

STAGGER: distance between the tips of the skis in the longitudinal direction.

STEERING ACTIONS: of edging, weighing and pivoting. The appropriate combination of these allows the necessary reaction of the snow, facilitating the driving of the vehicle.

SUPPORT: Point or surface that receives the load - weight of the whole, or part of it.

SYSTEM: Orderly set of rules governing the functioning of a process.

TECHNICAL PROGRESSION: Sequence of referential manoeuvres, ordered by degree of complexity, that guide the process of acquisition and control of FA.

TORQUE: The twisting movement of a ski. The amount it will twist along its length will affect its performance. Generally, the stiffer the torque, the higher will be the performance of the ski.

TRANSITIONS: displacements between turns, when required by the chosen or imposed track (GS, Descent, Giant, or SL tracks, or other circumstances).

TURN: change of direction. Twist.

TURNING PHASES: depending on the perspective from which the turns are analyzed, the phases will be. Acceleration, Speed, Weight, Pressure, Effort, Edge.

UPHILL: ski or part of it, pole or body part, which is higher in relation to the slope.

VINCULAR AXIS: (imaginary): axis of action and reaction It joins the Dynamic Centre (DC) with the Balance Centre (BC).

VISUAL ANTICIPATION: evaluation of the time - space - terrain parameters, which, prior to the decision, will determine the actions and the amount of the effort needed.

WEIGHT: (of the body): mass by acceleration of the Earth's gravity.

$$P = m \cdot G = x \text{ NW}$$

WEIGHT TAKING: action of controlling the absorption of the body weight by the articular angles.

WIDE TRACE: position of the skis parallel and separated to the width of the hips.

LEARNING, ALWAYS.



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