On-Slope Warm-Up in Competitive Snow Sports

On-slope warm-up is a critical, sport-specific component of the overall preparation routine, distinct from off-snow activities and serving a unique purpose. Its primary role is to **fine-tune physical and mental readiness and adapt to the immediate performance environment**. No amount of off-snow preparation can replicate the sensory, cognitive, and motor demands of actually being on snow, which is precisely what makes on-slope warm-up irreplaceable.

Role and Importance

For elite athletes, the on-slope warm-up is considered **one of the most important measures to achieve readiness** at the time of training or competition. It serves as the final phase of the warm-up, aligning with the **Potentiate phase of the RAMP protocol**, where intensity is increased to prepare the body for peak performance. Its key functions include: sport-specific activation and potentiation, motor readiness, and cognitive and mental readiness.

Sport-Specific Activation and Potentiation

The runs on the slope are a sport-specific activity used to progress into the intensity and skill level of the subsequent training or competition. Warm-up runs in the competition environment (through gates, jumps, or park elements) are an efficient way to prepare for performance at the athlete's limit, activating the specific skills that will be called upon when it counts.

Motor Readiness

On-snow "running-in" is the recommended method to achieve motor readiness. This optimally includes gates, jumps, park elements, or runs on the slope, involving sport-specific movements with progressively increasing intensity that activate the neural pathways governing movement control.

Cognitive and Mental Readiness

On-slope warm-up and activation runs are crucial because they help **connect the body, the mind, the equipment, and the environment** (snow, visibility, wind). Athletes must be able to feel

their surroundings in order to adapt their skiing or riding appropriately, a connection that can only be established through deliberate, on-snow preparation. This is a staged build-up through the slope/park that activates the body and mind while allowing the athlete to check in on snow and environmental factors.

Quantity

Two to three warm-up runs on the slope are typically the most important measure to achieve readiness.

Structure and Timing

On-slope warm-up is typically performed immediately before the run, differentiating it from the structured off-snow warm-up that precedes it.

Timing and Location

The immediate on-slope warm-up occurs at the top of the course on snow before skiing or riding the course for training or racing, and may include a few runs on the course itself.

Routine Integration

Athletes typically follow a structured warm-up routine, **lasting between 15–30 minutes**, right before the performance, which includes the on-slope runs as its concluding element.

Content Simplicity

Active warm-up activities conducted on snow (at the run-in hill, slope, or start area) should be simple and achievable with minimal additional equipment. The emphasis is on sport-specific movement, not complexity.

Distinction from Off-Snow Warm-Up

Off-snow and on-slope warm-up are complementary; each serves a distinct purpose, and neither can fully replace the other.

Off-Snow Preparation

Ideally, the most intense part of the structured warm-up (the initial Raise and Activate phases) occurs in a sheltered area off-snow, often in training shoes, because boots, especially ski boots, hinder proper activation of the feet, ankles, and knees.

Avoiding Delays

The time between the off-snow warm-up programme and the on-snow warm-up must be kept as short as possible to prevent the loss of readiness achieved during the structured phase.

The runs on the slope are where the physical activation achieved off-snow is **translated into high-intensity, sport-specific movement**, confirming that the athlete is ready to perform safely and effectively at their limit. This transition from controlled preparation to real-world application is what makes on-slope warm-up the decisive final step in achieving true performance readiness.