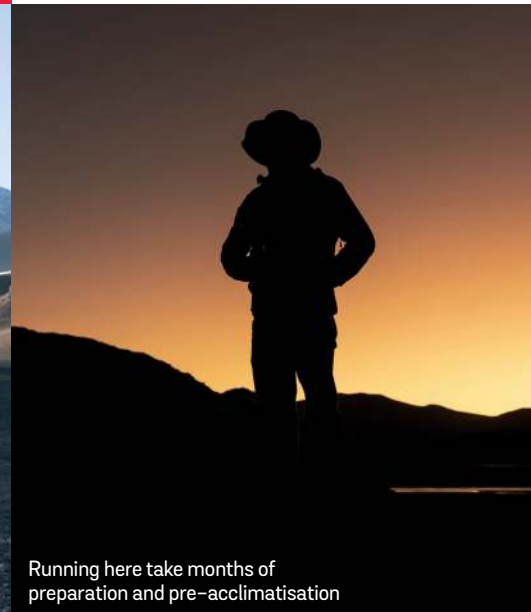


# THE SKY'S THE LIMIT

Writer and photographer **Matt Maynard** ventures into the Atacama Desert with 13 runners as they attempt the first ever race to the summit of the world's highest volcano, the 6,893m Ojos del Salado



Not your usual drive to the start line



Running here take months of preparation and pre-acclimatisation

**A**cclimatising to be able to run – or just survive at extreme altitude – is a bit like going to the gym. The theory is straightforward: stimulate the body, be patient and the results will come. Start to feel too simple? Add more weight or, in this case, elevation above sea level. Lift more. Climb higher. So far, so easy.

On the world's highest volcano, towering 6,893m above the Atacama Desert in the Chilean Andes, the inaugural Ojos del Salado Sky Race – around 7km of, at times, sheer climbing – was held in December 2022. The start line was a full 400m above the height of Mont Blanc, Europe's highest peak. The intended finish line: one vertical mile higher up.

Running at this altitude demands months of preparation and pre-acclimatisation. If you took a helicopter straight from sea level to the 5,250m start line, you'd suffer acute mountain sickness (AMS). Symptoms at the friendly end include vomiting and migraine. At the sharp end, you're looking at brain swelling, coma and potentially death.

Yet Ojos del Salado is perhaps the best suited place on the planet for such

a challenge. Besides neighbouring Aconcagua in Argentina, which is just a fraction taller, there is no higher mountain in the world outside of Asia. And unlike Aconcagua, or other peaks of the Seven Summit circus, there are no exorbitant visas or summit fees to pay. In fact, there is a dirt road you can drive on straight to the start line.

Fitness, of course, is required in spades. Equipment will mark the difference between frostbite or finishing. And nutrition is as vital as rocket fuel as you journey towards the stratosphere. If

you're so inclined, here's everything you need to know to take on the race to the summit of the world's highest volcano...

## Acclimatise

You don't think too much about breathing until you can't. Contrary to popular belief, however, there is no less oxygen at altitude. Why, then, do we struggle to suck it in and make use of it?

Most cultures choose to live at low altitudes. Here, the weight of all the air molecules in our atmosphere is stacked up. Imagine a sieve full of flour: the first >>



Keeping tabs on blood oxygen saturation levels







Domi Villarino is all smiles, despite the tough conditions



Pre-race excitement



Basecamp: home for three days



grains pass fast, pushed by the weight of the grains above them. The last grains, similar in size, pass slowly or not at all. Breathing in our atmosphere is the same. At low altitude, pressure helps push oxygen through a membrane and into our lungs. From here, it enters the blood to power our muscles. Start heading uphill, however, and our lungs start to struggle to pull that same oxygen out of the air.

At the Ojos del Salado Sky Race, competitors must arrive having completed their homework. That means climbing mountains in the weeks and months before toeing the start line.

“Each acclimatisation strategy is different for every athlete,” says mountain guide Sebastian Hurtado, who was in charge of safety on the mountain during the race. “Personally, to simulate race-day conditions in the build-up to an event like this, I would want to be moving fast in the mountains and doing speed work.”

Hurtado recommends completing these workouts as high on the mountain

as can safely be tolerated, then returning to sleep and recover at a lower altitude while still on the mountain. “The training load needs to be less than that of race day,” he adds, “but you need to show your body first-hand what it is about to encounter.”

**Basecamp**

Basecamp for the Ojos del Salado Sky Race is reached from the Chilean desert city of Copiapo, located on the Pan American Highway. Dusty mine camps dominate the landscape for the first 50-mile drive into the Andes. Nature soon takes over with Furby-like rodents known as viscacha peering out of the rocks, then horses roaming freely amongst the desert scrub. There’s a no-room-for-error slot canyon to thread your truck through, before finally emerging onto the high Andean plateau – or ‘altiplano’ – at 4,000m above sea level.

Competitors reached the Refugio Claudio Lucero basecamp just three >>

At Refugio Claudio Lucero, you need to bring the essentials with you



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days before the race started. (By comparison, hopeful summiteers on an Everest expedition often spend multiple weeks or even months in basecamp.) The refuge, located at 4,520m, is a ramshackle, two-storey, bright-red staging post full of sun-baked, hungry mountaineers intent on climbing any one of the dozen or so 6,000m peaks that are in striking distance. Yet the most prized jewel in the Atacama is Ojos del Salado.

Nights are cold here, and it's the first chance for competitors to test out

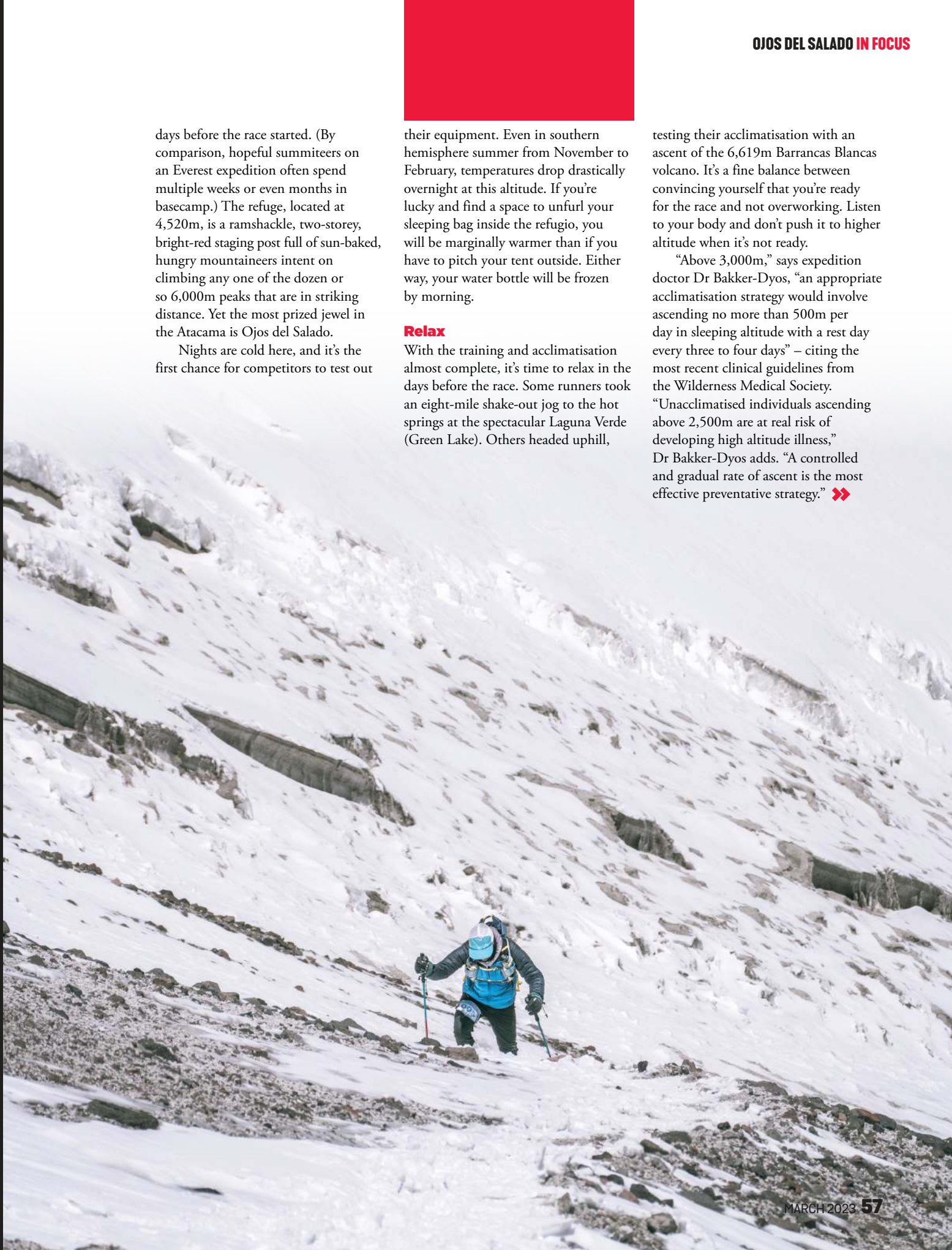
their equipment. Even in southern hemisphere summer from November to February, temperatures drop drastically overnight at this altitude. If you're lucky and find a space to unfurl your sleeping bag inside the refugio, you will be marginally warmer than if you have to pitch your tent outside. Either way, your water bottle will be frozen by morning.

**Relax**

With the training and acclimatisation almost complete, it's time to relax in the days before the race. Some runners took an eight-mile shake-out jog to the hot springs at the spectacular Laguna Verde (Green Lake). Others headed uphill,

testing their acclimatisation with an ascent of the 6,619m Barrancas Blancas volcano. It's a fine balance between convincing yourself that you're ready for the race and not overworking. Listen to your body and don't push it to higher altitude when it's not ready.

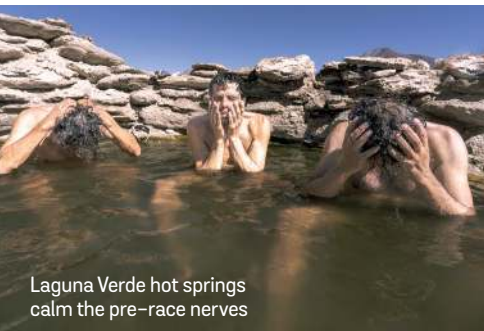
"Above 3,000m," says expedition doctor Dr Bakker-Dyos, "an appropriate acclimatisation strategy would involve ascending no more than 500m per day in sleeping altitude with a rest day every three to four days" – citing the most recent clinical guidelines from the Wilderness Medical Society. "Unacclimatised individuals ascending above 2,500m are at real risk of developing high altitude illness," Dr Bakker-Dyos adds. "A controlled and gradual rate of ascent is the most effective preventative strategy." >>





**Fuel**

Altitude can stunt hunger, but you need to shovel in those calories to continue to help your body adapt. Now is the time to also make final preparations for race day. When eating for performance at high altitude, Dr Bakker-Dyos says, “Carbohydrate is the body’s preferred energy source. Fuel with easily digestible carb-rich foods, frequently aiming for a total of 60-90 grams of carbohydrate



Laguna Verde hot springs calm the pre-race nerves

per hour – or potentially more if tolerated. This will require practice and planning.”

**Drive**

From Refugio Claudio Lucero, runners must travel a further 20km into the mountains by 4x4 to reach the start line at the Atacama Refugio. Tyres need to be deflated to travel in the thick desert sand, and engines guzzle fuel much faster – just like the runners, they struggle to suck in enough oxygen.

Ojos del Salado is also famous for being home to the world record for highest ever point reached by motorised transport. On 21 April 2007, Chileans Gonzalo Bravo and Eduardo Canales drove up the volcanic cone of Ojos del Salado in a modified 1986 Suzuki Samurai, reaching an altitude of 6,688m.

**Race**

Competitors lined up between start flags that cracked in the Andean wind on the morning of 4 December 2022. Behind them was a field of chest-high ice spikes, known in the Andes as ‘penitentes’. In front, the rocky fortress of the Ojos del Salado summit towered a full mile overhead.

Pacing a vertical mile race at extreme altitude involves a careful dance of ego and athleticism. No-one besides the runners at Kyrgyzstan’s Lenin Sky Race had ever attempted to organise a race at such altitude. In the benign atmosphere close to sea level, high performance is certainly defined by preparation. But it also depends on how hard you are willing to push yourself to reap the most from your training.

Here, however, with most of planet Earth left behind, discovering your



**Summit to cheer:**  
Domi Villarino celebrates victory

## COMPETING AT THIS ALTITUDE REQUIRES A CERTAIN TYPE OF PERSONALITY



Words and photography: Matt Maynard

limits could lead to very sudden and serious medical complications. All effort must be tempered. All ego measured against the subtle warning signs your body is in trouble and you need to start heading back down fast.

The runners climbed quickly to 5,820m and the final Tejos Refugio. It’s a dirt road to this refuge and all runners had recced it the day before the race as part of their prep. From here on upwards, however, it was into the unknown.

**Win!**

The North Face athlete and Chilean running prodigy, Domi Villarino, was the first to climb above 6,000m. From here, a series of zig-zags leads up the volcano. The angle is constant, but the pace is relentless if you want to be the first to the top. Two days before the race, the summit finish line had to be

lowered to 6,500m due to the deep snow and icy conditions high on the mountain. Villarino was well adapted to moving fast at this altitude. On a snowy windswept ridge, some four vertical miles above sea level, Villarino raised her arms as she became the first outright winner of the highest ever race in the Western Hemisphere.

“Domi’s training ultimately had to make her happy,” says her coach, Claudio Nieto. “Only in this way is it sustainable over time.”

Villarino balanced running with her work as a ski instructor in the build-up to the Ojos del Salado Sky Race. She also complemented it with cycling cross-training on the mountain roads above Chile’s capital, Santiago.

Competing successfully at this altitude requires not just physical ability, but also a certain type of personality, it



seems. Under the finishing flags, Villarino whipped out her phone and found the oxygen necessary to dance to her favourite reggaetón song. In 2023, she will be back to defend her crown. 🏆

The 2023 version of the Ojos del Salado Sky Race will be held between 23 and 28 November. Information can be found at [latitudsurexpedition.cl](https://latitudsurexpedition.cl) / @LatitudSurExpedition