The Altitude of Success: UND Hockey's Game-Changing Training Innovation

In the heart of Grand Forks, North Dakota, the players of the University of North Dakota hockey team are making strides, both on the ice and in the weight room. The introduction of Woodway's Altitude Chamber into the UND Hockey team's training regime has revolutionized its approach to training and performance. The chamber has become a part of the revamped weight room, offering a new approach to traditional strength/conditioning and recovery.

Mark Poolman has been the Athletic Trainer and Strength Coach at the helm of UND Hockey for 20+ years. Poolman acknowledges that while the concept of an Altitude Chamber initially intimidated him, he realized its potential to enhance the team's performance. The chamber's incorporation marked a significant shift in the team's training regimen, which has proven beneficial in multiple ways.

The chamber's impact has been multifaceted, influencing everything from strength and cardio training to recovery. Players cycle in and out of the chamber, pushing their bodies to the limit in the thin, simulated high-altitude air. Incorporating WattBikes and Flywheel Strength Training Technology, the chamber has become a vital tool for anaerobic and aerobic conditioning, with the team seeing significant improvements in repeated-sprint ability and strength gains.

John Fitzgerald is a tenured sports scientist and professor at UND. Fitzgerald shares insight on how they have been making strides in learning how the chamber works and how to get the most out of adding it to their training programs.

They found two main things:

1. Intermittent hypoxic exposures - "I believe this is really the gem of it all and can be applied to various contexts. The key is bouncing in and out at intervals during chamber training," states Fitzgerald. "Bouncing back and forth looks to be the key driver of hormonal change we get with altitude exposure. We can see increases in EPO, red blood cell production and other changes in respiratory compensation."

   Intermittent hypoxic exposures can be done in various ways. Still, with this new concept of minute hypoxic recovery exposure, you perform the work outside the chamber, then go inside and recover.

2. Recovery within the chamber - Compensatory vasodilation. This is where you get increased blood flow for doing nothing.

   The chamber has also played a crucial role in recovery. The team found that intermittent hypoxic exposures and compensatory vasodilation, both facilitated by the chamber, significantly aid in recovery. Fitzgerald highlighted that the team saw a consistent increase in peak power throughout the season due to the chamber's use.

> "We consistently increased peak power on our six-second test throughout the second half of the season," Fitzgerald said. "Our goal was to maintain our original number, but we saw a steady increase over time for peak power."
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> “Because you have a hypoxic environment, it’s mediated by the sympathetic nervous system and speeds up. It will increase vasodilation to the muscles, allowing them to get around 60% more blood in theory than it did in normoxia.”

Notably, Fitzgerald mentioned that the chamber has benefits on respiratory sensitivity, which improves performance, particularly at altitude.

Respiratory sensitivity trains your brain to ventilate more under hypoxic conditions to get ahead so you don’t let a bad problem build-up. These respiratory sensitivity changes have been related to increased performance and increased performance at altitude and decreased altitude sickness.

Beyond the physical gains, the Altitude Chamber provided a mental edge. The players felt more confident knowing they had trained under high-altitude conditions, especially when competing at high altitudes. The chamber sparked curiosity among the players, leading to increased communication and a deeper understanding of their training. They have seen that it brings much discussion with the players. Many of them are interested in the longevity of their career and are trying to understand the underlying factors of what they are doing and why they are doing it.

Poolman states, "There’s a bit of excitement that goes around the altitude chamber, and the guys get excited about using it. It’s difficult and tough. The conversations and questions we get from the athletes about it have been a lot of fun. This gives us as coaches to research, learn, and improve our work.”

The Altitude Chamber caused a ripple effect, reaching beyond the current team. It sparked interest among potential recruits, contributing to the buzz around UND Hockey. The players' feedback was overwhelmingly positive, with many expressing enthusiasm for the new challenge and vested interest in understanding the mechanics behind training in an altitude chamber.

The Altitude Chamber has proven to be a game-changer for the UND Hockey team. It has enhanced their physical performance, boosted their mental confidence, and sparked curiosity and enthusiasm among both players and potential recruits. As they continue to train at these new heights, the future looks promising for the UND Hockey team.

Moving forward, UND Hockey plans to continue incorporating the Altitude Chamber in its training, with a focus on resistance training, aerobic conditioning, and recovery exposures. It’s not just getting the body up to 9000 feet and playing in Colorado, its giving the body’s various systems a new vehicle to recover faster, reduce training loads and increase performance.