AltoLab
ALTITUDE SIMULATORS

Clinically Proven to Legally Enhance:

- SPEED
- STAMINA
- POWER
- RECOVERY
- MOTIVATION

THE ENDURING EDGE

AltoLab User Manual

Disclaimer

Any product information or advice in this manual is provided for informational purposes only and should not be used as a substitute for the advice provided by your own medical practitioners. You should not use the information contained here for diagnosing or treating a health problem or disease. You should read all product information carefully before purchasing and if you suspect you have a medical problem, promptly consult your health-care professional. Stop using AltoLab immediately and seek emergency help if you have difficulty breathing or suffer from any serious side effect.

Technical Specifications and Features are for guidance only and cannot be guaranteed accurate. The product described is subject to change without prior notice due to AltoLab's continuing development program. Every care has been taken to provide accurate details in this manual, however minor discrepancies may appear.

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Altitude Training or IHT

Getting an edge

Today's athletes are constantly seeking new methods to legally improve their endurance, strength, stamina and cardiovascular conditioning. Over the years high altitude training, also known as Intermittent Hypoxic Training or IHT, has become one of the most sought after methods to accomplish these goals. **AltoLab** is a revolutionary altitude simulator that allows individuals of **all** abilities to do IHT at home at low cost. The **AltoLab** devices used by the New England Patriots are identical those you have in this kit.

Brief History of Altitude Training

In the 1930s, human adaptation to high elevation was recognized as a limitation for aviators and mountain climbers going to high altitudes. It was known that humans could not reside indefinitely at elevations above 17,500 ft (5300 meters). However, people who lived at 10,000-15,000 ft (3000 – 4500 meters) were able to endure short trips above 17,500 ft (5300 meters) much better than lowlanders, while natives from high altitudes excelled at endurance sports. In the 1960's Kenyan and Ethiopian distance runners dominated the Olympics and high altitude training was the major reason.

While all athletes can benefit from high altitude, the methods of altitude training vary widely. The so-called "live high, train high" (LHTH) regime requires an athlete to reside continuously at high altitude for several weeks. This is expensive and inconvenient for most and may not work for those who have trouble breathing the reduced oxygen present at high altitudes. Also living at high altitude can cause people to tire quickly, become lethargic, have sleep disturbances and suffer significant loss in muscle mass and conditioning.

As a consequence, exposure to high altitudes (or reduced oxygen) for short, repeated time intervals was tested as a way for individuals to overcome problems of LHTH. This practice is known as Intermittent Hypoxic Training (IHT). One IHT method is to travel to altitudes of 10,000 ft (3000 meters) each evening, where athletes sleep for 8-12 hrs. The following morning they travel back down to sea level to train intensively. This so-called "live high, train low" (LHTL) scenario is repeated for 14-30 days.

The LHTL method can yield significant cardiovascular benefits from the hypoxic conditions at night combined with the high oxygen exposure that allows intense, aerobic training during the day. While effective, LHTL comes at a high cost, is time consuming and is limited to only a few geographic areas in the world where such training can be done.

Recently IHT devices have been engineered to provide reduced oxygen (hypoxic) air to simulate the low oxygen of high altitudes. Known as "hypoxicators", pods and altitude simulators, the differ greatly in complexity, cost and ease of use. These products fit into one of three different categories: 1) electrically powered enclosures or altitude tents, 2) electrically powered hypoxicators and 3) **AltoLab-**style, non-powered re-breathers.

Altitude Tents

Altitude tents or pods consist of a dedicated room, plastic tent, or rigid plastic pressurized enclosure that is fitted with a gas processing system or vacuum to reduce the oxygen content of the air within the enclosed space. Although generally intended for single use by an individual while sleeping inside overnight in a bed for 8-12 hrs per day. Enclosed hypoxicators can simulate oxygen levels equal to 10,000-14,000 ft (3280-4250 meters) but must be used for 30 days to be effective. They are noisy, uncomfortable, cause excessively high humidity, are heavy, require electricity and are not portable. They are also expensive ($5000 – $20,000) for tents, $60,000 for pods and require maintainence costs to keep running. They are a nucaince for home and family, because spouses hate them and you can't easlly go in and out of them because it can take an hour to get up to the targeted altitude once you open the chamber. Once you have finished your 30 days your training are only temporary lastingabout 15 days. Re-exposure for another 30 days is required for athletes to maintain benefits.

Powered Hypoxicators

These are electrically powered devices that employ pumps and filters to deliver air with reduced oxygen content to the user. Such machines are often fitted with various controls to adjust the percentage of oxygen being delivered and a user interface displaying both the gas mix furnished and the user's oxygen status, by pulse oximetry. Powered hypoxicators can replicate oxygen levels of 10,000-12,000 ft (3280-3660 meters) and are used for 1 hr per day for 30 days before benefits are noticed. The user is connected to the hypoxic air supply via a face mask strapped to his head, which can be a hazard. Powered hypoxicators are expensive ($7000 – $15,000) but occasionally can be rented for $400 per month or can be used at a gym for $25 a session. Although these units are described as being "portable", they weigh about 70 lbs and require the user to stay within a few feet of them. The benefits of altitude training are temporary and last for only 15 days, so re-exposure for another 30 days is required to maintain those effects.

AltoLab: Sensible IHT Altitude Simulators

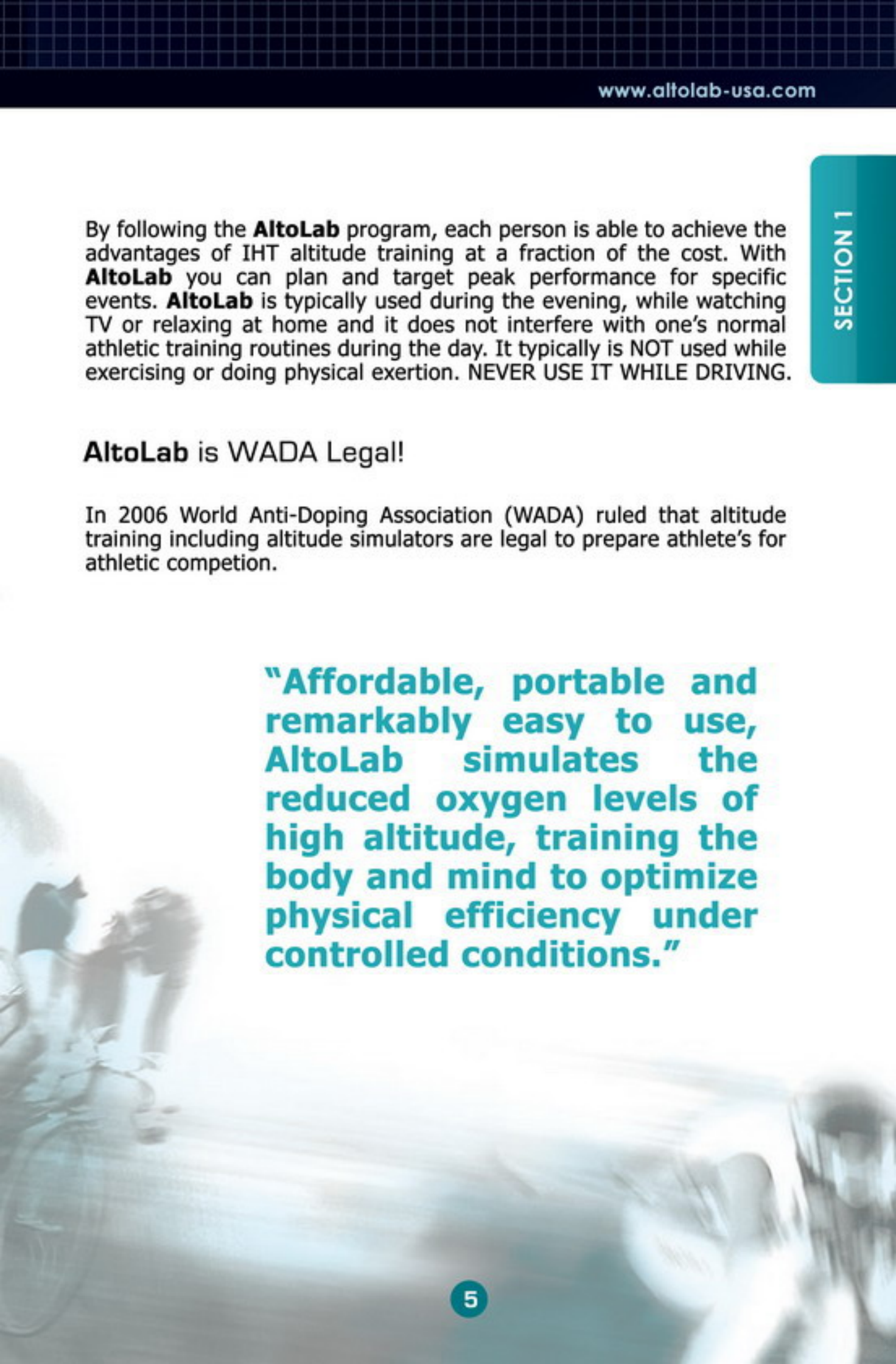
AltoLab is a small, portable, hand-held "re-breather" that allows easy use by a person in a sitting position. **AltoLab** uses a filter and an hypoxic silo to remove carbon dioxide (CO_2) from air you exhaled breathed back in. It also has a series of black cups (AltoMixers) that can be added in a stack to raise or lower the oxygen content of air you inhale. Each person always watches as their blood oxygen level as it rises or lowers via a pulse oximeter worn on their finger. **AltoLab** is versatile and can replicate oxygen levels from 5000-29,000 ft (1500-8000 meters). Breathing hypoxic air is very brief, lasting no more than 6 mins at a time. This is followed by a 4 min break when you breathe outside, ambient air. This cycle is repeated up to 6 times for a total of a 1 hr session. This is done for 1-15 days depending on your needs. This protocol makes **AltoLab** the most effective altitude simulator on the market. Hypoxic silos must be replaced after 2-4 hrs of use depending on various conditions. **AltoLab** is much more efficient than tents or powered hypoxicators, because they simulate much higher altitudes (> 20,000 ft), get to hypoxia quickly and complete exposure after only 6 mins compared to tents or powered hypoxicators which only reach 12,000 ft and require 1-12 hrs per day for 30 days to be effective. **AltoLab** provides convenient altitude training to virtually any athlete or non-athlete, anywhere at anytime. Improved sporting performance and stamina is usually noticed after 1-2 weeks but continues to improve the longer it is used. It can be used by persons of all ages, but requires supervision for youngsters and the disabled.

By following the **AltoLab** program, each person is able to achieve the advantages of IHT altitude training at a fraction of the cost. With **AltoLab** you can plan and target peak performance for specific events. **AltoLab** is typically used during the evening, while watching TV or relaxing at home and it does not interfere with one's normal athletic training routines during the day. It typically is NOT used while exercising or doing physical exertion. NEVER USE IT WHILE DRIVING.

AltoLab is WADA Legal!

In 2006 World Anti-Doping Association (WADA) ruled that altitude training including altitude simulators are legal to prepare athlete's for athletic competion.

"Affordable, portable and remarkably easy to use, AltoLab simulates the reduced oxygen levels of high altitude, training the body and mind to optimize physical efficiency under controlled conditions."



AltoLab

Setting new heights in sporting achievement

The air that we inhale contains a mixture of gases: 78.5% nitrogen (N_2), 21% oxygen (O_2), 0.04% carbon dioxide (CO_2), and 0.5% water vapor (H_2O). As shown in the table below, of the air we inhale, only ¼ of its O_2 is actually absorbed by our lungs and transferred to our red blood cells, while ¾ of this O_2 is exhaled out.

Gases in Air	Inhaled Air	Exhaled Air	AltoLab-Scrubbed & Re-Breathed Air
N_2	78.5%	74.5%	78 – 86% (varies)
O_2	21.0%	16.0%	16 – 8% (varies)
CO_2	0.04%	4.0%	0.01%
H_2O (vapor)	0.50%	6.0%	6.0%
Total	**100.0%**	**100.0%**	**100.0%**

This exhaled air is reduced to 16% O_2 but also contains 4% CO_2 and 6% H_2O vapor that is expelled from our bodies. When our exhaled air passes through the **AltoLab**, its CO_2 is removed with scrubbers in the hypoxic silo and the re-inhaled air has an O_2 level of 16%. Repeated re-breathing causes these O_2 levels to drop as our lungs continue to remove ¼ of the O_2 with each breath. The AltoMixer stack, below the hypoxic silo, traps our exhaled air and mixes it with fresh air entering from the base of the stack. After 1-2 minutes of breathing, the air mixed in the AltoMixer stack reaches an equilibrium of varying O_2 concentrations, depending on the number of Altomixers in the stack. In general, each AltoMixer equals about 5000 ft (1500 meters). Thus, a stack with 3 AltoMixers is equal to about 15,000 ft. By using more or fewer AltoMixers it is possible to adjust attitudes from 2500–29,000 ft (750-8000 meters). To ensure that the **AltoLab** is working you need to constantly follow your blood O_2 levels with the pulse oximeter. This enables you to keep blood O_2 levels at the right level. You do not want to see your blood O_2 below 75% nor do you want it above 94% as this will not give the desired altitude effect.

Drop in Blood O_2 for 3 min › **Increase in HIF*** › **Changes in EPO*, HGH*, VEGF*, more antioxidant enzymes, more mitochondria**

AltoLab is used for only 6 mins at a time, followed by a 4 min break, which is repeated up to 6 times for a 1 hr session. The sessions are repeated daily for up to 15 days with an ever-increasing altitude for each session. Altitude is increased by adding AltoMixers over the course of the 15-day program. This is followed by a break of 15 days, during which your athletic events will take place. The benefits of IHT altitude training lasts for 15-25 days. This is followed with "top-ups."

To maintain your IHT conditioning during the season and off-season you should perform top-ups, which are IHT exposures of 6 min to 1 hr per day, for 1-2 days per week or 6 days per month. These are followed by breaks of 3 to 15 days off, dpending on your activity. As you finish more top-ups, you will notice a significant improvement in your aerobic and cardio conditioning that is beyond the initial 15-day **AltoLab** program.

AltoLab IHT scientifically mimics the effects of altitude wherever you live, enabling your body to become more efficient at acquiring O_2, delivering it to working muscles and improving all-around aerobic conditioning and athletic performance. It does this even if you are not active and are disabled or recovering from injury.

Decreased heart rate = increased stamina

Increase in hemoglobin, RBC* of blood > **More capillaries, myglobin and mitochondria in muscle cells** > **Increased O_2 delivery** = **Optimum Performance**

Benefits of **AltoLab** IHT vs. real Altitude

Living and training at altitude	vs.	AltoLab
Physical discomfort		Little change from normal
Decrease in blood volume, by up to 25%		Increase in blood volume, better blood circulation and O_2 supply throughout body
Reduction in muscle mass		Growth of muscle tissue
Reduced training intensity in thinner air		No change to normal
Expensive, disruptive, away from home		Affordable, easy 15-day program

The AltoLab unit

Altomixers (stack to increase decrease altitude)

Hypoxic Silos (to remove CO_2)

Carry Bag & Satchel

Oximeter & Timer

Breathing Tube with mouthpiece and AltoLid

User Manual, Schedules and CD-ROM

Nose Clip

Bacterial Particle Filters

AltoLab stack components

AltoLid

Thin foam insert

Hypoxic Silo (green cup)

Thick foam inserts

AltoMixer (black cups)

AltoLab is manufactured from high-impact materials for optimum durability and hygiene. All components come with a carry bag for ease of portability. All user instructions are contained in the manual, instructions and CD-ROM.

Your Pulse Oximeter

The finger pulse oximeter is a small, lightweight device (figure 1) that measures the amount of oxygen in your blood as a % of its maximum possible saturation (%SpO_2). It also measure your pulse rate (PR) per min.

The **AltoLab** pulse oximeter is crucial for measuring your blood %SpO_2 and heart rate while you are breathing on the unit, because it determines how much oxygen your blood is carrying. At sea level your top number should be around 98%. As you go to an altitude of 10,000 ft it will drop to about 90%. When you go to 17,000 ft it will drop to about 80%. Any number below 94% is "hypoxic".

figure 1. The Pulse Oximeter.

The oximeter is worn on your finger and displays O_2% and heart rate on an illuminated display. When you start breathing through AltoLab it takes about 2 mins before your O_2 level drops below 94%.

The oximeter requires 2 AAA batteries (included) that last for about 24 hours of continuous operation. The oximeter will automatically shut off about 60 seconds after removing it from your finger.

The oximeter contains a laser that shines into your finger to measure the color of your blood, from red to blue. As oxygen drops in your system your blood turns from red to blue. Do not let your blood drop to below 70%.

What is %SpO_2?

A pulse oximeter uses a small laser beam that passes through your finger to measure the variation in the color of your blood, from red to blue. When your blood hemoglobin is fully saturated it will be red and the oximeter will give a reading of %SpO_2 = 97%. As blood passes through your body oxygen is removed and hemoglobin turns blue, depending on how much O_2 is left. The oximeter's range is between 100-40%. People who climb Mt Everest often have readings below 40%, which can be fatal if it lasts more than 15 minutes.

As altitude increases your blood %SpO_2 will drop because less O_2 is available in air. Physical exertion at high altitude will cause it to drop even futher. Thus breathing is difficult because of this reduced oxygen. You will also notice that as your %SpO_2 drops, your heart rate goes up. This is because your heart has to beat faster when less oxygen is available. The %SpO_2 and BPM numbers on your pulse oximeter can be used to measure your adaptation to high altitudes. In most cases, you do not want your %SpO_2 values to drop much below 80% for any extended period of time. When doing AltoLab you want your oxygen numbers to stay around 80%.

What is $\%SpO_2$? (continued)

Expected $\%SpO_2$ Values

The following table shows how increased altitude reduces barometric pressure and causes a drop in $\%SpO_2$ values in people. It should be noted that $\%SpO_2$ values differ tremendously between individuals and the numbers shown are approximations for a typical, healthy low-lander.

READ THE WARNINGS ON THE NEXT PAGE

Altitude	Barometric Pressure Expected (mmHg)	Expected $\%SpO_2$ Values
Sea level	760	97
5,000 feet (1,500 meters)	630	93
7,000 feet (2,286 meters)	570	92 - 90
15,000 feet (4600 meters)	425	86
20,000 feet (6100 meters)	352	76

Table adapted from Medicine for Mountaineering, 4th ed., edited by James A. Wilkerson, M.D.
© 1992 The Mountaineers. Seattle, WA.

What is %SpO_2? (continued)

Warnings

• Experts in the diagnosis and treatment of altitude-related illnesses have cautioned that while potentially life-threatening medical complications may occur at lower altitudes, they become more likely above 8,000 ft (2,440 meters) and are much more frequent at altitude above 12,000 ft (3,660 meters). This is true even for individuals who are physically fit and well acclimatized. Interpretation of %SpO_2 values at high altitudes should only be done in conjunction with expert medical advice.

• If you have a pre-existing medical condition, seek medical advice before participating in activities at altitudes higher than where you live.

• Oximeter readings should be considered approximate measurements only. These measurements are not intended for medical use.

• DO NOT attempt to read the oximeter displays while you are running, climbing, bicycling, or performing activities that require your full attention.

• Keep the pulse oximeter away from small children. It contains parts that may pose a choking hazard.

About altitude illness

Climbers, hikers, skiers, bikers, and others who participate in activities at altitudes higher than those to which they are accustomed to are susceptible to altitude illness. However, it is beyond the scope of this manual to explain altitude illness. You can get information on altitude illness from:

- your physician
- various books, articles, and organizations dealing with high altitude activities

Your AltoLab program

Reaching new levels of enhanced endurance

It is vital that you prepare a training program that targets specific peaks during your sporting season. Using **AltoLab** will enable you to perform at optimum levels of stamina and endurance at specific times and achieve results well beyond those of previous seasons.

Discuss your goals with your training advisers and be realistic in the number of events you are able to peak for during each season or year.

You should undertake a full medical examination with your physician before starting your **AltoLab** program. Check that there are no medical reasons why you should not undertake any exposure to high altitude. Inform your physician of your goals and objectives, ensuring that you both understand the potential results of simulated altitude training.

It is recommended that your physician perform the following tests:

- Lung / Respiratory function
- Blood tests for hemoglobin and hematocrit
- Blood test for serum ferritin (a form of iron): note that ferritin levels below 30 µg/dL indicate that exposure to altitude must be delayed until your ferritin levels are restored to normal levels
- Blood checks every two weeks to ensure your ferritin levels are maintained at a suitable level. If your ferritin levels drop at any time below 40 µg/dL, or your hemocrit exceeds 50%, you should immediately discontinue use of **AltoLab** until those levels return to normal. **AltoLab** works best if your ferritin levels are between 60-150 µg/dL.
- EKG testing should be performed - check that your physician can perform this test or recommend where you can have it done

In most cases, athletes will need not alter their established training routines. The improvements in stamina achieved by using **AltoLab** may allow you to increase your training intensity as you work to peak for selected events.

You should always track your performance and physical conditioning by recording your results on a printed **AltoLab** Training Schedule. If at any time when using **AltoLab** you do not feel well, stop immediately and, if necessary, consult your doctor. If you are ill, have a cold, sore throat, respiratory discomfort do not use **AltoLab** until fully recovered.

CONTRAINDICATIONS – Do NOT use AltoLab if you have...

- *Known Heart Disease*
- *Irregular ECG (EKG)*
- *High Blood Pressure Systolic>145 Diastolic<90*
- *Extremely low Blood Pressure Systolic < 80 Diastolic < 50*
- *Blood Disorders, i.e. sickle cell anemia, low ferritin, anemia*

To get maximum benefit from AltoLab

- Start **AltoLab** about 20 days before training camp begins
- Select a period with a reduced training scheduled
- Complete your first 15-day **AltoLab** program
- Do not use your **AltoLab** during periods of intense training or during competition
- Perform a 5-day "top-up" cycle every 2 to 3 weeks to maintain the benefits of altitude training
- Coincide your 5-day top-up with lighter training periods
- If you feel overly tired at any time, discontinue use of your **AltoLab** until your energy levels have recovered
- It is best to schedule your **AltoLab** session in the evening after-training and dinner is finished. You can also do **AltoLab** sessions if you can finish about 4 hours before heavy training starts.

NOTE FOR VISITORS TO HIGH ALTITUDE

If you are using the **AltoLab** to acclimatize prior to visiting high altitudes start your 15-day program 1-3 months before departure. Your best results occur if you can complete two, 5-day top-ups after a 15-day program. For visits to extreme altitudes, above 18,000 ft. or doing extreme exertion above 10,000 ft we recommend completing a 15-day program and two, or more 5-day top-ups. For less strenuous activities, such as skiing or hiking at 6000 ft or higher, a single 15-day program will work.

Do's and Don'ts for using AltoLab

Do

- Do understand the effects of altitude training
- Do discuss all aspects of your goals with your physician and physical trainer
- Do undertake all necessary medical tests
- Do understand how **AltoLab** works as an altitude simulator and the effects it has on your body
- Do have a detailed schedule integrating **AltoLab** with your peaks and targets
- Do plan your daily usage of **AltoLab** so that it is not disrupted
- Do sit quietly and relax as you go through your **AltoLab** session
- Do be realistic in your expectations. **AltoLab** will enhance performance and endurance - however it is well documented that individual responses to altitude exposure can vary greatly

Don't

- Do not use **AltoLab** while you are at high altitudes above 10,200 ft unless you are training for are training for extreme conditions or already live at this elevation and are acclimated.
- Do not use **AltoLab** while doing moderate to heavy physical activity, such as jogging, running, cycling, etc. NEVER use AltoLab while driving!
- Try not to deviate to much from your proscribed **AltoLab** program

Assembling your AltoLab

Check that you have all the components:

Hypoxic Silo (1 green cup, with thin foam on top)

AltoMixer Stack (1 or more black cups)

Timer (or watch)

Oximeter

AltoLid

Nose Clip

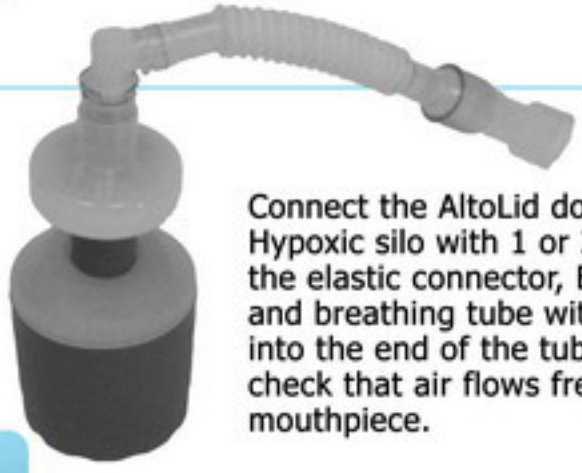
Breathing tube with Mouthpiece

Connector with Bacterial Particle Filter

Assembling your AltoLab

1

Use scissors to cut open the sealed foil bag containing the green Hypoxic silo



2

Connect the AltoLid dome to the top of the green Hypoxic silo with 1 or 2 thin foam inserts. Insert the elastic connector, Bacterial Particle Filter and breathing tube with mouthpiece or facemask into the end of the tube. Breathe into the tube to check that air flows freely through the tube and mouthpiece.

3

Connect one or more, black Altomixer cups to the bottom of the green Hypoxic silo. Begin with two Altomixers for your first session. Attach the oximeter to you finger, clip your nose, set your timer to 6 min and your **AltoLab** unit is ready to use.

How it works

1. Inhaled air enters the base of the Altomixer stack and has the following composition:

78.5%	N_2
21.0%	O_2
0.04%	CO_2
0.50%	H_2O (vapor)
100.0%	**Total**

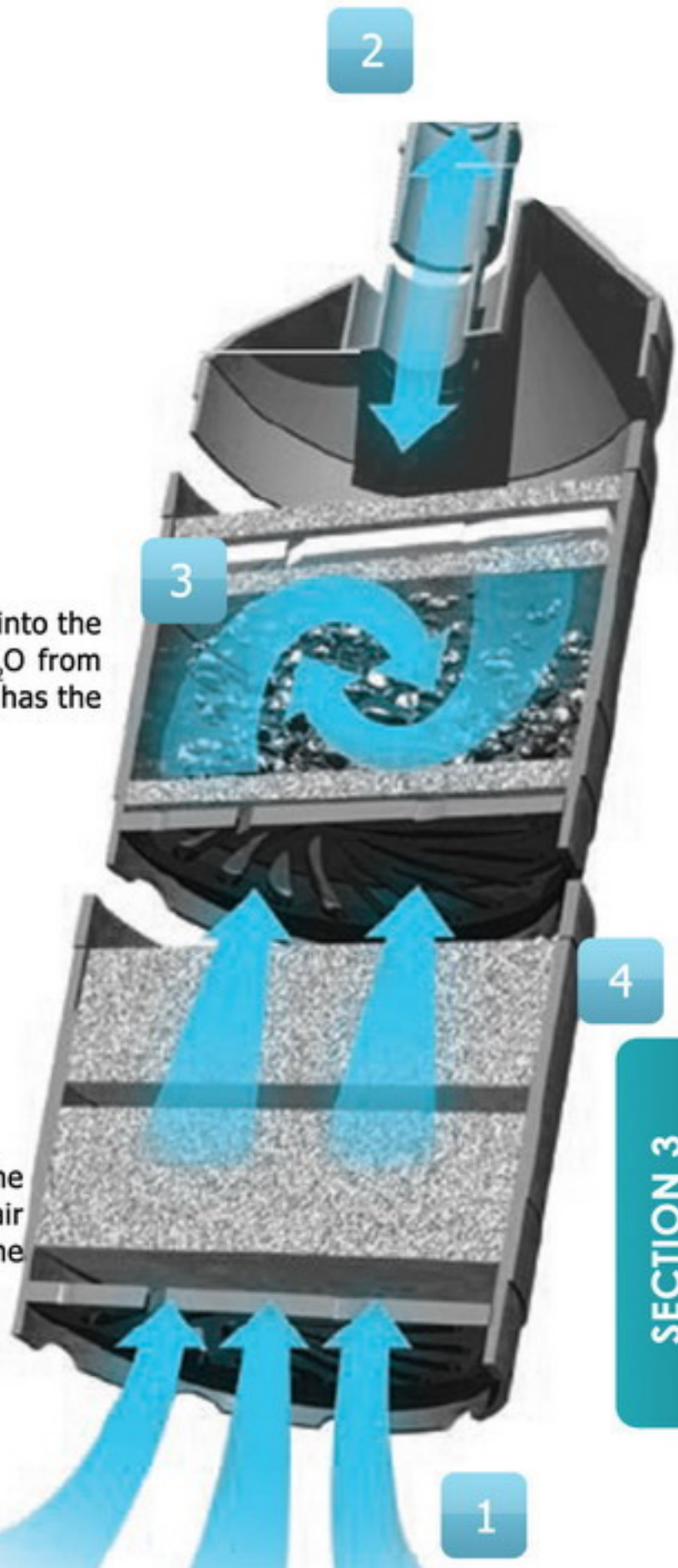
2. This air passes up through the Hypoxic silo and into the users lungs where O_2 is removed and CO_2 and H_2O from the body is expelled. Air now inside the lungs now has the following composition:

78.5%	N_2
13.6%	O_2
5.3%	CO_2
6.2%	H_2O (vapor)
100.0%	**Total**

Note how the O_2, CO_2 and H_2O levels in air change after entering the lungs.

3. Air exhaled from the lungs passes down into the green Hypoxic silo where all CO_2 is removed. As air moves the into the AltoMixer stack it now has the following composition:

79.8%	N_2
14.0%	O_2
0.0%	CO_2
6.2%	H_2O (vapor)
100.0%	**Total**



4. Air in the AltoMixer stack (14% O_2) mixes with fresh, inhaled air (21% O_2) causing a net change in the O_2 level to (17%). After several breaths, as more O_2 is depleted the net O_2 continues to drop, and has the following composition:

85.0%	N_2
9.0%	O_2
0.0%	CO_2
6.0%	H_2O (vapor)
100.0%	**Total**

Note that 9.0% O_2 content in air is equal to about 20,000 ft.

Using your AltoLab

An **AltoLab** session consists of 6 min intervals breathing ON the unit, followed by 4 min OFF the unit, repeated NO MORE than 6 times for a total of 1 hr. You will be wearing a pulse oximeter throughout the session so you can always monitor your blood %SpO_2 levels.

AltoLab should only be used while seated in a supportive chair, never while standing, riding a bike or operating machinery. During your first use you should have another person on hand who understands the purpose of its use.

Stop immediately if you feel dizzy or become nauseous. Remove the tube from your mouth and breathe fresh air.

The **AltoLab** program requires you to lower your %SpO_2 oximeter readings during the 6 min interval. You can increase or decrease %SpO_2 levels by adding or removing the black AltoMixer cups OR by altering your breathing rate or volume. Changes in your %SpO_2 levels should appear within 2 min of breathing on the **AltoLab** unit. Try to get a steady reading during your **AltoLab** session. Your %SpO_2 readings will fluctuate about 2-3% at all times, which is normal.

Practice using the AltoLab to familiarize yourself with the process and sensation during your first session.

During your first 15-day **AltoLab** program you will try to reach %SpO_2 targets during each 6 min interval, as shown below. Note that as you continue through the program, your %SpO_2 targets (pink to red) will drop, thereby INCREASING altitude (light blue to dark blue).

Days	Target %SpO_2 levels	Altitude Equivalent
1-2	91-89%	10,000 ft
3-4	88-86%	12,500 ft
5-6	85-83%	15,000 ft
7-10	82-80%	18,000 ft
11-15	80-75%	22,000 ft

Using your AltoLab (continued)

1

Begin the 6 min Breathing Interval

After assembling your **AltoLab**, set the timer to 6 min, clip on the nose clip, place the oximeter on your finger, turn it on and place the tube in your mouth. Begin breathing normally, inhaling and exhaling into and out of the **AltoLab**.

2

Monitor Your %SpO_2 Levels

Continue breathing steadily and watch as your oximeter readings start to drop, in about 2 mins. For your first session your target %SpO_2 will be 90%, which requires 1 or 2 AltoMixers for most people. If your saturation falls much below 90% (say to 85% or less) remove the mouthpiece and take 1 normal breath. Then return the tube to your mouth to resume the session. Your blood %SpO_2 should rise quickly to 90% within 30 seconds. If it shoots past to 98%, don't worry, this is normal. During your first few sessions, you will often over- and under-shoot your target range, which is normal. With practice you will be able to reach your target range and hold it steady. Continue breathing on the unit for the full 6 min. You will notice that the hypoxic silo will become warm, which is normal. Note: You do not have to add extra time to the 6 min for the brief times when you over-shoot your target %SpO_2 or for the 2 min delay it takes at the start of the interval before your %SpO_2 actually drops.

Using your AltoLab (continued)

If your $\%SpO_2$ keeps dropping below your target, then remove one AltoMixer cup from the base and continue breathing. Your $\%SpO_2$ should rise 5-10% up with each cup. If your $\%SpO_2$ stays too high, then add an AltoMixer cup to make it drop. To make finer adjustments you can remove one of the two thick foam inserts from inside the bottom of the AltoMixer cup. This is equal to a ½ AltoMixer as listed in the AltoLab Schedules. A single thick foam insert can sit in the top or bottom half of the black AltoMixer cup of your session.

Varying between deep and shallow breathing can also alter your $\%SpO_2$ levels. Similarly, if your $\%SpO_2$ drops too low, take a single small breath of air through the corner of you mouth or nose. This will raise your $\%SpO_2$ in about 10-20 seconds without needing to change AltoMixers. Shallow, light breathing keeps your $\%SpO_2$ readings lower because more of your exhaled air is retained in the AltoMixers. Deep, long breathing keeps your $\%SpO_2$ readings higher because more of your exhaled air is blown out of the AltoMixer stack. Try not to blow air out the bottom of the **AltoLab** stack, as this defeats its purpose.

After 2-3, 1 hr sessions, your hypoxic silo will begin to expire. When the silo expires you will see that your $\%SpO_2$ readings will hover around 96-99% and not drop, despite having a full stack of AltoMixers. To test a spent silo, replace it with a fresh one to see if your $\%SpO_2$ readings drop within 2 min. If so, continue your session with the new silo. You do not have to discard the spent silo right away. As explained in the FAQ's you can get added use by stacking two spent silos together.

If your $\%SpO_2$ does not drop, the time spent using a depleted hypoxic silo will not count toward your IHT altitude training. If you use a depleted silo you will inhale excess CO_2 that leads to hyperventilation, rather than hypoxication. For IHT altitude training to be effective, you need to become hypoxic rather than to hyperventilate.

Using your AltoLab (continued)

3

The 4-min OFF Interval

When your timer reaches 6 min, remove the mouthpiece, set the timer to 4 min and begin breathing fresh air. It will taste very good. Your %SpO_2 and heart rate r should return to normal within 1 min.

During this 4 min OFF interval you can remove excess moisture that builds up in the unit. Remove the AltoLid and wipe the inside with a clean paper towel. The thin foam insert can also be blotted dry. Return the thin foam and snap on the AltoLid before resuming. When your 4 min is up reset the timer to 6 min and begin breathing your next interval. Repeat the 6 min ON/4 min OFF intervals up to 6 times, for a total time of 1 hr.

Occasionally, the bacterial particle filter will accumulate too much moisture and clog, causing a severe restriction in air flow. This is NOT normal. If this occurs replace the filter with a fresh one and continue with the session. The damp filter can be set aside to dry for several days before it dries sufficiently to allow decent air flow. If all the filters become clogged you can temporarily use the **AltoLab** without a bacterial filter until you get a replacement.

4

The Following Day's Sessions

Over the next few days, repeat the sessions in the same manner. Every few days into the program, you will increase your altitude by adding an AltoMixer cup to the stack. The number of AltoMixers needed to reach your target is determined by your body's %SpO_2 readings. Table A shows the schedule for a Traditional 15-day **AltoLab** program with 5-day top-up sessions to follow.

Table A: "Traditional" **AltoLab** training schedule for Endurance Events (Marathons etc.), Mountaineering or Skiing

Days	AltoLab Session	# Days ON AltoLab	# Days OFF AltoLab	Training days	Blood O_2% Range	# Alto Mixers Used	Resting Heart Rate	O_2% at start
Mon	1 hr	1		Training	91/89	2	50	99
Tue	1 hr	2		Training	91/89	2	51	96
Wed	1 hr	3		Light	91/89	2	46	99
Thu	1 hr	4		Training	88/86	2.5	50	98
Fri	1 hr	5		Days	88/86	2.5	51	98
Sat	1 hr	6		Training	85/83	3	57	98
Sun	1 hr	7		Training	85/83	3	47	98
Mon	1 hr	8		Rest	82/80	4	43	96
Tue	1 hr	9		Training	82/80	4	52	99
Wed	1 hr	10		Training	82/80	4	53	98
Thu	1 hr	11		Training	82/80	4	46	99
Fri	1 hr	12		Training	80/78	4	48	98
Sat	1 hr	13		Training	78/75	4	57	98
Sun	1 hr	14		Training	78/75	4	52	98
Mon	1 hr	15		Rest	78/75	4	47	98
Tue	OFF		1	Training				
Wed	OFF		2	Training				
Thu	OFF		3	Training				
Fri	OFF		4	Light Day				
Sat	OFF		5	**Race Day**				
Sun	OFF		6	Rest				
Mon	OFF		7	Training				
Tue	OFF		8	Training				
Wed	OFF		9	Training				
Thu	OFF		10	Training				
Fri	OFF		11	Training				
Sat	OFF		12	Training				
Sun	OFF		13	Training				
Mon	OFF		14	Rest Day				
Tue	OFF		15	Training				
Wed	1 hr	1		**Train/Top-up**	86/80	4	52	99
Thu	1 hr	2		**Train/Top-up**	84/80	4	48	98
Fri	1 hr	3		**Train/Top-up**	82/79	4	50	98
Sat	1 hr	4		**Train/Top-up**	82/79	5	47	98
Sun	1 hr	5		**Train/Top-up**	82/80	5	48	98
Mon	OFF		1	Rest Day				
Tue	OFF		2	Light				
Wed	OFF		3	Training				
Thu	OFF		4	Training				
Fri	OFF		5	Training				
Sat	OFF		6	**Race** Day				
Sun	OFF		7	Rest Day				
Mon	OFF		8	Training				
Tue	OFF		9	Training				
Wed	OFF		10	Training				
Thu	OFF		11	Training				
Fri	OFF		12	Training				
Sat	OFF		13	Training				
Sun	OFF		14	Rest Day				
Mon	OFF		15	Training				
Tue	1 hr	1		**Train/Top-up**	83/80	4	55	99
Wed	1 hr	2		**Train/Top-up**	81/79	5	51	98
Thu	1 hr	3		**Train/Top-up**	78/75	5	57	98
Fri	1 hr	4		**Train/Top-up**	78/75	5	52	98
Sat	1 hr	5		**Train/Top-up**	78/75	5	47	98

Table B: **AltoLab** schedule for Non-Athletes, Rehabilitation & Asthmatics

Days	AltoLab Session	# Days ON AltoLab	# Days OFF AltoLab	Training days	Blood O_2% Range	# Alto Mixers Used	Resting Heart Rate	O_2% at start
Mon	1-2X 6 min	1		Rest	93/89	1	70	99
Tue	1-2X 6 min	2		Rest	93/89	1	70	96
Wed	1-2X 6 min	3		Rest	93/89	1	70	99
Thu	1-2X 6 min	4		Rest	90/85	1-2	70	98
Fri	1-2X 6 min	5		Rest	90/85	1-2	70	98
Sat	1-2X 6 min	6		Rest	90/85	1-2	70	98
Sun	1-3X 6 min	7		Rest	90/85	1-2	70	98
Mon	1-3X 6 min	8		Rest	90/85	1-2	70	96
Tue	1-3X 6 min	9		Rest	90/85	1-2	70	99
Wed	1-3X 6 min	10		Rest	85/80	2-3	70	98
Thu	1-3X 6 min	11		Rest	85/80	2-3	70	99
Fri	1-3X 6 min	12		Rest	85/80	2-3	70	98
Sat	OFF		1	Rest				
Sun	OFF		2	Rest				
Mon	OFF		3	Rest				
Tue	OFF		4	Rest				
Wed	OFF		5	Rest				
Thu	OFF		6	Rest				
Fri	OFF		7	Rest				
Sat	1-3X 6 min	1		Rest	85/80	2-3	70	99
Sun	1-3X 6 min	2		Rest	85/80	2-3	70	98
Mon	1-3X 6 min	3		Rest	85/80	2-3	70	98
Tue	OFF		1	Rest				
Wed	OFF		2	Rest				
Thu	OFF		3	Rest				
Fri	OFF		4	Rest				
Sat	OFF		5	Rest				
Sun	OFF		6	Rest				
Mon	OFF		7	Rest				
Tue	1-3X 6 min	1		Rest	85/80	2-3	70	99
Wed	1-3X 6 min	2		Rest	85/80	2-3	70	98
Thu	1-3X 6 min	3		Rest	85/80	2-3	70	98
Fri	OFF		1	Rest				
Sat	OFF		2	Rest				
Sun	OFF		3	Rest				
Mon	OFF		4	Rest				
Tue	OFF		5	Rest				
Wed	OFF		6	Rest				
Thu	OFF		7	Rest				
Fri	1-3X 6 min	1		Rest	85/80	2-3	70	99
Sat	1-3X 6 min	2		Rest	85/80	2-3	70	98
Sun	1-3X 6 min	3		Rest	85/80	2-3	70	98
Mon								
Tue								
Wed								
Thu								
Fri								
Sat								
Sun								
Mon								

Using your AltoLab (continued)

Table A Schedule - for Athletes

The Table A schedule is designed for endurance events that are spaced about two weeks apart, such as for marathons, triathlons, distance running, cycling, boxing and martial arts matches. This schedule is also ideal for visits to high altitudes for skiing, snow boarding, biking, trekking, mountain climbing and vacationing at high elevation. The schedule is designed to complete the 15 and 5-day top-ups with a 4-day rest before the actual event. Note, that when you begin the 5 day top-up your target %SpO_2 will go directly to the 80% range. We have found that during days 1-3 of the 5-day top-up, people can feel sluggish and not perform their best. For this reason we recommend reducing your workout loads and not engage in a competitive event on these days. People usually recover by day 4 and feel great on day 5 of the top-up. The beneficial effects of the 5-day top-up last for at least 15 days. Most find that they hit their peak performance between 3-13 days of their OFF period.

Table B - for Non-Athletes & Rehabilitation

The Table B schedule is the mildest of all AltoLab programs. It is designed for non-athletes who are just beginning an IHT regimen. The idea is to first complete a single, hypoxic interval that lasts 6 minutes, where the SpO2 drops to 93-90%. Use 1 hypoxic silo (green cup) and 1-2 black cups Your pulse oximeter SpO2% should read between 96-99%. when you start the timer and begin breathing on the AltoLab. After about 90 seconds, your SpO2% should drop to the 94% range. If it NOT, add a black cup to the base of the stack and continue breathing, watching to see if your SpO2% drops. If it still does NOT drop add a 3rd black cup. Most people should see a SpO2% drop to 90% or less with 2 black cups. Hold your SpO2 in the 93-90% range for 6 min. Then, remove the tube and breathe fresh air for 4 min as your SpO2 rises back up to 96%. Congratulations! You have completed your first IHT interval. At this point you can elect to do one or more intervals, depending on your comfort and tolerance to the device. See Table B for more details.

Using your AltoLab

Why is **Altolab** effective at only 1 hour per day?

The "Traditional" **AltoLab** program (Table A) was developed by Dr. Brendon Downey, a sports physiologist and triathlete from New Zealand who invented **AltoLab** as a low-cost alternative to altitude tents. Dr. Downey, who hated altitude tents, wanted to streamline IHT training and make it available to everyone.

Early research in 1939 in the USSR showed that it was possible for their pilots to become adapted to high altitude flight in non-pressurized aircraft. By exposing pilots to hypoxic air for 5 min followed by 5 min of sea level air over 1 hr they were able to stay alert above 15,000 ft. They discovered it was more efficient to use multiple short exposures of strong hypoxia equal to 20,000 ft (80% SpO_2) at 1 hr per day for 15 days than to do 12 hrs at 10,000 ft (90% SpO_2) for 30 days. Since they were attempting to acclimate thousands of pilots, it made sense to use short 1 hr IHT exposure than 12 hr sessions. These methods were later adopted to train Russian athletes.

More recently European researchers showed that exposure of only 3 min of IHT leads to the expression of genes that alter muscle cells and blood chemistry to become adapted to high altitude. This gene expression was identical to exposures of 3 hrs of IHT. Thus, it was concluded that long hypoxic exposures were unnecessary to get an altitude response.

Based on these findings, Dr. Downey came up with the 15-day program and the 5-day top-schedule for **AltoLab** shown in Table A. Since then we have developed 7 different plans and schedules to meet the needs of different sports and general health and well-being. Table B is the most gentle of the IHT plans and can be used for people who lack fitness, are asthmatic or who are undergoing physical rehabilitation. For a copy of our other plans contact **AltoLab-USA.com**.

Your response to AltoLab

During an **AltoLab** session

During the 6 min intervals of your sessions you may feel light-headed or struggle for air while using **AltoLab**. This can occur and is normal for some first time users. If so, you can simply remove the tube and breathe fresh air to recover within a few seconds. With practice you will find ways to adjust your breathing so that you become comfortable with the hypoxic effect. With practice you will be able to exhale and inhale slowly and comfortably to maintain an even breathing pattern. People travelling to very high altitudes often tend to "over-breathe" when they feel short of air. This can lead to rapid "panic" breathing or gasping. When you encounter low O_2 levels with **AltoLab** you will be able to experience this low O_2 and practice breathing patterns to avoid panic breathing and help you stay calm. **AltoLab** you will also help you to recognize the effects of hypoxia at high altitude should you experience the real thing. You can compare your $\%SpO_2$ readings with how you feel during an **AltoLab** session and any hypoxia you encounter during intense athletic exertion or authentic exposure to very high altitude.

During a 15-day **AltoLab** Program

Your long-term response to **AltoLab** training is analogous to a weight lifting program. Like weight lifting, you will feel weaker during your first few days into the program. Many **AltoLab** users feel sluggish on days 3-6 of the 15-day program and days 1-3 of the 5-day top-up. Thus, it is wise to limit training intensity and volume during these days and NOT schedule any important athletic events. Your sluggishness should disappear by day 7 of the 15-day program and day 4 of the 5-day top up. After completing the traditional 15-day **AltoLab** program you should stop for 15 days before starting again. If you miss a day or two, you can make it up at the end.

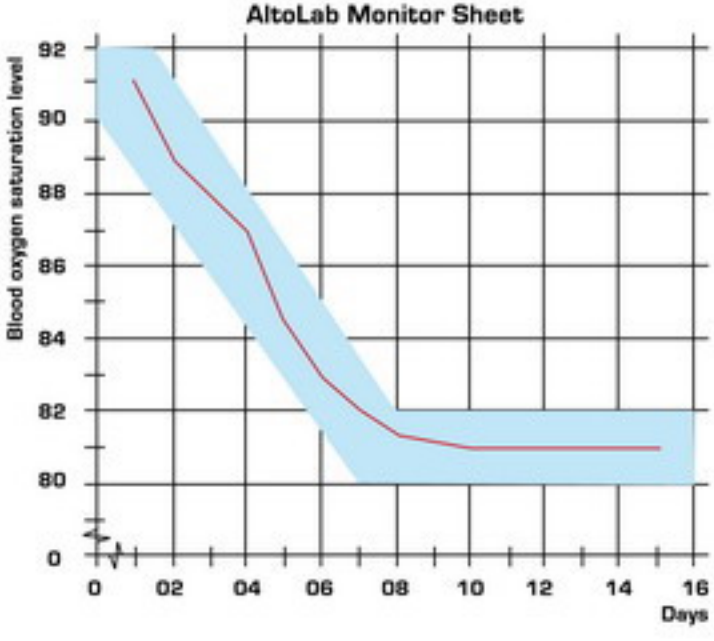
Independent research performed at several universities shows that a single, 15-day program will result in measurable improvements in athletic performance. Studies have shown that **AltoLab** significantly improves performance in repeated sprints, cycling and kayaking. Full-length publications are included in your CD-ROM or by visiting www.pharmapacific.com

Your response to AltoLab

We and others have found that using **AltoLab** does not lead to significant changes in hematocrit and red blood cell count compared to changes in VO_2 max, power output (watts), peak heart rate at lactate threshold, speed at peak heart rate, time until exhaustion and other performance parameters, which are significant. This suggests that the underlying reasons for **AltoLab's** benefits may have to do with improved abilities in O_2 extraction and delivery *from* red blood cell to skeletal muscles in addition to improved O_2 acquisition from air to the blood. Among the other changes known are changes in muscle tissue. These include increased myoglobin content, mitochondria, microcapillares and antioxidant enzymes.

Graphing your 15-day **AltoLab** program

If you plot your average, target $\%SpO_2$ readings for each day of the 15-day program the graph should look something like this. Note that the line is wide to account for the fluctuations in actual $\%SpO_2$ readings during each interval.



Monitoring your progress

It is important that you monitor the progress during and after your **AltoLab** program and how you feel during training and events. The monitor sheet on the next page will help you to keep track of your progress and make adjustments to your training. It is recommended that you fill out the monitor sheet each day. Additional blank copies of the Monitor Sheet can be downloaded from the **AltoLab** CD-ROM, the website:

www.pharmapacific.com
www.altolab-usa.com

or by contacting

andrew@altolab-usa.com

Days	Date	AltoLab Session # ON/OFF	Training or Event Result	Blood SpO_2% Range	# Alto Mixers Used	Resting Heart Rate	Peak Heart Rate	Notes
Fri								
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Sun								
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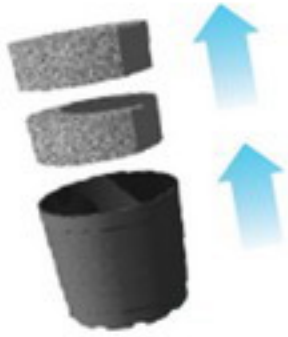
Maintaining your AltoLab

After completing a few sessions you should remove the thick foam inserts from each Alto-Mixer and wash them, the breathing tube and mouthpiece in hot water. Gently rinse the thick foam inserts, taking care not to damage them and allow to completely air-dry. Wipe the components and return them to the bag.



DO NOT WASH THE BACTERIAL PARTICLE FILTER IN WATER. Water will cause the membrane inside the filter to clog, preventing proper airflow. This also occurs when water vapor in exhaled air accumulates. If this happens, switch to a fresh bacterial filter. Bacterial filters that become wet can be re-used after they dry out and be used for many sessions before they need to be replaced.

DO NOT WASH THE HYPOXIC SILO
If it is immersed in water do not use, dispose of immediately and replace with a fresh silo.

DO NOT OPEN THE HYPOXIC SILO AT-ANY-TIME This is a safety requirement. The Hypoxic silo is not a toy and should be kept out of the reach of children.

Carefully dry the top and bottom of the Hypoxic silo with a paper towel. Make sure most of the moisture is removed. Return the Hypoxic silo back to a the resealable, black plastic bag to keep air and moisture out.

Disposal of used components

Used Hypoxic Silos are typically disposed of into your household trash. In the USA we now offer a refund for used silos. Please contact us at 480-329-6337 for more info.

Replacement parts

You will need to renew and replace individual components (hypoxic silos, breathing kit, bacterial filters, breathing tubes, facemask, etc.) from your **AltoLab** as your training program progresses. These components are available online at:

http://store.pharmapacific.com

or by calling toll free at 1-866-629-4825

To order:

AltoLab USA LLC

PO BOX 50803
PHOENIX, AZ, 85076-0803

Andrew Backhaus, PhD
USA & CANADA Sales &
Distribution

PH: 1-480-993-0344
FAX: 1-480-603-9212
TOLL FREE: 1-866-629-4825
EMAIL: andrew@altolab-usa.com

www.pharmapacific.com
www.altolab-usa.com

R. Andrew Backhaus,Ph.D. Founder

FAQ's

Q: Can I share the use of my AltoLab with other users?
A: It is not recommended to share the **AltoLab** with others for hygienic reasons. While the CO_2 absorbent in the Hypoxic silo is mildly alkaline and may kill bacteria, it is advisable that each person have their own breathing kit.

Q: The AltoLab feels warm when I breathe through it after a few minutes. Is this normal?
A: Yes. The combination of moisture and CO_2 in your exhaled air reacts with the material in the silo causing the temperature to rise. Sometimes this can get quite warm. The system is designed so that after a 6 min interval, when you breathe cool, fresh air, it will allow time for the temperature to drop a bit. Some people will store two Hypoxic silos in the freezer and switch between the two during the 4 min OFF break time to keep one cold.

Q: What should I do if I feel short of air?
A: If you ever feel short of air, just take the tube or facemask off and take a breath of fresh air. The recovery is almost instant.

Q: When I first begin breathing into the AltoLab device should I breathe with long, hard heavy breaths or with short, shallow breaths?
A: It is best breathe normally as you would while sitting down. If you breathe deeply and heavily your oxygen may not drop. If you "sip" the air using shallow breaths your oxygen will drop more quickly. The idea is to re-breathe the air you've just exhaled and mix a bit of this with fresh air entering the bottom of the stack. Light breathing will hasten the drop of your blood O_2% to your target value. Using deep, heavy gasps of air tends to blow the exhaled air completely out of the bottom of the cylinder, wasting your efforts.

Q: How should the bacterial filters be stored?
A: If you live in an area with high humidity, it is important to allow the bacterial filters to dry between uses. Right after the **AltoLab** session remove the filter and shake it to dislodge any water inside that may have accumulated on the membrane. Don't store filters inside a plastic bag or fungal growth may occur. It this happens do not use the filter again, but use a fresh one. We recommend using a hairdryer set on hot to dry them. You can also pour a tablespoon of rubbing alcohol inside the filter to sanitize them after a use. Be sure it is completely dry again prior to use. You don't want to inhale alcohol vapors into your lungs.

FAQ's

Q: What should I do if airflow is blocked and feels restricted?
A: Blocked airflow is usualy cause by a wet bacterial filter. Switch this with a fresh filter and airflow should be restored. If not, test the unit without the filter. Never flush the inside of the bacterial filter with water, as moisture causes it to clog. If one should get wet, let it dry overnight. It may help to alternate bacterial filters between each day's use. Another cause of airflow restriction is when silos become expired after about 3 hrs of use. Never wash the silos in water, as this will cause a high-temperature reaction.

Q: How will I know if the silos are expiring?
A: A silo that is expiring cause you blood %SpO_2 to stay in the high 90% range. Also the color of the top of the silo, beneath the thin foam, will turn purple. The purple color means it is nearing expiration, but it still can be used for several more intervals.

Q: Will the AltoLab affect my normal training routines?
A: Yes, it can in some people. Much like weight lifting, we see some people not performing as well between days 3-6 of their first 15-day program. This is normal because your body is adjusting to the IHT stress of the simulated altitude. If this happens it means that the **AltoLab** is working properly. The important thing is to not quit! Plan your training for these days to be light in volume and intensity. You should begin to feel normal by day 8 and then get increasingly stronger thereafter. After each session you should record your efforts and list the # of mixers used, blood O_2 levels reached, and days when a new silo was used. A sample monitor sheet and training schedules are included with the kit and can be found on on our website. Also, keep a record of your workouts and how you feel during each training session so you can follow your progress over time.

Q: Is there any way to improve the life of silos?
A: Yes. To get the most use out of each silo, be sure they are completely depleted before going to a fresh one. Silos typically become depleted after 2-3 sessions. The most notable sign is that your blood O_2 levels don't drop below about 95%, despite hard breathing. One way to test a silo is by attaching 4-mixers beneath it and breathing into the **AltoLab** for several minutes. If your O_2 levels drop below 92%, the silo is still good. If your O_2 levels stay above 95%, then the silo is likely depleted and needs to be replaced. When storing silos make sure they are sealing inside the Hypoxic Silo Storage bag that is shipped with each kit and silo package. Keep moisture and air away from the silos between uses.

FAQ's

Q: What parts of the AltoLab can be washed? Which can't?
A: You can wash the tubes, facemask, and foam inserts in the mixers with warm soapy water. DO NOT wash the silos and bacterial filters.

Q: Are there any supplements or other things we can do to improve our training?
A: Yes. Research indicates that taking a vitamin B-12 supplement plus an iron supplement (especially for females) of 28 mg every other day, at the beginning of the **AltoLab** program, will improve the expected increase of your red blood cell count.

Q: What are the recommended O_2% values for new users on the 15-day program? How does this differ from the long-term top-up programs?
A: The recommended target O_2% levels for the 15-day program should gradually drop each day in steps of 90-88-86-84-82-80-75%. For your 5-day top-up sessions, resume breathing at the 80-75% O_2 levels. For the 15-min top-ups your target should be 85-90% O_2.

Q: How much time should I take between my last AltoLab session and a key event?
A: We typically recommend that you take a 3-4 day break between your last **AltoLab** session and any important event. Some people peak after 4 days, others after 12 days. We also recommend that the gap from your last **AltoLab** session to an event not be greater than 15 days. It is preferable to adjust the number of rest and/or top-up days to fit your game or event schedule.

Q: Is there a difference between the using a facemask and the mouthpiece?
A: The facemask allows you to talk while using the **AltoLab**. However, it can create a slight vacuum and be more restrictive to breathing than the mouthpiece. Some people find that it is easier to get the O_2 levels to drop faster with the mouthpiece. Overall, the mouthpiece is more effective.

Q: What should I do if my saturation levels don't drop when I begin using AltoLab?
A: Check that you are breathing normally. (It may help to avoid consciously focusing on your breathing.) If after 3 minutes of breathing you are still not achieving the desired level you may need to add an extra AltoMixer or replace the silo.

FAQ's

Q: Should I be concerned if moisture builds up in the Breathing Tube?
A: It is normal for moisture to accumulate in the air tube and AltoLid. In humid conditions, this may be even more noticeable. During your 4 min OFF period, you should disconnect the breathing tube and flick out water if possible. Blot the AltoLid and thin foam insert with a paper towel, then reconnect and continue your session.

Q: Will I have trouble reading the oximeter?
A: Any problems you experience should be solved by reference to the oximeter manual. Before use, always make sure your finger is warm. A cold finger may reduce the blood flow, reducing the ability of the meter to provide an accurate reading. Place your hand under your arm then retry the meter. You should also ensure your hand is relaxed (resting on your knee or a comfortable surface) as this will improve blood flow to your finger.

Q: How will I feel when I use AltoLab?
A: Because you are restricting the supply of O_2 you may feel slightly dizzy or light-headed, particularly at low O_2 levels. If these feelings become extreme, you should immediately stop your **AltoLab** session and breathe ambient air.

AltoLab support

If at any time you wish to access further information or require technical assistance for your **AltoLab**, please contact the following sources:

AltoLab
ALTITUDE SIMULATORS

AltoLab USA LLC

PO BOX 50803
PHOENIX, AZ, 85076-0803

Andrew Backhaus, PhD
USA & CANADA Sales & Distribution

PH: 1-480-993-0344
FAX: 1-480-603-9212
TOLL FREE: 1-866-629-4825
EMAIL: andrew@altolab-usa.com

www.pharmapacific.com
www.altolab-usa.com

R. Andrew Backhaus,Ph.D.
Founder

The **AltoLab** website will be regularly updated with product information and resource information on all aspects of altitude training. The Website also provides downloads of Monitor Sheets.

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Founder

THE ENDURING EDGE

AltoLab User Manual