

Exercise Oxygen Equipment: -- Markets Reach \$2.7 Billion By 2022

LEXINGTON, Massachusetts (April 17, 2016) – WinterGreen Research announces that it has published a new study *Exercise Oxygen Equipment: Market Shares, Strategy, and Forecasts, Worldwide, 2016 to 2022*. The 2016 study has 360 pages, 145 tables and figures. Worldwide Exercise Oxygen Equipment markets are poised to achieve significant growth as consumer oxygen markets emerge from the trial phase to be used in sports clubs, by athletic teams, and in corporate gyms to increase the value of exercise and offer people a way to be more comfortable while they exercise.

The study looks at the excess of carbon dioxide found in tissue of many people before, during, and after exercise, and asks the question whether there is not enough oxygen in the lungs and blood hemoglobin to eliminate excess carbon dioxide. The use of supplemental oxygen appears to be indicated even when the pulse oximeter gives an entirely normal reading.

Consumer oxygen works to release excess carbon dioxide trapped in tissue because the blood oxygen is not sufficient to do the cleaning function one wished it would do. With the aging of the population, many people do not exercise enough to gather the waste carbon dioxide generated by muscles and tissue. With the dramatic increase in people who are overweight and even obese, there is increased need for supplemental oxygen availability at the sites where people exercise. Only modest amounts of supplemental oxygen are needed to have an effect.

Recreational oxygen has been available for a while, but only recently has there been a basic understanding of the value: eliminating excess carbon dioxide in the body. Build-ups of carbon dioxide come from the muscles. Recognition of the ability of to get rid of this excess has been enough to validate the value of supplemental oxygen.



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Excess carbon dioxide is not good for people. It would not be excess if normal breathing or even heavy breathing was able to rid the body of the build-up of carbon dioxide, but any extra weight is enough to create excess in the tissues. The muscles and cells work all the time, giving off carbon dioxide, and most people have an excess.

Exercise oxygen equipment is positioned to help regular non-diseased people and athletes achieve performance recovery after exercise. Supplemental oxygen permits longer periods of exercise and supports faster return to exercise after a rest interval. Supplemental oxygen along with exercise appears to help with tissue repair by eliminating excess carbon dioxide. For older people, supplemental oxygen appears to help with fighting inflammation and improving mental acuity: Supplemental oxygen is:

- (1) dissolved in plasma, already 2% oxygen;
- (2) bound to hemoglobin in red blood cells, as it drops below 98% oxygen.

Breathing supplemental oxygen adds more oxygen to the body even when the hemoglobin is already apparently saturated according to pulse oximeter readings. If the oxygen fully saturates the hemoglobin it increases the concentration of dissolved oxygen in plasma, creating the ability to eliminate excess carbon dioxide.

Muscles and fat create excess carbon dioxide in people with obesity, in elite athletes, in people who are aging. The value of exercise is that it helps the blood pick up excess carbon dioxide that must be expelled from the body. Supplemental oxygen is useful in stimulating this process even in the absence of disease. Athletes and firemen use supplemental oxygen to eliminate excess carbon dioxide. Soon ordinary people exercising will use supplemental oxygen for this process as well. This will happen even in people who apparently have hemoglobin sufficiently saturated with oxygen.

The value of supplemental oxygen is not to saturate the hemoglobin more, it is already saturated in most cases, the value is to stimulate release of excess carbon dioxide.



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Exercise oxygen equipment is useful for improving personal performance and endurance during workouts. It gives athletes competitive advantage in sporting events. Supplemental oxygen is not banned because the oxygen has significant health benefits that cannot reasonably be taken away by sports governing bodies.

Prices of supplemental oxygen are expected to plummet based on economies of scale as adoption and usage becomes widespread. People could not get affordable or have convenient access to consumer oxygen before, now there are ways to make personal oxygen available in a convenient manner. AirSep offers its Focus device which weighs 1.7 pounds with a battery. Exercise with oxygen therapy can increase exercise capacity and lead to performance gains. Sports clubs are expected to offer small stylish canisters of oxygen for \$15 per month.

Performance gains make it easier to exercise, less onerous to exercise. The value of daily exercise has been proven in multiple studies, now we know why the exercise is beneficial, it discards excess carbon dioxide that builds up in the muscles when people are just sitting around or sleeping or if they are moving around exercising.

OHS is a breathing disorder in obese people that leads to a misrepresentation of pulse oximeter readings of blood oxygen levels. When there is too much carbon dioxide in the tissue, more carbon dioxide than can be cleaned even by fully saturated blood oxygen levels, there is a difficulty with fully cleaning the carbon dioxide from the cells. OHS is interesting because obese people with normal blood oxygen saturation cannot expel all the carbon dioxide from their cells.

The condition called hypoventilation during the day is a condition of obesity that is possible to address with supplemental oxygen even in the presence of fully oxygenated blood. Obese people are not moving enough air in and out of the lungs to clear the



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carbon dioxide from the body. The problem exists to a lesser extent in people with less fat, people without any lung disease, just overweight or obese.

This lack of oxygen can and does cause muscle fatigue, cramping and poor performance. Supplemental oxygen helps replenish what is deficient, enabling faster aerobic recovery. Athletes achieve better mental and muscle performance when they use supplemental oxygen after strenuous activity.

Football players, basketball players, speed skaters, and hockey players use oxygen to support performance when exhausted. Professional athletes use supplemental oxygen. The reason is that during strenuous physical activity the body exhales more carbon dioxide than it admits oxygen.

Exercise and physical activity deliver oxygen and nutrients to tissues and help the cardiovascular system work more efficiently. Breathing supplemental oxygen after strenuous activity is becoming more accepted by people interested in health and fitness. Oxygen can be used to address fatigue as a symptom. Fatigue is a symptom, not a disease. It is experienced differently by different people.

One often hears physicians attribute the effects of supplemental oxygen to people having a placebo effect. It is very clear that inside most of the medical community there is massive misunderstanding about the value of supplemental oxygen in healthy people.

Generally, the opinion is that if there is a normal pulse oximeter reading and very heavy breathing after exercise, that giving supplemental oxygen means there is a placebo effect and nothing more. The value of supplemental oxygen is not evident from looking at pulse oximeter readings.



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When there is a buildup of excess carbon dioxide in the body the supplemental oxygen is able to clear the carbon dioxide from tissue. While the users can feel the difference in the body of having waste eliminated, the clinicians are left to look at the pulse oximeter readings. The value attributed to supplemental oxygen by users is attributed to a placebo effect by clinicians. It is apparent from a review of the serious independent research on the value of supplemental oxygen that the oxygen really is helpful to people, not just a pejorative placebo effect. (Remember that a placebo is a sugar pill and itself does have a real effect.)

Exercise oxygen equipment markets at \$3.9 million in 2015 are anticipated to reach \$2.8 billion dollars by 2022. Growth is a result of new competitors in the market, demand for the smaller lighter technology by people exercising, and the market need by for stationary devices at clubs and gyms even as portable devices provide greater mobility support for bike riders, joggers, and older people.

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