At altitudes as low as 2500m above sea level you can develop awareness problems due to lack of oxygen in your brain.

Especially with speedflying and its required high reaction speeds this can develop into a severe orientation problem / unnoticed tunnel vision and an increased accident risk.

But also while performing a comparably slow sport as paragliding lack of oxygen saturation can lead to wrong decission making and partial loss of situative awareness - with the well known side effect that you dont recognize it as such, instead you feel fine or even super confident and generally think you are acting as normal while in reality you are already acting very slow and uncoordinated.

With the right breathing technique you can increase your oxygen saturation level dramatically and usually can fly up to 4500+ m (usually the highest you will fly in the alps with a paraglider on a very good day) whitout the need for supplemental oxygen.

Some words on the general problem with "sitting still" piloting vs climbing / physical activities:

As a mountaineer (on foot or on skis) you can "detect" lack of oxygen quite easily due to the enormous decrease in physical power due to low oxygen saturation in your muscles, so if you climb unacclimatized above say 3500m you immediately notice a dramatic decrease in your physical (muscle) power and your body reacts with fast and deep breathing in order to suppply the oxygen to climb at even say half speed (compared to 1000m) - so your muscles and body will warn you and your breathing pattern will adapt accordingly.

As the body naturally tends to supply the brain as best as he can you are relatively safe, as you will usually feel exhausted long before your brain starts to develop a dangerous (in terms of decission making) oxygen undersaturation - at least for my body, may be different for others of corse.

On the other hand while flying there is no muscle warning, so if you dont force yourself to the below mentioned breathing technique you will tend to breath normally (as you would sit quietly in a chair on sea level) even at 3800+ m - with all negative effects on awareness etc..

So how does it work ?

Basically you slowly breath in as much volume as you can and then use your lower upper body (stomach area) muscles to compress your lungs from below (you compress your stomach towards your lungs) and hold the pressure for about 5 seconds, so you create a bit of extra pressure in your lungs which - with the help of longer "exposure" time due to holding your breath (= a longer pressure phase) - causes more of the oxygen in the air you just inhaled to diffuse a bit quicker through your lungs membrane tissue right in your blood.

You can train/test it easily at low altitude and as soon as you breath a few times at normal altitiude with this technique you usually notice mild symptoms of oxygen oversaturation in your brain (same feeling as breathing very deep and very fast while sitting still).

For me the mentioned breathing technique *(also used by "supplemental oxygen free" high altitude mountaineers - thats from where i learned about it 20 yrs ago from friends - and also widely used by apnoe divers)* helps me to avoid unnoticed lack of oxygen saturation in my brain while flying at 3000++ m.

All you have to do is use this breathing technique every few minutes up to a few times per minute (depending on altitude) and you most likely will experience a noticable positive effect - you will immediately feel fresher and more aware which in return shows that your body was already experiencing lack of oxygen and the associated mild conciousness / awareness symptoms from using a "normal" breathing technique - just try it on your next 3000+ m flight :-)

Btw.: also works very well while flying fast spirals at lower altitudes with paragliders....

Go high and may the proper oxygen saturation be always with you :-)