

# Why we developed X<sub>R</sub>CEL™

---

To start, X<sub>R</sub>CEL™ is an extended release carbohydrate supplement. That alone makes it different than any other carbohydrate supplement on the market today. The product was developed for endurance athletes and extended play team sports like soccer where in-game refueling is not easily achieved. Its applications and uses, based on its patented extended release technology, are much broader than that but we will keep things simple for this post.

We developed the formula so that athletes would have the maximum potential to perform more efficiently.

We chose to design X<sub>R</sub>CEL™ using glucose as the primary carbohydrate source. We did that for one very specific reason, that being glucose is THE one and only carbohydrate that is converted directly to glucose-6-phosphate which in turn is converted to ATP. ATP (adenine triphosphate) is the one substance our bodies require for muscle contraction and brain action potential firing.

**Figure 1**



All of the other types of carbohydrates, simple and complex, require additional metabolic steps to be converted to glucose and ultimately ATP. Given endurance athletes are all about efficiency, and are huge energy consumers, we thought it would be best to provide the most efficient pathway to energy creation.

We didn't stop there. X<sub>R</sub>CEL™ is actually a suspension of both immediate release carbohydrates (glucose) and extended release carbohydrates (glucose). The extended release component comes from our patented pH and temperature responsive micro-gels. These tiny little micro-gels that are suspended in X<sub>R</sub>CEL™ contain glucose. They are designed to keep the glucose protected in the highly acidic environment of the stomach and to allow the extended release function to begin when the micro-gels reach the intestines where carbohydrates are primarily absorbed. We also added a temperature responsive feature that effectively "squeezes" the micro-gels, like a sponge, increasing the release rate as your core

temperature elevates, essentially making more glucose available at the absorption sites. This patented delivery system is what makes XRCEL™ unique.

Here is why we did it. Carbohydrates are absorbed at very specific receptor sites (gateways) in our small intestines, and we know from a tremendous amount of published academic and clinical research in this area that those gateways become saturated, and that means without help from an extended release system the rate and extent of absorption is limited. Further, we know from that same body of research that ultra-athletes' bodies do develop hyper efficient means of converting the available energy source. We learned from our research that if we can keep a constant source of carbohydrate at the gateways for an extended period of time we could increase the amount carbohydrate that is absorbed and therefore available for conversion to ATP. More ATP conversion potential means more performance potential. That seemed to us to be a big advantage when we consider fueling strategies for athletes. What that means is with XRCEL™ we help athletes get more fuel in circulation and keep it there longer for greater performance potential.

Also, because XRCEL™ is so efficient in terms of absorption it makes for an excellent choice when considering recovery aides. As you see in the figure above, glucose that does not convert to ATP will convert to glycogen. Glycogen is our bodies' primary energy reserve. Being able to efficiently replenish glycogen reserves is critical to overall performance. Making a super efficient system that helps athletes refuel and restore glycogen reserves quickly was an important focus for us.

Your first taste of XRCEL™ may surprise you. We worked hard to make XRCEL™ taste great. We also know you will find XRCEL™ to feel a little thicker than a typical sports drink. That's because XRCEL™ is a suspension of immediate release and extended release micro-gels and because it is a suspension it is a little thicker than a typical sports drink, but not anywhere as thick as a gel. We want our athletes to know they have the real deal when they use XRCEL™ and that slight "thickness" is an advantage and is helping to keep the vital carbs at the gateways to optimize fueling and improve performance potential.

Team XRCEL™