

Ecklonia Cava: The Sugar-Shuttling Seaweed Supplement

written by Mike Roberto | March 14, 2017

Seaweed is one of Earth's most interesting dietary wonders. Packed with nutrient-rich polyphenols, scientists are continually finding great new compounds inside.



It's often postulated that some of these compounds, along with higher fish consumption, can be attributed to coastal populations having better overall health.

Looking to replicate the benefits of a marine-based diet for landlocked individuals, the nutrition industry has unlocked some extremely interesting ingredients in the last few years, going far beyond fish oils.

But none of the recent discoveries exhibit quite the muscle-building potential of the *super seaweed* known as **Ecklonia Cava**.

Ahead is the research and a full analysis of this emerging ingredient, but note that this article is geared mostly towards *athletes*:

TL;DR

- Insulin is beneficial at the right time and place.
- Consuming **100mg ecklonia cava extract** before and after a fasted training session might lead to a more anabolic feeding window for

intermittent fasting.

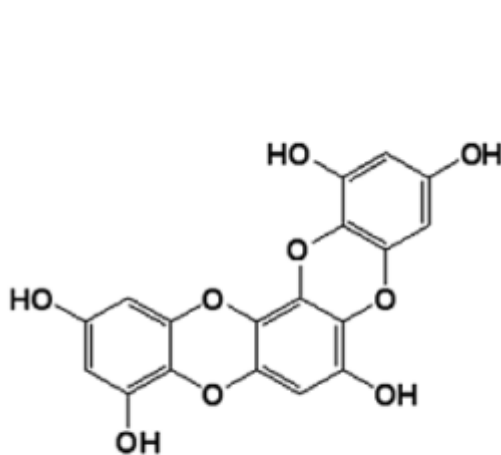
- Ecklonia Cava is beneficial mostly on carbohydrate “refeed” days, as it will allow for a better overall storage of muscle glycogen.
- Alongside, in order to limit catabolism (muscle tissue breakdown), it’s ideal to consume some form of protein, preferably BCAAs, prior to training.
- The Best Ecklonia Cava supplement: **Black Lion Research Follidrone 2.0** (go to best deal)

Disclaimer: As a potent blood sugar lowering ingredient, diabetics *must* seek a physician’s approval before touching this or any other supplement, and that no statements on this page have been approved by the FDA. Feel free to read along, but note that this guide written in the context of athleticism and body recomposition.

Ecklonia Cava – Making Metabolic Magic into Dietary Sorcery

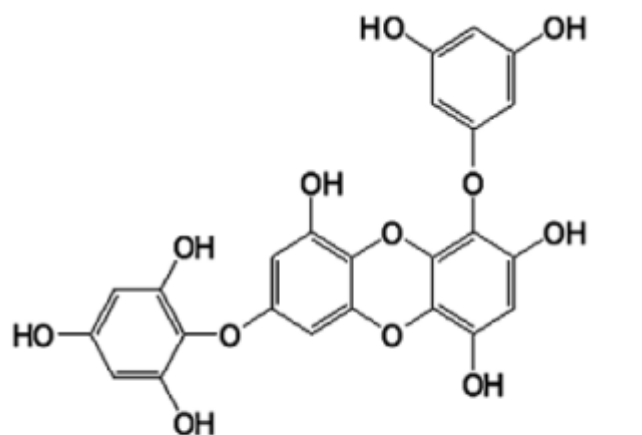
Ecklonia Cava is an edible seaweed found off the coast of Japan, and is primarily known for its absolutely monstrous level of *polyphenols*. Standardized extracts of the seaweed are beginning to appear marketed as longevity agents while some intake has been the seaweed itself.

The research is pointing to its high **phloroglucinol content** as the driving force behind its benefits. *Phloroglucinols* are merely antioxidant compounds, but are unique to sea-based flora like Ecklonia Cava. However, more research is needed before all of the benefits can be credited to phloroglucinols.[16]



dioxinodehydroeckol

(A) Compound 1



1-(3',5'-dihydroxyphenoxy)-7-(2'',4'',6-trihydroxyphenoxy)-2,4,9-trihydroxydibenzo-1,4-dioxin

(B) Compound 2

Ecklonia Cava Benefits

Ecklonia Cava is primarily known for its amazing potency as an antioxidant. Furthermore, it has garnered a huge body of support for its ability to act as an ACE inhibitor. Without going into too much detail at first, this inhibition drives your blood pressure down, which allows your blood to flow like it should.[1]

What does that mean for the gym goer? Put simply,

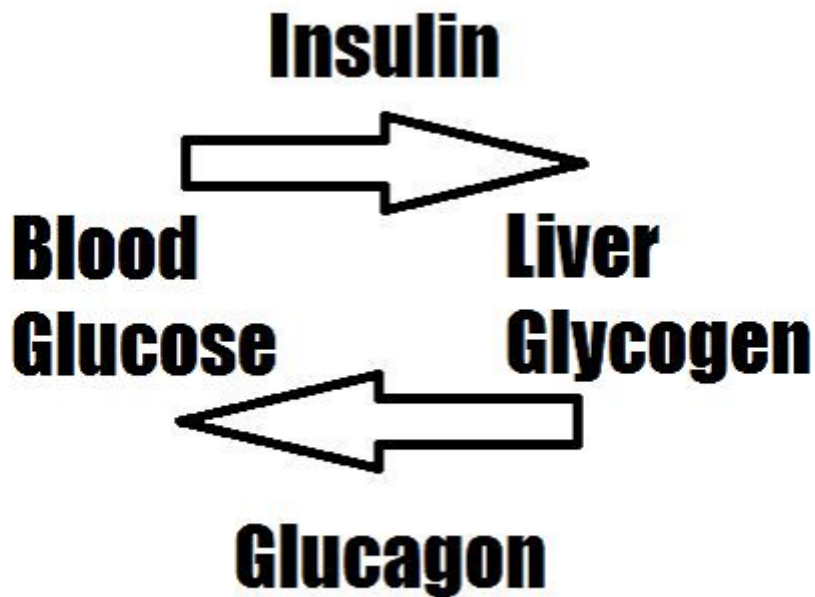
- **Increased energy expenditure**[2]
- **Reduced fat mass AND better glucose clearance**[2]
- **Decreased proliferation of adipocytes (fat cells) via deactivation of a ton of adipogenesis related proteins**[3]
- **Increased insulin secretion**[5]

This powerhouse has been showing up in a few fat loss supplements, so this guide is going to focus on the mechanisms that lead to its efficacy.

Increased Insulin Secretion, so what?

Insulin has certainly earned a spot of infamy in the bodybuilding game. Its usage, along with HGH, are likely the primary reasons why bodybuilding shifted from the classic tapered wait into the hulking monstrosities of the 90's like Dorian Yates. However, insulin is actually an essential aspect of glucose regulation in the body. It works in an antagonistic way with its "brother" hormone, glucagon. Insulin is generally secreted in a well fed state, while glucagon comes in during the fasted state.

This relationship is best summarized visually:



Insulin is actually an essential aspect of glucose regulation in the body. It works in an antagonistic way with its "brother" hormone, glucagon

When insulin is high, the body will dedicate its time to storing macromolecules for later use. Glucagon, on the other hand, leads to the mobilization of resources (it's easiest to think of these resources as stored fat and muscle tissue) for re-uptake by the body. You might be wondering why increasing insulin is beneficial in this case. If glucagon is what mobilizes resources, don't we want more of that? **Hell no!**

Glucagon is also responsible for driving gluconeogenesis, the production of glucose from both fatty acids and amino acids. Amino acids are the building blocks of proteins and they are mobilized from your hard earned muscle tissue![13,14]

So, even then, why is insulin secretion beneficial? Don't we want to just keep both in homeostasis?

Sure, but there is a neat trick we can use such an herb for... it all comes down to *timing*.

Creating Metabolic Environments



Ecklonia Cava is a super seaweed that exerts a number of benefits ideally suited for those looking to lose weight and build muscle! Image courtesy Wikicommons.

Leangains and other intermittent fasting approaches create metabolic environments that lead to the body storing a meal primarily as muscle glycogen. The ability to “trick” the body into storing dietary carbohydrates as glycogen is directly related to changing insulin levels, which is the real reason why Martin Berkhan, one of the most well respected nutritional gurus amongst the intermittent fasting population, advocates a huge carbohydrate meal after training.

But when you only have one major “window” of time to use those carbs up, you want them to count as much as possible – and a bit more insulin at this moment is ideal to drive the food into the muscles, and not fat.

As a summary, insulin is the hormone responsible for allowing us to store macronutrients. By INCREASING secretion of insulin, EC can actually make refeeds even MORE anabolic when you need it most![8]

An Expansion on Fasted Training and Maximizing Glycogen

A lot of resources out there advocate fasted training, but don't really touch on *why* it works so well for some individuals. Going too deep just winds up being a scientific circlejerk and likely varies based upon genetics, but this guide will attempt to explain the intricate details in a simple manner.

When you train on an empty stomach (i.e. fasted), you're more likely to use resources your body already has for energy. This inherently makes sense, energy cannot just be spontaneously created (check out the first law of thermodynamics if you disagree here).

The goal, of course, is to use your fat stores, not your muscle tissue. The issue with this, however, goes back to our previous point on glucagon. Glucagon is most prevalent in a fasted state, so wouldn't training fasted just *increase* the amount of amino acids we're converting into glucose, along with fatty acid tissue?

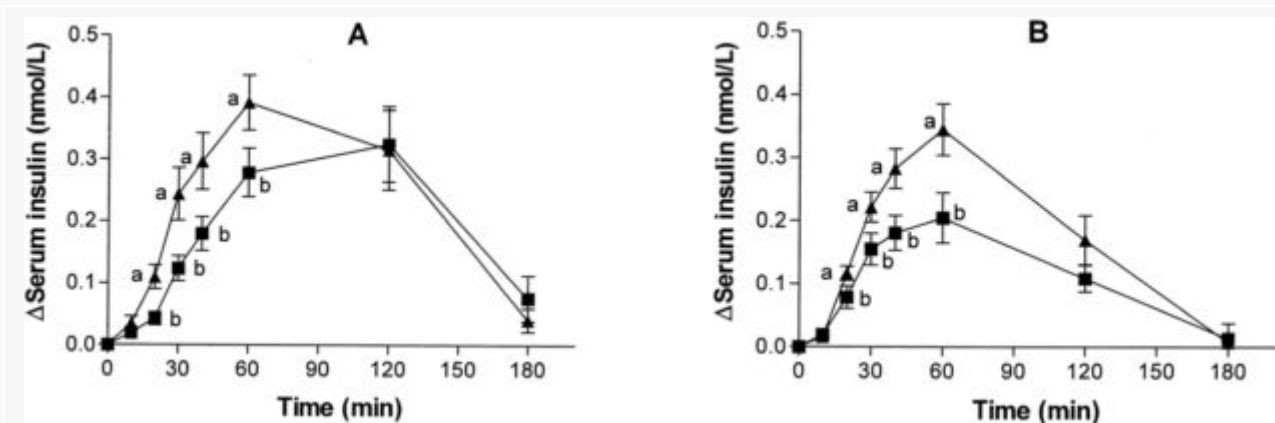


Fig. 2: Mean (\pm SEM) incremental changes (Δ) in serum insulin in response to equal amounts of carbohydrate from a reference meal (\blacksquare) and a test meal of whey (\blacktriangle) served as breakfast (A) and lunch (B) in 14 diabetic subjects. At breakfast, no significant treatment effect ($P = 0.144$) was found, but a significant treatment \times time interaction ($P = 0.046$) was found. After lunch, a significant treatment effect ($P = 0.011$) and treatment \times time interaction ($P = 0.005$) were found at a given time. Values with different lowercase letters are significantly different, $P < 0.05$ (Tukey's test).[15]

Absolutely. Here's the kicker though: Berkhan, along with anyone with a respectable scientific background, knows what the body will do in a completely fasted state. In a completely fasted state, if an individual were to train, the **effects could be disastrously catabolic**. The body would respond to the stimulus by mobilizing body resources, like stored glycogen, fatty acids, and amino acids to fuel the response.

However, by introducing $\sim 10g$ of BCAAs before training, we can sidestep most of this catabolic response to the training stimulus. A scoop of whey may also do the trick, but will likely be less optimal due to insulin spiking from the more dense caloric profile.[15]

As an aside, the catabolic state induced by training actually **may increase the anabolic response** to a post-workout meal. In other words, fasted training has been shown to increase muscle mass gains over time compared to a control via a phosphorylation pathway (p70s6k). Taking some BCAAs before your lift will not stimulate your metabolism enough to really lose this benefit.[9,10]

Ecklonia Cava Use for the Leangains Crowd

Now that the dense stuff is out of the way, how do we take this stuff?

You'll want around **100mg of an extract**, even though lower doses seem effective. The current research is painting a picture of a dose-dependent response – which doesn't necessarily mean that more is better. Until the research pans out, a **100-300mg** dose is likely beneficial. While you shouldn't drown yourself in such an extract, taking some above and beyond the call of duty might confer some benefits if you *really* know what you're doing and monitor your blood sugar carefully. Furthermore, research has generally failed to find anything toxic about long term use.[6,7]

While research into EC is still ongoing, it

appears that its main benefit seems to be its influence on nutrient storage. For this reason, here's some general recommendations on taking it using the Leangains approach:

- **Take it before and after a fasted cardio / weight session.**

If one wanted to gain more fat burning benefits, a 100mg dose of EC combined with light intensity cardio session on rest days while completely fasted could have merit, especially when combined with caffeine and L-tyrosine.

*Note: **Light** intensity is the key here as more intense forms of cardio can prove catabolic.[11]*

- **Take it WITH your post workout meal as well as before you hit the gym**

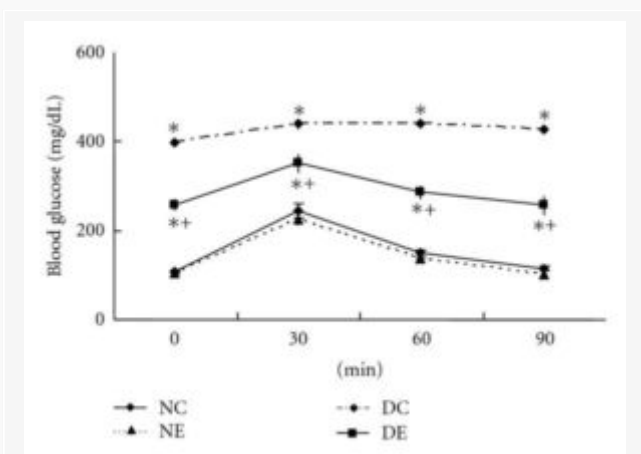


Figure 3: Effect of Ecklonia cava (EC) on oral glucose tolerance. Glucose (1.5 g/kg) was administered at time zero after 12 hour fasting. Normal control mice (NC); normal mice supplemented with EC powder for 4 weeks (NE); STZ-diabetic control mice (DC); diabetic mice supplemented with EC powder (DE). Values are mean \pm SE of 10 mice in each group. *Significantly different from normal mice and +significant effect of EC treatment at $P < 0.05$. [5]

What is Leangains and Who is Martin Berkhan?

Leangains has become the standard intermittent fasting setup of the modern bodybuilding community. It consists of a 16 hour fast with an 8 hour eating window each day. Martin Berkhan, the crowned prince of intermittent fasting and cheesecake, has long had a claim to fame with the wild success of his clients and the overall ease of his dietary setup.

If mobilization of resources via heightened glucagon is at work here, the fasted training might be a great way to get some extra fat burned.

- The IF crowd might want to look into

this, as its reduction on blood glucose and increase in insulin might help that refeed meal be even more anabolic.[6]

- If EC is taken before a resistance training session, it should be taken with the previously prescribed BCAA or whey supplementation.

Ecklonia Use for the General Gym Bro:

Now that we've addressed the Leangains crew members out there, it's time to address Ecklonia Cava's use for the average weight lifter out there:

- **Weight loss:**



Lyle McDonald is one of the foremost researchers in the areas of body recomposition!

PricePLOW customers are generally well educated on nutrition, so this review won't delve into how a refeed works as it's a safe assumption that you guys know what's up. If you've never heard of a refeed, the basic summary is that overeating carbohydrates one day a week may be beneficial to regulating hormones during sustained weight loss periods. Even if an individual is performing a standard weight loss diet, refeeds are beneficial as hormones tend to be downregulated in hypocaloric situations.

Lyle McDonald, a well respected guru among the internet bodybuilding community, has advocated for various strategies to create a more anabolic environment during refeed days, including dosing creatine higher than normal. Refeeds are absolutely magical already for performance.[10] Taking 100mg of EC per meal might make them slightly even more amazing.[10,11]

• Weight Gain:

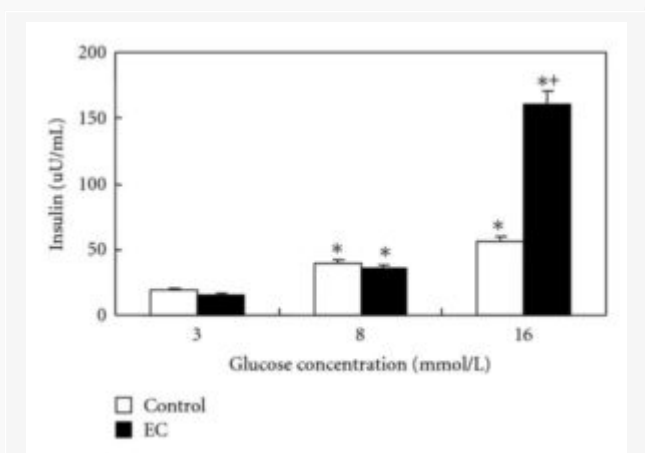


Figure 2: Glucose-stimulated insulin secretion in pancreatic islet cells. The incubations were performed with or without EC extract (50 µg/mL) in 3, 8, or 16 mM glucose media. *Significant effect of media glucose concentration and +significant effect of EC treatment at $P < 0.05$. [5]

In the offseason, refeeds are a distant memory, as refeeds aren't needed in a hypercaloric state. However, EC is still beneficial to those in full on bulk mode.

If using it during a bulk, it's likely best consumed alongside your largest carbohydrate meal of the day. Aim for at least a 100mg dose, which as a rule of thumb, should be after training. This will allow for preferential storage of the meal as muscle glycogen to fuel recovery.

More Fat-Fighting Benefits!

We're not quite done discussing the various benefits and uses of Ecklonia Cava though. Other research conducted on the super seaweed notes that Ecklonia Cava exerts strong anti-adipogenic actions in the body. More precisely, ecklonia cava downregulates the activity of fatty acid binding protein (FABP4), fatty acid transport protein (FATP1), and fatty acid synthase (FAS). [17] This significantly inhibits the body's ability to synthesize new fat cells (adipogenesis) – keeping you lean and muscular!

One last tidbit worth mentioning is that ecklonia cava can *increase* natural insulin secretion as well as inhibit some carbohydrate uptake through the inhibition of several assorted enzymes in the body. [5]

What is the Best Ecklonia Cava-based Supplement?

If you wanted to run Ecklonia Cava on its own to really explore its overall

benefits, there are a number of bulk powders and capsules available. However, the majority of our readership consists of lifters, and to that end, we're interested in **muscle-building supplements** that make use of this powerful seaweed. And for that, there's one clear answer:

- **Black Lion Research Follidrone 2.0**



Follidrone 2.0 is Black Lion Research's powerful natty muscle builder Follidrone that is loaded with epicatechin, ecklonia cava, and more!

This is one of the best all around natural muscle builders on the market that just doesn't seem to get enough talk on the internet. Follidrone 2.0 combines Ecklonia Cava with another potent muscle-builder in epicatechin and a few other bioflavonoids and absorption enhancers to maximize the efficacy of this one-of-a-kind natural anabolic.

The one slight drawback to Follidrone 2.0 is that it's a proprietary blend, so we really don't know the amount of E.C. actually in each dose, but based on the feedback we've seen on the product, you can bet you're getting a fairly solid dose.

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Note: In the above price comparisons, the ecklonia cava version is the 90 capsule bottle.

Conclusion

Building muscle takes years of endless grinding in the gym and in the kitchen. Don't kid yourself – it's not easy to do things the *natural* way, but the payoff is well worth the hard work. There aren't many natural products out there that pack the punch of something like Ecklonia Cava, but when they do...you better jump on them!

We see this as one of the cutting edge next-gen ingredients that will start making its way into more and more products going forward as more standardized extracts of the plant hit the market.

For more info on that, check out our massive blog post on these next-generation muscle-building supplements.

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