TUDCA

A DEEP DIVE INTO THE FAR REACHING BENEFITS OF TUDCA.
TUDCA: A Secret Weapon in Liver and Whole Body Health? A Deep Dive Dive into the Far Reaching Benefits of TUDCA.

Tauroursodeoxycholic acid (TUDCA) is a bile acid that shows very promising benefits for liver and gallbladder health and is also beginning to show benefits for the entire body, including the brain.

In this article we are going to do a deep dive into TUDCA covering everything from what it is, it's benefits, it's surprising history, how and when to take it and how long before you will begin seeing benefits.

You’re about to find out why this simple supplement that is still largely unknown to the general population may just be the secret weapon to keeping your liver, your body and even your brain healthy.

Let’s get started.

What is TUDCA?

Now your first question you likely have is…
“What the heck is TUDCA?”

And that’s a fair question.

Well firstly, TUDCA is simply a bile acid found in trace amounts in the human body.

What are bile acids?

Basically they are compounds produced by the gallbladder to assist with digesting fats.

And as you’re about to find out this simple bile acid has far reaching benefits for the entire body, not just the liver.

However, until very recently unless you were a bodybuilding fanatic looking to protect your liver from the onslaught of high protein meals and muscle building ‘supplements’ you were taking then you were very unlikely to have ever heard of this simple yet powerful supplement.

You see, bodybuilders became aware of TUDCA when they began looking for ways to protect their liver while continuing to build their ever growing muscular physiques.

Go on any bodybuilding forum and you will find countless posts and articles hailing the incredible benefits of TUDCA.

And it seems they may be onto something.

Because over the years (and especially very recently) studies have been showing very promising results for liver health, treating such conditions as cirrhosis, fatty liver and nonalcoholic fatty liver.

As well as early evidence for other conditions such ALS, Alzheimers, parkinsons, and Huntington’s disease.

And as such many MD’s, functional Medicine DR’s and ND’s have begun recommending it to their patients with impressive results.

One practitioner in particular who has really begun getting it onto the market is Jay Davidson, DC of microbe formulas who began using it for his own clients with amazing results and ended up creating his own TUDCA product.

In fact, that is how we first became aware of it and decided we wanted to begin taking it to the australian market because we had seen such benefit ourselves but
found it very difficult (if not impossible) to source it in Australia unless we imported it or bought it of some very shady looking bodybuilding websites.

And as such we decided to create our TUDCA product. Which we are releasing later this year. But more on that later.

So you now know that TUDCA is a bile acid and you now know what a bile acid is. But now you are probably wondering what it comes from.

Let’s answer that.

**What does TUDCA come from? What is it made of?**

As it turns out it wasn’t bodybuilders who first stumbled upon the benefits of TUDCA.

In fact TUDCA is actually nothing new.

And is actually an ancient supplement that has been used thousands of years in chinese medicine to treat many different health conditions [1].

And here’s where things get interesting or should we say grizzly…

You see it turns out bears produce very large amounts of TUDCA in their bodies, which scientists believe may help them be able to hibernate for so long in the winter.

And as it turns out the original TUDCA was made from pure bear bile.

Yep. Sorry winnie.

Luckily however TUDCA is no longer made from bear bile and is strictly outlawed for obvious animal welfare reasons. There are sadly still some small areas where this is practiced but all TUDCA supplements are now manufactured from a simple compound without the need for bears.

**Why would you take TUDCA?**

Like we discussed early on TUDCA is a form of bile acid that is produced naturally within the body.
So of course if your liver and gallbladder are functioning perfectly then you would have no need for supplementing TUDCA.

However for many people in today’s society this is simply not the case.

You see our poor livers have never had so much to deal with.

Thanks to our obsession with sugar and processed foods, our highly stressful lives, our lack of exercise and the ever increasing pollution and chemicals in our environment our livers are working harder than they ever have before.

And it is taking a massive toll on our livers. In fact liver cirrhosis is now one of the leading causes of chronic illness and death around the world.

And nonalcoholic fatty liver diseases (NAFLD) are skyrocketing with it estimated that as many as 1 billion people are affected by it and the number only seems to be rising.

And given that these are people who actually diagnosed the number is likely much higher.

And you can bet that if this many people are suffering from full blown NAFLD or cirrhosis then a lot of people are going to be suffering from low grade or sluggish liver function.

And that’s not a good thing.

Because your liver is one of your most important organs. In fact, we could have an entire article just on the liver alone.

However for now just know that is is extremely important in many different bodily processes including:

- Detoxification
- Digestion (in particular fat digestion)
- Blood Sugar Regulation
- Immunity (your liver plays an extremely powerful role in immunity)
- Gut Health
- Metabolism
- Hormone Regulation

And these are just some of its main functions. It does a lot more than this and is still being understood just how powerful this organ is.
So you can see why keeping your liver healthy and functioning properly is very important.

And as you are beginning to learn TUDCA is one of the most powerful supplements for improving and maintaining healthy liver function by encouraging proper bile flow.

**Why is proper bile flow important?**

TUDCA supports your liver by encouraging healthy bile flow. Why is this important?

Well to put it simply:

*Healthy bile flow = Healthy Liver Flow*

And having a healthy liver ‘flow’ or functioning is crucial to overall health.

Why?

Well think of your liver like a water processing plant in a city.

All of the water from the city that is continuously being used on a daily basis ends up becoming dirty from daily use (toilets, showers, baths, swimming etc) obviously you don't want to be bathing in dirty water otherwise you will end up becoming sick from all the bacteria, pollutants and chemicals that build up in the water.

So in order to continue enjoying your clean water, the water must be filtered and cleaned on a continual basis. Which is what the water purifying plant does.

It cleans up the water and then returns it back to the city clean and fresh. It then discards the contaminated sludge and hauls it away so it doesn’t become a problem and pollute the water again.

The cycle keeps repeating to ensure you keep getting healthy clean water.

The same thing happens in your body.

You see, your lymphatic and cardiovascular systems are like the pipes that push all their fluid through to your liver (the processing plant).

Then your liver filters all the fluids removing debris and dangerous chemicals.

The cleaned blood and lymph go back into circulation.

And the contaminated sludge your liver collects gets dumped into your bile. Then it gets “hailed away” in your intestines and out through your stools so it doesn’t pollute you.
However if your liver bile duct becomes sluggish or even blocked, your body can’t haul away the contaminated sludge.

It sits stagnant in your liver and gallbladder.

This places additional strain on your liver which is already having to deal with everything else being thrown at it.

Over time this causes inflammation and liver damage.

And since the liver is responsible for keeping the entire body clean and healthy, if it gets backed up then in turn your other organs of your body will begin to suffer as well, like your digestive system, your kidneys and even your lungs.

In addition to this.

Bile is also needed to break down and absorb fats and fat-soluble like vitamins like A, D, K, E. Which are crucial for many functions in the body.

The good news is that TUDCA can help ensure your bile keeps flowing correctly.

And with that let's get into the benefits of TUDCA.

**TUDCA Benefits:**

**General Benefits:**

1. **TUDCA Stimulates Bile Flow:**

   TUDCA has a powerful ability to improve bile flow. In fact studies have shown that TUDCA can improve bile flow by as much as 500% [3].

   In fact it has been shown that TUDCA doesn’t just improve flow but also improves bile quality and also encourages the microbes within your body to create more of your own TUDCA [3].

2. **TUDCA Protects the Mitochondria in Your Liver**

   Did you know that your liver actually has some of the highest mitochondria levels out of any other organ in your body? If you don’t remember what Mitochondria are from your school science class basically they are the powerhouses of a cell and help give it energy.

   And since the liver is responsible for so many processes it requires a lot of energy and therefore a lot of mitochondria.
And it has been shown that TUDCA actually helps to protect the mitochondria in your cells by reducing the release of a molecule called BAX entering the mitochondria and causing it’s early death. [4] Therefore improving mitochondria levels and function within the liver.

3. TUDCA Reduces Liver Enzymes:

Raised liver enzymes are a cause for concern for many people and usually represent some form of dysfunction in the liver and can be used as an early indication of liver issues, which is why many Doctors and health practitioners test liver enzymes.

And studies show that TUDCA has a powerful ability for improving liver function and reducing elevated liver enzymes.

In one study done on 12 women with primary biliary cholangitis (PBC) an autoimmune disease of the liver, TUDCA reduced liver enzymes by 51% in just 2 months of taking a daily 500mg dose [5].

In another study in 23 patients with PBC, TUDCA significantly improved liver enzymes levels (ALT, AST, gamma-glutamyl transferase (GGT), and alkaline phosphatase) [6].

It has even been shown that TUDCA can improve liver enzyme levels even at levels as low as 10-13mg a day. With a study of 5 liver disease patients who were given just 10 – 13 mg TUDCA daily for three months were able to reduce the liver enzyme alanine transaminase (ALT) levels. [7].

4. TUDCA Helps Heal The Liver Bile Duct

Your liver bile duct is an important mechanism in bile flow and in making sure that harmful chemicals and toxins are safely excreted into your stool for removal. Unfortunately for many reasons, your bile duct can become blocked or sluggish.

Fortunately TUDCA has been shown to improve your liver bile duct by strengthening it’s lining. It does this by increasing ATP secretion into your bile giving your bile more energy to flow correctly therefore reducing harmful toxins and chemicals building up in the liver and damaging your liver bile duct. [8]

5. TUDCA Helps Protect You From Viruses

Did you know that your liver plays a vital role in your immunity? Especially viruses? Yep your liver plays a big role in your immunity.

And TUDCA has been shown to have a significant improvement on your livers immunity powers.

TUDCA has been shown to help prevent viruses from entering your cells [9]

In fact, TUDCA has been shown to be a powerful tool in fighting the influenza A (the flu), by helping to stop the virus from replicating within the body and helping your immune cells to recognize and kill the virus [10]

It has also been shown to be powerful from preventing RSV (respiratory) infections from spreading throughout the body [11].
6) TUDCA Improves Digestion and Reduces Gut Inflammation:

Your gut is one of the most important organs in your entire body and we are only just beginning to understand its power to affect overall health. Especially when it comes to your gut barrier function and microbiome, both of which play huge roles in your immunity, mood, energy and hormone health.

Because of our poor diets and lifestyle choices a growing number of people are being affected by leaky gut issues. Which cause a number of issues for people, contributing to food intolerances, autoimmunity, low energy and mood issues.

With the underlying culprit in leaky gut being a breakdown of gut barrier function and integrity.

And it seems that TUDCA may play an important role in fixing leaky gut and improving gut barrier function.

TUDCA has been shown to benefit gut barrier function by actually increasing levels of ‘tight junction molecules' which play an important role in keeping your gut barrier strong and healthy [12].

It has also been shown to reduce gut inflammation by reducing inflammatory cytokines [12].

And has even been shown to have a significant benefit for ulcerative colitis by protecting the cell lining in the gut [13]

But it’s not just the gut lining that TUDCA benefits. TUDCA has also been shown to have positive benefits on the microbiome, the bacteria in your gut, by increasing levels of good bacteria in your gut responsible for healthy gut barrier function [12].

**TUDCA and Chronic Diseases:**

TUDCA doesn’t just benefit the liver and gut it also seems to have far reaching benefits for some of the worlds most common chronic diseases.

Let’s take a look.

**TUDCA and Alzheimer’s**

Alzhiemers is a growing global pandemic, with numbers increasing yearly and so far no real treatment or full understanding of it’s causes.
One theory of Alzheimer’s is that it is caused by a buildup of amyloid plaques in the brain.

And in early studies on mice TUDCA seems to be showing positive results, with studies showing that TUDCA reduced Aβ plaques in the brains of mice with symptoms of Alzheimer’s disease (AD). It also prevented memory deficits in a mouse model of AD. And is now being considered a potential strategy in the prevention and treatment of AD [14,16,17].

TUDCA and ALS

In a study of 34 ALS patients that took 1 g TUDCA daily for 1 year it was found that they had not only reported higher quality of life but they also slowed down progression of the disease when compared to placebo [18]. And is now being considered a safe and effective strategy in the treatment of ALS.

TUDCA and Parkinsons

While no human trials have been done on TUDCA and Parkinson’s patients. Early mice studies are showing promising results for its benefits on parkinsons.

With TUDCA protecting nerve cells in a mouse model of Parkinson’s disease. It also reduced cell death in a rat model of Parkinson’s disease. [19, 20].

Scientists are still unclear as to how TUDCA is doing this but believe it may be that TUDCA helps rescue the function of the mitochondria and prevent c-Jun N-terminal kinase (JNK) activation. With the JNK pathway being what leads to the death of neurons in Parkinson’s disease [21, 22].

TUDCA and Hepatitis:

A study of 150 patients with hepatitis C found that TUDCA was more effective than placebo in improving chronic hepatitis over a six-month trial period [23].

In another study, TUDCA reduced liver damage, oxidative stress, and scarring of tissue in mice with fatty liver disease. [24].
Scientists are also beginning to investigate the effects of TUDCA on hepatitis B and hepatitis D viruses with promising results so far [25].

**TUDCA and Stroke:**

TUDCA may potentially have a benefit for stroke victims.

A study in rats gave TUDCA one hour after a stroke and found that TUDCA raised bile acid levels in the brain. Scientists think this might be helpful for stroke recovery, though human studies are needed to confirm [26].

In another study, TUDCA decreased blood clot volume and cell death due to stroke in animals. TUDCA reduced both wound volumes and cell death in the striatum (a part of the brain) of rats by 50% after a stroke [27, 28].

**TUDCA and Huntington's Disease:**

Early mice studies are showing that TUDCA may play a role in treatment of Huntington's disease. Studies found that TUDCA protected nerve cells in a mouse model of Huntington’s disease. It also reduced brain cell death in rats with symptoms of Huntington’s disease. [29, 30, 31].

**TUDCA and Diabetes:**

Both Type I and II diabetes are associated with insulin resistance issues.

Several studies have shown TUDCA to improve the hyperglycemia associated with both types of diabetes. While still only animal studies, the studies do seem promising in TUDCA being effective in the treatment of diabetes [29].

**TUDCA and Heart Health:**

TUDCA may have benefit for heart health because of its positive effect on hypertension, a leading risk factor in heart disease and heart attack. [29]

It has also been found that TUDCA may have a benefit on heart attack patients with studies showing TUDCA to reduce heart cell death following a heart attack [32].
TUDCA and Kidney Disease:

TUDCA may be able to benefit those with kidney disease. With a study showing that TUDCA improved mitochondria function of a specific stem cell CKD-derived hMSCs which is usually imparied in chronic kidney disease (CKD), Suggesting that TUDCA may be a promising new therapeutic intervention in the the treatment of CKD [33].

TUDCA and Eye Health:

TUDCA may benefit eye health, especially in the case of eye disease.

For instance, a disease known as Retinitis pigmentosa (RP) is a disease of the brain (neurodegenerative) that results in blindness.

A study done on mice reported that TUDCA improves RP [34].

The study noted that TUDCA preserved cells of the eye responsible for vision, and prevented their cell death [34].

TUDCA also showed promise in slowing retinal degeneration in mice and vision loss in rats [35,36].

How does it do all this?

Well science is still trying to figure out the exact mechanisms as to how TUDCA can achieve all of these things.

However this is what they propose it acts on to create these benefits (warning this part may get a little technical but for biohackers and health geeks you will love it)

TUDCA Mechanisms of action:

- Increasing glucose-induced insulin release via the cAMP/PKA pathway, increasing insulin sensitivity [37].
- Relieving endoplasmic reticulum (ER) stress. The ER makes sure proteins are folded properly [38].
• Reducing programmed cell death (apoptosis) in healthy cells [33]. TUDCA prevents the molecule BAX from reaching the mitochondria. BAX causes mitochondria to release cytochrome C, which causes enzymes (caspases) to initiate apoptosis [15].
• Inactivating Bcl-2-associated death promoter (BAD), a molecule involved in apoptosis [39].
• Removing toxic bile acids from the liver and preventing them from damaging liver cells [40].

Taking TUDCA:

Ok now that you know what TUDCA is and it’s many benefits you may be considering getting some for yourself.

But you want to know how to best take it. Well this section is all about about that.

How much TUDCA do you need to take?

A dose-response study of TUDCA tested doses of 500 mg, 1000 mg, and 1500 mg per day over six months, finding that there was little difference between the doses on liver markers [41].

In fact, benefit has even been found in doses as little as 10-15mg.

So taking 500mg a day should be more than enough.

How long can you take TUDCA?

Most studies had participants taking TUDCA for anywhere between 6 - 12 months for the greatest benefits to be seen.

No studies have been done that say how long you can take TUDCA for and it is likely safe to take ongoing.

However like everything it’s best to cycle supplements.

So if you’re thinking about taking TUDCA initially take it for at least 6 - 12 months and then potentially just move to have it periodically when you feel like you need it again or as recommended by a licensed health practitioner.

How long before you see results with TUDCA?

It really depends on the person.
Some people may notice an improvement in a few weeks or even days. However most people will usually begin to see improvements in 1 - 3 months.

**What sort of improvements may I notice?**

- Improved energy
- Improved food tolerance
- Improved fat absorption
- Improved digestion
- Reduced liver enzymes
- Improved liver function
- Better skin complexion
- Reduced dark circles under eyes

**Is TUDCA safe?**

Yes, TUDCA has been shown to be completely safe with little to no side effects in most people.

**Are there any side effects of TUDCA?**

TUDCA has little to no side effects.

However because it gets bile flowing and aids in detoxification initially some people may feel an increase in their previous symptoms or a herxheimer reaction.

Such as cold and flu symptoms, mood changes or increased bowel movements.

For this reason it is encouraged that you start off with just one capsule a day and increase to 2 - 3 only if needed.

Keep in mind that studies have shown doses as low as 10 – 13 mg daily for three months is able to reduce liver enzyme levels [42].

So just do what feels right to you.

**TUDCA vs NAC:**

Is Tudca better than NAC?
TUDCA and NAC work in different ways but both benefit the liver. In fact they both can work synergistically with one another and some companies actually pair them together into one.

However, overall given that TUDCA is a bile acid and all that you now know about bile flow. TUDCA is far superior to NAC in terms of what it does for the liver.

NAC is also more common to create side effects as opposed to TUDCA which has little to no side effects. For this reason we recommend TUDCA over NAC.

**TUDCA vs Milk Thistle:**

Milk thistle is very well known to benefit the liver and has been used for thousands of years for this reason.

Again however TUDCA is superior to milk thistle in terms of it’s benefits to the liver and overall health.

That being said, given that TUDCA and milk thistle both greatly benefit the liver and work in different there is nothing wrong with taking them both.

**TUDCA Vs Taurine:**

Taurine is an amino acid and is another great supplement for the liver. In fact TUDCA actually gets it’s T from the fact that it is made up of a bond between Taurine and ursodeoxycholic acid.

In terms of which is more effective for the liver and overall health, again TUDCA is the more powerful of the two especially in terms of liver function.

That being said taurine supplement still has a great benefit to your health and can be supplemented as needed.

**TUDCA VS Ox Bile:**

Ox bile is exactly what it sounds like.

It is the bile from an Ox and has been shown to be beneficial for assisting with proper fat digestion.

And has been shown to be beneficial when taken with meals to assist with proper fat digestion especially for people with their gallbladders removed.
However TUDCA is a lot more potent than ox bile and has far greater benefit on the liver and body. And if you end up taking TUDCA you shouldn’t need as much if any ox bile.

That being said if you still wanted to take ox bile with fatty meals in order to aid digestion then there is nothing wrong with this. Just take smaller ox bile doses of around 125mg, as taking high amount of ox bile and TUDCA together may cause loose stools.

**Where can you buy TUDCA?**

Ok so now you have learnt just about everything you ever could about TUDCA and now you’re keen to buy some.

So where can you buy it?

Well there are many companies that sell TUDCA, and simple google search will return many companies to buy it from.

However many come from questionable sites or have to be purchased from overseas. Which is why we have just released our own TUDCA product onto the market.

So that more people can begin to benefit from this amazing compound.

So if you’re someone right now who is looking to improve your health, thinks your liver might need some support, have been diagnosed with liver issues or perhaps other issues discussed on this deep dive then we would encourage you to give TUDCA a try.

It has helped so many people with their health (including our own) and we know that it will help you to.

If you’re interested in trying TUDCA out for yourself, [you can pick up some here.](#)

Have questions about TUDCA? Send us an email to contact@lvluphealth.com

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