



Theracurmin[®]

Confidence In Evidence

1 Plant-Based Ingredient • 34+ Clinical Studies
42X More Bioavailable • Multiple Applications
Excellent Safety Profile

Handok Healthcare

PROFESSIONAL REFERENCE

CURCUMIN

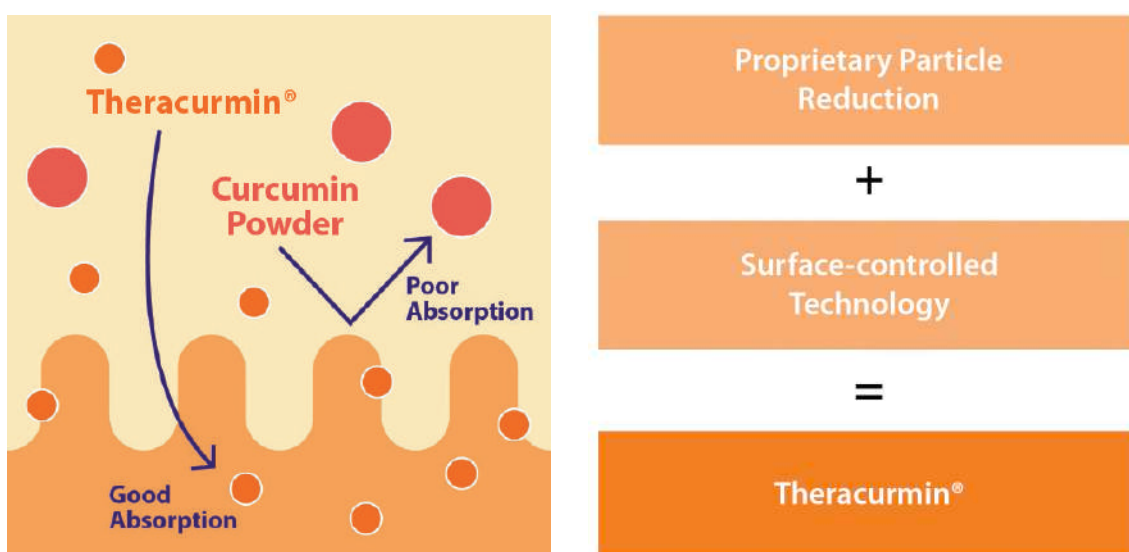


What Is Theracurmin®?

Turmeric has been used for centuries in Southeast Asia as a spice, flavoring, and coloring agent. The plant is known to have many health benefits. These properties of turmeric are largely thanks to curcumin, a polyphenol contained in turmeric.

Communities of scientists and companies have created products with the objective of delivering the health benefits of the ingredient. However, clinical studies show that standard curcumin is not easily absorbed in the body despite large amounts of consumption.

Theracurmin® was created to combat the low bioavailability and absorption of curcumin to harness the benefits of the natural ingredient.



Why Theracurmin®?

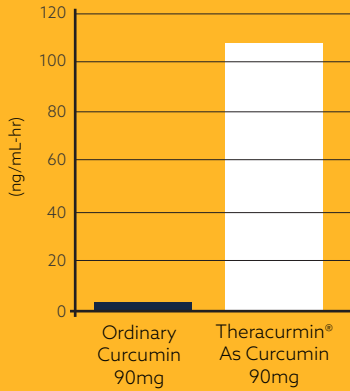
Theracurmin® is a clinically proven curcumin with one of the highest bioavailability in the industry. Just 180mg per day of Theracurmin® is enough with no other active ingredient added to enhance its bioavailability. With over 34 clinical studies covering major health concerns, Theracurmin® is clinically proven to be safe by various toxicity and safety tests. It is highly dispersible in liquid and exhibit high photostability and thermal stability.

Disclaimer statements:

These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease. This article contains information, graphics, and data not intended for use in any regulatory applications to secure permit, license, or health claims for any countries.

42x

AUC (0-12HRS)



**HIGHER BIOAVAILABILITY
COMPARED TO ORDINARY CURCUMIN**

- **STUDY DESIGN:**
Randomized, open-label, cross-over study
- **SUBJECTS:**
24 healthy males
- **INTAKE:**
90mg curcumin powder

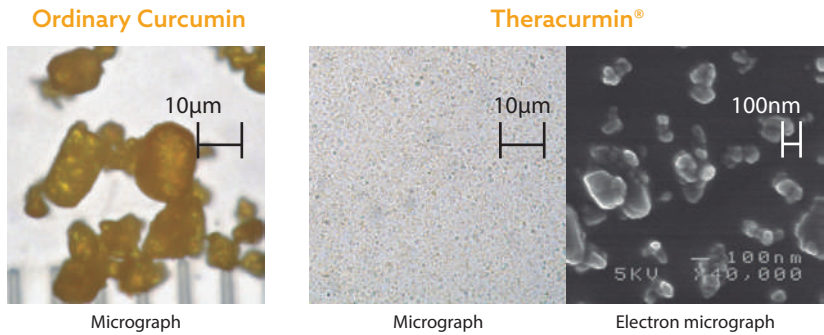
*Graphs are for representation purposes only and does not reflect accurate ratio proportion



Excellent Bioavailability

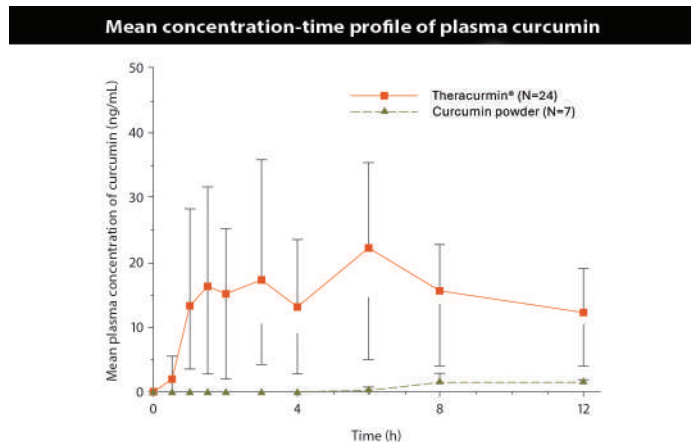


Using proprietary Japanese technology in reduction of particle elements and surface controlled technique, particles of curcumin are made to optimum size and dispersible in liquid to be easily absorbed by the human body. The bioavailability of Theracurmin® is over 42X that of standard curcumin powder, allowing for better efficacy at a lower dose.



MEAN CONCENTRATION-TIME PROFILE OF PLASMA CURCUMIN

Theracurmin® remains in the blood at the optimal concentration and longer period compared to standard curcumin powder.



Chung H., et al. International Journal of Clinical Pharmacology and Therapeutics. 2021;59(10): 684-690. Citation



Support For Overall Wellbeing



Curcumin is studied to have multiple benefits, including for cognitive, cardiovascular, lung, metabolic, liver health, and more. This is through its ability to regulate the body's response to foreign and internal factors. By promoting the healthy response of multiple body systems, curcumin provides comprehensive support for overall wellbeing.

Handok Healthcare has performed many clinical trials by collaborating with different academic & educational organizations to research the full potential of the proprietary curcumin, Theracurmin®.

Disclaimer statements:

These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease. This article contains information, graphics, and data not intended for use in any regulatory applications to secure permit, license, or health claims for any countries.

STUDY OUTLINE:

- **STUDY DESIGN:**
Two arms, randomized, double-blind, placebo-controlled trial
- **SUBJECTS:**
40 healthy, middle to advanced aged adults (age: 51-84)
- **PERIOD:**
18 Months
- **DOSE:**
Theracurmin® = 90mg X2/Day

RESULTS:

- Significant decrease in FDDNP binding levels
- Comparison between Theracurmin® and placebo groups show significant difference on the hypothalamus
- Significant improvement in verbal memory, visual memory, and attention

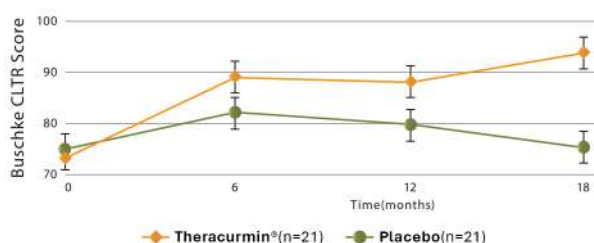
Theracurmin® For Brain Health



Supports Improvement in Memory and Attention

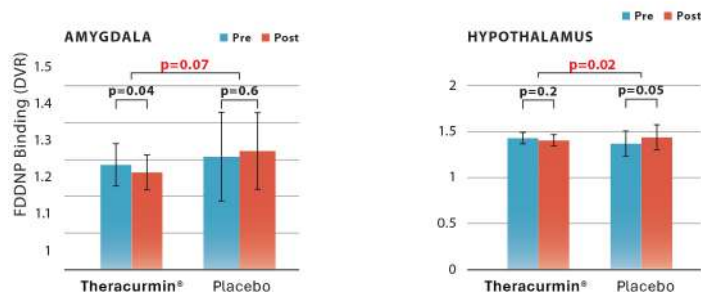
In an 18-month trial performed by the team at UCLA, Theracurmin® significantly improved verbal memory, visual memory, and attention in healthy adults. In addition, improvement in mood quantified via the Beck Depression Inventory was seen in the Theracurmin® group. These results are explained through a diagnostic imaging of the brain through FDDNP-PET. The image showed FDDNP bonds indicating protein buildup were significantly decreased in the Theracurmin® group compared to placebo in the amygdala and hypothalamus, the brain regions modulating mood and memory.

Change in Buschke CLTR Scores in Curcumin and Placebo Groups



Mean (\pm SEM) change from baseline in Buschke Consistent Long-Term Retrieval (CLTR) score for 90 mg (twice daily) Theracurmin®- and placebo-treated healthy subjects

FDDNP Binding Levels in Amygdala and Hypothalamus (18 Months)

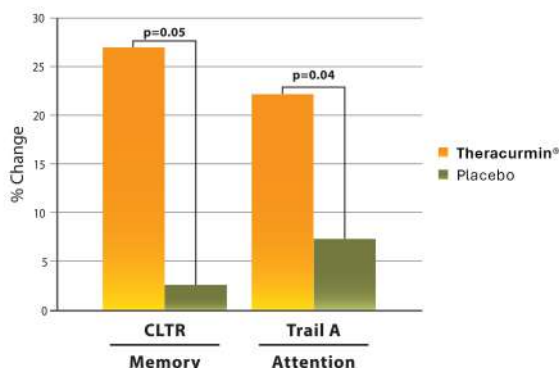


• Histograms indicate means, vertical lines indicate standard deviations
• FDDNP binding levels are based on relative distribution volume (DVR) parametric images generated using a multilinear

Formulation of Logan analysis (motor cortex as reference region) : Logan J, et al. J Cereb Blood Flow Metab. 1996;16: 834-840.

Small GW, et al. Am J Geriatr Psychiatry. 2018 Mar; 26(3): 266-277.

Cognitive Changes at 18 Months



Small GW, et al. Am J Geriatr Psychiatry. 2018 Mar; 26(3): 266-277.

Disclaimer statements:

These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease. This article contains information, graphics, and data not intended for use in any regulatory applications to secure permit, license, or health claims for any countries.



STUDY OUTLINE:

- **STUDY DESIGN:**
Two arms, randomized, double-blind, placebo-controlled trial
- **SUBJECTS:**
50 patients (age: 40+), with Kelgren-Laurence grading scale II or III by x-ray
- **PERIOD:**
8 Weeks
- **DOSE:**
Theracurmin® = 90mg X2/Day

RESULTS:

- Significant improvement of knee discomfort by vas measurement

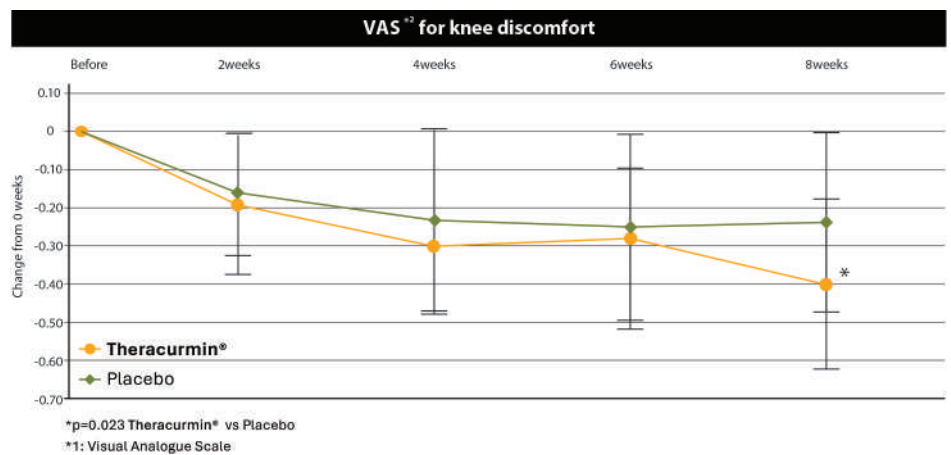
Theracurmin® For Joint Health



Support for Joint Discomfort

Many middle aged and older adults are affected by joint discomfort as issues become more prominent with age. Discomfort in joints, specifically in the knee, can decrease Quality of Life and inhibit daily activities.

To explore natural options to support joint health, Theracurmin®, a highly bioavailable curcumin, was administered twice a day to 50 patients. By the end of the trial period, Theracurmin® significantly reduced knee discomfort in patients.



Nakagawa Y, et al. J Orthop Sci. 2014 Nov; 19 (6): 933-939.



Disclaimer statements:

These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease. This article contains information, graphics, and data not intended for use in any regulatory applications to secure permit, license, or health claims for any countries.



Theracurmin® For Heart Health (1)



Promotes Healthy Cardiovascular Function

The heart has the function of pumping oxygenated blood throughout the body and plays a crucial role in overall wellbeing. Decreasing afterload, the pressure the heart works against to pump blood out, is important when promoting cardiovascular health¹. This starts with a healthy lifestyle. Theracurmin® may increase the health benefits of these lifestyles when paired with exercise.

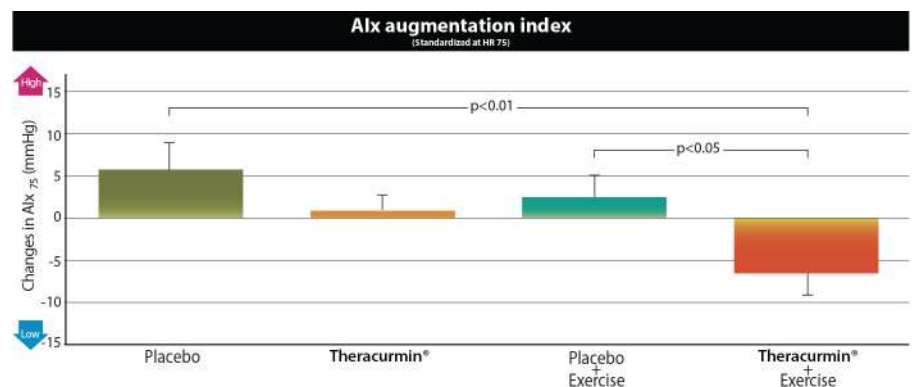
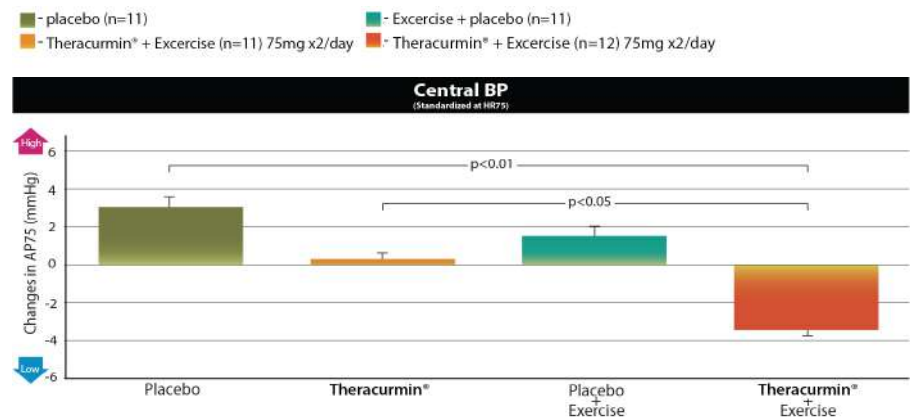
A clinical study published in the American Journal of Hypertension explored the effects of Exercise and Theracurmin® on cardiovascular health by analyzing markers such as augmented pressure (AP) and arterial augmentation index (Aix) over an 8-week period. Results suggested regular endurance exercise combined with daily Theracurmin® ingestion may have greater benefits than monotherapy of exercise or Theracurmin® alone in postmenopausal women.

STUDY OUTLINE:

- STUDY DESIGN:**
 Four arms, randomized, double-blind, placebo-controlled trial
- SUBJECTS:**
 45 postmenopausal women (age: 57-63)
- PERIOD:**
 8 Weeks
- DOSE:**
 Theracurmin®= 75mg x2/day
 Theracurmin® + Exercise= 75mg x2/day

RESULTS:

- Combination of exercise and Theracurmin® may provide greater benefits than monotherapy alone**



Sugawara J, et al. Am J Hypertens. 2012 Jun; 25 (6): 651-656. Citation

1. Brown DW, Giles WH, Croft JB. Left ventricular hypertrophy as a predictor of coronary heart disease mortality and the effect of hypertension. Am Heart J 2000; 140:848-856.

Disclaimer statements:

These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease. This article contains information, graphics, and data not intended for use in any regulatory applications to secure permit, license, or health claims for any countries.

STUDY OUTLINE:

- **STUDY DESIGN:**
Four arms, randomized, placebo-controlled trial
- **SUBJECTS:**
51 menopausal women
(age: 57-62)
- **PERIOD:**
8 Weeks
- **DOSE:**
Theracurmin®= 75mg x2/day
Theracurmin® + Exercise= 75mg x2/day

RESULTS:

- **Significant improvement in arterial health**

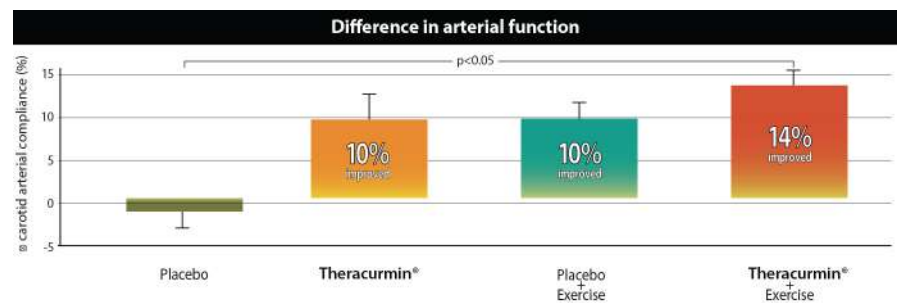
Theracurmin® For Heart Health (2)



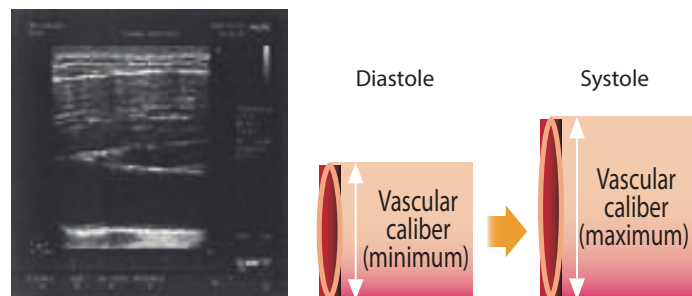
Improvement in Arterial Function

The heart pumps blood to the rest of the body to carry nutrients and oxygen. However, this can become difficult when the elasticity of central arteries decreases with advancing age, leading to a higher risk of cardiovascular issues.

To see the effects of a healthy lifestyle and Theracurmin® on arterial function, a clinical trial involving 51 postmenopausal women was carried out over eight weeks. Results exhibited arterial function was significantly improved in groups with Theracurmin®, Exercise, and Exercise + Theracurmin®, with the Theracurmin® and Exercise only group showing comparable results. The improvement in arterial function was especially great in the Exercise + Theracurmin® group, suggesting that the two works in a synergistic manner to provide further health benefits.



Akazawa N, et al. Artery Research. 2013 Mar 7(1): 67-72.



$$\text{Carotid artery compliance} = \frac{\text{systole caliber} - \text{diastole caliber}}{2(\text{pulse pressure} \times \pi \times \text{diastole caliber})}$$

Disclaimer statements:

These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease. This article contains information, graphics, and data not intended for use in any regulatory applications to secure permit, license, or health claims for any countries.



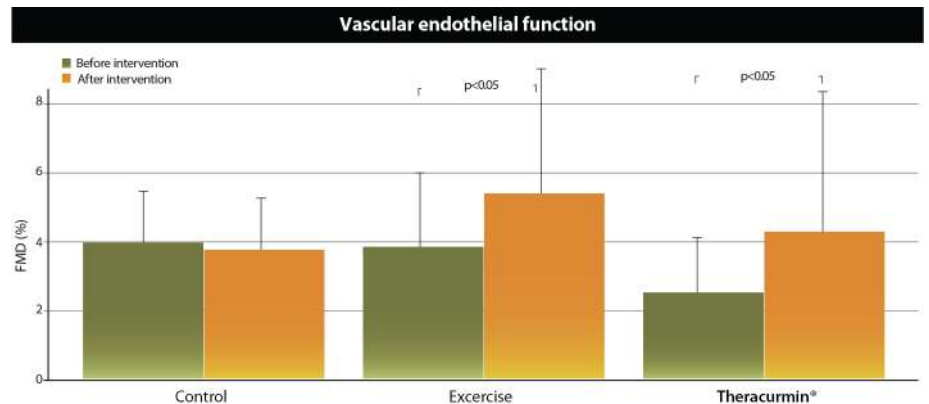
Theracurmin® For Heart Health (3)



Improvement of Endothelial Function

The endothelium is a crucial regulator of vascular homeostasis, acting both as a barrier and signal transducer for any changes felt by the body². Decline in endothelial function become increasingly common with age, more so in women experiencing menopause due to the deficiency in estrogen. This decline can lead to further stress put on the heart. Theracurmin®, through its many health benefits, is thought to exert beneficial effects on endothelial function.

Flow mediated dilation (FMD) is an index of endothelial function which was used as an indicator for endothelial function during the study. FMD was measured at the beginning and end of the 8-weeks trial period in the Control, Exercise, and Theracurmin® groups. After the trial period, FMD was significantly and equally improved in the Theracurmin® and Exercise group, while no changes were seen in the Control group. Findings suggest taking Theracurmin® may have comparable cardiovascular benefits as exercising.



Akazawa N, et al. *Nutr Res.* 2012 Oct;32(10):795-9.

2. Vita JA, Keaney JF. Endothelial function: a barometer for cardiovascular risk? *Circulation.* 2002; 106: 640-642.

STUDY OUTLINE:

- **STUDY DESIGN:**
Three arms, placebo-controlled trial
- **SUBJECTS:**
32 postmenopausal women (age: 54-70)
- **PERIOD:**
8 Weeks
- **DOSE:**
Theracurmin®= 75mg x2/day

RESULTS:

- Significant improvement in Flow-Mediated Dilation (FMD)



Disclaimer statements:

These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease. This article contains information, graphics, and data not intended for use in any regulatory applications to secure permit, license, or health claims for any countries.



Theracurmin® For Muscle Recovery



Post-workout Relief from Muscle Fatigue

Intense exercise and workout sessions can lead to muscle strain, which can prolong decrease in muscle strength and range of motion (ROM) and increase creatine kinase (CK) activity in the blood. This reduces overall training ability and athletic performance.

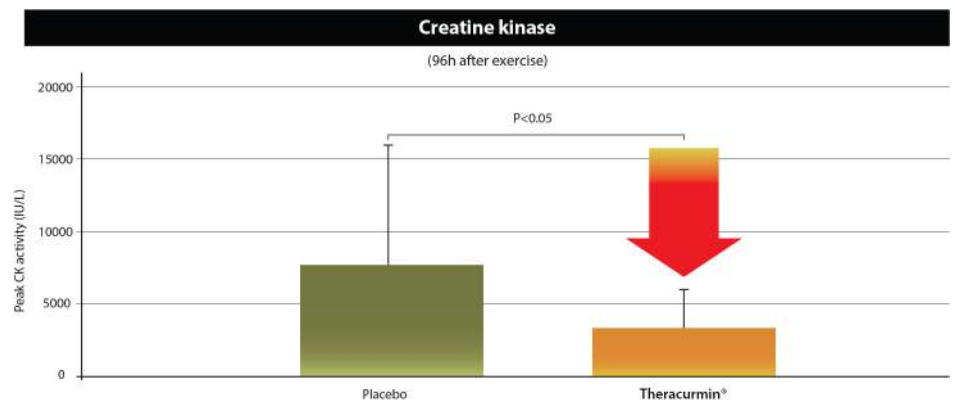
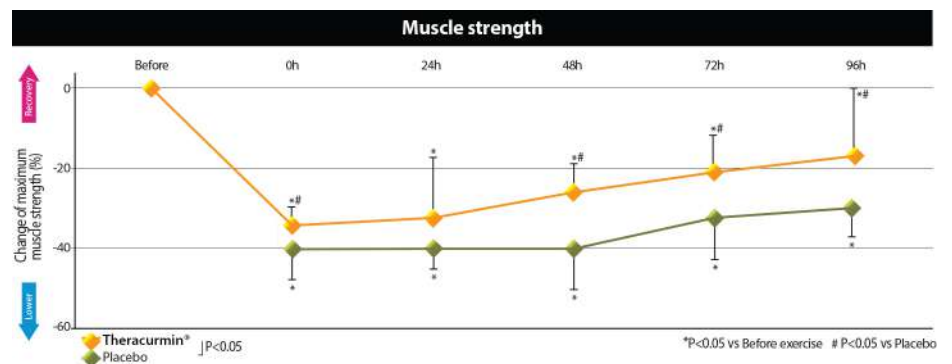
We examined Theracurmin's® effectiveness to facilitate muscle recovery from intense exercise, with results showing it can reduce the loss of muscle strength and improve muscle recovery if taken post workout. The ingredient's protective effects against muscle damage suggests an innovative take for newly developing post-workout products.

STUDY OUTLINE:

- **STUDY DESIGN:**
Two arms, randomized, double-blind, placebo-controlled, crossover trial
- **SUBJECTS:**
14 Healthy Males (Age: 23.5 ± 2.3)
- **INTAKE PERIOD:**
Theracurmin® before and 12hrs after exercise
- **DOSE:**
Theracurmin®= 150mg x2/day

RESULTS:

- Theracurmin® may suppress loss of muscle strength
- Theracurmin® may improve muscle recovery



Tanabe Y, et al. J Nutr Sci Vitaminol (Tokyo). 2019; 65(1):82-89. doi: 10.3177/jnsv.65.82.

Disclaimer statements:

These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease. This article contains information, graphics, and data not intended for use in any regulatory applications to secure permit, license, or health claims for any countries.

STUDY OUTLINE:

- **STUDY DESIGN:**
One arm, open-label, controlled trial
- **SUBJECTS:**
19 Healthy Adults
- **PERIOD:**
1 Month
- **DOSE:**
Theracurmin®= 90mg x2/day

RESULTS:

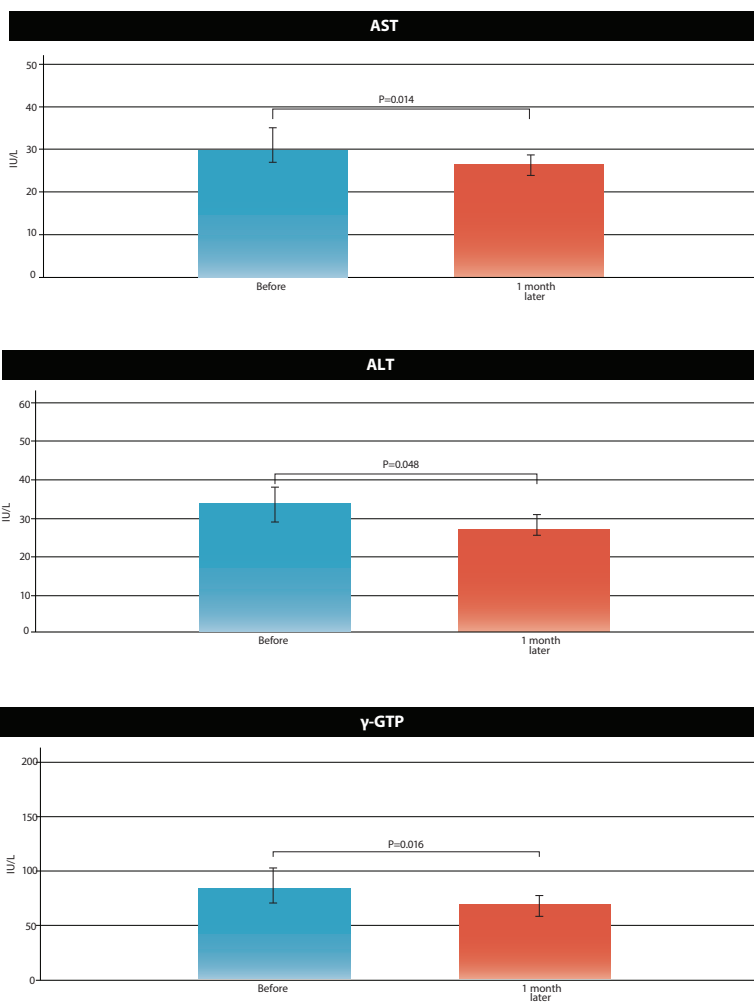
- **Significant improvement in levels of AST, ALT, and Y-GTP**

Theracurmin® For Liver Health (1)

Improvement in Liver Function

The liver plays an essential role in detoxifying harmful substances in the body and, therefore, in supporting overall wellbeing. Tests for liver function typically include enzymes such as alanine transaminase (ALT), aspartate transaminase (AST), and, in Asia, Gamma-glutamyl transferase (γ-GTP) in Asia, with abnormal levels indicating decline in liver function.

A clinical trial performed in Japan showed that a continued intake of Theracurmin® significantly reduced levels of AST, ALT, and γ-GTP after one month, suggesting the ingredient provides support for a healthy hepatic system .



Ozawa H, et al. The Journal of Japan Mibyou System Association 16 (2) 331-333, 2010.

Disclaimer statements:

These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease. This article contains information, graphics, and data not intended for use in any regulatory applications to secure permit, license, or health claims for any countries.





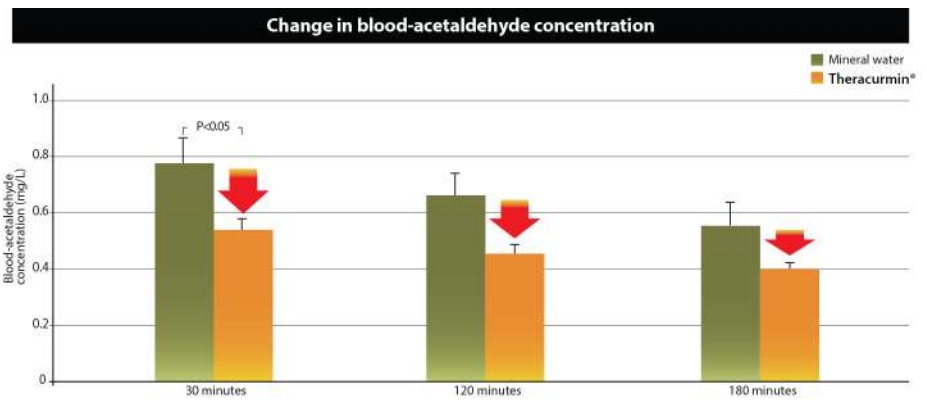
Theracurmin® For Liver Health (2)



Alcohol Metabolism Support

One contributor to adverse effects from alcohol consumption is acetaldehyde, a metabolite of alcohol/ethanol. Although acetaldehyde is eventually secreted out of the body as acetic acid, its presence in the body prior to secretion is thought to have undesirable effects³.

A study confirmed that the concentration of acetaldehyde in the blood was reduced after ingestion of Theracurmin®. With a low dose of only 30mg, Theracurmin® is clinically shown to support alcohol metabolism.



Sasaki H, et al. Biol Pharm Bull: 2011; 34(5): 660-665. Citation

3. <https://www.mcgill.ca/oss/article/health/curing-hangover>

STUDY OUTLINE:

- **STUDY DESIGN:**
Two arms, open-label crossover study
- **SUBJECTS:**
7 Healthy Males (Age: 32-49)
- **DOSE:**
Alcohol intake= 0.5ml/body weight kg as ethanol
Theracurmin®= 30mg

RESULTS:

- Significant reduction of blood acetaldehyde levels



Disclaimer statements:

These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease. This article contains information, graphics, and data not intended for use in any regulatory applications to secure permit, license, or health claims for any countries.

STUDY OUTLINE:

- **STUDY DESIGN:**
Three arms, randomized, double-blind, placebo-controlled, counterbalanced, crossover trial
- **SUBJECTS:**
10 healthy male participants (age 26.8 ± 2.0)
- **INTAKE PERIOD:**
Single dose= 2hrs before exercise

Double dose= 90mg 2hrs before and immediately after exercise
- **DOSE:**
Single dose= 90mg Theracurmin®
Double dose= 90mg Theracurmin® x2

RESULTS:

- Increased biological antioxidant potential (BAP) in plasma
- Increased glutathione levels in plasma

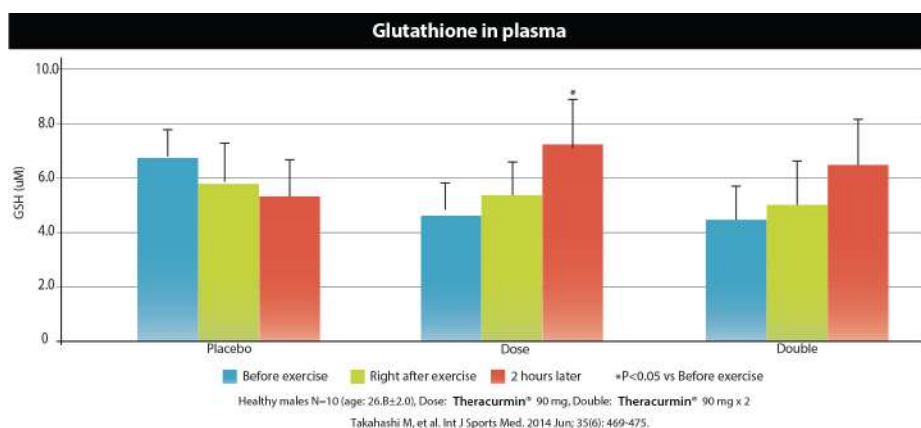
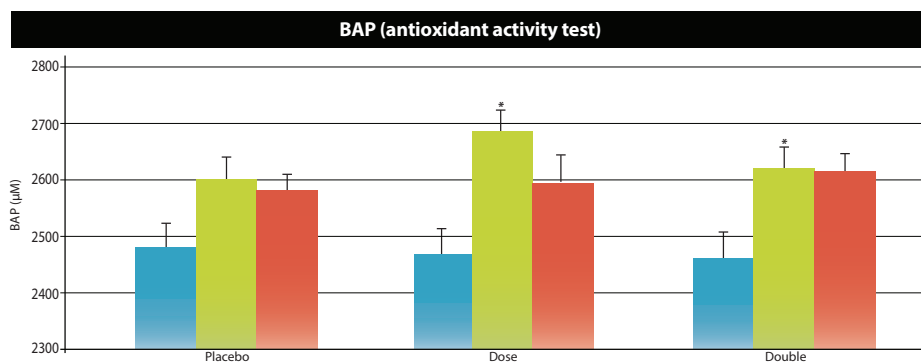
Theracurmin® For Antioxidant Support



Enhancement of Antioxidant Levels in the Body

Although reactive oxygen species (ROS) are essential in maintaining healthy balance in the body, excessive amounts can cause harm by damaging DNA and proteins⁵. One event that can increase ROS levels is exercise which increases oxygen use and induces oxidative stress⁶. Theracurmin®, which harnesses the powerful antioxidant properties of curcumin, is thought to be highly potent in attenuating oxidative stress.

A 3-arm, randomized, double-blind placebo controlled counterbalanced crossover trial investigated the effects of Theracurmin® on exercise induced oxidative stress in healthy humans. Key antioxidants indicators such as biological antioxidant potential (BAP) and glutathione (GSH), which inhibit ROS from oxidizing and causing harm in the body, were measured before, after, and 2hrs after exercise. Aft a 90mg dose, results showed Theracurmin® significantly elevated serum BAP concentrations and post exercise and GSH levels 2hrs after exercise, indicating Theracurmin's® ability to attenuate oxidative stress by facilitating increase of BAP and GSH in the plasma.



Takahashi M, et al. *Int J Sports Med.* 2014 Jun;35(6):469-75.

5. Caputo F, Vegilante R, Ghibelli L. Redox modulation of the DNA damage response. *Biochem Pharmacol.* 2012; 84: 1292-1306. 15.

6. Powers SK, Nelson WB, Hudson MB. Exercise-induced oxidative stress in humans: cause and consequences. *Free Radic Biol Med.* 2011; 51: 942-950.

Disclaimer statements:

These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease. This article contains information, graphics, and data not intended for use in any regulatory applications to secure permit, license, or health claims for any countries.



Clinical Studies On Efficacy

Completed Studies			
Research Area	Institute/University	Results	Type
Brain Health	UCLA	Daily oral Theracurmin may lead to improved memory and attention	Clinical
Mental Health	UCLA (VA Greater Los Angeles Healthcare System)	Significantly increased BDNF level	Clinical
	Tehran Univ. of medical sciences	Significantly decreased frequency, severity & duration, with reduced MCP-1 serum levels	Clinical
Hepatic function	Takanawa Medical Clinic	Significantly improved γ -GTP, AST and ALT	Clinical
Alcohol metabolism	Theravalues Corp.	Significantly reduced blood-acetaldehyde level	Clinical
Joint Health	Kyoto Medical Center	Significantly reduced VAS for pain	Clinical
Cartilage Health	Kyoto Medical Center	Significantly improved cartilage stiffness and surface roughness	Clinical
Cardiovascular function	Tsukuba Univ.	Significantly improved carotid artery stiffness and other functions	Clinical
Anti-oxidative stress	Tsukuba Univ.	Significantly decreased oxidant stress by exercise	Clinical
Muscle fatigue relief	Tsukuba Univ.	Significantly accelerated muscle fatigue recovery	Clinical
	Japan Institute of Sports Sciences	Significantly decreased muscle soreness	Clinical
Immune Health	Kyoto Univ.	Significantly improved QOL	Clinical
Respiratory Health	Kyoto Medical Center	Significantly reduced AT-LDL change ratio	Clinical

On-going Studies				
Research Area	Institute/University	Test Design	Dosage/Duration	Type
Colon Health	+ 16 facilities Kyoto Prefectural University of Medicine	Double-blind placebo control, n=600	180 mg x 2/day 2 years	Clinical

Clinical Studies On Safety

Safety Assessment by Clinical Study in Healthy Volunteers		
Test	Safety test with excessive dosage	Long term safty test with standard dosage
Test Detail	Tested dosage (as curcumin): 900 mg/q.d./p.o. Period: 4 weeks (5 x of standard dosage*)	Tested dosage (as curcumin): 180 mg/q.d./p.o. Period: 12 weeks (standard dosage*)
Result	Theracurmin® was proved its safety in this study	Theracurmin® was proved its safety in this study

q.d.: Once a day

ADI: Acceptable Daily Intake(3 mg/kg)

p.o.: Oral intake

*Standard dosage: 180 mg/day(as curcumin) = ADI(3 mg/kg) x 60 kg (average adult body weight)

Disclaimer statements:

These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease. This article contains information, graphics, and data not intended for use in any regulatory applications to secure permit, license, or health claims for any countries.

Applications

Theracurmin's® excellent property allows for use in various applications such as:

- Gummies
- Capsules
- Tablets
- Beverages
- Powder mix and More



With only one active ingredient and multiple proven health benefits, Theracurmin® can be positioned as a single ingredient product or in combination with other ingredients; the brain, cardiovascular system, liver, joint, and bone health are all health categories this versatile product can fit into.



FEATURES:

- The high dispersibility, photostability, and heat stability of Theracurmin® offers a wide spectrum of unlimited applications to experience the benefits of curcumin



Disclaimer statements:

These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease. This article contains information, graphics, and data not intended for use in any regulatory applications to secure permit, license, or health claims for any countries.

Who Is Handok Healthcare?



Handok Healthcare: Bringing Nature's Solutions to Life Through Science

Handok Healthcare is a specialized company dedicated to the scientific research and development of superior naturally derived ingredients. We deliver health products with verified safety and efficacy, built on a foundation of rigorous quality management systems and continuous R&D investment. We are committed to supporting our customers' healthier lifestyles.



OUR VALUES

- **COMMITMENT TO QUALITY**
The highest level of ingredients are used to manufacture our products in Japan.
- **EVIDENCE ORIENTED**
With scientific evidence being the foundation of HANDOK HEALTHCARE, the safety and efficacy of our products are supported by research.
- **INTEGRITY**
Regulations are strictly followed in our facilities to ensure transparency and reliability.
- **ENVIRONMENTALLY CONSCIOUS**
All our ingredients are naturally sourced and plant based to provide sustainable products.

Mission And Vision

Handok Healthcare strives to help individuals around the world achieve their definition of an optimal life, promoting meaningful living for all people.

We do so by providing quality products made from raw ingredients that have been used for centuries in natural medicine and healing practices. We utilize cutting-edge Japanese technology to create health solutions that are backed by our evidence-oriented process.

Disclaimer statements:

These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease. This article contains information, graphics, and data not intended for use in any regulatory applications to secure permit, license, or health claims for any countries.

Explore our clinically supported product portfolio developed to empower healthy aging and vitality through evidence-based nutrition.

Handok Healthcare

- 📍 **Korea** 132 Teheran-ro, Gangnam-gu, Seoul, South Korea
- 📍 **Japan** 2F VORT Hirakawacho 1-5-15 Hirakawacho, Chiyoda-ku, Tokyo 102-0093, Japan
- ✉️ HHC-Global@handokhc.com

