



# Cardio Care\*

## PHYTONUTRIENT SUPPLEMENT

### Nutrient and herbal combination for cardiovascular support\*

- Helps to support cardiovascular health and muscle function\*
- Helps to promote healthy lipid and energy metabolism\*
- Promotes antioxidant defense\*
- Includes standardized extracts from garlic, hawthorn and Cardiophenol™ fruit blend

Cardio Care supports cardiovascular health using a unique combination of coenzyme Q<sub>10</sub>, magnesium and standardized plant extracts.<sup>1-11\*</sup> Coenzyme Q<sub>10</sub> is required for electron transfer in the mitochondrial respiratory chain, which produces energy necessary for cellular functions and muscle contractions.<sup>2,3</sup> As a result, its highest levels are found in the most metabolically active tissues, including the heart.<sup>2</sup> Coenzyme Q<sub>10</sub> supplementation has been shown to promote cardiovascular health in adults, including healthy blood flow and myocardial function.<sup>4,5\*</sup> Along with Cardiophenol™ grape and organic cranberry extract, it also provides antioxidant defense, promotes the integrity of vitamin E, and may support healthy lipid metabolism.<sup>6-8\*</sup> Cardio Care also includes garlic to promote healthy lipid metabolism, plus magnesium to support muscle function.<sup>9-11\*</sup>



### Supplement Facts

Serving Size 1 Capsule  
Servings per Container 60

Each Capsule Contains		%DV
Vitamin C (as ascorbyl palmitate)	7 mg	12%
Magnesium (as magnesium citrate)	50 mg	13%
Cardiophenol™ Proprietary Blend Grape ( <i>Vitis vinifera</i> ) Seed Extract Organic Cranberry ( <i>Vaccinium macrocarpon</i> ) Fruit Extract	115 mg	†
Garlic ( <i>Allium sativum</i> ) Bulb Std. Extract (1% Allicin)	100 mg	†
Hawthorn ( <i>Crataegus monogyna/laevigata</i> ) Flower and Leaf Std. Extract (3-6:1) (165-330 mg Dried Equivalent/1.5% Flavonoids)	55 mg	†
Coenzyme Q <sub>10</sub> (from yeast fermentation)	40 mg	†

† Daily Value (DV) not established

Other ingredients: Hypromellose, silica

**Recommended Adult Dose:** Take one to two capsules daily or as recommended by your healthcare practitioner.

**Product Size:** 60 Vegetable Capsules **Product Code:** 10363



#### REFERENCES

1. Fotino, AD, Thompson-Paul, AM, Bazzano, LA. Am J Clin Nutr. 2013; 97: 268-275.
2. Bonakdar, RA, Guarneri, E. Am Fam Physician. 2005; 72: 1065-1070.
3. Crane, FL. J Am Coll Nutr. 2001; 20(6): 591-598.
4. Hamilton, SJ, Chew, GT, Watts, GF. Diab Care. 2009; 32: 810-812.
5. Rosenfeldt, FL, Pepe, S, Linnane, A, Nagley, P, Rowland, M, Ou, R, Marasco, S, Lyon, W. Biogerontology. 2002; 3: 37-40.
6. Sies, H. Arch Biochem Biophys. 2010; 501: 2-5.
7. Tiano, L, Belardinelli, R, Carnevali, P, Principi, F, Seddaiu, G, Littarru, GP. Eur Heart J. 2007; 28: 2249-2255.
8. Singh, RB, Niaz, MA, Rastogi, SS, Shukla, PK, Thakur, AS. J Hum Hypertens. 1999; 13: 203-208.
9. Qidwai, W, Ashfaq, T. Evid Based Complement and Alternat Med. 2013; 2013: 125649.
10. Kojuri, J, Vosoughi, AR, Akrami, M. Lipids Health Dis. 2007; 6:5.
11. de Baaij, JHF, Hoenderop, JGJ, Bindels, RJM. Physiol Rev. 2015; 95: 1-46.

\*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 information is intended for use by healthcare practitioners only and does not establish a doctor-patient relationship. Please be sure to consult your physician before taking this or any other product.

Copyright © 2016 Seroyal. All rights reserved. No part of this information may be used or reproduced in any form or by any means, or stored in a database or retrieval system, or be distributed or replicated without express permission of Seroyal. Making copies of any part of this information for any purposes other than your own personal use is a violation of copyright law.

3452. Version 1.

US: (888) 737-6925 | [www.seroyal.com](http://www.seroyal.com) **Seroyal**



## Scientific Rationale:

### Cardiophenol™

Oxidative stress can be generated by cellular respiration and certain enzyme systems.<sup>1</sup> The production of free radicals can result in the oxidative damage of lipids, proteins and nucleic acids, impairing the normal function of cells.<sup>31</sup> Free radical formation increases naturally with age and is amplified during exercise, as contracting muscles produce higher levels of oxidants.<sup>1,2\*</sup> In turn, oxidative stress during exercise can mediate the function of contractile proteins and result in muscular fatigue.<sup>2\*</sup> Antioxidants decrease oxidative stress by reacting with free radicals to prevent their propagation.<sup>1\*</sup>

Cardiophenol™ is a blend of grape and organic cranberry extracts. Clinical trials have found that cranberry and grape seed extracts contain polyphenols that support the antioxidant defense system, including decreased LDL oxidation.<sup>3-6\*</sup> These extracts may also promote healthy systolic function, likely due to the increased nitric oxide bioavailability associated with decreased oxidative stress.<sup>5,7,8\*</sup> Cranberry extract may also support cardiovascular function by promoting healthy lipid metabolism, while grape seed extract may support a healthy inflammatory balance.<sup>4-6\*</sup>

### Coenzyme Q<sub>10</sub>

Coenzyme Q<sub>10</sub> is required for electron transfer in the mitochondrial respiratory chain, which produces energy necessary for cellular functions and muscle contractions.<sup>9,10\*</sup> As a result, its highest levels are found in the most metabolically active tissues, including the heart.<sup>9</sup> Coenzyme Q<sub>10</sub> supplementation has been shown to promote cardiovascular health in adults, including support for endothelial function and contractility of the heart after exercise.<sup>11-14\*</sup> It also maintains antioxidant defense and promotes healthy expression of antioxidant enzymes, including catalase, superoxide dismutase and glutathione peroxidase.<sup>14-16\*</sup> Decreases in serum and tissue coenzyme Q<sub>10</sub> are associated with aging and statin drug use, and research demonstrates that it is difficult to increase coenzyme Q<sub>10</sub> levels from the diet alone.<sup>17\*</sup> Therefore, supplementation to increase coenzyme Q<sub>10</sub> levels may be especially beneficial in these populations.<sup>17\*</sup>

### Hawthorn

Hawthorn is a red fruit-bearing plant with white flowers that is native to the temperate regions of Europe, Asia and eastern North America.<sup>18</sup> The most potent parts of the plant include its leaves and flowers, which contain a variety of flavonoid compounds.<sup>18</sup> These flavonoids have strong

antioxidant activity and may contribute to supporting cardiovascular health.<sup>18\*</sup> Research demonstrates that hawthorn promotes normal heart rhythms by mediating potassium channels in the heart, which stabilizes the length of the refractory period and action potential.<sup>18\*</sup> By regulating calcium levels in the cell, hawthorn may control the contractile force of heart muscles.<sup>18\*</sup> Hawthorn also promotes healthy blood flow by supporting nitric oxide production from endothelial cells.<sup>18\*</sup> In a meta-analysis that included 14 randomized, double-blind, placebo-controlled trials, hawthorn supplementation was found to significantly promote healthy cardiovascular function.<sup>19\*</sup>

### Garlic

The main bioactive compound in garlic is allicin.<sup>20</sup> When broken down, this sulfur-containing compound is responsible for garlic's characteristic odor.<sup>20</sup> Clinical trials have demonstrated that garlic supports cardiovascular health by promoting healthy artery, platelet and endothelial cell function.<sup>21-24\*</sup> Garlic also supports the antioxidant defense system and decreases oxidative stress in both lipids and DNA.<sup>22-24\*</sup> Studies have also extensively researched the ability of garlic to mediate lipid metabolism, and clinical trials have found that garlic supports healthy cholesterol metabolism.<sup>25-29\*</sup>

### Magnesium

Magnesium is a cofactor for over 600 enzymes that mediate, in part, amino acid synthesis and glycolysis.<sup>30\*</sup> It is also a natural calcium channel blocker that may promote cardiovascular health by regulating cardiac excitability, vascular-smooth muscle and endothelial cells.<sup>31-33\*</sup> A meta-analysis of 16 clinical trials found that dietary and circulating magnesium levels are associated with heart and cardiovascular health.<sup>34\*</sup> Specifically, meta-analyses have reported that magnesium supplementation promotes healthy heart rhythms, systolic and diastolic function, and glucose metabolism.<sup>35-37\*</sup> Magnesium is also a cofactor for the enzyme creatine kinase, which generates ATP from phosphocreatine stored in muscle tissues during intense exercise (known as alactic anaerobic metabolism).<sup>38\*</sup> Supplementation with magnesium has been found to support muscle function associated with intense exercise by improving alactic anaerobic metabolism.<sup>38\*</sup> Similarly, a clinical trial reported that magnesium intake supported exercise performance, as measured by VO<sub>2</sub> max, heart rate and left ventricular ejection fraction.<sup>35\*</sup>

## REFERENCES

- O'Brien, ME, Nair, NG, Beyaz, A, Aliev, G, Reddy, VP. Rejuvenation Res. 2010; 13(6): 631-643.
- Powers, SK, Jackson, MJ. Physiol Rev. 2008; 88: 1243-1276.
- Ruel, G, Pomerleau, S, Couture, P, Lamarche, B, Couillard, C. Metab Clin Exp. 2005; 54: 856-861.
- Ruel, G, Pomerleau, S, Couture, P, Lemieux, S, Lamarche, B, Couillard, C. Br J Nutr. 2006; 96: 357-364.
- Ruel, G, Pomerleau, S, Couture, P, Lemieux, S, Lamarche, B, Couillard, C. Br J Nutr. 2008; 99: 352-359.
- Kar, P, Light, D, Rooprai, HK, Shaw, KM, Cummings, M. Diab Med. 2009; 26: 526-531.
- Sivaprakasapillai, B, Edirisinghe, I, Randolph, J, Steinberg, F, Kappagodaa, T. Metab Clin Exp. 2009; 58: 1743-1746.
- Feringa, HH, Laskey, DA, Dickson, JE, Coleman, CI. J Am Diet Assoc. 2011; 111: 1173-1181.
- Bonakdar, RA, Guarnieri, E. Am Fam Physician. 2005; 72: 1065-1070.
- Crane, FL. J Am Coll Nutr. 2001; 20(6): 591-598.
- Hamilton, SJ, Chew, GT, Watts, GF. Diab Care. 2009; 32(5): 810-812.
- Watts, GF, Playford, DA, Croft, KD, Ward, NC, Mori, TA, Burke, V. Diabetologia. 2002; 45: 420-426.
- Belardinelli, R, Mucari, A, Lacalaprice, F, Solenghi, M, Seddaiu, G, Principi, F, Tiano, L, Littarru, GP. Eur Heart J. 2006; 27: 2675-2681.
- Tiano, L, Belardinelli, R, Carnevali, P, Principi, F, Seddaiu, G, Littarru, GP. Eur Heart J. 2007; 28: 2249-2255.
- Diaz-Castro, J, Guisado, R, Kajarabille, N, Garcia, C, Guisado, IM, de Teresa, C, Ochoa, JJ. Eur J Nutr. 2012; 51: 791-799.
- Kalpravidh, RW, Wichit, A, Sritanaratkul, N, Fucharoen, S. BioFactors. 2005; 25: 225-234.
- Crane, FL. J Am Coll Nutr. 2001; 20(6): 591-598.
- Chang, WT, Dao, J, Shao, ZH. Am J Chin Med. 2005; 33(1): 1-10.
- Guo, R, Pittler, MH, Ernst, E. Cochrane Database Syst Rev. 2008; 1: CD005312.
- Qidwai, W, Ashfaq, T. Evid Based Complement Alternat Med. 2013; 2013: 125649.
- Budoff, M. J. Nutr. 2006; 136: 7415-7445.
- Rahman, K, Billington, D. J. Nutr. 2000; 130: 2662-2665.
- Dhawan, V, Jain, S. Mol Cell Biochem. 2004; 266: 109-115.
- Dhawan, V, Jain, S. Mol Cell Biochem. 2005; 275: 85-94.
- Duda, G, Suliburska, J, Papek-Musialik, D. Pharmacol Rep. 2008; 60: 163-170.
- Sobenin, IA, Pryanishnikov, VV, Kunnova, LM, Rabinovich, YA, Martirosyan, DM, Orekhov, AN. Lipids Health Dis. 2010; 9: 119.
- Ashraf, R, Aamir, K, Shaikh, AR, Ahmed, T, J Ayub Med Coll Abbottabad. 2005; 17(3): 60-64.
- Zhang, XH, Lowe, D, Giles, P, Fell, S, Board, AR, Baughan, JA, Connock, MJ, Maslin, DJ. Blood Coagul Fibrinolysis. 2000; 11: 67-74.
- Kojuri, J, Vosoughi, AR, Akrami, M. Lipids Health Dis. 2007; 6: 5.
- de Baaij, JHF, Hoenderop, JGJ, Bindels, RJM. Physiol Rev. 2015; 95: 1-46.
- Mathers, TW, Beckstrand, RL. J Am Acad Nurse Pract. 2009; 21: 651-657.
- Kupetsky-Rincon, EA, Uitto, J. Ann Nutr Metab. 2012; 61: 102-110.
- Fuentes, JC, Salmon, AA, Silver, MA. Congest Heart Fail. 2006; 12(1): 9-13.
- Del Gobbo, LC, Imamura, F, Wu, JHY, de Oliveira Otto, MC, Chiuve, SE, Mozaffarian, D. Am J Clin Nutr. 2013; 98: 160-173.
- Miller, S, Crystal, E, Garfinkle, M, Lau, C, Lashevsky, I, Connolly, SJ. Heart. 2005; 91: 618-623.
- Kass, L, Weekes, J, Carpenter, L. Eur J Clin Nutr. 2012; 66: 411-418.
- Song, Y, He, K, Levitan, EB, Manson, JE, Liu, S. Diabet Med. 2006; 23(10): 1050-1056.
- Setaro, L, Santos-Silva, PR, Nakano, EY, Sales, CH, Nunes, N, Greve, JM, Colli C. J Sports Sci. 2014; 32(5): 438-445.

\*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 information is intended for use by healthcare practitioners only and does not establish a doctor-patient relationship. Please be sure to consult your physician before taking this or any other product.

Copyright © 2016 Seroyal. All rights reserved. No part of this information may be used or reproduced in any form or by any means, or stored in a database or retrieval system, or be distributed or replicated without express permission of Seroyal. Making copies of any part of this information for any purposes other than your own personal use is a violation of copyright law.