

HRB 705

Final Presentation

Introduction to Course Assignment

Choose a Body System

Summarize the Anatomy & Physiology

Relevant Actions

Herbs

Pathophysiology

Market Evaluation

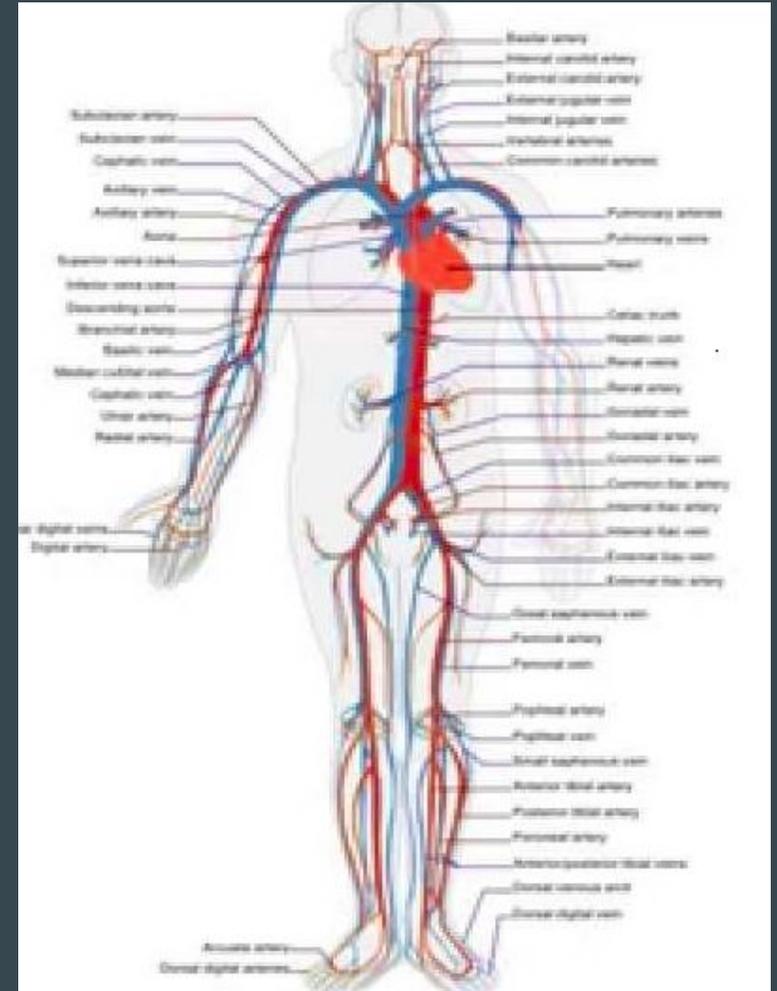
Product Design



Circulatory System

Major anatomical structures. According to the U.S. National Library of Medicine, the circulatory system is a one way system that is made of 3 independent systems: the cardiovascular system, which includes the heart, the pulmonary system (lungs), about 60,000 miles of arteries and veins that move blood throughout the body, and the blood the carries oxygen throughout the body.

The systemic circulation allows the blood to carry oxygen and other vital nutrients to all of the cells in the body. The pulmonary circulation system is what allows us to breath. It is where we intake oxygen to be carried throughout the body, and exhales carbon dioxide.



Relevant Herbs & Actions

Important Herbal Actions:

- Cardioprotective
- Cardiotonic
- Hypotensive
- Vasodilator
- Vascular tonic.

Herbs that match the herbal actions.

- Cardioprotective - *Camellia sinensis*, *Crataegus monogyna*, *Terminalia*, *Salvia miltiorrhiza*, *Ganoderma lucidum*, *Vitis vinifera*.
 - Cardiotonic - *Ganoderma lucidum*, *Rhodiola rosea*.
 - Hypotensive - *Allium sativum*, *Camellia sinensis*, *Passiflora incarnata*, *Valeriana officinalis*.
 - Vasodilator - *Ganoderma lucidum*.
 - Vascular tonic - *Crataegus monogyna*.
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Body System: Circulatory System

Assignment: Take a survey of common conditions and make a list of 3-5 conditions.

- Aneurysm
- Atherosclerosis
- Heart Disease
- High Blood Pressure
- **Varicose Veins - Veins that are enlarged or bulging, resulting from ineffective blood flow. "Venous Insufficiency".**

Project Market Evaluation



FREE SHIPPING

Supplement Facts	
45 tablets	Servings per container 45
Amount per 2 tablets	%DV**
Total Carbohydrate	<1 g <1%**
Calcium (as calcium carbonate)	140 mg 14%
Butcher's Broom (<i>Ruscus aculeatus</i>) Root and Rhizome Extract standardized to contain 9% saponins calculated as ruscogenins	300 mg ***
Horse Chestnut (<i>Aesculus hippocastanum</i>) Seed Extract standardized to contain 20% triterpene glycosides calculated as escin	250 mg ***
Gotu Kola (<i>Centella asiatica</i>) Leaf Phytosome™	30 mg ***
One part Gotu Kola Extract, standardized to contain 90% centella triterpenes, bound to two parts phosphatidylcholine (soy) using a proprietary process for improved absorption*	
**Percent Daily Values (DV) are based on a 2,000 calorie diet.	
***Daily Value not established.	
Other ingredients: cellulose, modified cellulose gum, modified cellulose, magnesium stearate, and carnauba wax.	

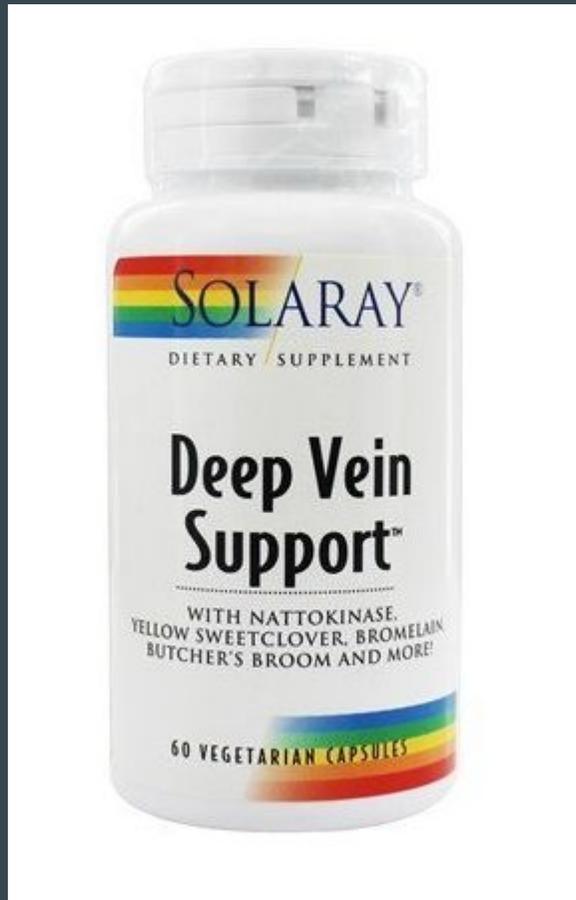


SUPPLEMENT FACTS

Supplement Facts

Serving Size:	2 Veg Capsules	
Servings Per Container:	45	
	Amount per Serving	% Daily Value
Trunorin™ (Standardized Prickly Ash Bark Extract)		
(<i>Zanthoxylum americanum</i> and/or <i>Zanthoxylum clava-herculis</i>) (min. 6% Total Alkaloids)	250 mg	†
Horse Chestnut Extract (<i>Aesculus hippocastanum</i>) (Seed/Fruit) (min. 20% Aescin)	100 mg	†
Butcher's Broom Extract (<i>Ruscus aculeatus</i>) (Root) (min. 10% Saponins Ruscogenin)	50 mg	†
Grape Seed Extract (<i>Vitis vinifera</i>) (Standardized for Polyphenols)	20 mg	†
Rutin Powder (<i>Sophora japonica</i>) (Flower Bud)	10 mg	†
* Percent Daily Values are based on 2,000 calorie diet.		
† Daily Value not established.		
Other Ingredients:		
Rice Flour, Cellulose Powder, Cellulose (capsule), Magnesium Stearate (vegetable source) and Silica.		
Contains tree nut (horse chestnut).		
Not manufactured with wheat, gluten, soy, milk, egg, fish or shellfish ingredients. Produced in a GMP facility that processes other ingredients containing these allergens.		
Caution: For adults only. Consult physician if pregnant/nursing, taking medication, or have a medical condition. Keep out of reach of children.		

Project Market Evaluation



Solaray - Deep Vein Support - 60 Vegetarian Capsules

Supplement Facts		
Serving Size: 2 Vegetarian Capsules		
Servings Per Container: 30		
	Amount Per Serving	%DV†
Vitamin C (as Ascorbic Acid)	60 mg	100%
Deep Vein Support Herbal Blend	745 mg	*
Sweetclover (Melilotus officinalis) (aerial extract) (supplying 3mg [1%] Coumarins), Horse Chestnut (Aesculus hippocastanum) (seed extract) (Supplying 49 mg [16%] Aescin), Butcher's Broom (Ruscus aculeatus) (root)		
Bromelain (from pineapple stem) (Supplying 1250 GDU [2500 GDU/g])	500 mg	*
Hesperidin Concentrate (from Citrus)	150 mg	*
Nattokinase (Soy Bean Fibrinase) (Supplying 37.5 FU [Fibrinolytic Units])	3 mg	*

*Daily Value Not Established.
†Percent Daily Values are based on a 2,000 calorie diet. Your diet values may be higher or lower depending on your calorie needs.

Other Ingredients: Vegetable Cellulose Capsule, Maltodextrin, Magnesium Stearate, Silica and Cellulose.



Supplement Facts		
Serving Size 2 Capsules		
Servings per container: 45		
Amount Per 2 Capsules	%Daily Value	
Vitamin C (ascorbic acid)	97 mg	160%
Horse Chestnut Seed Extract (<i>Aesculus hippocastanum</i>) 20% aescin	300 mg	*
Fenugreek Seed (<i>Trigonella foenum-graecum</i>)	90 mg	*
Rutin	60 mg	*
Hesperidin	60 mg	*
Lemon Bioflavonoid	60 mg	*
Butcher's Broom Root Extract (<i>Ruscus aculeatus</i>) 8.5% ruscogenins	50 mg	*

*Daily Value not established

Evaluation of Vein Complex

The product contains **300 mg of Butcher's Broom (*Ruscus aculeatus*) root and rhizome extract**, standardized to contain 9% saponins calculated as ruscogenins. Butcher's Broom, *Ruscus aculeatus*, has long been known as an important herb in the treatment of venous insufficiency. There have been numerous clinical and animal studies involving the herb's venotonic and anti-inflammatory properties, as well as a meta-analysis. Most of the studies have, however, involved Butcher's Broom in combination products. Clinical studies have demonstrated that it reduces venous dilation and enhances venous return because of its adrenergic action (Bone & Mills, 2013). Bioavailability of this herb is assessed to be good when administered orally, with about a 65% absorption rate.

The product contains **250 mg Horse Chestnut (*Aesculus hippocastanum*)**. Horse Chestnut Extract (HCE) is a vascular tonic and is high in flavonoids. According to Hoffman 2013, not only do flavonoid-rich plants play a role in supporting varicose veins, but the saponin glycoside aescin inhibits the actions of certain enzymes that lead to, or exacerbate varicose veins. Specifically, HCE has shown promise in clinical studies as an effective venotonic and as supporting blood flow. Additionally, it has anti-inflammatory properties that help with edema related to venous insufficiency.

Market Evaluation

The formula contains **30 mg of Gotu Kola (*Centella asiatica*)** with the explanation that “one part Gotu Kola Extract was standardized to contain 90% centella triterpenes, bound to two parts phosphatidylcholine (soy) using a proprietary process for better absorption”. Gotu Kola, *Centella asiatica* is a well-known Ayurvedic herb most often used for wound healing and supporting cognitive function, however clinical trials show that it is useful for venous insufficiency, possibly more so than most other herbs. The herb has anti-inflammatory and venotonic properties. Used consistently for 30 days, it promotes microcirculation and strengthening of the vein wall.

Hoffman, 2003 recommends **200 mg** of 4:1 Butcher’s Broom concentrate standardized to contain 20 mg of saponins, two to three times per day (**400-600 mg total**). Gotu Kola is recommended as **60 to 180 mg** per day as extract tablets. The recommended dosage for Horse Chestnut ranges quite a bit by source, but is between **400 - 900 mg** per day for a standardized extract.

The product is designed to be taken twice daily. Each dose contains 300 mg Butcher’s Broom, 250 mg Horse Chestnut, and 30mg Gotu Kola. The total daily dose would be **600 mg Butcher’s Broom, 500 mg Horse Chestnut, and 60 mg of Gotu Kola.**

Market Evaluation

Dose: The dose of Gotu Kola and Horse Chestnut are on the low end of the spectrum and could be raised, however the product dose is within recommended range.

Safety: Horse Chestnut contains coumarins so there are theoretical safety concerns when used with anticoagulants. Butcher's Broom has relatively few side effects, with concerns mainly focused on avoiding topical contact with cuts or scrapes. Gotu Kola is a very safe herb, with almost no known side effects. With any of these herbs, they should be avoided if gastrointestinal upset occurs.

Final thoughts: Safe, effective over time.

Product Design

Goal:

Develop a formula to support varicose veins by applying knowledge and research of pathophysiology, herbal actions, and relevant herbs.

This product is an herbal supplement designed to support optimal circulation in the legs, reduce inflammation caused by varicose veins, and reduce swollen or bulging veins. To accomplish this I focused on herbs that were venotonic, vasoconstrictive, and anti-inflammatory. I chose to use Horse Chestnut Extract (HCE), *Aesculus hippocastanum*, *Ginkgo Biloba*, Butcher's Broom, Gotu Kola, and Hawthorn *Crataegus*.

Horse Chestnut Extract (HCE) is a vascular tonic and is high in flavonoids. According to Hoffman 2013, not only do flavonoid-rich plants play a role in supporting varicose veins, but the saponin glycoside aescin inhibits the actions of certain enzymes that lead to, or exacerbate varicose veins. Specifically, HCE has shown promise in clinical studies as an effective venotonic and as supporting blood flow. Additionally, it has anti-inflammatory properties that help with edema related to venous insufficiency.

Ginkgo- Ginkgo is a circulatory stimulant. While it is primarily used for supporting cerebral and retinal blood flow it would be a great supportive herb in this formula. Ginkgo supports tissue oxygenation as well as increases blood flow. Studies have primarily focused on cerebral use, however some show that it improves the body's stress adaptation.

Butcher's Broom, *Ruscus aculeatus*, has long been known as an important herb in the treatment of venous insufficiency. There have been numerous clinical and animal studies involving the herb's venotonic and anti-inflammatory properties, as well as a meta-analysis.. Most of the studies have, however, involved Butcher's Broom in combination products. Clinical studies have demonstrated that it reduces venous dilation and enhances venous return because of its adrenergic action (Bone & Mills, 2013). Bioavailability of this herb is assessed to be good when administered orally, with about a 65% absorption rate.

Gotu Kola, *Centella asiatica* is a well known Ayurvedic herb most often used for wound healing and supporting cognitive function, however clinical trials show that it is useful for venous insufficiency, possibly more so than most other herbs. The herb has anti-inflammatory and venotonic properties. Used consistently for 30 days, it promotes microcirculation and strengthening the vein wall.

Hawthorn is a vascular tonic and much revered for its use for the heart. It can be used to support connective tissue, making it very useful for problems with varicose veins. It is included in this formula primarily for its cardiotonic properties.

Formula

This formula is for an herbal supplement to be taken twice daily. Each capsule contains 440 mg of powdered extract.

Horse Chestnut Extract, *Aesculus hippocastanum* - 50 mg (100 mg daily)
Ginkgo biloba, - 60 mg (120 mg daily)
Butcher's Broom, *Ruscus aculeatus* - 200 mg (400 mg daily)
Gotu Kola, *Centella asiatica* - 30 mg (60 mg daily)
Hawthorn *Crataegus*, 100 mg (200 mg daily)

Product Design

1. Develop a name.
2. Develop marketing pitch.
3. Create marketing materials.

Natural formula designed to support your circulatory system by promoting optimal blood flow and vein strength.

VARI-GOOD SUPPORT

HERBAL SUPPLEMENT

Directions for use: Take 1 capsule twice a day for maximum circulatory support.

Warning: If you are pregnant, nursing, or taking anticoagulant medication, please discuss with your doctor. While clinical evidence shows that these herbs pose a very low risk during pregnancy and lactation, always get your doctor's approval. Discontinue use if you develop adverse reactions.

Ingredients: Ruscus aculeatus (Butcher's Broom) - 200 mg, Crataegus (Hawthorn) - 100 mg, Ginkgo biloba - 60 mg, Centella asiatica (Gotu Kola) - 30 mg, Aesculus hippocastanum (Horse Chestnut Extract)- 50 mg:

This dietary supplement has not been evaluated by the FDA and is not intended to diagnose, treat, cure or prevent any disease.

Conclusion

Pathophysiology is important

Research dosage is thoroughly

Understanding dosage terminology

References

- Bone, K., & Mills, S. (2013). *Principles and practice of phytotherapy modern herbal medicine*. Edinburgh: Churchill Livingstone, Elsevier.
- Facino, R., Carini, M., Stefani, R., Aldini, G., & Saibene, L. (1995). Anti-Elastase and Anti-Hyaluronidase Activities of Saponins and Sapogenins from *Hedera helix*, *Aesculus hippocastanum*, and *Ruscus aculeatus*: Factors Contributing to their Efficacy in the Treatment of Venous Insufficiency. *Archiv Der Pharmazie*, 328(10), 720-724. doi:10.1002/ardp.19953281006
- Hoffmann, D. (2003). *Medical herbalism: the science and practice of herbal medicine*. Rochester, VT: Healing Arts Press.
- Mashour, N. H., Lin, G. I., & Frishman, W. H. (1998). *Herbal Medicine for the Treatment of Cardiovascular*

References cont.

- Disease. *Archives of Internal Medicine*, 158(20), 2225.
doi:10.1001/archinte.158.20.2225
- Pengelly, A. (2016). Cardiac Support: Part I [Powerpoint slides].
- Varicose Vein Surgery: Background, Anatomy, Pathophysiology. (2017, December 14). Retrieved from <https://emedicine.medscape.com/article/462579-overview>
- Zimmermann, K. A. (2018, March 16). Circulatory System: Facts, Function & Diseases. Retrieved from <https://www.livescience.com/22486-circulatory-system.html>