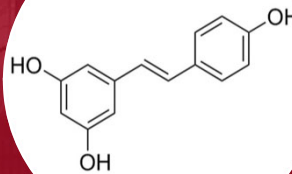


# Resveratrol

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NURS 3301 - Pharmacology

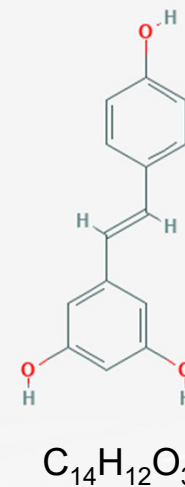
November 27, 2018



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# Chemical Background

- Resveratrol is a polyphenolic phytoalexin. It is also classified as a stilbenoid, a derivative of stilbene, and is produced in plants with the help of the enzyme stilbene synthase (National Center for Biotechnology Information (NCBI), 2018).
- Resveratrol is found in high concentrations in the skin of red grapes, but can also be found in peanuts and berries (WebMD, 2016).



# Class of Agent

Resveratrol is classified as a herbal and dietary supplement (NCBI, 2018).

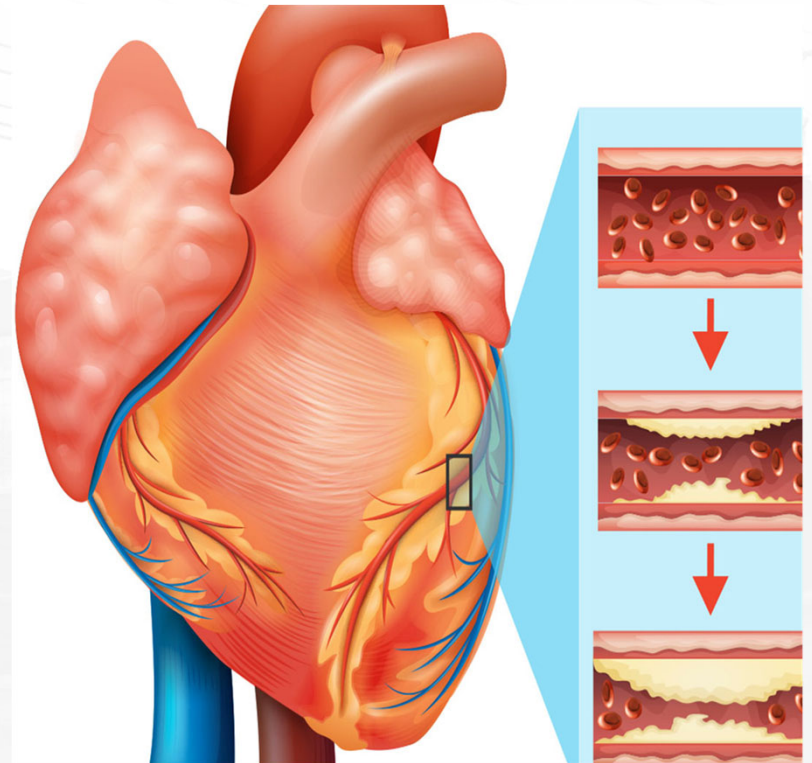


# Mode of Action

- Researchers believe that resveratrol activates the SIRT1 gene. That gene is believed to protect the body against the effects of obesity and the diseases of aging (WebMD, 2016).
- Resveratrol mediates anti-inflammatory effects and inhibits cyclooxygenase and hydroperoxidase functions (anti-promotion activity); and induces promyelocytic leukemia cell differentiation (anti-progression activity) (NCBI, 2018).

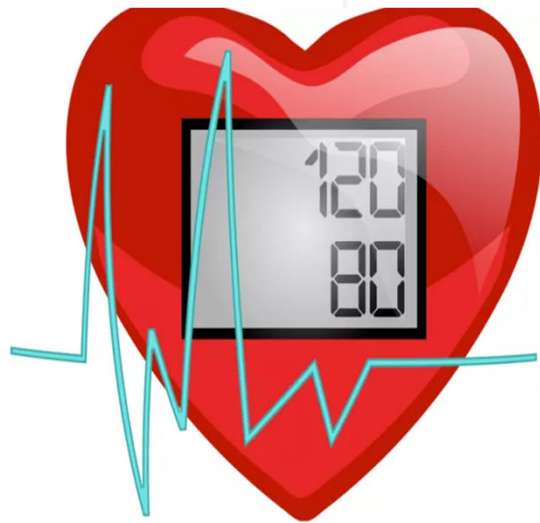
# Indications

- Heart Disease
  - Inhibition of vascular cell adhesion molecule expression, inhibition of vascular smooth muscle cell proliferation, stimulation of endothelial nitric oxide synthase (eNOS) activity, inhibition of platelet aggregation, inhibition of LDL peroxidation (NCBI, 2018). Helps reduce inflammation, and make it more difficult for clots to form that can lead to a heart attack (WebMD, 2016).



# Indications

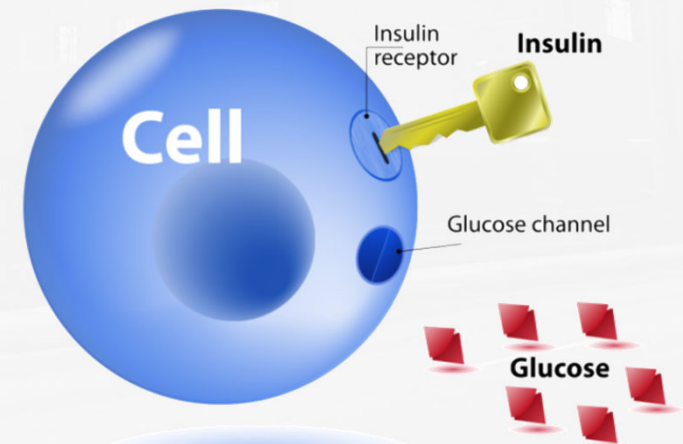
- Lower Blood Pressure
  - Helps to produce more nitric oxide, which causes blood vessels to relax (Jennings, 2017).



# Indications

- Diabetes

- Helps prevent insulin resistance (WebMD, 2016). As well as, increase insulin sensitivity and preventing complications from diabetes (Jennings, 2017). One explanation for how resveratrol works is that it may stop a certain enzyme from turning glucose into sorbitol, a sugar alcohol. When too much sorbitol builds up in people with diabetes, it can create cell-damaging oxidative stress. It activates the protein AMPK, which helps the body metabolize glucose. Activated AMPK helps keep blood glucose levels low (Jennings, 2017).



# Indications

- Arthritis
  - May help protect cartilage from deteriorating (Jennings, 2017). Indicated for the treatment of adult patients with moderately to severely active rheumatoid arthritis (RA) who have had an inadequate response to one or more Disease-Modifying Anti-Rheumatic Drugs (DMARDs). It is also indicated for the treatment of active polyarticular juvenile idiopathic arthritis (PJIA) and active systemic juvenile idiopathic arthritis (SJIA) in patients 2 years of age and older (NCBI, 2018).



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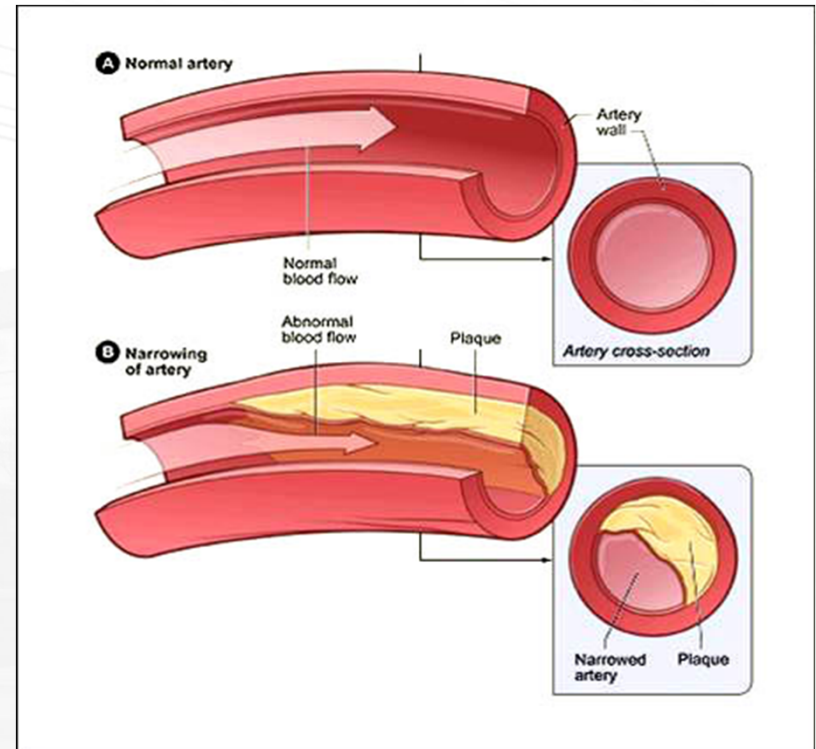
# Indications

- Herpes Simplex Virus
  - Being investigated for the treatment of herpes labialis infections aka cold sores (NCBI, 2016).



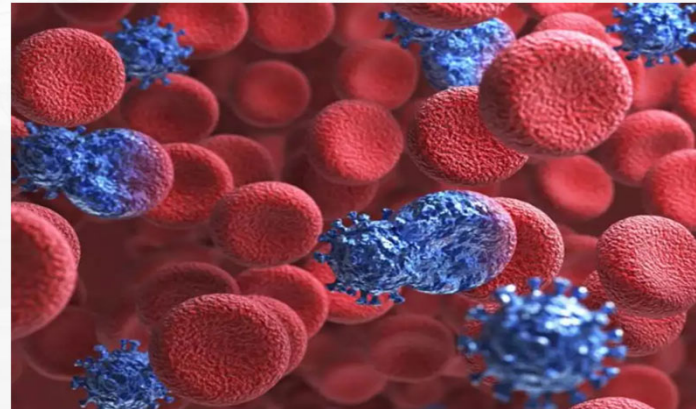
# Indications

- **Hyperlipidemia & Atherosclerosis**
  - Can assist with lowering LDL “bad” cholesterol (WebMD, 2016), by decreasing the oxidation of LDL cholesterol. LDL oxidation contributes to plaque buildup in artery walls. It also influences cholesterol levels by reducing the effect of an enzyme that controls cholesterol production (Jennings, 2017).



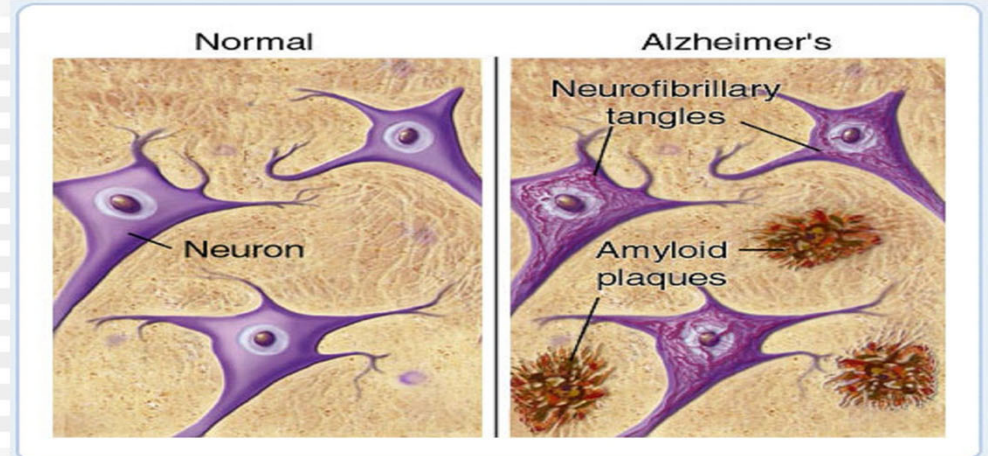
# Indications

- Anticarcinogenic
  - Can limit the spread of cancer and kill cancer cells (WebMD, 2016). It may prevent cancer cells from replicating and spreading. It can change the gene expression in cancer cells to inhibit their growth. It may interfere with the way certain hormones are expressed, which may keep hormone-dependent cancers from spreading (Jennings, 2017).
- Antioxidant
  - Helps fight against cell-damaging free radicals (Puritan's Pride, 2018).



# Indications

- Neuroprotective
  - Several studies have suggested that drinking red wine can help slow down age-related cognitive decline. In Alzheimer's disease it may protect the nerve cells from damage by interfering with the protein fragments called beta-amyloids, which are crucial to forming the plaque buildup that causes the disease (Jennings, 2017).



# Indications

- Anti-Aging & Life-Prolonging Effects
  - Activates certain genes that ward off the diseases of aging (Jennings, 2017). Used as an ingredient in anti-aging cosmetic (NCBI, 2018).



# Indications

- Obesity
- Antiviral
- Antineoplastic
- Antimutagenic
- Enzyme-Inhibitor
- Prevent Fatty Liver
- Platelet Aggregation Inhibitors
- Non-Steroidal Anti-Inflammatory

# Routes of Administration

## Oral

- Capsules
- Softgels
- Tablets
- Liquid

## Topical

- Creams
- Gels



# Dosing & Frequency

- Doses range anywhere from 50 to 500 mg. However, most supplements contain 250 to 500 milligrams (WebMD, 2016).
- For adults, take one capsule two times daily, preferably with meals (Puritan's Pride, 2018).
- To get the dose used in some studies, people would have to consume 2 grams of resveratrol (2,000 milligrams) or more a day (WebMD, 2016).



# Adverse Effects

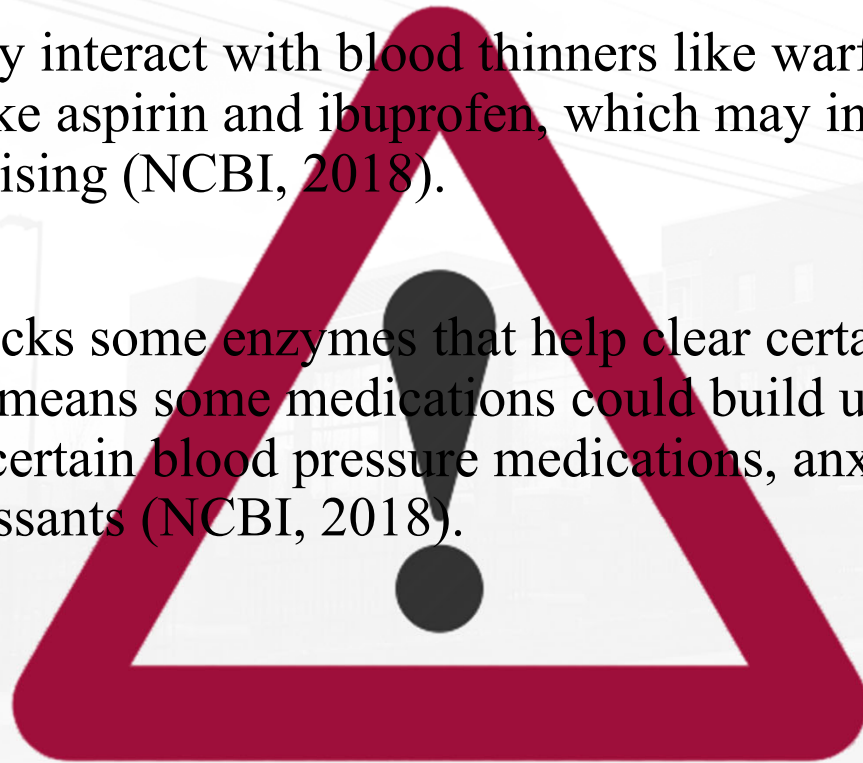
Most common adverse reactions (incidence of at least 5%):

- Upper respiratory tract infections
- Nasopharyngitis
- Headache
- Hypertension
- Increased ALT



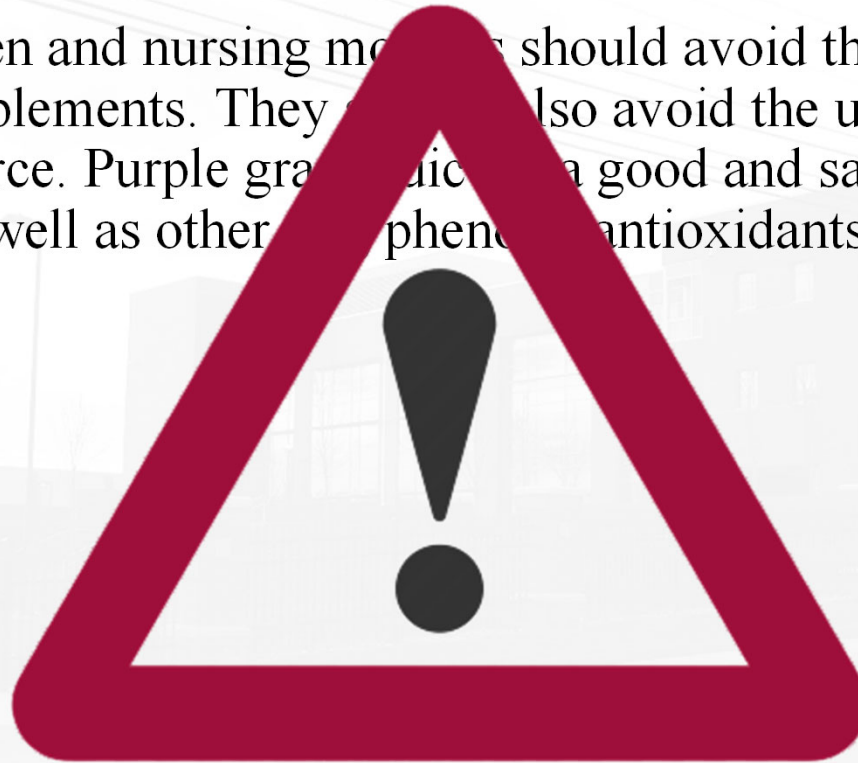
# Cautions

- Resveratrol may interact with blood thinners like warfarin (Coumadin) and NSAIDs like aspirin and ibuprofen, which may increase chances of bleeding or bruising (NCBI, 2018).
- Resveratrol blocks some enzymes that help clear certain compounds from the body. That means some medications could build up to unsafe levels. These include certain blood pressure medications, anxiety meds and immunosuppressants (NCBI, 2018).



# Cautions

- Pregnant women and nursing mothers should avoid the use of resveratrol-containing supplements. They should also avoid the use of wine as a resveratrol source. Purple grape juice is a good and safe source of resveratrol, as well as other polyphenolic antioxidants (NCBI, 2018).



# Contraindications

- Resveratrol is contraindicated in those hypersensitive to any component of resveratrol-containing product, such as red grapes (NCBI, 2018).
- Pregnant women and nursing mothers should avoid the use of resveratrol-containing supplements. They should also avoid the use of wine as a resveratrol source. Purple grape juice is a good and safe source of resveratrol, as well as other polyphenolic antioxidants (NCBI, 2018).
- Not intended for use by persons under the age of 18 (Puritan's Pride, 2018).

# Nursing Considerations

- Before taking resveratrol consult your physician.
- Store this supplement in a cool, dry place (Puritan's Pride, 2018).
- Every 1,000 mg serving has more resveratrol than a typical bottle of red wine (Puritan's Pride, 2018).
- Seek medical attention immediately if you are experiencing a rash, itching, hives, swelling of the face, eyes, or tongue, difficulty breathing, wheezing, difficulty swallowing, or chest tightness (MedlinePlus, 2018).
- Do not take resveratrol if you are pregnant, breastfeeding, or may become pregnant (NCBI, 2018).
- Monitor blood pressure. If becomes elevated, notify physician and discontinue.

# Nursing Considerations

- The FDA does not regulate resveratrol (WebMD, 2016).
- There is not enough conclusive recommendations about how much resveratrol a person should take in order to get health benefits (NCBI, 2018).
- Until more high quality research is done, experts do not recommend resveratrol supplements for anti-aging or disease prevention (WebMD, 2016).

# Outcomes

- Lower blood pressure
- Lower LDL “Bad” Cholesterol
- Increase insulin sensitivity and decrease insulin resistance.
- Clients who have HSV1 and HSV2 will have a decrease in the number of outbreaks.
- Clients with rheumatoid arthritis will have a decrease joint degradation.
- Clients 65 or older will remain free of signs and symptoms of Alzheimer's disease.
- Clients will remain cancer free or the number of cancer cells will decrease.
- Clients chances of having a stroke or heart attack will decrease due to the anti clotting factors of resveratrol.

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