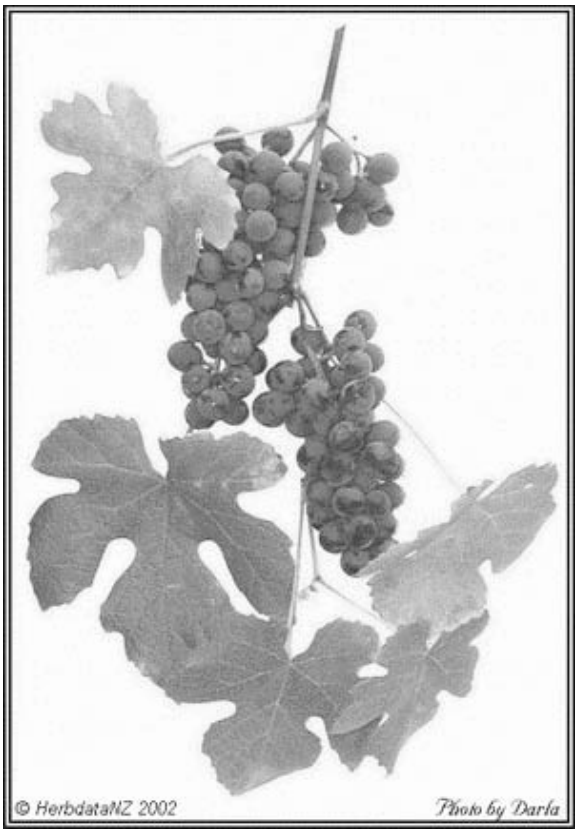
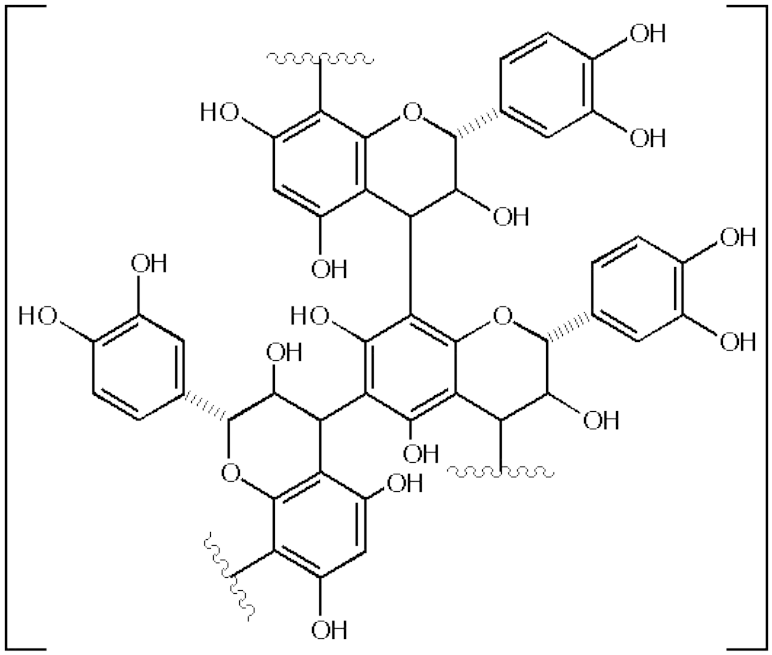


Grape Seed Extract

- Botany
  - Seeds from Vitis vinifera
- History
  - Relatively recent use as an antioxidant
- Chemistry
  - seeds contain olygemeric proanthocyanidins (OPC)
  - OPC s are oligomeric or polymeric flavonoid like polyphenolic compounds
  - OPC s have strong antioxidant and free radical scavanging activities
  - OPC s are also high in marine pine bark (pycnogenol)



Proanthocyanidin oligomer

Pharmacology

- In vitro will prevent destruction of elastin, collagen and hyaluronic acid
- In animal models will reduce capillary permeability and decrease swelling and inflammation
- Action due to the ability of OPC s to block free radical damage and otherwise protect against oxidative damage

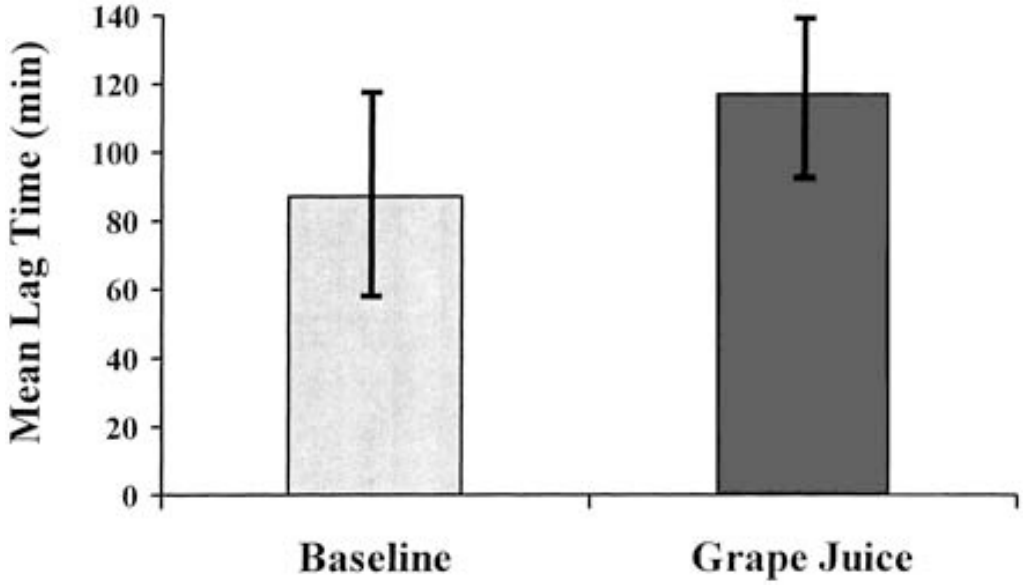
Uses

- Treatment of varicose veins and chronic venous insufficiency
- Reduce swelling due to surgery or injury
- Treat and prevent macular degeneration
- To reduce the risk for cancer and heart disease
- Treat diabetic retinopathy and neuropathy
- other

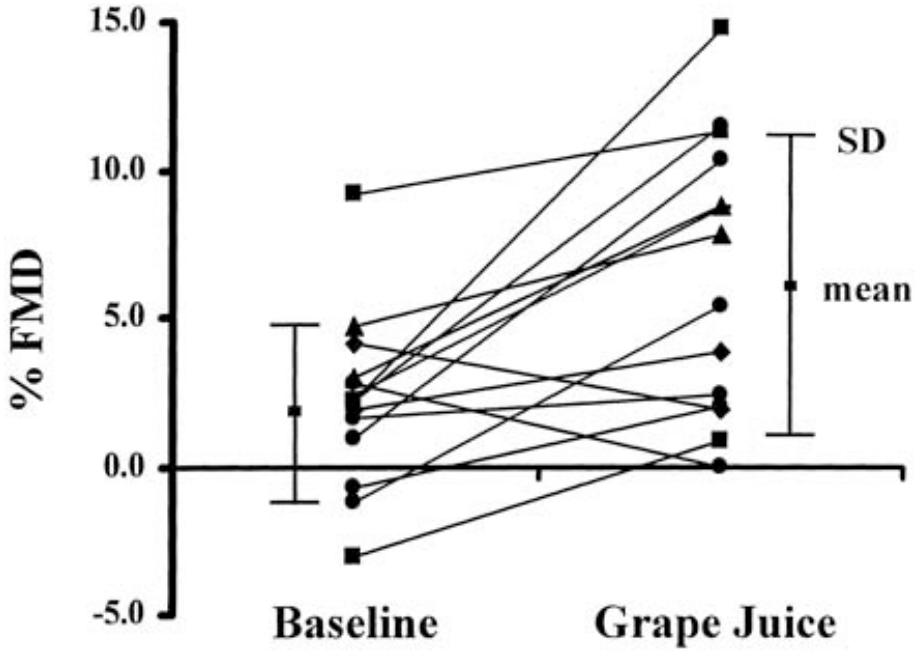
Evidence

- Varicose veins
  - Reasonable evidence based on placebo controlled trials. Trials published in French and Italian thus not readily evaluated by all
- Reduce pain and swelling due to injury/surgery
  - Three controlled studies (in French)
- Vision - one study
- Heart Disease – some evidence for potential

Other – limited evidence from animal or in vitro studies; may lower cholesterol in combination with chromium

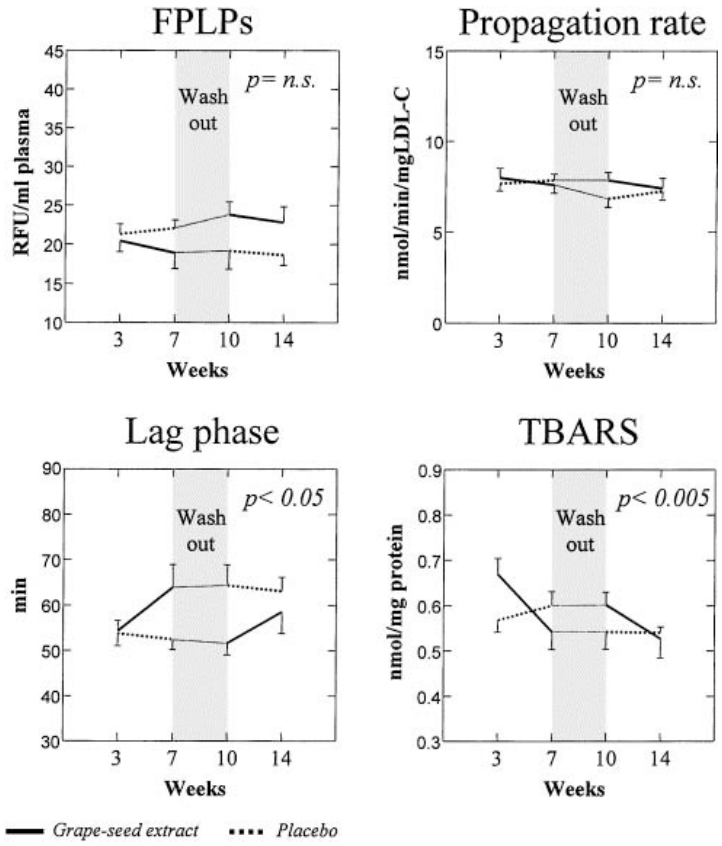


LDL oxidation; N=15 with CAD; grape juice x14d; Stein et al 1999;100:1050-1055.



Flow mediated vasodilation; N=15 with CAD; grape juice x14d; Stein et al 1999;100:1050-1055.

Vigna et al. Metabolism 2002;52:1250-1257. N=25 heavy smokers



Safety

Considered nontoxic

Interactions

OPCs have antiplatelet adhesion properties so that an anticoagulant effect could be noted at higher doses; avoid concurrent use with warfarin and other anticoagulants

Products

Grape seed extract products contain 100mg of extract per capsule. Dose: 100mg TID

Grape Seed Extract

- **Summary**
  - **Efficacy: probably effective for varicose veins and venous insufficiency. May help vision and macular degeneration. Other uses need more work.**
  - **Safety: good**
  - **Drug interactions: careful with anticoagulants**
  - **Product selection: ? Most are not standardized to OPCs**
  - **Dose: 100mg TID**
  - **Questions remaining include**
    - ***Will grape seed extract help in vascular diseases other than varicose veins? What about coronary disease?***

Bilberry

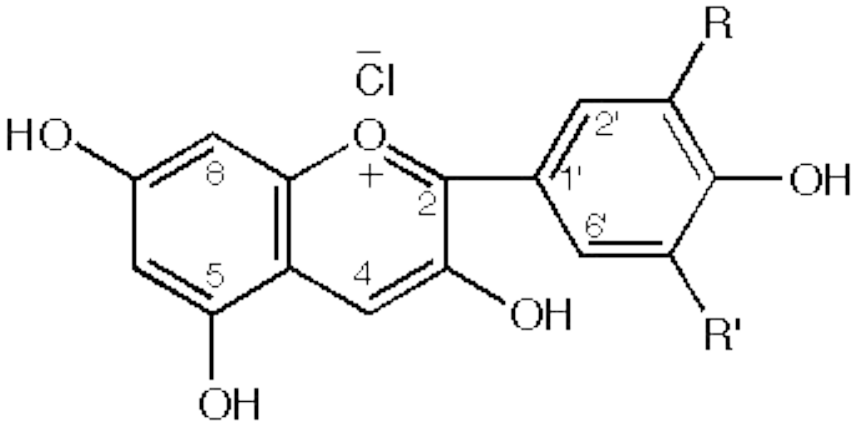
•Botany- extract of the fruit of the "European Blueberry" which has a white inside. Vaccinium myrtillus. Common blueberries are other Vaccinium sp.

•History-used by English pilots in WWII to improve night vision

•Chemistry-contains anthocyanosides (glycosides of anthocyanidins); these like OPCs (see grape seed extract) are powerful antioxidants

•Pharmacology- antioxidant and free radical scavanging activities with maybe special action in the eye

•Use-poor night vision, cataracts,macular degeneration,diabetic retinopathy



Anthocyanidin structure

•Evidence-

- •conflicting small studies. More work needs to be done; recent study by the US Navy showed no benefit in night vision (Muth et al. Alter Med Rev 2000;5:164-173) in a small placebo controlled study (n=13) in men with normal vision
- •Retinopathy. Diabetic and hypertensive retinopathy improvement in 2 small studies.

•Safety-OK Interactions-none

•Products-look for extracts standardized to 25% anthocyanosides; 100mg qd or BID

•Summary-safe but unproven product for vision problems

Red Clover

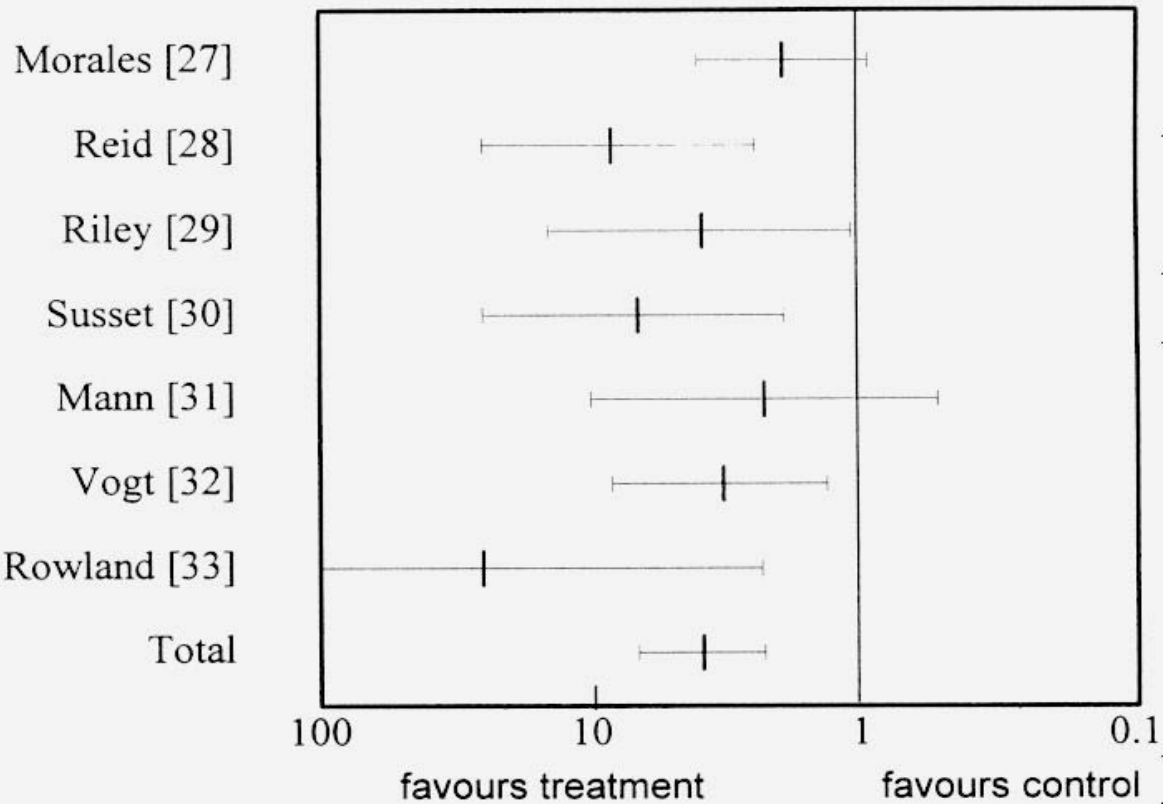
- Another source of isoflavones and phytoestrogenic activity
- Used in the same way as soy
- Less well studied than soy isoflavones
- Studies mixed but mostly negative on benefit in menopausal symptoms
- See discussion for soy in terms of mechanism of action and risks

Yohimbe

- Botany:
  - W. African tree (Pausinystalia yohimbe)
  - bark used
- Chemistry:
  - about 6% alkaloids
  - 2-4% yohimbine (Rx only, 5.4mg TID)
- Pharmacology:
  - alpha adrenergic receptor blocker
  - increase excitability in sacral region of spinal cord
  - MAOI
    vasodilation

Yohimbe

- Adverse
  - CNS stimulation (lower doses)
  - hypertension (lower doses), insomnia
  - activation of psychoses
  - Hypotension (higher doses)
  - Cardiac depression (higher doses)
- Herbal/Drug interactions
  - MAOI
  - additive problems with adrenergic and other MAOI



Ernst and Pittler, J. Urology 159:433-436,1998

Yohimbine-Bottom line

•Adverse effects could be significant but warnings in the literature may be exaggerated

•Reasonable evidence for some improvement in ED and sexual dysfunction associated with SSRI therapy

•Studies needed to compare with Viagra etc

•Rx drug, usually 15-30mg/d used; avoid >30mg/d

Yohimbe-Bottom line

•May work but adverse effects exist and other drugs are probably better

•Quality control problems

•Most dietary supplement products have subtherapeutic amounts of yohimbine

•If 6% yohimbine, then 250-500mg/d would be the dose

Horse Chestnut

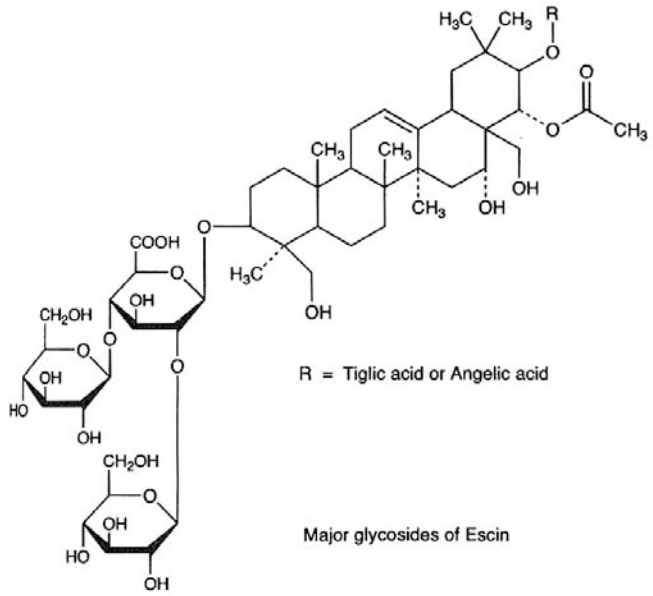
•Botany Aesculus hippocastanum

•History Long used but in recent years seed extract has been tested in human studies

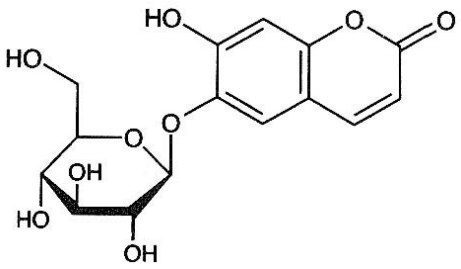
•Chemistry the triterpine glycoside escin is thought to be the active

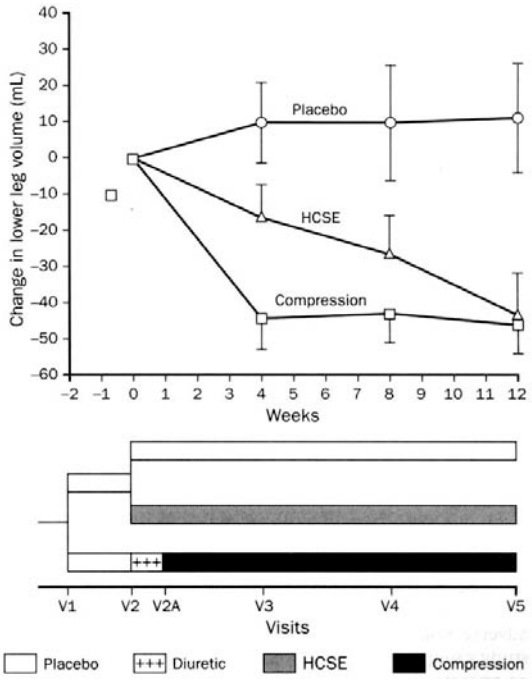
•Pharmacology Escin inhibits hyaluronidase and elastase which are involved in increased capillary permeability.

•Use horse chestnut seed and leaf are used for the treatment of varicose veins, hemorrhoids, and phlebitis. Horse chestnut seed is used for diarrhea, fever, and enlarged prostate.
Seed extract used for venous insufficiency and varicose veins



Major glycosides of Escin





Diehm et al. Lancet 1996;347:292-294; n=240; extract containing 50mg escin BID

Horse Chestnut

- Evidence: human studies support use of the seed extract in varicose veins
- Safety:the raw seed contains the toxic esculin which can cause bleeding and other adverse events. The extract does not and is safe.
- Drug Interactions: anticoagulants
- Products:seed extract only
- Summary:reasonable evidence for varicose veins and is recommended. Use seed extract standardized to 16-24% escin (aescin).

Ginger

- Zingiber officinale
- History-long used for food and medicine
- Pharmacology
  - **digestive aid**
  - **flavor**
  - **nausea and vomiting treatment-effect is on the stomach not on the CNS**
  - **For pain**
- Chemistry
  - **volatile compounds**
  - **non volatile compounds**
    - **gingerol**
    - **shogaol**

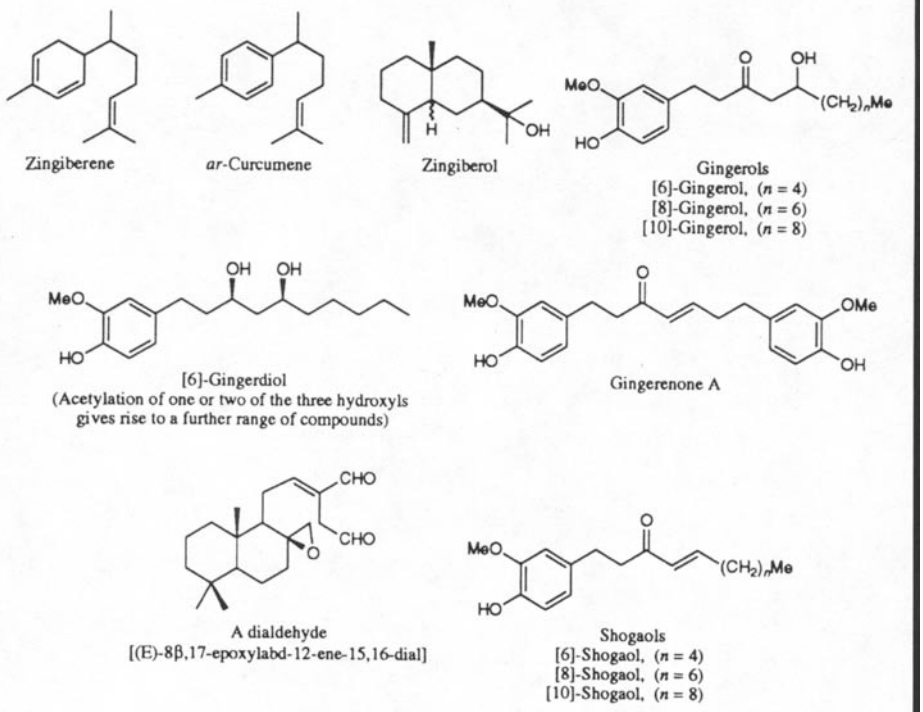


Fig. 21.18. Constituents of ginger.

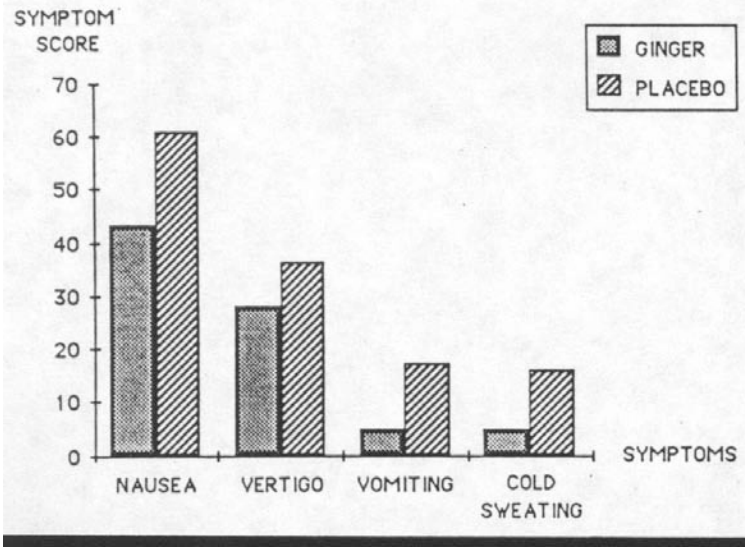
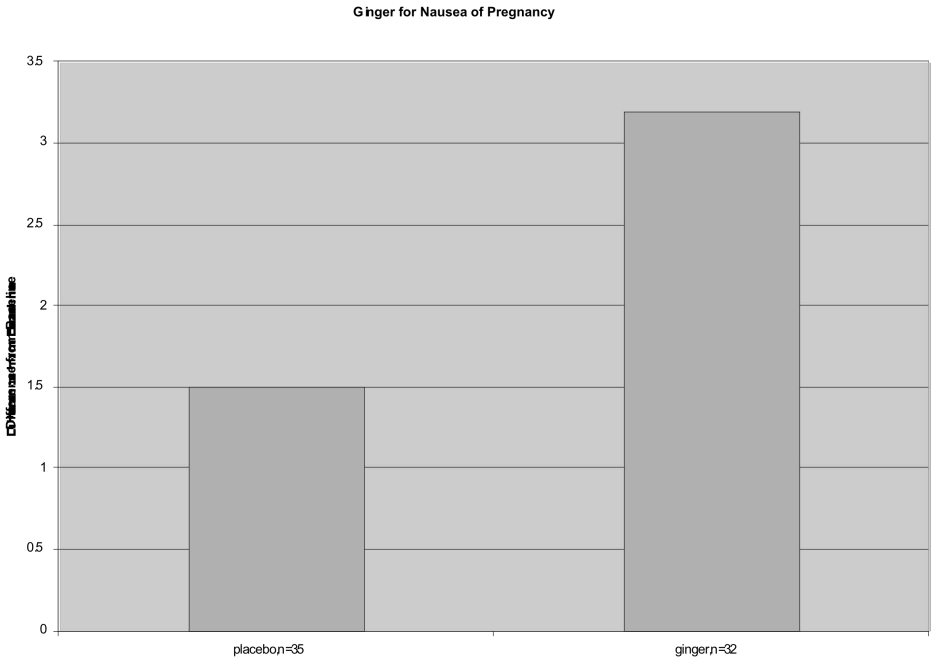


Fig. 1. The total sum of symptom scores arranged according to the category of symptom.

Pregnancy nausea scores (difference from baseline at day 4); 1g ginger/d; n=67; p=.005

From Vutyavanich et al. Obstet Gynecol 2001;97:577-582.



Borrelli et al. Obstet Gynecol 2005;105: 849-856

Table 1. Clinical Trials Reporting the Effectiveness of Ginger in Treatment of Pregnancy-Related Nausea and Vomiting

Study	JS	Design	NPS/NPE (Patient Treatment)	Period of Gestation (wk)	Ginger Dosage	Control Treatment (Dosage)	LT	Main Outcome Measures	Main Results
Fischer-Rasmussen, 1991[15]	3	Randomized double-blind cross-over trial	30/27 (14G, 13C)	< 20	250 mg 4 times daily	Placebo	4 d	Severity and relief of nausea and vomiting (4-point scoring system); change in body weight	Ginger was better than placebo in diminishing or eliminating the symptoms of hyperemesis
Vutyavanich, 2001[16]	5	Randomized double-blind trial	70/67 (32G, 35C)	< 17	250 mg 4 times daily	Placebo	4 d	Severity of nausea and vomiting (visual analogue scale and Likert scale); number of vomiting episodes; occurrence of side and adverse effects on pregnancy	Ginger was more effective than placebo in reducing the severity of nausea and vomiting; no adverse effect was detected
Keating, 2002[17]	5	Randomized double-blind trial	26/23 (13G, 10C)	< 12	250 mg 4 times daily	Placebo	2 wk	Duration and severity of nausea and vomiting (10-point scale)	Ginger was more effective than placebo in reducing nausea and stopping vomiting
Sripramote, 2003[18]	5	Randomized double-blind trial	138/128 (64G, 64C)	< 17	500 mg 3 times daily	Vitamin B6 (10 mg; 3 times a day) (30 mg)	3 d	Severity of nausea (visual analogue scale), number of vomiting episodes, and occurrence of adverse effects	Significant reductions of nausea score and vomiting episodes were observed in ginger and vitamin B6 groups
Willetts, 2003[19]	5	Randomized double-blind trial	120 (60G, 60C)	< 20	125 mg of ginger extract 4 times daily	Placebo (soy bean oil)	4 d	Nausea, vomiting, and retching (Rhodes Index); occurrence of side and adverse effects on pregnancy.	Ginger was more effective than placebo in reducing nausea and retching; no effects on vomiting symptoms
Smith, 2004[20]	5	Randomized double-blind trial	291/235 (120G, 115C)	> 8, < 16	350 mg 3 times daily	Vitamin B6 (25 mg; 3 times a day) (75 mg)	3 wk	Nausea, retching, and vomiting at days 7, 14, 21 (Rhodes Index, Form 2[b]); change in health status (MOS 36-Item Short Form Health Survey)	Ginger was as effective as vitamin B6 in reducing nausea, dry retching, and vomiting compared with baseline

JS, Jadad Score; NPS/NPE, number of pregnancies at the start of trial/number of pregnancies at the end of trial; LT, length of treatment; G, patients in the ginger group; C, patients in the control group; MOS, Medical Outcomes Study.

European Journal of Obstetrics & Gynecology and Reproductive Biology, 42 (1991) 163–164

EUROBS 01250

Letter to the Editor

Ginger in preventing nausea and vomiting of pregnancy: a caveat due to its thromboxane synthetase activity and effect on testosterone binding

It was recently reported that ginger root diminishes or eliminates the symptoms of hyperemesis gravidarum [1] and that this is due to its aromatic, carminative and absorbent properties.

ger inhibit platelet aggregation and alter arachidonic acid metabolism. Biomed Biochem Acta 1984;43:335–346.
3 Backon J. Ginger: inhibition of thromboxane synthetase and stimulation of prostacyclin: relevance for medicine and psychiatry. Med Hypoth 1986;20:271–278.
4 Backon J. Antidepressant activity of cimetidine: relevance of thromboxane inhibition. Med Sci Res 1987;15:1078.
5 Bone ME, Wilkinson DJ, Young JR, McNeil J, Charlton S. Ginger root – a new antiemetic: the effect of ginger root on postoperative nausea and vomiting after major gynaecological surgey. Anaesthesia 1990;45:669–671.

Since ginger is a potent thromboxane synthetase inhibitor [2,3], as is cimetidine [4], it may affect testosterone receptor binding in the fetus possibly affecting sex steroid differentiation of the fetal brain. Ginger has recently been found to significantly reduce postoperative emetic sequelae [5].

Our group has had extensive therapeutic experience with ginger. We have suggested numerous uses for it [3,6] including: preventing liver damage [7], in burns [8], in treating peptide ulceration [9], as an antidepressant [4], and in preventing aging penile vascular changes and impotence [10].

We carried out toxicological tests on ginger using the SOS Chromotest but could find no evidence of toxicity (Backon J, unpublished data). However, until the effects of ginger on testosterone receptor binding in the fetus are thoroughly investigated, I would be hesitant in recommending its use in pregnant women.

References

1 Fischer-Rasmussen W, Kjaer SK, Dahl C, Asping U. Ginger treatment of hyperemesis gravidarum. Eur J Obstet Gynecol Reprod Biol 1990;38:19–24.
2 Srivastava KC. Aqueous extracts of onion, garlic and gin-

Other uses:

•Pain/osteoarthritis – only very mild effects demonstrated in a study comparing ibuprofen, ginger extract and placebo (Osteoarthritis Cartilage 2000;8:9-12)

Ginger

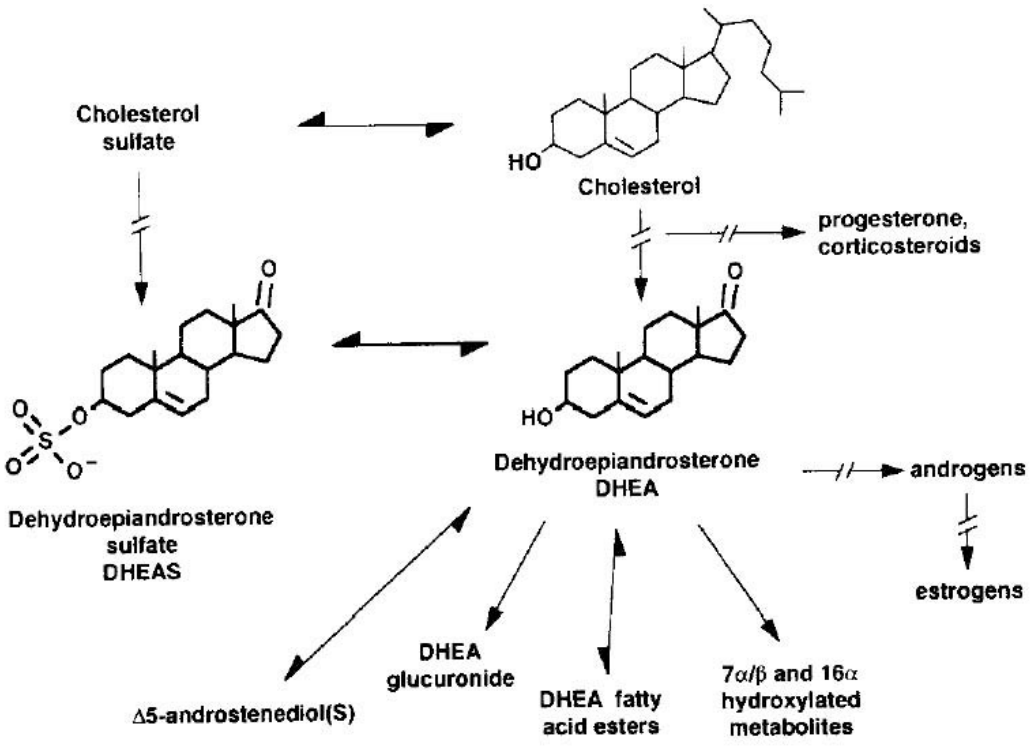
▪Efficacy Studies

- **post operative nausea**
  - **studies are not in agreement on efficacy**
- **motion sickness**
  - **most studies "in the field" show benefit but those in a spinning chair are equivocal**

Ginger Summary

- possibly worthwhile in preventing motion sickness
- possibly worthwhile in treating and preventing nausea
- must weigh risk vs. benefit in treating nausea of pregnancy; risk is very low
- products and doses
  - 0.5-1g one hour before travel
  - 2g/d in divided doses for nausea
  - dried powdered ginger capsules are OK

DHEA(S) METABOLISM



- DHEA (dihydroepiandosterone
  - precursor to androgens and estrogens in the biosynthetic pathway
  - levels decline with age but not in all
  - doesn't bind to receptors
  - touted as a fountain of youth formula (50-100mg/d is a common dose)
  - some evidence of benefit in women mostly
    - in lupus (van Vollenhoven et al. Lupus 1999;8:181-187.); n=21 some improvement on bone mineral density and symptom index
    - improving quality of life in an elderly population (50-100mg/d)(PNAS 97:4279-4284,2000)
    - Memory- most studies show no benefit

–Osteoporosis- some improvement in women over 70 but not in younger (Baulieu et al. PNAS 2000;97:4279-4284)

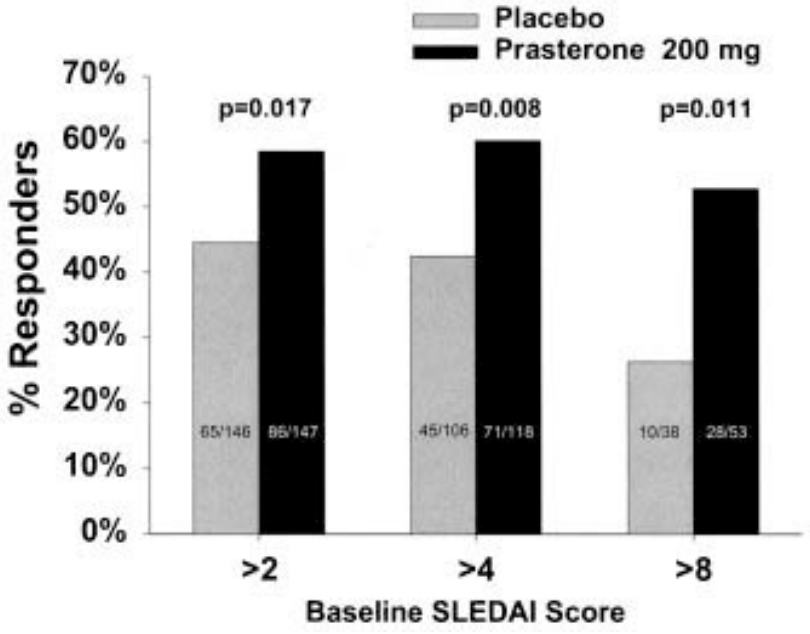
–Adrenal insufficiency: some improvement

–Improving sexual functioning in women over 70 (but not younger women or men); another study showed increased sexual arousal in postmenopausal women (J Womens Health Gender Based Med 2002;11:155-62)

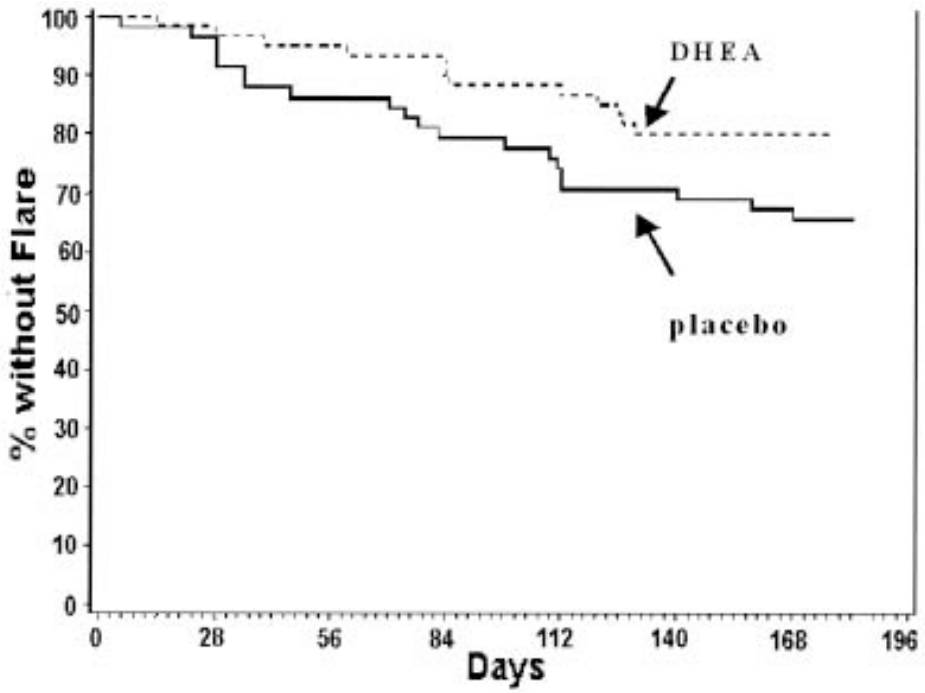
–Improving erectile dysfunction: N=40 Reiter et al. Urology 1999;53:590-595. Benefit in small controlled study

–Athletic performance: mostly negative results (banned by NCAA)

–Risks:unknown; stimulates hormone responsive breast tissue in vitro. Stimulates prostate cancer cell growth in vitro. Adverse effects on cholesterol pattern, acne and hirsutism increased



n=384 200mg for 12 mos. Petri et al. Arthritis and Rheumatism 2004;50:2858-2868. Lupus



Chang et al. Arthritis & Rheumatism 2002;46: 2924-2927
n=120, 200mg/d for 24 weeks Lupus

Nair et al. N Engl J Med. 2006;19;355(16):1647-59. n-57 elderly women and 87 elderly men

Table 2. **Differences between Placebo and Treatment Groups in the Changes in Primary and Secondary Outcome Variables from Baseline to 24 Months.***

Variable	Elderly Women		Elderly Men			
	DHEA vs. Placebo *median difference (95% CI)*	P Value†	DHEA vs. Placebo *median difference (95% CI)*	P Value†	Testosterone vs. Placebo *median difference (95% CI)*	P Value†
Body composition						
Weight — kg	0 (−2 to 2)	0.73	0 (−2 to 2)	0.67	0 (−2 to 2)	0.77
Body-mass index	0 (−0.72 to 0.76)	0.72	0 (−0.63 to 0.54)	0.87	0 (−0.64 to 0.62)	0.93
Body fat — %	−1.36 (−2.71 to 0.45)	0.09	−0.19 (−1.57 to 1.09)	0.43	−1.04 (−2.36 to 0.32)	0.08
Ratio of visceral fat to total fat‡	0 (−0.01 to 0.01)	0.31	0 (−0.01 to 0.01)	0.62	0 (−0.01 to 0.01)	0.92
Visceral fat — g§	−158 (−518 to 292)	0.43	−44 (−468 to 418)	0.88	−180 (−554 to 263)	0.48
Fat-free mass — kg	0.62 (−0.05 to 1.35)	0.10	0.87 (0 to 1.78)	0.06	1.39 (0.65 to 2.15)	<0.001
Thigh-muscle area — cm^2	10.9 (1.2 to 20.02)	0.10	−10.1 (−28.0 to 11.5)	0.42	−4.2 (−21.0 to 11.5)	0.89
BMD — g/cm^2						0.54
Anteroposterior spine‡	0.01 (−0.02 to 0.03)	0.63	0 (−0.02 to 0.03)	0.96	0.01 (−0.02 to 0.04)	0.38
Femoral neck‡	0 (−0.01 to 0.02)	0.69	0.02 (0 to 0.04)	0.045	0.03 (0.01 to 0.05)	0.002
Total hip‡	0.01 (−0.01 to 0.02)	0.38	0.01 (−0.01 to 0.02)	0.30	0.01 (−0.01 to 0.02)	0.26
Ultradistal radius‡	0.02 (0.01 to 0.03)	0.005	0 (−0.01 to 0.01)	0.58	0.01 (0 to 0.01)	0.06
Performance						
Peak VO_2 — ml/kg‡¶	−1.31 (−3.19 to 1.17)	0.26	−1.78 (−4.28 to 0.71)	0.45	0.48 (−2.00 to 3.15)	0.83
Seated chest press — kg‡	0 (−2.27 to 2.27)	0.94	0 (−2.27 to 2.27)	0.34	2.27 (0 to 4.54)	0.38
Isometric knee extension — kg‡	0.88 (−1.36 to 3.08)	0.54	0.29 (−3.26 to 3.81)	0.57	−0.27 (−4.22 to 3.54)	0.82
Double leg press — kg‡	0 (−2.27 to 4.54)	0.92	0 (−4.54 to 4.54)	0.46	0 (−4.54 to 4.54)	0.15
Quality of life ‖						
HSQ SF-36 mental component score	0.77 (−2.62 to 4.05)	0.61	−0.25 (−2.65 to 2.30)	0.59	0.39 (−2.23 to 3.23)	0.38
HSQ SF-36 physical component score	0.56 (−2.57 to 3.58)	0.91	−1.43 (−4.11 to 1.14)	0.12	−0.68 (−3.10 to 1.62)	0.36
Hormones and metabolic variables						
Sulfated DHEA (μg/ml)	3.8 (3.1 to 4.1)	<0.001	3.4 (2.9 to 3.8)	<0.001	0 (−0.1 to 0.1)	0.29
Total testosterone — ng/dl	19.8 (13.6 to 26.5)	<0.001	−23.1 (−58.6 to 8.3)	0.13	104.5 (39.5 to 172.7)	0.002
Bioavailable testosterone — ng/dl	NA	NA	5.8 (−4.4 to 15.4)	0.21	30.4 (11.9 to 50.0)	<0.001
Fasting insulin — μU/ml	−0.21 (−0.63 to 0.34)	0.41	−0.22 (−0.79 to 0.34)	0.53	−0.72 (−1.39 to −0.24)	0.003
Insulin-sensitivity index**	−1.80 (−5.02 to 1.10)	0.21	−0.06 (−3.41 to 3.20)	0.73	2.01 (−1.24 to 4.86)	0.22
Fasting glucose — mg/dl‡	0.11 (−2.50 to 2.45)	0.66	−0.60 (−2.72 to 1.37)	0.58	0.66 (−1.71 to 2.99)	0.77
Estradiol — pg/ml	20.4 (16.8 to 22.9)	<0.001	20.0 (15.2 to 24.4)	<0.001	1.4 (−2.0 to 4.9)	0.67
Bioavailable estradiol — pg/ml	9.52 (7.65 to 11.35)	<0.001	11.45 (8.60 to 14.72)	<0.001	2.43 (−0.11 to 5.05)	0.08
Lipids and PSA						
PSA — mg/dl	NA	NA	0 (−0.20 to 0.18)	0.95	0.09 (−0.14 to 0.31)	0.46
HDL cholesterol — mg/dl	−5 (−10 to 0)	0.003	−3 (−7 to 0)	0.06	1 (−2 to 5)	0.80
LDL cholesterol — mg/dl	4.4 (−10.4 to 20.0)	0.37	−4.8 (−17.4 to 9.0)	0.41	−6.4 (−18.2 to 4.8)	0.26
Triglycerides — mg/dl	3 (−12 to 19)	0.92	−5 (−21 to 13)	0.69	0 (−17 to 17)	0.91

* Levels of sulfated DHEA and bioavailable and total testosterone are mean values for measurements at multiple time points in a 24-hour sample. These 24-hour measurements were performed only at baseline and at 24 months. To convert values for sulfated DHEA to micromoles per liter, multiply by 2.714. To convert values for total and bioavailable testosterone to nanomoles per liter, multiply by 0.03467. To convert values for insulin to picomoles per liter, multiply by 6. To convert values for the insulin-sensitivity index to picomoles per liter, divide by 6. To convert values for estradiol and bioavailable estradiol to picomoles per liter, multiply by 3.671. To convert values for glucose to millimoles per liter, multiply by 0.05551. To convert values for high-density lipoprotein (HDL) and low-density lipoprotein (LDL) cholesterol to millimoles per liter, multiply by 0.0259. To convert values for triglycerides to millimoles per liter, multiply by 0.01129. NA denotes not applicable.

† All P values are two-sided and are based on a multiple regression analysis in which the dependent variable was the change from baseline (with the use of a rank transformation) and the independent variables were the study group, sex, age at the time of randomization, length of follow-up, and baseline values.

‡ This category is a primary outcome variable.

§ Visceral fat was measured by dual-energy x-ray absorptiometry and computed tomography.

¶ The peak volume of oxygen (VO_2) consumed per minute was measured by treadmill walking.

‖ Quality-of-life scores for the HSQ SF-36 were compared with normalized scores for the general U.S. population, for which the mean score was 50±10.

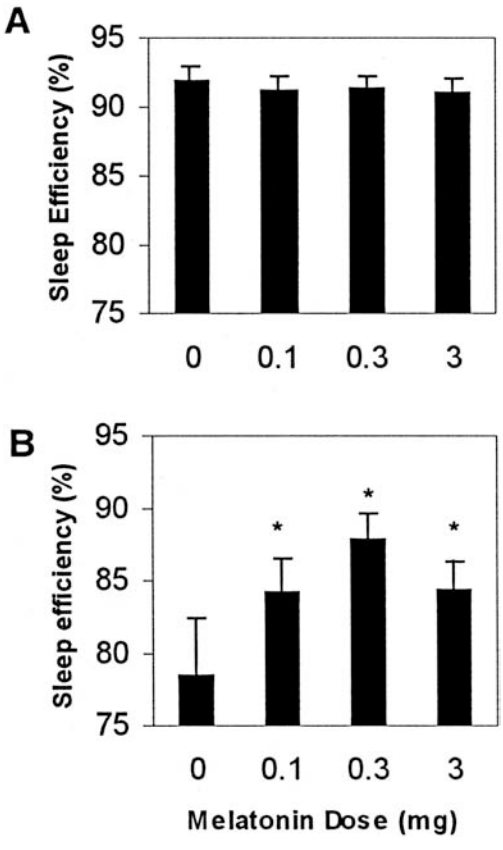
** The insulin-sensitivity index was calculated from an oral glucose minimal model[19] on the basis of liver and peripheral tissue.

DHEA Summary

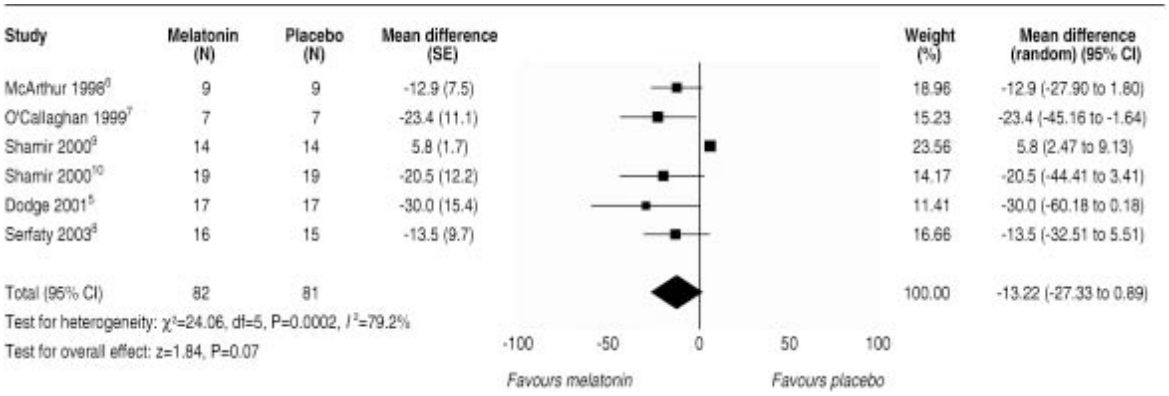
- DHEA may find some therapeutic uses, particularly in lupus, but for now risks of self care with this steroid are uncertain

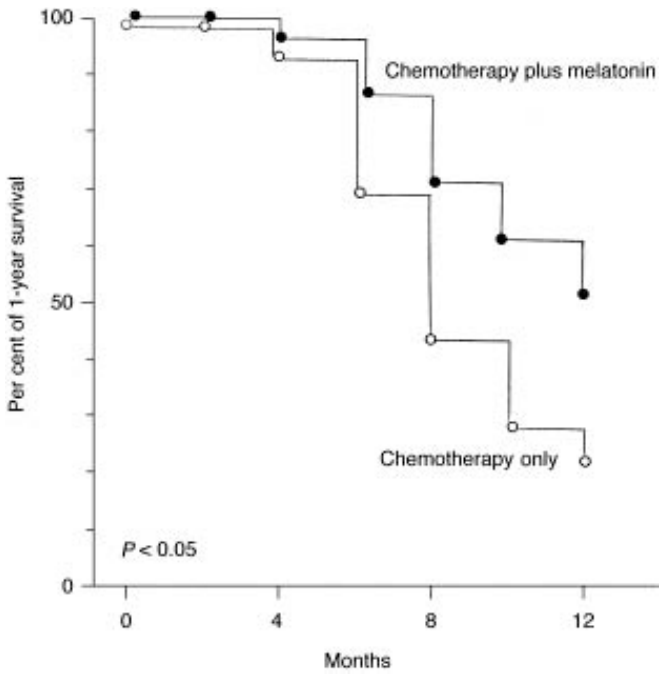
- Melatonin
  - N-acetyl-5-methoxytryptamine
  - secreted by pineal gland at night
  - is strong antioxidant
  - good evidence for preventing jet lag (1-3mg 1h before hs)
  - uneven but mostly positive evidence for common insomnia, especially in the elderly
  - little evidence for antiaging properties
  - some promise as an adjunct with cancer therapy and in a myriad of other uses
  - safe enough for short term use

Zhdanova et al. J Clin Endocrin Metabol 2001;86:4727-4730. N=15 normal sleepers and 15 poor sleepers; crossover study for 7d on each regimen.



Buscemi et al. BMJ. 2006 February 18; 332(7538): 385–393





Lissoni et al. Euro J Cancer 1999;25:1688-1692. N=252 metastatic solid tumor patients; 20mg/d melatonin treated had less chemotherapy related toxicity

- Glucosamine Sulfate
  - precursor to glycosaminoglycans to form collagen (cartilage)
  - naturally present in vivo
  - seems to be helpful for arthritis
  - patients often decrease NSAID use
  - Most studies show benefit but not all and some recent studies have failed
  - 1500mg/d is common dose; takes 3-4 weeks for effect
  - seems safe enough
  - chondroitin and/or MSM often added; evidence of additional benefit?
  - Made synthetically or extracted from chitin from shellfish
  - big price variation

glucosamine

- 12/13 trials show superior to placebo (1999)
- 2/4 trials show superior to NSAIDS (2 equal to NSAIDS)(1999)
- Recent meta-analysis = positive for both glucosamine and chondroitin for osteoarthritis of the knee but not enough data for chondroitin
- Safe for diabetics? (yes)

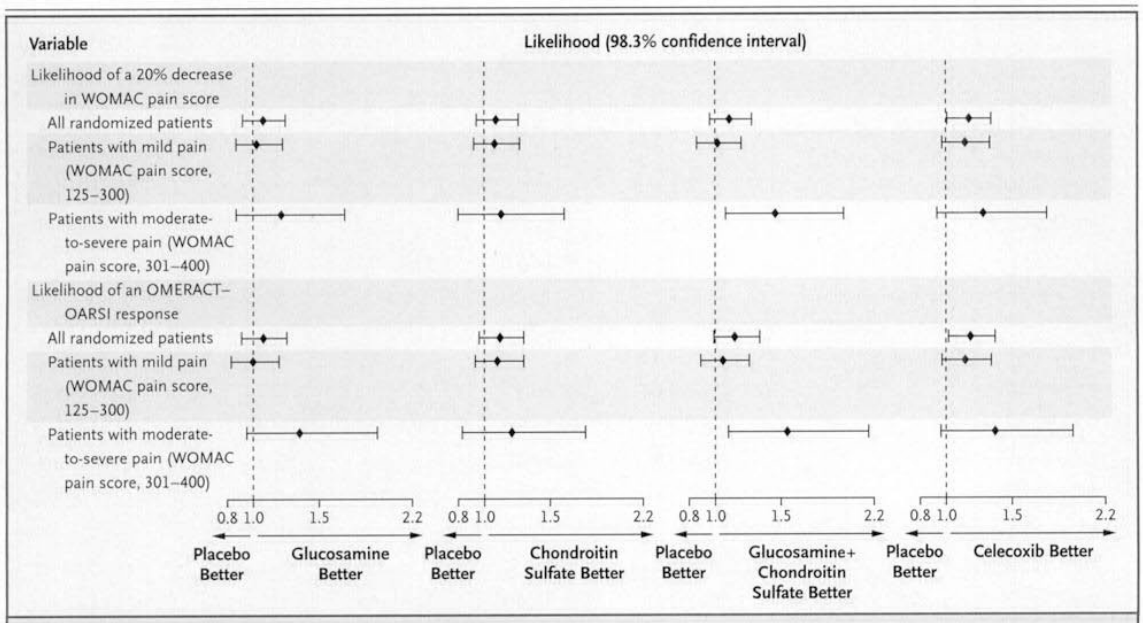


Figure 2. Pairwise Comparisons of the Overall Likelihood of a Response.

Scores for the pain subscale of the Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) can range from 0 to 500, with higher scores indicating more pain. A response according to the guidelines of the Outcome Measures in Rheumatology Clinical Trials and Osteoarthritis Research Society International (OMERACT–OARSI) was classified as an improvement in function or pain of at least 50 percent and a decrease of at least 20 mm on the visual-analogue scale for pain or function or the occurrence of at least two of the following: a decrease in pain of at least 20 percent and at least 10 mm on the visual-analogue scale; an improvement in function of at least 20 percent and a decrease of at least 10 mm on the visual-analogue scale; and an increase in the patient's global assessment score by at least 20 percent and at least 10 mm on the visual-analogue scale.

Clegg et al. *N Engl J Med.* 2006;354:795-808

- CoQ_{10}
  - called also ubiquinone
  - is part of mitochondial electron transport chain
  - strong antioxidant found in all cells but especially in heart, liver, kidney and pancreas; not found in foods
  - best evidence is for benefit in cardiac disease where levels are low
  - Statin drugs lower CoQ10
  - Earlier controlled studies showed benefit in congestive heart failure but a more recent well done study (Khatta et al. Ann intern med 2000;18:636-640) with an n=55 treated at 200mg/d found no objectve benefit compared to placebo.

- –Other Uses
  - –preventing migraine – promising from a few studies
  - –reducing systolic hypertension – promising from a few studies
  - –Type 2 diabetics – promising from a few studies
  - –Parkinson's Disease – 1 study showed slowing of progression n=80 300-1200mg/d; but a recent well done trial (300mg/d) showed no benefit
  - –Myopathy with statin drugs- promising from a few studies

- –Safety: seems OK
- –Interactions: seems OK
- –Summary:
  - –Conflicting results on benefit in congestive heart failure
  - –Limited data supporting use in:
    - –Hypertension
    - –Angina
    - –Parkinson's Disease but recent well done trial showed no benefit
    - –Migraine
    - –Type 2 diabetes
  - –More studies will clarify extent of benefits