**DISCLAIMER**

The information presented is for educational purposes only. The material is not medical advice and not intended for medical situations discussed.

Information in this field is always evolving and constantly changing.

Always consult your doctor first.

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**Modifiable Risk Factors for Cardiovascular Disease**

- Diabetes
- High Cholesterol
- Sedentary Lifestyle
- Stress

**RUPTURE OF PLAQUE**

Increase odds in your favor
Delay onset of bad outcomes

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**The Widow Maker Heart Attack**

- Left Main

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**CORONARY ARTERY SPASM**

- Magnesium Deficiency
- Cocaine – Amphetamines
- Heart Catheterization
- Cigarette Smoking
- Cold
- Stress
**ADVERSE EFFECTS OF STENTS**
(24-48 hours)
- Acute access site pain with hypotension
- Coronary artery damage
- Arrhythmias
- Thrombus (blood clot)
- Heart attack—4%
- Cardiac mortality—1%

**ADVERSE EFFECTS OF BYPASS SURGERY**
- Cognitive Impairment - short term memory loss, depression 15%
- Stroke or MI—5%
- Death—3%
- Insomnia
- Flashbacks
- Infection
- 1/300 second bypass

Neither angioplasty, stents or cardiac bypass surgery is curative for CVD. They do relieve symptoms but do not treat the cause.

JAMA, NOV. 10, 2010-Vol 304, No.18
Dental Appointments after Stents or Open Heart Surgery

Dental Implications for Patients with Stents or Bypass Surgery

Do Not Stop Taking Medication Without a Physician Approval

Patients on Coumadin for AFib, Mechanical Heart Valve, DVT, Pulmonary Embolism

INR of 3–it takes 3x’s longer to stop the bleeding then it would take someone not on Coumadin

INR 1 or less if not on Coumadin

INR of 2-3 normal if on Coumadin

Do Not Stop Taking Medication Without a Physician Approval

Patients on a NOAC for AFib, DVT, Pulmonary Embolism

Replace Coumadin with NOAC’s

Do Not Stop Taking Medication Without a Physician Approval

SUDDEN CARDIAC DEATH

HBP

SMOKE

OVERWT

SEDENTARY

NONCOMPLIANT

SUDDEN CARDIAC DEATH IN YOUNG ATHLETES

Genetic-1 in 500
First degree relatives of SCD victims are at a greater risk for CVD and would benefit from screening.

Commotio Cordis

SCA vs. Heart Attack

<table>
<thead>
<tr>
<th>Electrical Problem</th>
<th>Pump Problem</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sudden Cardiac Arrest</td>
<td>Heart Attack</td>
</tr>
<tr>
<td>AED</td>
<td>NO AED</td>
</tr>
</tbody>
</table>

ISCHEMIC STROKE

15% of strokes

15% of strokes

PERIPHERAL ARTERIAL DISEASE

Often Underdiagnosed

20-25% >70yrs have PVD
PERIPHERAL ARTERIAL DISEASE

Lower-Extremity Ulcers

Smokers and diabetics most affected (30%)
May be arterial or venous

Cardiovascular disease is the leading cause of death among women & men of all ages

One in 3 women will die of CVD or stroke
One in 31 women will die of breast cancer

Women can have the same risk factors as men for CVD

Smoking
Overweight
High blood sugar
High cholesterol
Family history
  Father or brother < age 55 with CVD
  Mother or sister < age 65 with CVD

HEART DISEASE SYMPTOMS IN WOMEN

Chest pain is shorter, less severe then men
Neck, shoulder, jaw, throat, back discomfort
Nausea and indigestion (Don’t confuse with heartburn & gallbladder)

Unusual fatigue
Shortness of breath
  *Walk up flight of stairs

Pregnancy Complications Tied to Heart Disease

Gestational Diabetes
Preeclampsia
Premature coronary heart disease is a leading cause for morbidity and mortality in patients with lupus or rheumatoid arthritis.

Endometriosis is associated with increased risk of CHD. The association was strongest among young women.

Research links Polycystic Ovarian Syndrome, with Infertility, Coronary Heart Disease, Diabetes, Obesity, Hypertension.

Cardiotoxicity of Herceptin
Cancer patients who are undergoing chemotherapy for breast cancer have a small to modest risk for developing cardiovascular complications.

Risk of Heart Disease in Women after Radiotherapy for Breast Cancer (7%)
The increase is proportional to the mean dose to the heart.

Only 5% of cancer patients are referred to rehabilitation to address physical or psychological deficits caused by cancer treatment.
Reduce Risk of Recurrence of Cancer and CVD

- Lose weight if you are overweight
- Be physically active
- Don't smoke
- Good diet
  - Mediterranean diet

Diagnostic tests in women not as accurate as those in men

MICROVASCULAR DISEASE

- Women may have less blockage in main arteries but more in small vessels

Coronary angiograms will not diagnose microvasculature disease

- Stress test
- Cardiac MRI
- Intravascular ultrasound

Diagnosis Coronary Artery Disease

- Physical activity

Diagnosis Coronary Microvascular Disease

- Shortness of breath
- Unusual fatigue
- Mental stress

Heart Valve Defects

- Tricuspid
- Bicuspid
Transcatheter Aortic Valve Implantation

ATRIAL FIBRILLATION AND LEFT ATRIAL APPENDAGE
A Common Risk Factor For Strokes and Heart Failure

CHOLESTEROL
ALWAYS in Animals
NEVER in Plants

Why is Cholesterol Good?
For normal structure, function and repair of cell membranes
For nerve conduction and brain function
Precursor for steroid hormones, e.g. testosterone, estrogens
Precursor for bile acid
Precursor for Vitamin D

Heredity/Immune System Controls Both

Fewer than half the adults diagnosed with high cholesterol knew whether they had ever been tested for thyroid disease.

May be low in vitamin D
Slowed heart rate
High cholesterol
B12 deficiency
25% of adults over 45 take statins

If statin intolerant rule out:
- Vitamin D deficiency
- Hypothyroidism
- High dose of statin
- Drug combinations
- Kidney/liver disease

Azithromycin Increased Risk of Cardiac Arrhythmia and Death in Patients with CVD
Annual Fam Med. 2014;
- QT interval prolongation
- Slow heart rate
- Drugs to treat arrhythmias
  (Betapace, amiodarone)

WHAT CAN I PRESCRIBE FOR PATIENTS WITH CARDIOVASCULAR DISEASE
- Amoxicillin (Amoxil)
- Augmentin
- Azithromycin (Z-Pak)
- Cephalexin (Keflex)
- Cleocin--clindamycin
- Vibramycin--doxycycline
- Flagyl--metronidazole

Antibiotics and Pregnancy
Yes
- Amoxicillin (Amoxil)
- Augmentin
- Azithromycin (Z-Pak)
- Cephalexin (Keflex)
No
- Ciprofloxacin (Cipro)
- Clarithromycin (Biaxin)
- Doxycycline-Vibramycin
- Clindamycin (Cleocin)
- Metronidazole (Flagyl)
Antibiotics and Nursing

Yes
- Amoxicillin (Amoxil)
- Augmentin
- Clarithromycin (Biaxin)
- Azithromycin (Z-Pak)
- Cephalexin (Keflex)

NO
- Doxycycline-Vibramycin
- Clindamycin (Cleocin)
- Metronidazole (Flagyl)
- Ciprofloxacin (Cipro)

Used for
Bronchitis
- Amoxicillin (Amoxil)
- Augmentin

Sinus inf.
- Clarithromycin (Biaxin)
- Azithromycin (Z-Pak)
- Cephalexin (Keflex)

UTIs
- Doxycycline-Vibramycin
- Clindamycin (Cleocin)
- Metronidazole (Flagyl)
- Ciprofloxacin (Cipro)

Irregular heartbeats
- Amoxicillin (Amoxil)
- Augmentin
- Clarithromycin (Biaxin)
- Azithromycin (Z-Pak)
- Cephalexin (Keflex)

Depression
- Doxycycline-Vibramycin
- Clindamycin (Cleocin)
- Metronidazole (Flagyl)
- Ciprofloxacin (Cipro)

Nerve damage
- Amoxicillin (Amoxil)
- Augmentin
- Clarithromycin (Biaxin)
- Azithromycin (Z-Pak)
- Cephalexin (Keflex)

Ruptured tendons
- Doxycycline-Vibramycin
- Clindamycin (Cleocin)
- Metronidazole (Flagyl)
- Ciprofloxacin (Cipro)

Seizures
- Amoxicillin (Amoxil)
- Augmentin
- Clarithromycin (Biaxin)
- Azithromycin (Z-Pak)
- Cephalexin (Keflex)

Analgesic
- Aspirin
- Nonsteroidal Anti-Inflammatory Drugs (NSAIDs)

Antipyretic
- Acetaminophen
- Ibuprofen

Anti-inflammatory
- Aspirin
- NSAIDs

Prevent platelet aggregation
- Aspirin
- NSAIDs

GI Bleeding
- Aspirin
- NSAIDs

Hemorrhagic Stroke
- Aspirin
- NSAIDs

Risk increases with age and dose

Aspirin – Secondary Prevention
Patients with prior history of CVD, PVD, or ischemic stroke should be on aspirin
Always check with your doctor
ACC and AHA recommend 81mg
After 80 not a lot of evidence on use

Aspirin – Primary Prevention
Uncertain value for primary prevention of CVD except:
- You have diabetes and at least one risk factor — smoking, HBP, genetics — and you're a man older than 50 or a woman older than 60
Mayo Clinic Nov 3, 2015
You need to qualify for aspirin
Always check with your doctor
Do Not Take Aspirin

- History of stomach ulcers
- Gastrointestinal bleeding
- Blood clotting disorders
- Uncontrolled hypertension

With methotrexate
Liver & kidney damage (hi dose aspirin) (ibuprofen OK)

NSAIDs
Nonsteroidal Anti-Inflammatory Drugs

- Aspirin—81mg, 325mg, 500mg, 650mg
- Ibuprofen (Motrin—Advil) 200mg—q 4-6 hours
- Naproxen (Aleve) 220mg—q 8 hours

NSAIDs (not aspirin)
Effect on kidneys and fluid retention
Increase BP and worsen control of HTN
Increase CV events and stroke

September 10, 2012—Circulation
Harvard Health July 13, 2015

BLACK BOX WARNING
Cardiovascular Risk
NSAIDs—risk of serious cardiovascular thrombotic events, myocardial infarction, and stroke
Gastrointestinal Risk
NSAIDs—risk of GI events including bleeding and ulceration,
Risk greater at higher dose, elderly patients, & pt. with liver or kidney disease
Be careful with patients on BP medicine (may increase BP)

DENTAL IMPLICATIONS WHEN PRESCRIBING IBUPROFEN / NAPROXEN
In patients with prior heart attack, most (NSAIDs), not aspirin, even when taken for as little as one week, are associated with an increased risk of death and recurrent heart attack.

Circulation May 9, 2011
UpToDate Jan.6, 2014
FDA July 2015

Tylenol and Codeine may be best choice

DENTAL IMPLICATIONS WHEN PRESCRIBING IBUPROFEN / NAPROXEN
DO NOT PRESCRIBE WITH:
Aspirin, Coumadin, Plavix, Pradaxa, Xarelto, Eliquis
(Decrease bleeding time, stroke, heart attack)
Rx—Tylenol with Codeine or Vicodin (Norco)
DENTAL IMPLICATIONS WHEN TAKING NSAIDs, ASPIRIN, COUMADIN, PLAVIX, PRADAXA, XARELTO, ELIQUIS

Increases risk of bleeding gums

Pregnancy and NSAIDs

1\textsuperscript{st} and 2\textsuperscript{nd} trimester \textit{some} risk of harm to the fetus
3\textsuperscript{rd} trimester more risks

Pregnancy and NSAIDs

Prolonged gestation
Premature \textit{closure of ductus arteriosus}
Cause maternal and fetal complications
Miscarriage

Tylenol and Codeine is safe during pregnancy

Aspirin and Nursing

Nursing women are advised against aspirin use because of the possible development of Reye’s Syndrome in their babies.

Drug safety while breastfeeding (Google)

In breast feeding women, \textit{ibuprofen, naproxen and Tylenol} can be safely used

Tylenol and Codeine is safe during pregnancy

Drug safety while breastfeeding (Google)

Analgesic and Antipyretic

50% of all sudden (acute) liver failure in US caused by Tylenol—\textit{ck pt for liver disease and drinking} (no more then 3 drinks/day)

Maximum adult dose = 3000 mg/day
Treating Pain in Children

For children aged under 3/6 months, Tylenol should be offered.

Children aged over 3/6 months can be offered both Tylenol and ibuprofen.

Extra Strength Tylenol products should not be given to children younger than 12.

HEART-FRIENDLY MEDICINES

Lasts 4-6 hours

Lasts 6-8 hours
CAUTION--NARCOTIC SIDE EFFECTS WITH:

**Antidepressants:** Elavil, Wellbutrin, Celexa, Lexapro, Zoloft, Serzone, Effexor, Prozac, etc.

**Antipsychotics:** Clozaril, Holdol, Lithium, Abilify, Seroquel, Zyprexa, Thorazine, etc.

**Alcohol**

Symptoms: slow heart rate, confusion, respiratory depression

ALL DRUGS HAVE COLLATERAL DAMAGE. THERE IS NO FREE LUNCH

Alzheimer's drugs don't work for everyone, and they can't cure the disease or stop its progression

JAMA Jan 1, 2014
Agency for Healthcare Research and Quality Oct 4, 2013
Consumers Report Best Buy Drugs Jan 7, 2013

Take off slowly!

Side Effects from Multiple Meds Are Double Trouble for Those Over 65

40% of people over 65 take 5 or more Rx medicines

Taking 5 Rx drugs, 85% chance of adverse reaction

Start low-go slow! Over 65, start drugs 1/3 to 1/2 the usual adult dose

Any new symptom should be considered a drug side effect unless proven otherwise

Beers criteria-- 2015 Update Am.Ger.Soc Health In Aging
Drug prescribing for older adults - UpToDate
Who takes dietary supplements

Older adults
Women (54%)—Men (43%)
Those with the most formal education
Those who are wealthier and healthier

Benefits of Acai Berry

1. Boosts energy levels
2. Improves digestive function
3. Improves mental clarity/focus
4. Promotes sound sleep
5. Provides all vital vitamins
6. Fights cancerous cells
7. Alleviates diabetes
8. Aids in weight loss
9. Contains several important minerals
10. Cleanses and Detoxifies the body of infectious toxins
11. Strengthens your immune system
12. Enhances sexual desire and performance
13. Slows down the aging process
14. Promotes healthier and younger-looking skin

There is no one food responsible for good health

Every food is a Super Food
Is there any supplement in your supplement?
Feb. 5, 2015 Institute of Human Nutrition at Columbia University Medical Center

A false advertising suit claims
Almond Breeze is only 2 % almonds
July 29 2015

It's mostly water, sugar, carrageenan, lecithin

Almond Breeze $3/qt
Rice Dream $3.70/qt
Milk $1.80/qt

Milk Made From Peas

Ripple has 8 g of protein per serving
Almond milk has 1g
Coconut milk has none.
Cashew milk has none
Cow’s milk 8 gm

$4.50– 1.5 qt

If you're considering a dietary supplements, educate yourself about the product before your take it.

Be Careful if You Buy Supplements Online

- Many testimonials are phony
- Many “studies” are worthless
- “News” sites may be fake
- Free Samples can be costly

Here are warning signs of health quackery

Words such as “miraculous”, “instant”, “secret”, or “amazing”

Vague claims such as “raise your energy level”, or “boosts immune system”

Claims that a product will cure a wide variety of illnesses. Cure-alls seldom cure anything.

Multi-level marketing, testimonials
Never use a herbal product or dietary supplement while pregnant or breast feeding.

Supplements Can Make You Sick – Consumers Reports

OMEGA 3 FATTY ACIDS
Fish Oil

Benefits of Fish Oil
- Cardiovascular disease: 500-1000 mg/day
- Rheumatoid arthritis: 2000 mg/day
- Osteoarthritis: 2000 mg/day
- Triglycerides: 3000-4000 mg/day

Fish sources:
- Herring
- Pink salmon
- Sardines
- Trout
- Tuna
- Anchovies

Other sources:
- Nordic Naturals
- Derived from Algae
- Chia seed
- Flaxseed
Vitamin C
Vitamin C is a family of compounds
1. Ascorbic acid
2. Rutin
3. Bioflavonoids
4. Factor K
5. Factor J
6. Factor P
7. Tyrosinase
8. Ascorbinogen

VITAMINS ARE NOT INDIVIDUAL COMPOUNDS BUT BIOLOGICAL COMPLEXES

VITAMINS
- Vitamin A
- Vitamin K
- Vitamin C
- Folic acid
- Calcium
- Molybdenum
- Manganese
- Potassium
- Iron
- Vitamin B
- Vitamin B2
- Vitamin B6
- Tryptophan
- Copper
- Manganese
- Zinc
- Phosphorus

MULTIVITAMINS
Lots of Types
Lots of Confusion
Take Daily?

Claims such as "Stress Formula", High Potency", Natural" are marketing ploys

Multiple Vitamins May Benefit
- Those who have chronic gastrointestinal disorders
- Those who fail to get the right amount and type of food for proper nutrition
- People on a restrictive weight loss diet
- People with a chronic illness
- Women who are pregnant or breastfeeding
- Prolonged weight loss diets
- Age—over 65

You can not replicate in a pill what you get in your diet
**PRENATAL VITAMINS**

**Folic acid (vitamin B9)**
- Prevention of neural tube or spinal defects
- Prevention of low birth weight

New recommendation for iodine in all prenatal vitamins (150ug)

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**Multivitamin Use and Breast Cancer**

Postmenopausal women with breast cancer using MVM had lower breast cancer mortality than non-users.


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**Daily multivitamin use could reduce cataract risk (9%)**

A cataract scatters light and prevents a sharp image from reaching your retina

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**Age-Related Macular Degeneration**

Intermediate → Advanced

AREDS will not prevent the progression of cataracts

- Vit A, C, E
- Zn, Cu
- Central Vision
- No Vit A - Lutein Zeaxathin

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**No evidence that antioxidant supplements have beneficial effects on mortality. Beta carotene, vitamin A, and vitamin E seem to increase the risk of death.**

- In high doses

February 28, 2007, Vol 297, No. 8
Journal of the National Cancer Institute May 16, 2012
Cochran Library Jan.20, 2010
Antioxidants During Cancer Treatment

If you are not eating well, a multivitamin can help

Avoid any individual antioxidant
Check with your doctor

Kidney Stone Risk in Men Linked to Vitamin C Intake

It is reasonable for men prone to kidney stone formation not to take more than 500mg a day of vitamin C supplements.

Nephrology Oct. 20, 2015

Does not apply to multivitamins

A diet that is rich in a mix of antioxidants is something to aim for. Focus on fruits, vegetables, whole grains, nuts and legumes.

Causes of vitamin B12 deficiency

Abdominal, intestinal surgery
Atrophic gastritis, Hypothyroidism (30/40%)
Metformin (DM and Polycystic Ovary Syndrome)
Nexium, Prilosec, Pepcid, Tagamet—acid blocking,
Celiac disease
Pernicious anemia (AI)

Symptoms of vitamin B12 deficiency

Muscle weakness, unsteady gait, numbness or tingling in fingers or toes (diabetes or MS)
Dementia, cognitive impairment, psychosis, depression, irritability
Anemia, fatigue
Usually Develops Slowly

ATROPHIC GLOSSITIS (Beefy, Red, Smooth tongue)

Nutritional deficiency
• Vit B12
• Folic Acid (B9)
• Riboflavin (B2)
• Niacin (B3)
• Iron
• Celiac Disease
VITAMIN (?) D

The only vitamin that the body can make

Causes of Vitamin D Deficiency
- Liver or kidney problems
- Aging
- Hypothyroidism
- GI disorders—Crohn disease, ulcerative colitis, Celiac disease
- Medications (prednisone, wt. loss drugs)
- Sunscreen (basal, squamous, melanoma)
- No sun—Northern climate

Sunscreen Myths and Facts

Sun is not the enemy it’s been made out to be

If your shadow is longer than you are tall, you are not making any vitamin D

10,000 cases of melanoma & 250,000 cases of basal and squamous cell skin cancer in 2016 can be attributed to tanning bed use

Journal of Cancer Policy, Feb. 28 2017
Benefits of Vitamin D (?)
- For calcium and phosphate absorption
- Impacts muscle strength
- Benefits the immune system
- Maintain the health of bones and teeth
- Regulate insulin levels and aid diabetes management
- Influence the expression of genes involved in cancer development
- Support lung function
- Multiple sclerosis
- CVD

MUSCLE SORENESS
“Not Just Getting Old”
- Low vitamin D—muscle pain
- Statins (Zocor, Lipitor, etc—10%-15%)
- Peripheral vascular disease
- Vitamin B12 (low)
- Mg, Ca, K (low)
- Celiac Disease
- Hypothyroidism
- Bisphosphonates
- Drug combinations

CALCIUM
Builds strong structure of bones and teeth
Secretion of hormones and enzymes
Transmit impulses thru the nervous system
Muscle and blood vessel contraction

Found naturally in meat, dairy products, leafy green vegetables, and beans.
May also need supplements since the body cannot make calcium

CALCIUM SUPPLEMENTS
Calcium carbonate
- Least expensive
- Should be taken with food
- Absorption is acid dependent

Calcium citrate
- Acid independent
- Take with or without food
- Can take with PPI (Nexium, etc)

Do not take with Synthroid, Dilantin, cortisone, BP, bisphosphonates, thiazides
(take 4 hours before or 4 hours after taking Ca)
Check with your pharmacist !!!
WOMAN’S HEALTH INITIATIVE

Women who took 1000mg of calcium supplements daily had 17% more kidney stones.

Women who consumed calcium from food had fewer kidney stones.

36,000 women/15 years

Osteoporosis

Osteoporosis is silent.

Only 30% of patients with osteoporosis had been diagnosed.

RISK FACTORS FOR OSTEOPOROSIS

Small or thin body frame
Smoking, alcohol
Sedentary lifestyle
Intestinal disorders
Type 1 diabetes (AI)
Genetics
Early menopause

Women over 65 & men over 70 should have a bone density test if have risk factors.

Drugs Associated with Low Bone Mineral Density and Fracture Risk

Diuretics—Lasix, Bumex, Demadex
Get potassium, magnesium, calcium checked
Thyroid meds—Synthroid, Levoxyl, Synarel, Lupron, Synarel
Nexium, Prilosec, Prevacid (PPI)

Proton Pump Inhibitors (PPIs): Medication Side Effects & Warnings -- Drug Watch

GOOGLE

Pneumonia
Kidney disease
Diarrhea (C.diff)

Ulcerative Colitis
Osteoporosis

< B12, Mg, Ca, Iron
**Antacids**
- Tums
- Rolaids
- Maalox
- Pepto Bismol
- Alka-Seltzer

**H2 blockers**
- Pepcid
- Tagamet
- Zantac

**PPI**
- Prevacid
- Prilosec
- Nexium

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**LINX Reflux Management System for GERD**

Allowed 87 percent of patients to stop using acid-suppressing drugs

*Mayo Clinic May 2014*

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**BONE DENSITY SCAN**

Measures bone density at the hips and spine

The score (T-score) is compared with the average score of a 30-year-old woman

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**Know Your T-score**

<table>
<thead>
<tr>
<th>Osteoporosis (Bone Density [risk for fracture])</th>
<th>Normal Bone Density</th>
</tr>
</thead>
<tbody>
<tr>
<td>-4.0, -3.5, -3.0, -2.5, -2.0, -1.5, 1.0, 0.5, 0.0, 1.0</td>
<td>-1.0, -0.5, 0, 0.5, 1.0</td>
</tr>
</tbody>
</table>

**OSTEOPENIA**

FOSAMAX, ACTONEL, BONIVA, RECLAST, PROLIA

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**LIFESTYLE**

Weight-Bearing Exercise
Strength Training Exercise

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**Does Exercise Really Help Bones?**

*Berkeley Wellness*
The Best Osteopenia and Osteoporosis Exercises
Duke University Health News

People over 50 should aim for 1,200 mg of calcium daily, obtaining as much as possible from dietary sources and supplementing only as necessary; there’s no benefit from getting more than 1,200 mg.

PROSTATE CANCER AND ANDROGEN DEPRIVATION THERAPY
To reduce levels of male hormones (testosterone) which fuels the growth of cancer cells

More likely to have osteoporosis and/or periodontal disease

J Urology-2007 March 177(3)

Rx Lupron
Rx Casodex