Management of Hridroga & Hypertension

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Prevention, preservation and promotion of physical and mental health.

Cure / eradication / management / non-recurrence of the diseases occurring in the body.
Ayurveda is a science of study and management of life style

* Dietetic code of conduct
* Physical activity code of conduct
* Psychological code of conduct
* Behavioral code of conduct

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Optimum Lifestyle for Health – As per Ayurveda – personal code of conduct

* Setting your life goals at realistic level and achievable
* Psychological code of conduct
* Seasonal code of conduct – performing seasonal purificatory procedures
Optimum Lifestyle for Health – As per Ayurveda – social code of conduct

• Observance of Social ethics for preservation of seasons
• Behavioral code of conduct to prevent the pollution of Air, water, land and atmosphere
• Spiritual code of conduct

कालोनुकूलो विषया मनोजाधर्म्यां: क्रियां कर्म सुखानुबन्धि सत्यं विरूँयं विशेषा च बुद्धिभवनिधीरस्य सदा सुखाय
–अ.सं.सू.5/30
Three basic factors – causing Diseases

Inadequate / Improper / Excess of

• Kala (Season / Time)
• Artha (Objects of Senses) Causes disease
• Karma (Activities)
High Risk Group for life style disorders

सदास्तुरः श्रोत्रियराजसेवकास्तथेव वेश्या सह परायजीविधि:

द्विजो हि वेदाध्ययनस्वतांतांताधिकारियाः दिनेहहितं न चेष्टेत
नृपोपसेवी नृपचित्तरच्छात् परानुयोधाङ्गहितचिन्तनावद्यानु २५

नृचित्तवर्त्तिन्युपचारतांत्या मृजामभूषानित्ता पशाङ्कना
सदासनादात्यनुवनथविक्रयक्रयादिलोभादाति परायजीविनः २६

सदैव ते द्वागतवेगनिः समाचरते न च कालभोजनम्
स्रकालनिप्परविहारसेवि न्यास्वति येतेन्येतिपः सदास्तुराण्डः ते ३०
Retention of Natural urges

- Ayurveda gives much more importance to retention of natural urges causing the diseases
- Listed the professions like Government servants, professionals, businessmen as more prone to the diseases
- Because they regularly indulge in
  - retention of natural urges,
  - eating in improper timings,
  - adopting improper life style and dietetics
Genome – Hardware – Prakriti of the persons

Epigenome – Software – factors related with lifestyle developments like jatottar Prakriti and Ahara, Vihara of individual persons

Lifestyle changes leads to shut down of epigenetic responses leading to production of diseases
"Epi'genetics – ‘On’ or ‘over’ the genetic information encoded in the DNA

The study of reversible heritable changes in gene function that occur without a change in the sequence of nuclear DNA

Gene-regulatory information that is not expressed in DNA sequences is transmitted from one generation (of cells or organisms) to the next

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Chromosomal infrastructure is essential for gene control, determining both active and repressed states.

It is important not only to turn the right genes on but also to turn the right genes off.

Histones and chromatin components have key roles in this decision making process.

If as few as three inappropriate genes are turned off, a normal cell can be converted into a cancer cell.

This epigenetic silencing of genes underlies a new approach to cancer therapy.

Mis-targeting of these enzymes leads to tumorigenesis, but inhibition of their activity presents a novel approach to therapy.
A disease associated with the way a person or group of people lives. Examples like

* Metabolic syndrome
  * CVA,
  * Heart disease, and stroke;
  * Obesity and type 2 diabetes;
  * Atherosclerosis,

* Diseases associated with smoking / alcohol / drug abuse – hypertension, cancer
CHANGE IN THE RANK ORDER OF DISEASE BURDEN FOR 10 LEADING CAUSES, WORLD, 1990-2020 (DALYS)

1. Lower resp infection
2. Diarrhea diseases
3. Peri-natal
4. Major depression
5. Ischemic heart disease
6. Stroke
7. TB
8. Measles
9. Traffic accidents
10. Cong. anomalies

1. Ischemic heart disease
2. Major depression
3. Traffic accidents
4. Stroke
5. COPD
6. Lower resp infections
7. TB
8. War
9. Diarrhea disease
10. HIV

....Murray and Lopez, GBD
Hypertension

- Hypertension is defined as the pressure exerted by the column of blood on the wall of arteries.
- Hypertension is a lifestyle disorder commonly encountered in clinical practice.
- Hypertension is one of the major causes of disability and death all over the world.
- Hypertension causes heart attacks, strokes, kidney failures and other disorder if it is neglected and remains untreated.
- In many cases, hypertension does not cause any symptoms until it causes complications such as heart attack and stroke and plays a role of silent killer in the body.
- So it is important to realize that you may have high blood pressure and only way to find it out that get your blood pressure checked at regular intervals.
## Blood pressure & Hypertension

<table>
<thead>
<tr>
<th>Category</th>
<th>Systolic Blood Pressure</th>
<th>Diastolic Blood Pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>&lt; 120</td>
<td>&lt; 80</td>
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<tr>
<td>Pre-hypertension</td>
<td>120-139</td>
<td>80-89</td>
</tr>
<tr>
<td>Hypertension – Stage 1</td>
<td>140-159</td>
<td>90-99</td>
</tr>
<tr>
<td>Hypertension – Stage 2</td>
<td>≥ 160</td>
<td>≥ 100</td>
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</tbody>
</table>

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1. Abdominal obesity, waist circumference:
   - men > 40 inches & women < 35 inches
2. Impaired glucose intolerance:
   - fasting glucose > 110 mg/dL & < 126 mg/dL
3. B.P. > 130/80 mm of Hg
4. Triglycerides > 150 mg/dL
5. HDL-Cholesterol for men < 40 mg/dL & women < 50 mg/dL

Three or more of the above criteria are present, diagnosis of MS is done.

* Points to be emphasized-
  * Primary goal of diagnosis of MS is to identify individuals at risk for CVD
  * DM is not the criteria for the syndrome
  * Insulin resistance is not a requirement or part of the syndrome

Although some features may be common
Heart diseases are now the most common cause of deaths worldwide.

Today the Cardio-Vascular diseases account for ~30% of deaths worldwide, including nearly 40% in high-income countries and about 28% in low- and middle-income countries.
# Epidemiology of Hypertension

HT in Indian Population as per Casual Screening B P in Urban Areas:

<table>
<thead>
<tr>
<th>URBAN Authors</th>
<th>Year</th>
<th>Age Group (Yrs)</th>
<th>Hypertension Criteria (mm of Hg)</th>
<th>Prevalence</th>
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</table>

- North Indians, b- South Indians, * - Diagnosis of hypertension based on the average of three readings on the second occasion after the initial screening.
### EPIDEMIOLOGY OF HYPERTENSION

**HT in Indian Population as per Casual Screening BP in Rural Areas:**

<table>
<thead>
<tr>
<th>RURAL Authors</th>
<th>Yr</th>
<th>Age Group (Yrs)</th>
<th>Hypertension Criteria (mm of Hg)</th>
<th>Prevalence</th>
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<td>Men</td>
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</table>
Due to less prevalence of disease and its asymptomatic nature disease is not described as it is.

Charak has described the syndrome of Raktashrayaja Vyadhi (Ch Su 24) which covers the hypertension and its symptoms like Mada, Moorchha, Sanyasa.
Interrelationship of different Srotas

* Rasavaha Srotasa (C Vi 5/7-8)

* Raktavah Srotasa
  * Sushruta explains Dash Dhamani as moola
  * Manovahi Srotasa/ Sangyavah Srotasa
Rasavah Sroto Dushti Causes

- Heavy, unctuous and cold food beverages (Guru, Sheeta, Atisnigdh)
- Excessive eating and mixing many things without proper planning (Atimatra sama bhojana)
- Grief, Anxiety, tension, fear (Chintyanam Atichintan)
Raktavah Sroto Dushti Causes

Ch.Vi 5/ Ch. Su. 24/

- Dietetics causing excessive acid production - Vidahi Annapana
  - Dadhi, Amla Mastu, Shuktam
- Lot of unctuous, hot and liquid drinks and food (Snigdha, ushna, Drava)
- Wine and other fermented items (Sura, Sauveera)
- Incompatible diets (Viruddha Bhojan)
- Non following code of conduct (Ajeerna Bhojan, Adhyashan)
- Excessive food (Atiadana)
- Day sleep after taking food (Bhuktva Divasvapan)
- Krodha
Causes of Medovah Sroto Dushti

* Absence of physical activity (Avyayam, )
* Day sleep (Divasvapna)
* Excessive use of fatty diet (Medyanam Atibhakshanat)
* Use of Beer like fermented beverages (Varunyati Sevan)
Causes of Manovah Sroto Dushti

- Tension, worries - Chinta
- Fear - Bhaya
- Grief - Shoka
- Anger - Krodha
- Excessive sexual desire, possession (Kama)
ध्यायतो विषयान्पुंसः सञ्ज्ञसूपपजायते ॥
dhyāyato viṣayānpuṁsaḥ saṅgasteṣūpajāyate ॥
सञ्ज्ञातसञ्ज्ञायते कामः कामात्कोयोऽभिजायते ॥ २-६२ ॥
saṅgātsaṅjāyate kāmaḥ kāmātkrodho'bhijāyate ॥ 2-62 ॥

____________________________

कोधाद्र्वति सम्मोहः सम्मोहात्सर्वस्मृतिविभ्रमः ॥
krodhādbhavati sammohāḥ sammohātsmṛtivibhramaḥ ॥
स्मृतिभ्रंशाद् बुध्दिनाशो बुध्दिनाशात्प्रणिहति ॥ २-६३ ॥
smṛtibhramśad buddhinaśo buddhinaśātpraṇaśyati ॥ 2-63 ॥
Causes of Hypertension:

- Stress and hectic life-style.
- Smoking and an excessive intake of intoxicants
- Obesity
- Metabolic disorders
- Excessive intake of common table salt
- Overloading of fast foods
- Hardening of the arteries
Asymptomatic - 50% patients remain asymptomatic which are difficult to diagnose.
CLINICAL FEATURES

• Headache, burning sensation
• Talkativeness, excessive anger
• Giddiness/Vertigo, Tinnitus
• Epistaxis, hematuria
• Chest pain
• Palpitation, excessive perspiration etc.
• Vision disturbances
• Easy fatigability, Drowsiness, trembling
Untreated hypertension can result in:

- Arteriosclerosis
- Heart Attack
- Enlarged heart
- Parkinsons Disease

-- Kidney damage
-- Stroke
-- Blindness
CARDIOVASCULAR DISEASE or CVD includes CORONARY ARTERY DISEASE and other cardiac conditions (congenital, arrhythmias, and congestive heart failure)

CORONARY ARTERY DISEASE (CAD) or CORONARY HEART DISEASE (CHD) often broadly referred to as ISCHEMIC HEART DISEASE (IHD): primarily myocardial infarction and sudden coronary death.

Broader definition may include angina pectoris, atherosclerosis, positive angiogram, revascularization, and myocardial infarction
**Coronary Artery Disease**

* Occurs when the coronary arteries that supply the heart muscle are blocked.

* Partially blocked - causes angina.

* Fully blocked - causes a myocardial infarction (or a heart attack)
* Occurs when the coronary arteries that supply the heart muscle are blocked.

* Partially blocked - causes angina.

* Fully blocked - causes a myocardial infarction (or a heart attack)
Formation of atheromas in arteries

Normal cut-section of artery

Tear in artery wall

Fatty material is deposited in vessel wall

Lumen becomes blocked by a blood clot

Normal Artery  Mild Atherosclerosis  Severe Atherosclerosis
Angina is pain or discomfort in the chest that happens when some part of the heart does not receive enough oxygen from the blood.
Symptoms: uncomfortable pressure, fullness, squeezing pain, pain spreading to the shoulders, neck and arms.

- Chest discomfort and light headedness
- Anxiety/nervousness
- Paleness or pallor or cynosis
- Increased irregular heart rate
**Congestive Heart Failure**

- The right side of the heart collects the blood returning from the body and sends it to the lungs.
- If it is failing, the blood backs up into the veins, and there are signs of edema.
- The left side of the heart receives the blood from the lungs and pumps it out into the body. If it is failing the blood is not pumped effectively.
Chambers enlarge to handle increased fluid.

Walls may thicken to handle the increased strain.
CLINICAL FEATURES OF C.H.F.

- PALPITATIONS
- DYSPNOEA
- PEDAL EDEMA
- PUFFINESS OF FACE
- SWEATING
- GALLOPING RYTHEM OF THE HEART
- ENLARGED TENDER LIVER.
High-Normal Blood Pressure and CVD Risk: Framingham Study

- High normal 130-139/85-89 mm Hg
- Normal 120-129/80-84 mm Hg
- Optimal <120/80 mm Hg

Cumulative Incidence (%)

Men

Women

Time (years)

Cumulative Incidence (%)

Time (years)

$P < .001$

2001;345:1291-1297.
Correlation Between Serum Cholesterol and CVD Mortality

Multiple Risk Factor Intervention Trial (MRFIT)
N=325,346

Serum Cholesterol Quintile (mg/dL)

Q = serum cholesterol quintile.

High Density Lipids (HDL) is known as the good cholesterol whereas Low Density Lipids (LDL) is called bad cholesterol.

- It helps carry some of the bad cholesterol out of the body.
- It does not have the tendency to clog arteries.
- Levels should be >35.
- High levels of HDL >60 can actually negate one other risk factor.
Calcium overuse can increase heart attack risk, says study

Malathy Iyer | TNN

Mumbai: In a country where bone-related problems are as serious a health issue as heart attacks, a new medical debate is emerging over calcium pills. A fresh research from the US states that popping calcium pills may increase the patient's chances of dying of heart problems. The message: Don't ignore calcium supplements but be judicious in their intake.

Senior heart surgeon Dr Ramakant Panda is convinced that India needs to rethink its calcium-popping ways. "The study is relevant in the Indian context, too. Unnecessary calcium supplementation should be avoided at all costs, unless there's a clear indication of deficiency ascertained by a bone scan or other vitamin deficiencies," he said.

The study from the US National Institutes of Health looked at 4 lakh adults between the ages of 50 and 71 for more than 12 years and found men who had taken over 1,000 mg of calcium daily had 20% higher chance of dying due to heart-related problems. "It's possible that calcium buildup in arteries and veins may affect cardiovascular risks in some people," said the study.

Incidentally, a study from New Zealand in 2010 had first raised the red flag. Published in the British Medical Journal, it said: "Calcium supplements with or without Vitamin D modestly increase the risk of cardiovascular events, especially myocardial infarction (heart attack)."

Calcium is the most common element in the human body and is needed for practically most functions - make the muscles move, help the nerves transmit or keep bones strong. But during a growth phase like teenage or in old age, the body needs extra bursts of calcium to keep the bones intact. This medical fact had fuelled the market for calcium supplements, particularly aimed at children and the aging population.

Indians, especially women in rural areas, have traditionally been marked out as a calcium-deficient people. In fact, a few years ago, endocrinologist Dr V Bhatia from Sanjay Gandhi Postgraduate Institute of Medical Sciences, Lucknow, wrote in the Indian Journal of Medical Research, seeking an upward revision of calcium for adolescent boys and girls, post-menopausal women and the elderly. He was comparing the recommendations for daily intake made by the World Health Organization and the Indian Centre for Medical Research.

Most doctors in India, though, follow the thumb rule that the high-risk Indian groups need an intake of 1,000 milligram of calcium daily. "On an average, about 1,000 milligrams of calcium are needed in a day. People should try to get more than half of this requirement through diet while the remaining can come from supplements if needed," said Dr Archana Juneja, an endocrinologist with Kokilaben Ambani Hospital, Andheri.

But what makes the calcium story a complex one is the intake of Vitamin D. "Vitamin D is needed as a vehicle to carry calcium to various organs," pointed out head of the orthopedic department of KEM Hospital, Dr Pradeep Bhonsale. Without the right ratio between calcium and Vitamin D, the body's calcium reserves suffer.

KILLER PILL

- Men taking over 1,000 mg calcium daily have 20% higher chance of dying due to heart-related problems
- Calcium buildup in arteries and veins may affect cardiovascular risks
- Blood and bone density tests needed before taking calcium pills
Anger and coronary risk

Working with a large sample of healthy men and women who were followed for a median of 4-5 years, Williams et al (2000) found an association between anger and the likelihood of a coronary event. Among subjects who manifested normal blood pressure at the beginning of the study, a moderate anger level was associated with a 36% increase in coronary attacks and a high level of anger nearly tripled participant’s risk for coronary disease.

(Based on data in Williams et al., 2000)
Unchangeable Risk Factors

* Age- the older you get, the greater the chance.
* Sex- males have a greater rate even after women pass menopause.
* Race- minorities have a greater chance.
* Family history- if family members have had CHD, there is a greater chance.
Changeable Risk Factors

* Hypertension
* Serum cholesterol
* Obesity
* Diabetes Mellitus
* Physical Inactivity
* Cigarette Smoking
* Alcohol Intake
Aim of Ayurvedic management

* To manage newly diagnosed cases
* To use as adjuvant therapy with an objective of
  * better control,
  * prevention of disease complications,
  * better quality of life,
  * to reduce or withdraw the modern medication
  * To reduce the adverse effects of modern drugs
Management of hypertension & other heart diseases

* **Preventive**
  * Lifestyle moderation
  * Diet
    * Compliance of dietetic code of conduct
    * Compliance of healthy code of eating
  * Rasayana- including Achara Rasayana
  * Seasonal pancha karma purificatory procedures

* **Therapeutic**
  * Drug
    * Herbs
    * Herbo-mineral compounds
  * Bio-purification
  * Pancha karma purificatory procedures
  * Diet
    * Pathyapathyas
  * Lifestyle
    * Increase and regular Vyayama, Yoga
    * Decrease level of stress by better management of lifestyle
    * Stress-free life
    * Spiritual counseling
# Line of management

<table>
<thead>
<tr>
<th><strong>Do’s</strong></th>
<th><strong>Don’t’s</strong></th>
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<tbody>
<tr>
<td>* Do your Prakriti Pariksha</td>
<td>* Avoid smoking</td>
</tr>
<tr>
<td>* Do Manas prakriti Pariksha</td>
<td>* Over eating</td>
</tr>
<tr>
<td>* Plan your Ahara and Vihara as per your Prakriti with the advice of ayurvedic physician</td>
<td>* Eating of heavy unctuous diet, day sleep</td>
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<tr>
<td>* Maintain your daily routine, diet schedule diary and discuss with physician</td>
<td>* Engaging in over ambitious projects</td>
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<tr>
<td>* Increase physical activity level</td>
<td>* Hyper reactivity</td>
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<tr>
<td>* De-stress – Yoga, spiritual and psychological regimes</td>
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<tr>
<td>* Learn time management and keep some time daily for your self</td>
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Panchakarma Procedures
bio-purificatory procedures

- Virechana Karma
- Vamana Karma
- Basti Karma
- Nasya
- Shiorodhara
- Raktamokshan
* Omega-3 fatty acids, such as those found in fish oil, have a significant impact on blood pressure. As a bonus, they lower triglyceride (blood fats) levels as well.

* Flex seeds (Atasi), Sesame (tila), Mustard oil, Soyabean oil, Cottonseed oil, olive oil

* Almonds,
Dietary nutritional recommendations

According to a new study presented at a recent medical conference in Washington, D.C, people who regularly eat yogurt as part of a healthy diet tend to have a lower risk of more serious problems like stroke, heart attack, congestive heart failure, kidney damage, or blindness later on down the road.

Coconut water is rich in potassium, electrolytes, and other important nutrients, coconut water has been shown to help significantly lower blood pressure levels in most of the people who drink it. Magnesium plays an important role in reducing Blood Pressure levels.

Vitamin C is the key to reducing blood pressure.

Cayenne Pepper is probably the fastest way to lower High blood pressure. Mix one teaspoon of cayenne pepper with half a cup of lukewarm water or mix two tablespoons of raw organic honey with two teaspoons of cayenne pepper; boil them with eight ounces of water and drink when it is warm.

Hawthorne berries have rightly been called "food for the heart". They lower blood pressure, as well as protect arterial walls and prevent and treat hypertension and angina.
Onions contain quercetin, an antioxidant flavonol found to prevent heart disease and stroke.

Daily evening primrose oil pills can drop about 10 points off of both the bottom and top blood pressure numbers.

Cinnamon helps lower blood pressure as well as circulating blood glucose, triglycerides, and LDL cholesterol.

Green tea helps prevent clogged arteries and keeps blood pressure under control.

ALA, (alpha-lipoic acid) has also lowered blood pressure in a number of studies.

Grape seed extract with oligomeric proanthocyanidins (OPCS) can lower high blood pressure. Eating papaya on an empty stomach regularly can lower high blood pressure within a month.
Garlic contains allicin, a substance which has antibacterial, antioxidant, lipid lowering and anti-hypertension properties. Studies have proven that garlic significantly lowers both systolic and diastolic blood pressure.

Crush one clove of garlic in a glass of hot milk. (Lasuna Ksheera paka)

For high blood pressure, take one clove of garlic each morning.
Decrease the salt in your diet

- A lower sodium level – pickles, papad, chutney
- Hypertension, diabetes or chronic kidney disease → 1,500 milligrams (mg) a day
- Healthy people → 2,300 mg a day or less.
- Use fresh poultry, fish and lean meat, rather than canned or processed.
- Buy fresh, plain frozen or canned with “no salt added”
- Rock salt - Saindhav lavan

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Increase physical activity.

- Regular physical activity can help lower your blood pressure and keep your weight under control.
- Strive for at least 30 minutes of physical activity a day.
- Use stairs instead of elevator, get off bus 2 stops early, Park your car at the far end of the lot and walk!
- Yoga exercise daily for at least half an hour.
**Maintain a healthy weight**

*In obese person -- Losing even 5 pounds (2.3 kilograms) can lower blood pressure.*
In healthy also, alcohol can raise blood pressure.

If you choose to drink alcohol, do so in moderation — up to one drink a day for women and everyone older than age 65, and two drinks a day for men.
Tobacco injures blood vessel walls and speeds up the process of hardening of the arteries.

Don't smoke.

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Body

headaches
frequent infections
taut muscles
muscular twitches
fatigue
skin irritations
breathlessness

Mind

worrying
muddled thinking
impaired judgement
nightmares
indecisions
negativity
hasty decisions

Emotions

loss of confidence
more fussy
irritability
depression
apathy
alienation
apprehension

Behavior

accident prone
loss of appetite
loss of sex drive
drinking more
insomnia
restlessness
smoking more
Manage stress

- Reduce stress as much as possible.
- Practice healthy coping techniques, such as muscle relaxation and deep breathing.
- Getting plenty of sleep can help, too.
How Can You Manage Your Stress?

Avoid stressful situations

Avoid extremes

Set realistic goals

Manage how stress affects you

Change how you react to stress

Set Priorities

Take control of the situation

Discover new relaxation techniques

Change how you see the situation

Figure out what’s most important
Monitor blood pressure at home

Home blood pressure monitoring can help you keep closer tabs on your blood pressure, show if medication is working, and even alert you and your doctor to potential complications.
Practice relaxation or slow, deep breathing

- **Pranayama** – Sheetali, Sheetakari, Bhramari helps in reducing HTN
- **Meditation** – Padmasana, Vajrasana, Sukhasana by chanting OM kara.
- **Relaxing in Shavasana**
- **Practice taking deep, slow breaths to help relax.**
- **There are some devices available that can help guide your breathing for relaxation**
Herb Remedies for Heart Care
Arjuna Tvak + milk
(Ksheera paka)

* Rich in Calcium
Results relating to the first two objectives (Life span, fecundity, starvation, oxidative and thermal stress tolerance) of the project are in press

In vivo effects of traditional Ayurvedic formulations in Drosophila melanogaster model relate with therapeutic applications

Vibha Dwivedi, E.M. Anandan, Rajesh S. Mony, T. S. Muraleedharan, M. S. Valiathan, Mousumi Mutsuddi, Subhash C. Lakhotia

Drosophila is one of the most important organisms for studies in the fields of classical and molecular genetics, developmental biology and as a very good model for many human diseases.

The formulation (Amalaki Rasayana or Rasa-Sindoor) was mixed with the normal fly food at the desired concentration. Larvae and/or adult flies were allowed to feed on the formulation-supplemented food. Parallel Controls were maintained on normal food.
This study has attempted to evaluate the effects of two Ayurvedic formulations: Amalaki Rasayana (AR) and Rasa-Sindoora (RS), on the life processes of the model animal, the common fruit fly *Drosophila melanogaster*.
What did they find?

(1) Flies fed on small doses of AR lived longer than those that did not; life span of 40 days when fed on 0.5 per cent AR in the feed vs 36 (however higher doses are harmful. 1 per cent reduced the life span to 30 days.)

(2) Not only does the fly live longer on AR, it also develops sooner (the egg-larva-pupa-emergence period hastened by a few hours).

(3) They also appear to produce more eggs — fecundity rises.

(4) When fed with AR or RS, the flies are able to tolerate heat (higher temperatures) better than control flies.

(5) Finally, such supplementation also appears to allow them to tolerate starvation better, i.e. can go without food longer
Can Amalaki rasayana attenuate cardiac dysfunction associated with cardiac failure and aging?

C.C. Kartha, MD
TR. Santhosh Kumar, PhD

Cardio Vascular Disease Biology
Rajiv Gandhi Centre for Biotechnology
Thiruvananthapuram
* Use Rasayana - Rasayana Churna, Amalaki Rasayana, Arjuna, Tulasi
* Use Medhya Rasayana - Brahmi, Sankhpushpi, Jyotishmati, Ashvagandha
* Use Anti-hypertensives - Sarpagandha, Jatamansi, Parseekayavani, Tagar, Nirvishi
* Use mootral & Srotoshodhaka - Dashamula, Mootrala Kashaya, Gokshura, Ela
* Use Agni Deepaka & hypo-cholestereamic / anti-hyperlipidaemic drugs - Garlic, Ginger, Methica, Curri leaves, Panchatikta, Guggulu, Musta, Vidanga, Arjuna, Chopachini
* Do Vata Anulomana - Haritaki, Trivrita, Aragvadha, Eranda, Hingu
Herbs indicated in IHD

- *Arjuna* (Terminalia arjuna)
- *Hareetaki* (Terminalia chebula)
- *Vaca* (Acorus calamus)
- *Pippali* (Piper longum)
- *Pushkar mula* (Inula recemosa)
- *Guggul* (Commiphora mukul)
- *Rasona* (Allium sativum)
- *Palandu* (Allium cepa)
- *Ardhrak/Nagara* (Zygiber officinale)
- *Yashti Madhu* (Glycyrrhiza glabra)
- *Tulasi* (Ocimum sanctum)
- *Haridra* (Curcuma longa)
- *Amala* (Phyllanthus emblica)
- *Jathiphala* (Myristica fragrance)
- *Lavang* (Eugenia caryophyllus)
- *Ajamoda* (Trachyspermum ammi)
- *Bhunimba* (Andrographis paniculata)
- *Ela* (Ellettaria cardomum)
- *Chitrak* (Plumbago zeylanica)
- *Methika seed* (Trigonella foenum-graecum)
Compound preparations in hypertension & IHD

- Nagarjunabhra ras
- Prabhakar vati
- Hridayarnava ras
- Yakuti ras
- Muktasukti pishti
- Mrigasringa bhasma
- Shilajith
- Shiva Gutika
- Swarna makshika
- Vishveswar ras

- Sarpagandha Ghan Vati
- Muktavati
- Mansyadi Kwatha
- Bhadradi kasayam
- Dasamularishtam
- Arjunarishta
- Dasamula hareetaki
- Agasthya rasayanan
- Amritaprasa ghritam

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Gudelines for the management of Cardiac disorders

* One should not stop the previous medication without consulting the physician as cardiac disorders are life threatening.

* While using modern medicine and Ayurveda simultaneously always keep in touch with physician and monitor drug dose as per advice.