

Winning Hearts and Minds

March 2002  
 World Heart Federation  
 5, avenue du Mail,  
 CH-1205 Geneva  
<http://www.worldheart.org>  
<http://www.worldheartday.com>



上医医未病之病  
 中医医将病之病  
 下医医已病之病  
 ~黄帝:内经~

“Superior Doctors Prevent the Disease.  
 Mediocre Doctors Treat the Disease Before Evident.  
 Inferior Doctors Treat the Full Blown Disease.”

-Huang Dee: Nai - Ching (2600 B.C. 1st Chinese Medical Text)



Heart Disease is the major health challenge of the 21<sup>st</sup> century. Unless something is done, by 2020, 36 out of every 100 people will die of heart disease and stroke. The rate of increase will be greatest in low and middle income countries, those countries that can least afford it.

*"Heart disease and stroke are not inevitable. They are largely preventable. Preventive measures will reduce the incidence of death and disability."*

Prof. Mario Maranhão, President, World Heart Federation



Source : World Health Report 2002

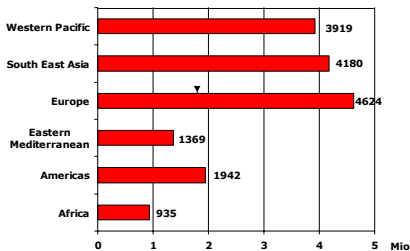
WORLDWIDE CVD FACTS

- One out of every 3 deaths
- 17 million deaths worldwide 1999 estimated to reach 25 million in 2020
- Six times the current number of deaths from HIV/Aids
- 80% of deaths are in low/middle income countries



Sources: WHO World Health Report 2000, CVD infobase

CVD Mortality by Region



Source : WHO World Health Report 2000 (estimates)

LIFESTYLE TRENDS & CVD OBESITY

- 300 Million obese adults globally
- Obesity in high income countries
- doubled in UK 1980-1999: 8-21% women 6-19% men
- US 30% overweight adults: 15% obese F>M
- Also trend in low/middle income countries
  - Kuwait 44% women 32% men
  - Brazil 12% women 7% men
  - Pakistan (urban) 20% women 10% men



Source: British Medical Journal, Report of WHO Nutrition 2000

### LIFESTYLE TRENDS & CVD DIABETES

- 150 Million Diabetics (90% type II)
- Incidence projected to double in 25 years
- Projected increase highest in India and China
- Increased incidence for younger age groups



Source : Diabetes and Cardiovascular Disease, IDF

### LIFESTYLE TRENDS & CVD HYPERTENSION

600 million with Hypertension at risk of heart attack, stroke, heart failure

- 180 million high income countries
- **420 million** from low/middle income countries



Sources: WHO World Health Report 2000, CVD infobase

### LIFESTYLE TRENDS & CVD TOBACCO

- World-wide sales/consumption increasing
- 2/3 young men in China smoke
- 40% men in India use Tobacco products
- ~50% women under age 30 in East Germany smoke (doubled in 5 years)



Source: Sir Richard Peto / Bundeszentrale für gesundheitliche Aufklärung

### LIFESTYLE TRENDS & CVD PHYSICAL ACTIVITY

- 60% of the World population insufficiently physically active, especially women
- Inactivity trend in urban areas of developed and developing countries, especially poor communities
- Physical activity helps control weight and prevent/reduce hypertension (affecting 20% of the adult global population)



Source :WHO, Physical activity, 2001, P Pushka

### LIFESTYLE TRENDS & CVD WOMEN

- Women unaware of their CVD risk
- CVD affects women around the globe
- CVD deaths 8 times higher than breast/ovarian cancers
- India, China and Latin America account for 48% of deaths.



### ADDITIONAL RISK FACTORS

- Mental stress, anxiety and depression, as well as, social factors.
- Depression is present up to 45% of cases of acute myocardial infarction (AMI).
- If unknown or untreated, depression favors a second MI (2½-4 times more), increasing the possibility of death up to 5 times more.

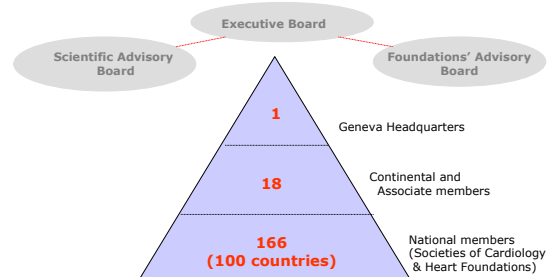


## WORLD HEART FEDERATION

How the World Heart Federation can support Prevention is the key. In the majority of low and middle income countries, preventive cardiology is still in a very early stage, so the World Heart Federation can make a huge difference. The World Heart Federation believes a successful prevention strategy links a population based approach with a high risk individual approach.



## STRUCTURE & MEMBERSHIP



## Major Members covering the world

### Continental

- Asian-Pacific Society of Cardiology
- Asian-Pacific Heart Network
- European Society of Cardiology
- European Heart Network
- Interamerican Society of Cardiology
- Interamerican Heart Foundation
- Pan-African Society of Cardiology
- African Heart Network

### Large National

- American Heart Association
- American College of Cardiology
- Card Soc. of Australia & New Zeal.
- Nat'l Heart Foundation of Australia
- Brazilian Society of Cardiology
- British Cardiac Society
- British Heart Foundation
- Canadian Cardiovascular Society
- Heart & Stroke Foundation Canada
- French Soc. of Cardiology
- French Heart Foundation
- German Cardiac Society
- German Heart Foundation
- Italian Federation of Cardiology
- Italian Heart Foundation
- Japanese Circulation society
- Japan Heart Foundation
- Netherlands Society of Cardiology
- Netherlands Heart Foundation
- Spanish Society of Cardiology

### Associate

- Association of Black Cardiologists
- Eastern Mediterranean Network of Heart Health
- Heart Friends Around the World
- Heartfile
- International Chinese Heart Health Network
- International Society for Heart Research
- Int'l Society for Holter & Non-Invasive Electrocardiology
- Int'l Society of Cardiovascular Ultrasound
- Latin Society of Pediatric Cardiology
- International Stroke Society
- The International Society on Hypertension in Blacks
- The society of Chest Pain centers and Providers



## Member Countries

- |                      |                     |                 |                 |                 |
|----------------------|---------------------|-----------------|-----------------|-----------------|
| Algeria              | Denmark             | Israel          | Nepal           | Slovenia        |
| Argentina            | Dominican Republic  | Italy           | Netherlands     | South Africa    |
| Australia            | Ecuador             | Jamaica         | New Zealand     | Spain           |
| Austria              | Egypt               | Jordan          | Nicaragua       | Sri Lanka       |
| Bangladesh           | El Salvador         | Japan           | Nigeria         | Sweden          |
| Barbados             | Finland             | Kenya           | Norway          | Switzerland     |
| Belarus              | France              | Korea           | Pakistan        | Syria           |
| Belgium              | Republic of Georgia | Kuwait          | Panama          | Taiwan          |
| Bolivia              | Germany             | Latvia          | Paraguay        | Thailand        |
| Bosnia & Herzegovina | Ghana               | Lebanon         | Peru            | Trinidad & Tob. |
| Brazil               | Greece              | Lithuanian Rep. | Philippines     | Turkey          |
| Bulgaria             | Guatemala           | Macedonia       | Poland          | U K             |
| Canada               | Honduras            | Malaysia        | Portugal        | U S A           |
| Chile                | Hong Kong           | Macao           | Puerto Rico     | Uruguay         |
| China                | Hungary             | Mauritius       | Romania         | Venezuela       |
| Colombia             | Iceland             | Mexico          | Russia          | Vietnam         |
| Croatia              | India               | Moldova         | San Marino      | Yugoslavia      |
| Cuba                 | Indonesia           | Morocco         | Saudi Arabia    |                 |
| Cyprus               | Iran                | Mozambique      | Singapore       |                 |
| Czech Republic       | Ireland             | Myanmar         | Slovak Republic |                 |



## WORLD HEART FEDERATION

## PARTNERSHIPS



## 3 Pillars of Activity

## WORLD HEART FEDERATION

### Advocate

- Target individuals, governments, medical community
- Tobacco : WHO Framework Convention Tobacco Control
- Women: International Conference
- Obesity, Nutrition, Physical Activity
- Publications: Heartbeat and White Book

### Educate & Train

- Transfer knowledge and skills
- Twinning Fellowships (cardiologists)
- P D White Fellowships (foundations)
- Scientific Councils Training Programs (eg 10 day seminars)
- Webcasts

### Support Science

- Build a network, improve knowledge exchange, advance understanding
- World Congresses every 4 years
- Regional congresses (Hong Kong 2001)
- Scientific Councils
- Research & Demonstration projects: (low/mid income countries)

World Heart Day



World Heart Forum for Global CVD Prevention

## PROJETO CAFÉ E CORAÇÃO ( COFFEE HEART STUDY)

Mário Maranhão ( WHF)  
Professor of Cardiology, UFP e FEMPAR  
Past-President, WHF

Darcy Roberto Lima  
(UFRJ )  
Doctor, Master and Ph.D.in Medicine, University  
of London, UK  
Post-Doctorate in History of Medicine,UK  
Professor of Clinical Pharmacology and History of  
Medicine, UFRJ



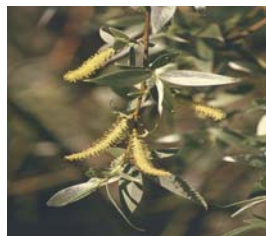
### Classical Descriptions of Angina Pectoris

Obra	Autor	Época
Life of Edward, Earl of Clarendon	Earl of Clarendon	1759
Pectoris dolor	William Heberden	1768
Farther account of the Angina Pectoris	John Fothergill	1776
The life of John Hunter	Everard Home	1796

Ref. LIMA, D.R. (2003) HISTÓRIA DA MEDICINA, MEDSI, RJ



Sec XVIII  
-Angina Pectoris Description  
R. Edmund Burke -Casca planta



**Coffea spp.**  
**2nd biggest world market**

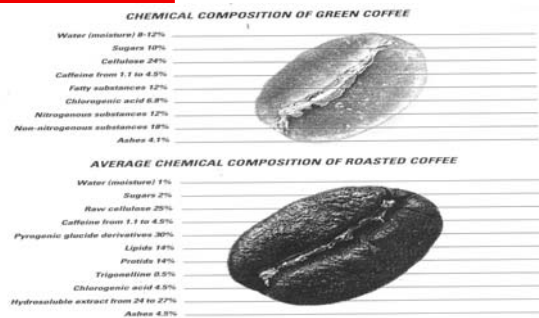


## COFFEE AND PREJUDICE

- “COFFEE IS PURE CAFFEINE”
- “CAFFEINE IS HARMFUL TO HEALTH”
- “CHILDREN SHOULD AVOIT COFFEE”



**Caffeine – isolated in 1820, Germany  
Friedlib F. Runge**



## COFFEE IS NOT ONLY CAFFEINE( 1-2 %)

**•OTHER COMPONENTS:**


- ➔ **CHLOROGENIC ACIDS (6- 9 %)**
- ➔ **MINERALS (3-5 %)**
- ➔ **AMINOACIDES (2-3 %)**
- ➔ **LIPIDES (10-20 %)**
- ➔ **NIACIN (0,5-1 %)**
- ➔ **SUGAR (30-50 %)**


CHEMICAL COMPOSITION OF GREEN COFFEE

Moisture	10.00%
Protein	11.00%
Carbohydrate	55.00%
Fat	15.00%
Chlorogenic acid	7.00%
Quinic acid	1.00%
Other organic acids	1.00%
Minerals	3.00%
Other	1.00%

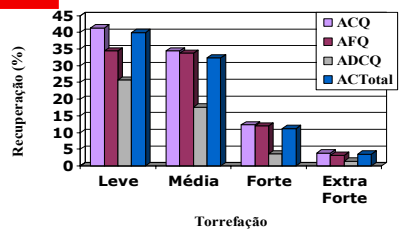
AVERAGE CHEMICAL COMPOSITION OF ROASTED COFFEE

Moisture	1.00%
Protein	12.00%
Carbohydrate	58.00%
Fat	14.00%
Chlorogenic acid	5.00%
Quinic acid	1.00%
Other organic acids	1.00%
Minerals	3.00%
Other	1.00%






## DEGRADATION OF CHLOROGENIC ACIDS



Torrefação

Torrefação a 205° C de amostra de café Arábica.  
 ACQ = Ácido cafeoil-quinico      ADCQ = Ácidodi-cafeoilquinico  
 AFQ = Ácido feruloilquinico      AC = Ácido clorogênico




## POSITIVE ASPECTS OF CAFFEIN


**BRAIN**


Caffein is safe if used with moderation : up to 500 mg as a daily drink ( 1 mg / mL)


Half Liter of Coffee = 4 larger cups of 125 ML  
( like any soft drink. Typo **COLA 2 L** )


**CAFFEIN INCREASE ATTENTION, CONCENTRATION AND THE MEMORY**

08:00 hs  


10:00 hs  



13:00 hs  


15:00 hs  




## CHLOROGENIC ACIDS STUDIED IN DETAIL

- **LUIS TRUGO, Ph.D. (UK) – Coordinator of the Program of Science of Food.**
- **Full Professor of the Instituto de Química da UFRJ.**
- TRUGO, L., HIGH PERFORMANCE LIQUID CHROMATOGRAPHY IN COFFEE ANALYSIS, Ph.D. THESIS, 1984. UNIVERSITY OF READING, ENGLAND.
- TRUGO, L., MACRAE, R., & DICK, J., Chlorogenic acid composition of instant coffee, ANALYST, March 1984, 109: pp. 263-266.




## CHLOROGENIC ACIDS IN THE COFFEE ( 7 - 9%)

- CQA ➔ ÁCIDO CAFEILOQUÍNICO
- FQA ➔ ÁCIDO FERULOQUÍNICO
- diCQA ➔ ÁCIDO DICAFEILOQUÍNICO
- CoCQA ➔ ÁCIDO COUMAROILQUÍNICO
- CFCQA ➔ ÁCIDO CAFEOFERULOQUÍNICO


**Derivatives of ACG have strong effect opioid antagonist .**

BOUBLIK, J.H., QUINNN, M.J., CLEMENTS, J.A., HERINGTON, A.C., WYNNE, K.N., & FUNDER, J.W.: Coffee contains potent opiate receptor binding activity NATURE, 1983, 301: pp. 246-248.




## RELATIONSHIP BETWEEN COFFEE,TOBACCO SMOKING AND ALCOHOL COMSUPTION

1. LIMA,D.R.A. & cols.Cigarettes & Caffeine. CHEST ( USA ) 1989,95(1):255-256.
2. LIMA,D.R. & cols. Coffee as a medicinal plant and vitamin source for smokers. ITALIAN JOURNAL OF CHEST DISEASES, 1989,43(1) :56-58.
3. LIMA,D.R. & cols.How to give up smoking by drinking coffee. CHEST ( USA ), 1990,97(1): 254.
4. SANTOS, R.M, VIEIRA, S., LIMA, D.R., Effects of coffee in alcoholics, ANN. INT. MED., 1991, 115 (6): p. 499.




**LIMA,D.R., et al. Smoking, Drug Addiction, Opioid Peptides & Coffee Intake, YONAGO ACTA MEDICA, 1990., JAPAN, 33(1): pp. 79-82.**

An hypothesis is now being tested related to the moderate daily coffee consumption with or no milk in the morning and mid-afternoon as a prophylatic blocking of opioid receptors of the limbic system, due the high containing of chlorogenic acids derivatives in coffee, reducing the wishes of self-gratification, which may lead to depression and consumption of alcohol.




**COFFEE HAS PREVENTIVE EFFECTS IN DEPRESSION,ALCOHOLISM AND SMOKING**

- LIMA,D.R.,ANDRADE,G.N.,SANTOS,R.M.&DAVID,C.N. Cigarettes & Caffeine. CHEST, 1989, 95(1): 255-256.
- LIMA,D.R. et al. How to give up smoking by drinking coffee. CHEST, 1990,97(1): 254.
- SANTOS, R.M. & LIMA,D.R. Coffee as a medicinal plant and vitamin source for smokers. ITALIAN JOURNAL OF CHEST DISEASES, 1989,43(1) :56-58.
- SANTOS, R.M., OLIVEIRA, D. & LIMA,D.R. . Smoking, Drug Addiction, Opioid Peptides & Coffee Intake. YONAGO ACTA MEDICA, 1990., JAPAN, 33(1): 79-82.
- LIMA,D.R. Is coffee good for drug addiction ? May Be. AFRICAN COFFEE, JAN 1990, 46-48.
- SANTOS, R.M, VIEIRA, S., LIMA,D.R. Effects of coffee in alcoholics. ANN. INT. MED., 1991, 115 ( 6 ) : 499.
- LIMA, D.R. – CAFFEINE AND HEALTH . RECORD PUB. , RIO, RJ, 130 P., 1989.
- LIMA,D.R. - COFFEE, A MEDICINAL PLANT. VANTAGE PRESS, N.Y., 1990. 120 p.
- LIMA, D.R. -I.Q., COFFEE SLEEP AND MEMORY . ECN - EDITORA CIENTIFICA NACIONAL, RJ, 1995 . 120 p.
- FLORES, G., ANDRADE, F. & LIMA D.R. : Can coffee help fighting the drug problem : preliminary results of the Brazilian Youth Drug Study ( BYDS ). ACTA PHARMACOLOGICA SINICA, Shanghai, 2000 , 21 (12) : 1059 - 1070.




**NALTREXONE (FDA, 1996)**

- OPIOIDS ANTAGONISTS WERE APPROVED BY THE FDA FOR THE TREATMENT OF ALCOHOLISM:**
- O´MALLEY, S.S. Opioid antagonists in the treatment of alcohol dependence: clinical efficacy and prevention of relapse, ALCOHOL & ALCOHOLISM, 1996, 31 (1): pp. 77-81.
- O´BRIEN, C.P. (Chair), Endogenous opioids in the treatment of alcohol dependence - Meeting report, ALCOHOL, 1996, 13(1): pp. 1 - 39.





**INVERSE RELATION BETWEEN COFFEE AND SUICIDE/DEPRESSION X CIRRHOSIS/ALCOHOLISM**

- KLATSKY, A.L. et al. Coffee, Tea and Mortality. ( KAISER PERMANENT MEDICAL CENTER, OAKLAND, CA ) ANN. EPIDEMIOLOG., 1993 ( 3 ) : 375 - 381.
- KAWACHI,I. et al. A prospective study of coffee drinking and suicide in women. (HARVARD MEDICAL SCHOOL ) ARCH. INTERN. MED., 1996 , 11 ( 156 ) : 521 - 525
- CORRAO, G., ZAMBON, A., BAGNARDI, V., DAMICIS, A., KLATSKY, A : Coffee, Caffeine and the Risk of Liver Cirrhosis. Ann. Epidemiol., 11(7) 458-465, 2001.

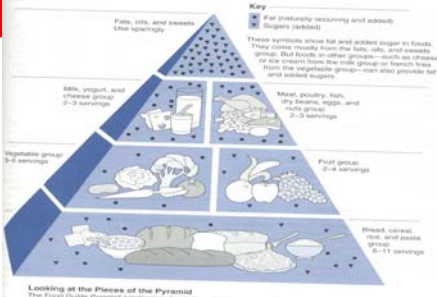



**COFFEE**

- Water / Milk**
- 1. Minerals (1- 3 % )**
- 2. Caffein (1 – 2 % )**
- 3. Niacin (0,5 a 1% )**
- 4. Chlorogenic /quinides ( 2- 4 %)**
- 5. Volatiles ( flavour and smell)**





**FOOD PYRAMID**


**DEPRESSION AS A RISK FACTOR FOR CARDIOVASCULAR DISEASES**

HIPPISLEY-COX, J., FIELDING, K., PRINGLE, M. Depression as a risk factor for ischaemic heart disease in men : population based-control study.  
BRITISH MEDICAL JOURNAL, 1998; 316 : 1714-1719



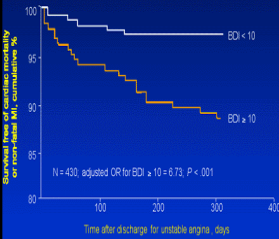
**Depression and CardioVascular Diseases (DCV)**

Depression is an independent risk factor for cardiovascular diseases (DCV)  
Analysis of "U.S. National Health and Nutrition Examination Survey (NHANES)" showed that patients with depression has 2,5 to 4 times greater of risk of coronary artery diseases like myocardial infarction and 5 times greater risk of sudden death.  
Depression is a bad marker for cardiovascular prognosis and survival.  
May coffee prevent depression and Myocardial Infarction? Report from WHO/WHF in 2004.



Medscape® www.medscape.com

**Depression and 1-year Cardiac Prognosis in Unstable Angina**

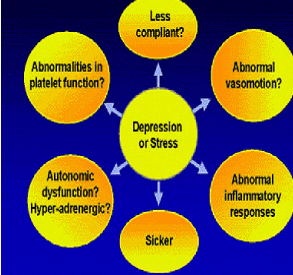



Time after discharge for unstable angina, days

BDI, Beck Depression Inventory; MI, myocardial infarction; OR, odds ratio; Logrank test,  $P < .001$ ;  $N = 400$

Medscape® www.medscape.com

**Biologically Plausible Mechanisms Linking Depression with CHD**





**COFFEE HEART STUDY (1998)**  
WORLD HEART FEDERATION

- MARIO MARANHÃO
- AND
- DARCY ROBERTO LIMA

HYPOTHESIS TO BE TESTED :

- MAY COFFEE PREVENT DEPRESSION & MI??? (epidemiologic research)





**MAJOR PROBLEM OF HUMANITY ( YOUNG AND ADULTS)**

**DEPRESSION (20 %)**

Consequences :


- Suicide (15 %)
- Alcoholism (15 %)
- Drug addiction >>> 1/3 HIV
- CVD : myocardial infarct

**MÁ NOTÍCIA**

**Doenças mentais**

Relatório da Organização Mundial de Saúde (OMS) prevê para os próximos anos um crescimento global das doenças neurológicas e mentais. A entidade fará uma campanha sobre o tema, ao longo deste ano, cujo objetivo é remover mitos e estigmas. Hoje, há 400 milhões de pessoas sofrendo com esses problemas. A depressão será a segunda maior causa de morte e de incapacidade no mundo inteiro por volta de 2020 (atualmente, ocupa o quinto lugar).



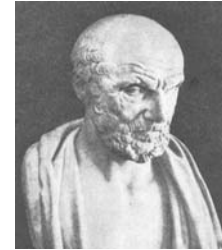
## ALCOHOLISM : THE MODERN PEST

- 15% OF US POPULATION ARE ALCOHOL DEPENDENTS
- 90% OF THE ADULT WORLD POPULATION DRINKS ALCOHOL
- 10% OF MEN AND 5% OF WOMEN ARE ALCOHOL DEPENDENTS
- ECONOMIC BURDEN OF US\$ 130 BILLION ANNUALLY
- IN BRAZIL US\$ 20 BILLION ANNUALLY
- THE CONTROL OF ALCOHOLISM IS DONE WITH DRUGS WITH OPIOIDS ANTAGONISTS LIKE NALTREXONE ( REVIA )



Rest and healthy diet

Is better to prevent than to cure



HYPOCRATES (460-370 a C)



## PRIMARY AND SECONDARY PREVENTION ACC, 1996 – Bethesda, 27° Conf.

### PRIMARY

Low level of saturated fats in food and high consumption of fruits, vegetables and fibers ( coffee???)  
Moderated exercise( 30 minutes daily)  
No smoking, moderate alcohol consumption

### SECONDARY

High Blood Pressure  
High HDL-Cholesterol, Low LDL-Cholesterol  
Weight Control (Overweight and Obesity)  
Diabetes  
Depression, Anxiety and Stress & Social Factors

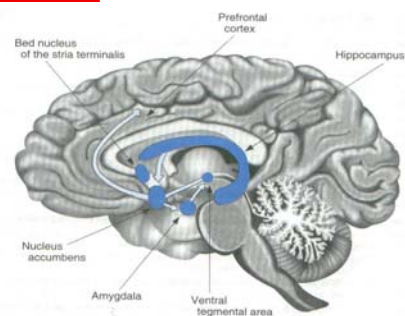
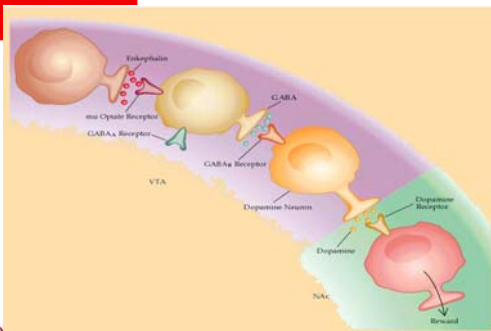


FIGURE 386-1 Mid-sagittal section of the human brain demonstrating limbic structures involved in brain reward pathways.



## OPIOID SYSTEM AND PLEASURE (" Reward")



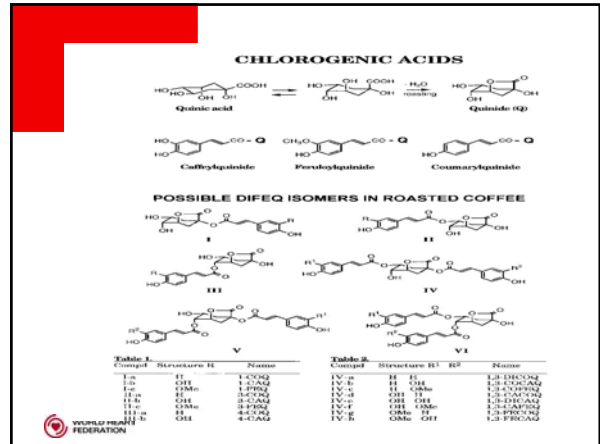
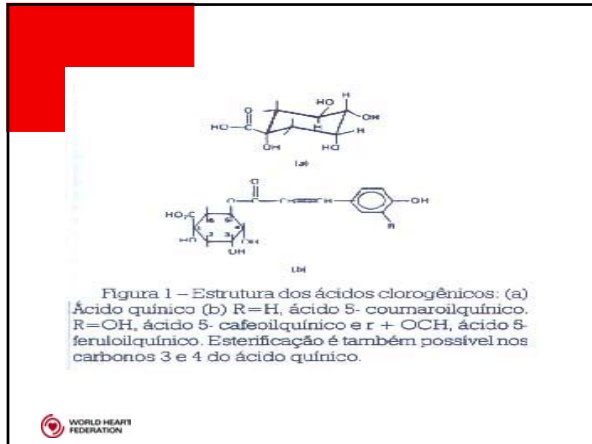
## Lymbic System / reward circuit



Drugs X Medicine  
bupropiona (smoking) naltrexone (alcoholism)







### ICS / VUMC

2000 / 2001

**CGA (8%) >> roasting >> CGA (4%) + QUINIDES (4%)**

1. **CGA** have antioxidant activity
2. **QUINIDES** have opioid antagonist activity
3. **QUINIDES** block adenosine re-uptake

Ref. : Martin, Peter : ASIC & WORLD COFFEE CONFERENCE, 2001

### PROJETO COFFEE & HEALTH

1. **INSTITUTE FOR COFFEE STUDIES** at VUMC, Nashville, TN, USA ( BASIC RESEARCH)
2. **COFFEE HEART STUDY (HEART INSTITUTE OF SP (INCOR)/ ZERBINI FOUNDATION/ WHF)**
  - Epidemiological and Clinical Studies
  - (University of São Paulo (USP), University of Campinas(UNICAMP), and other
  - EMBRAPA – CNPq – FAPESP – ICO - COSIC – PRODUCERS COUNTRIES AND MANUFACTORS

### COFFEE & HEALTH :A GLOBAL VISION

1. **Primary and Secondary prevention of CVD, Depression, Alcoholism and Drugs Addiction**
2. **INCREASE THE INTERNAL AND EXTERNAL CONSUMPTION OF COFFEE (CAFÉ X ÁLCOOL )**
  1. PRODUCERS AND CONSUMERS
  2. MEALS AT SCHOOL AGE (young)
  3. COFFEE & HEART(adults)
  4. PHYTOTHERAPY AND PHARMA DRUGS(pacients)
  5. SOFT DRINKS( CHILDREN)