Prevention

day 1

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Innsbruck Medical University, Austria

PREVENTION

DEFINITION

- **primary prevention**
  intends to avoid the development of disease
- **secondary prevention**
  intends to diagnose and treat an existing disease in its early stages
- **tertiary prevention**
  deals with an existing disease and tries to reduce disease-related complications

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PRIMARY PREVENTION

SECONDARY PREVENTION

TERTIARY PREVENTION

GENDER MEDICINE

**WHAT DATA AND FACTS
DO WE REALLY HAVE?
ARE THERE ANY GENDERED DATA?**

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GENDER MEDICINE/
PREVENTION
WHERE TO GET DATA?
WHERE TO GET PROGRAMMES?
WHO
HEALTH REPORTS
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GENDER MEDICINE/
PREVENTION
WHERE TO GET SCIENTIFIC DATA?
MEDLINE: MAY 2, 2011
PREVENTION 3.954
PREVENTION GENDER MEDICINE 4
PREVENTION WOMEN 1.219
PREVENTION MEN 617
PREVENTION WOMEN MEN 584
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GENDER MEDICINE/
PREVENTION
ARE THERE ANY GENDERED DATA?
WHO - GENDER POLICY
HEALTH REPORTS – GENDER MAINSTREAMING (EU)

WHO & Gender Policy
World Health Organization
1948: WHO was founded
1995: 4th World Conference on Women Beijing
1997: Gender Mainstreaming was implemented
2002: WHO Gender Policy, Gender Analyses in Health
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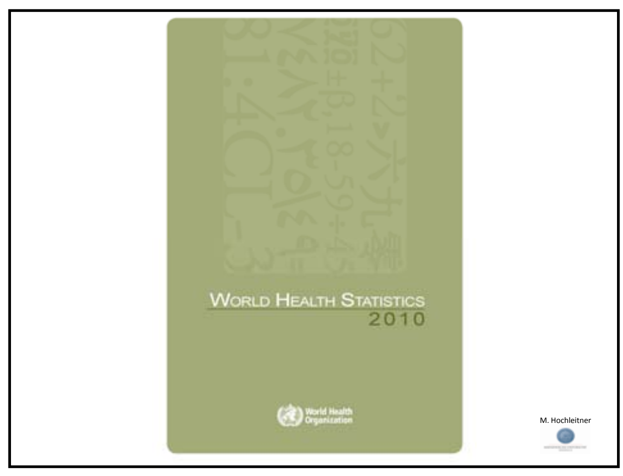
World Health Statistics
2010
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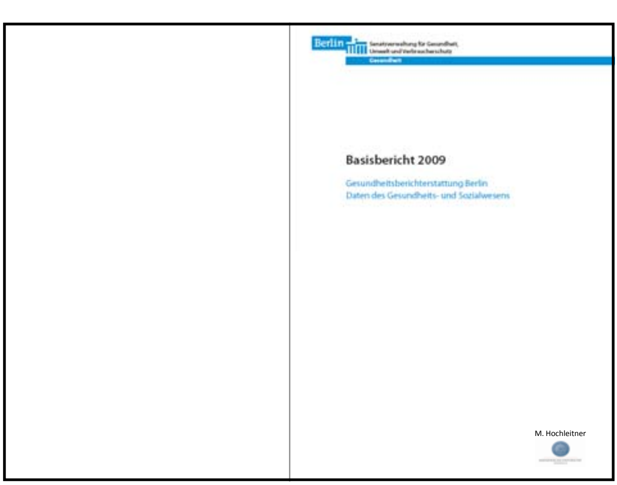
Berlin
Basisbericht 2009
Gesundheitsberichterstattung Berlin
Daten des Gesundheits- und Sozialwesens
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PREVENTION
IS IT FOCUSED ON ALL DISEASES?
IS IT FOCUSED ON SPECIAL DISEASES?
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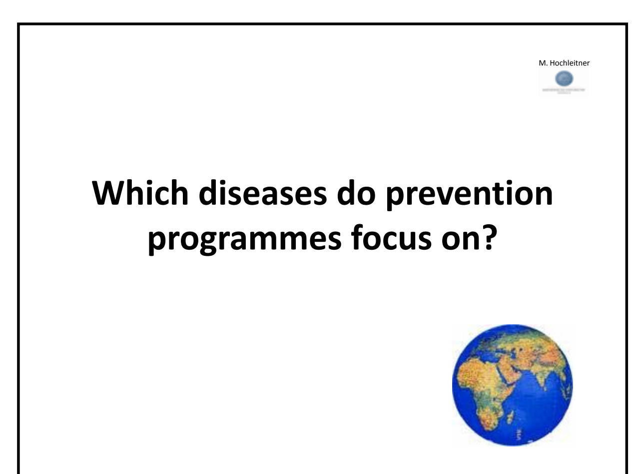
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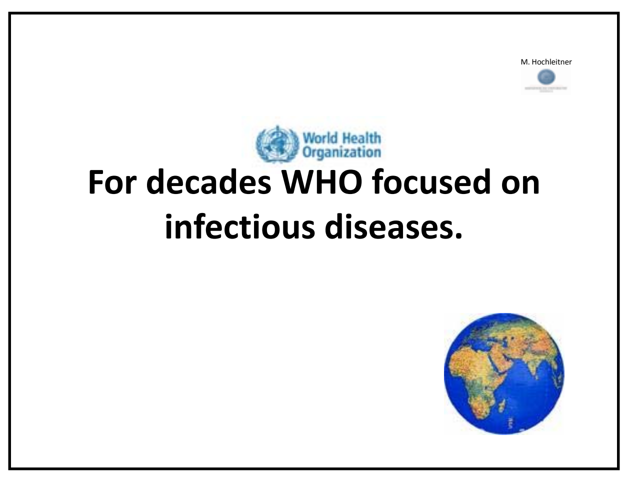
Which diseases do prevention programmes focus on?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World Health Organization
For decades WHO focused on infectious diseases.

Nowadays most prevention programmes focus on non-communicable diseases.
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World Health Organization
Diabetes Programme
Diabetes
STOP THE GLOBAL EPIDEMIC OF CHRONIC DISEASE
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May 2, 2011
World Health Organization
Noncommunicable diseases deaths rising
36 million
29%
80%
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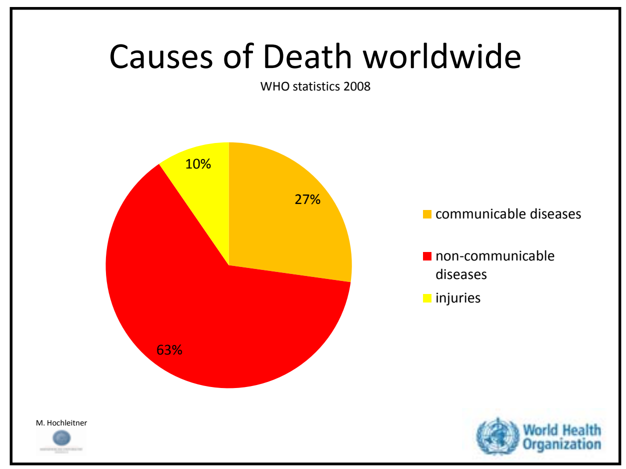
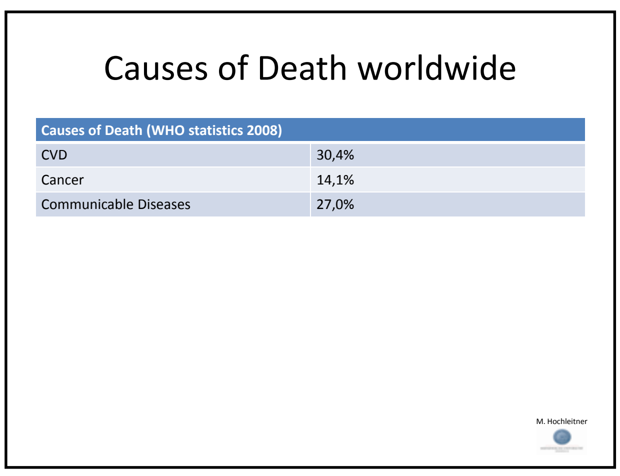
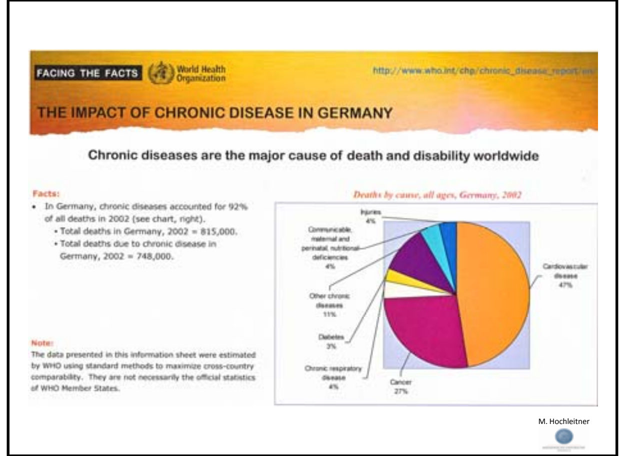
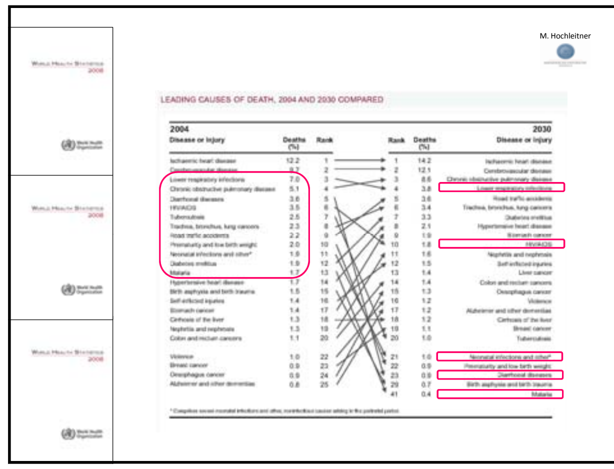




Causes of Death (WHO statistics 2008)	
CVD	30,4%
Cancer	14,1%
Communicable Diseases	27,0%





LEADING CAUSES OF DEATH, 2004 AND 2030 COMPARED

2004 Disease or injury	Deaths (%)	Rank
Ischaemic heart disease	12.2	1
Cerebrovascular disease	9.7	2
Lower respiratory infections	7.0	3
Chronic obstructive pulmonary disease	5.1	4
Diarrhoeal diseases	3.6	5
HIV/AIDS	3.5	6
Tuberculosis	2.5	7
Trachea, bronchus, lung cancers	2.3	8
Road traffic accidents	2.2	9
Prematurity and low birth weight	2.0	10
Neonatal infections and other*	1.9	11
Diabetes mellitus	1.9	12
Malaria	1.7	13
Hypertensive heart disease	1.7	14
Birth asphyxia and birth trauma	1.5	15
Self-inflicted injuries	1.4	16
Stomach cancer	1.4	17
Cirrhosis of the liver	1.3	18
Nephritis and nephrosis	1.3	19
Colon and rectum cancers	1.1	20
Violence	1.0	22
Breast cancer	0.9	23
Oesophagus cancer	0.9	24
Alzheimer and other dementias	0.8	25

Rank	Deaths (%)	2030 Disease or injury
1	14.2	Ischaemic heart disease
2	12.1	Cerebrovascular disease
3	8.6	Chronic obstructive pulmonary disease
4	3.8	Lower respiratory infections
5	3.6	Road traffic accidents
6	3.4	Trachea, bronchus, lung cancers
7	3.3	Diabetes mellitus
8	2.1	Hypertensive heart disease
9	1.9	Stomach cancer
10	1.8	HIV/AIDS
11	1.6	Nephritis and nephrosis
12	1.5	Self-inflicted injuries
13	1.4	Liver cancer
14	1.4	Colon and rectum cancers
15	1.3	Oesophagus cancer
16	1.2	Violence
17	1.2	Alzheimer and other dementias
18	1.2	Cirrhosis of the liver
19	1.1	Breast cancer
20	1.0	Tuberculosis
21	1.0	Neonatal infections and other*
22	0.9	Prematurity and low birth weight
23	0.9	Diarrhoeal diseases
29	0.7	Birth asphyxia and birth trauma
41	0.4	Malaria

Clinical Practice:

How to do prevention?

Lifestyle-Changes

Medication

GENDER MEDICINE?

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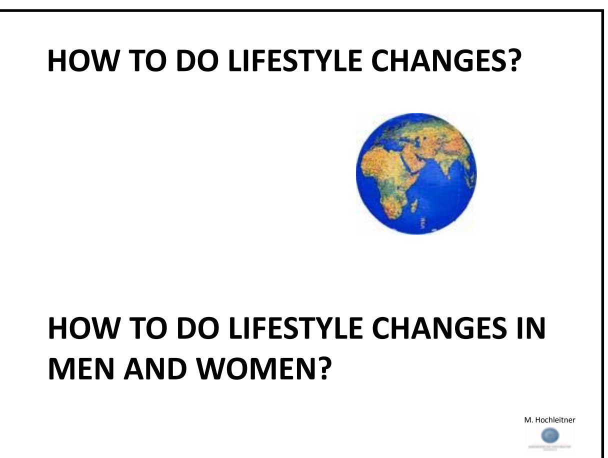

Tobacco advertizing in the 1970s directed towards women in the USA.
Prevention programmes directed towards women started in this decade.

There is a discrepancy between health prevention and companies‘ advertising.

World Cancer Report, WHO, IARC Press, Lyon 2003, p23

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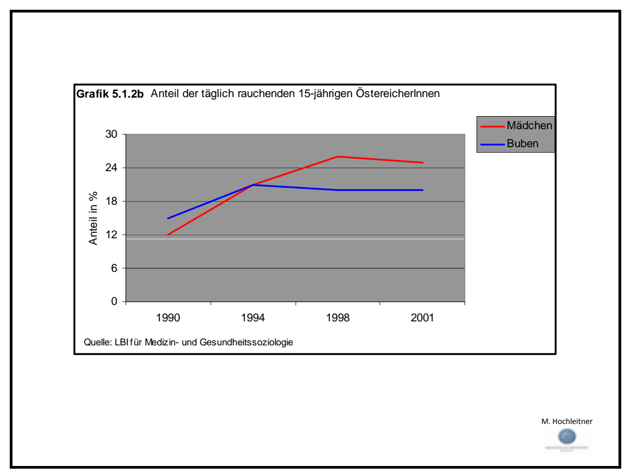

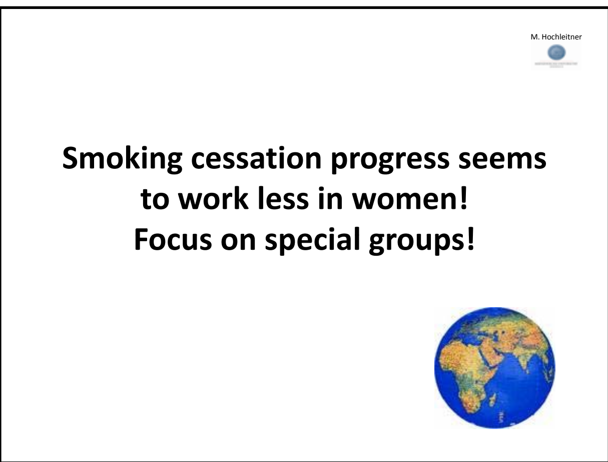

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Table 4. Guidelines for the Prevention of CVD in Women

Lifestyle interventions

Cigarette smoking

Women should be advised not to smoke and to avoid environmental tobacco smoke. Provide counseling at each encounter, nicotine replacement, and other pharmacotherapy as indicated in conjunction with a behavioral program or formal smoking cessation program *(Class I; Level of Evidence B)*.

Physical activity

Women should be advised to accumulate at least 150 min/wk of moderate exercise, 75 min/wk of vigorous exercise, or an equivalent combination of moderate- and vigorous-intensity aerobic physical activity. Aerobic activity should be performed in episodes of at least 10 min, preferably spread throughout the week *(Class I; Level of Evidence B)*.

Women should also be advised that additional cardiovascular benefits are provided by increasing moderate-intensity aerobic physical activity to 5 h (300 min/wk, 2 1/2 h/wk of vigorous-intensity physical activity, or an equivalent combination of both *(Class I; Level of Evidence B)*.

Women should be advised to engage in muscle-strengthening activities that involve all major muscle groups performed on ≥2 d/wk *(Class I; Level of Evidence B)*.

Women who need to lose weight or sustain weight loss should be advised to accumulate a minimum of 60 to 90 min of at least moderate-intensity physical activity (eg, brisk walking) on most, and preferably all, days of the week *(Class I; Level of Evidence B)*.

Cardiac rehabilitation

A comprehensive CVD risk-reduction regimen such as cardiovascular or stroke rehabilitation or a physician-guided home- or community-based exercise training program should be recommended to women with a recent acute coronary syndrome or coronary revascularization, new-onset or chronic angina, recent cerebrovascular event, peripheral arterial disease *(Class I; Level of Evidence A)* or current/prior symptoms of heart failure and an LVEF ≤35% *(Class I; Level of Evidence B)*.

Dietary intake

Women should be advised to consume a diet rich in fruits and vegetables; to choose whole-grain, high-fiber foods; to consume fish, especially oily fish, at least twice a week; to limit intake of saturated fat, cholesterol, alcohol, sodium, and sugar; and avoid trans-fatty acids. See Appendix *(Class I; Level of Evidence B)*.

Note: Pregnant women should be counseled to avoid eating fish with the potential for the highest level of mercury contamination (eg, shark, swordfish, king mackerel, or tile fish).

Weight maintenance/reduction

Women should maintain or lose weight through an appropriate balance of physical activity, caloric intake, and formal behavioral programs when indicated to maintain or achieve an appropriate body weight (eg, BMI <25 kg/m^2 in US women), waist size (eg, <35 in), or other target metric of obesity. *(Class I; Level of Evidence B)*.

Omega-3 fatty acids

Consumption of omega-3 fatty acids in the form of fish or in capsule form (eg, EPA 1800 mg/d) may be considered in women with hypercholesterolemia and/or hypertriglyceridemia for primary and secondary prevention *(Class IIb; Level of Evidence B)*.

Note: Fish oil dietary supplements may have widely variable amounts of EPA and DHA (likely the only active ingredients).

HOW TO DO DRUG THERAPY?
ARE THERE EVIDENCE-BASED DATA?
ARE THERE GUIDELINES?

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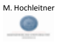

Frauen und Medikamente

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Dresser R: Wanted: single, white male for medical research. Hastings Cen Rep 1992; 22: 24-29.

Moncher KL, & Douglas PS (2004): Importance of and Barriers to Including Women in Clinical Trials. IN: Legato MJ (Ed.): Principles of Gender-Specific Medicine, Vol.1, p.277.

Barriers to Research on Women

- Under-appreciation of the importance of sex as an independent variable
- Exclusion of women of childbearing potential (to protect the fetus)
- Statistical and economic advantages of homogeneous study populations (sample size, analysis, cost)
- Difficulties in recruiting and retaining women as research subjects
- Complexity of underlying hormonal and reproductive issues in women
- Greater drug intolerance in women
- Greater burden of concomitant disease in women, including advanced age

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The Story of Aspirin

U.S. Physicians Study 1990

Aspirin significantly reduces heart attack risk.
The Study had been cancelled due to ethical reasons;
in the following Aspirin was world's bestselling medication.

BUT: ASPIRIN WAS NOT TESTED ON A SINGLE WOMAN!

Manson JE, Grobbee DE, Stampfer MJ. Aspirin in the primary prevention of angina pectoris in a randomized trial of United States physicians. Am J Med 1990; 89: 772-776.

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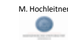

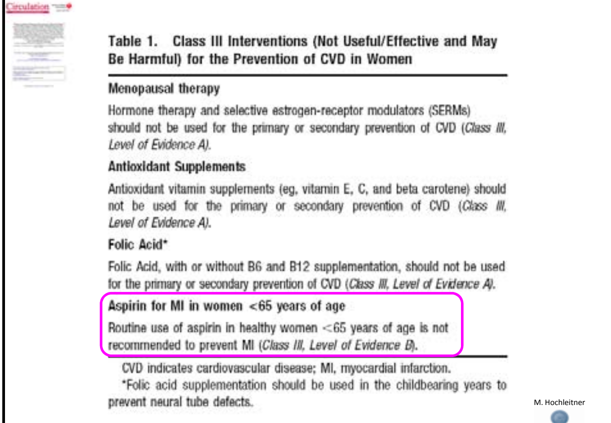

Table 1. Class III Interventions (Not Useful/Effective and May Be Harmful) for the Prevention of CVD in Women

Menopausal therapy

Hormone therapy and selective estrogen-receptor modulators (SERMs) should not be used for the primary or secondary prevention of CVD (*Class III, Level of Evidence A*).

Antioxidant Supplements

Antioxidant vitamin supplements (eg, vitamin E, C, and beta carotene) should not be used for the primary or secondary prevention of CVD (*Class III, Level of Evidence A*).

Folic Acid*

Folic Acid, with or without B6 and B12 supplementation, should not be used for the primary or secondary prevention of CVD (*Class III, Level of Evidence A*).

Aspirin for MI in women <65 years of age

Routine use of aspirin in healthy women <65 years of age is not recommended to prevent MI (*Class III, Level of Evidence B*).

CVD indicates cardiovascular disease; MI, myocardial infarction.
*Folic acid supplementation should be used in the childbearing years to prevent neural tube defects.

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Preventive drug interventions

Aspirin: high-risk women

Aspirin therapy (75–325 mg/d) should be used in women with CHD unless contraindicated (*Class I; Level of Evidence A*).

Aspirin therapy (75–325 mg/d) is reasonable in women with diabetes mellitus unless contraindicated (*Class IIa; Level of Evidence B*).

If a high-risk woman has an indication but is intolerant of aspirin therapy, clopidogrel should be substituted (*Class I; Level of Evidence B*).

Aspirin: other at-risk or healthy women

Aspirin therapy can be useful in women ≥65 y of age (81 mg daily or 100 mg every other day) if blood pressure is controlled and benefit for ischemic stroke and MI prevention is likely to outweigh risk of gastrointestinal bleeding and hemorrhagic stroke (*Class IIa; Level of Evidence B*) and may be reasonable for women <65 y of age for ischemic stroke prevention (*Class IIb; Level of Evidence B*).

Aspirin: atrial fibrillation

Aspirin 75–325 mg should be used in women with chronic or paroxysmal atrial fibrillation with a contraindication to warfarin or at low risk of stroke (<1%/y or CHADS2 score of <2) (*Class I; Level of Evidence A*).

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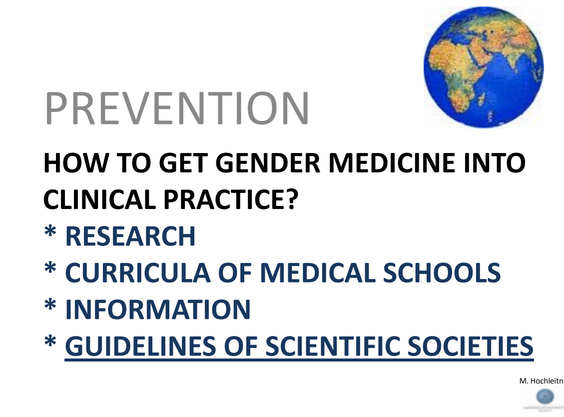

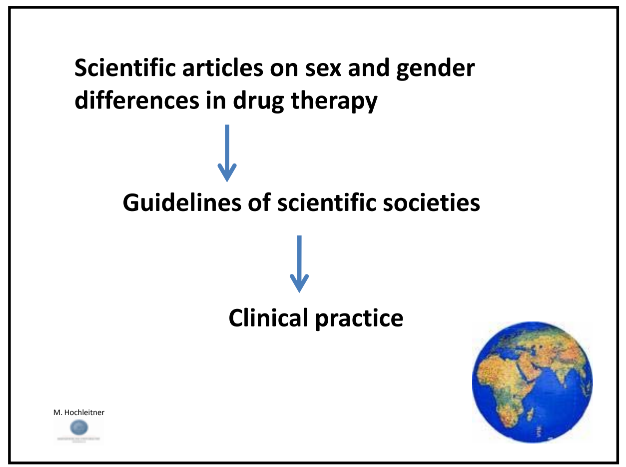

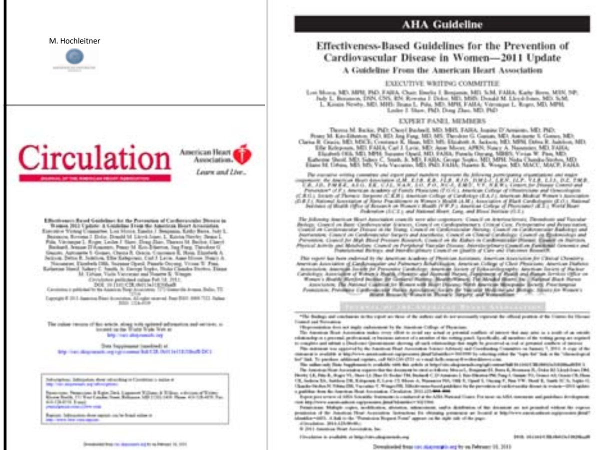

AHA Guideline

Effectiveness-Based Guidelines for the Prevention of Cardiovascular Disease in Women—2011 Update

A Guideline From the American Heart Association

EXECUTIVE WRITING COMMITTEE

EXPERT PANEL MEMBERS

Major risk factor interventions

Blood pressure: optimal level and lifestyle

An optimal blood pressure of <120/80 mm Hg should be encouraged through lifestyle approaches such as weight control, increased physical activity, alcohol moderation, sodium restriction, and increased consumption of fruits, vegetables, and low-fat dairy products *(Class I; Level of Evidence B)*.

Blood pressure: pharmacotherapy

Pharmacotherapy is indicated when blood pressure is ≥140/90 mm Hg (≥130/80 mm Hg in the setting of chronic kidney disease and diabetes mellitus). Thiazide diuretics should be part of the drug regimen for most patients unless contraindicated or if there are compelling indications for other agents in specific vascular diseases. Initial treatment of high-risk women with acute coronary syndrome or MI should be with β-blockers and/or ACE inhibitors/ARBs, with addition of other drugs such as thiazides as needed to achieve goal blood pressure *(Class I; Level of Evidence A)*.

Note: ACE inhibitors are contraindicated in pregnancy and ought to be used with caution in women who may become pregnant.

Lipid and lipoprotein levels: optimal levels and lifestyle

The following levels of lipids and lipoproteins in women should be encouraged through lifestyle approaches: LDL-C <100 mg/dL, HDL-C >50 mg/dL, triglycerides <150 mg/dL, and non-HDL-C (total cholesterol minus HDL) <130 mg/dL *(Class I; Level of Evidence B)*.

Lipids: pharmacotherapy for LDL-C lowering, high-risk women

LDL-C–lowering drug therapy is recommended simultaneously with lifestyle therapy in women with CHD to achieve an LDL-C <100 mg/dL *(Class I; Level of Evidence A)* and is also indicated in women with other atherosclerotic CVD or diabetes mellitus or 10-year absolute risk >20% *(Class I; Level of Evidence B)*.

A reduction to <70 mg/dL is reasonable in very-high-risk women (eg, those with recent ACS or multiple poorly controlled cardiovascular risk factors) with CHD and may require an LDL-lowering drug combination *(Class IIa; Level of Evidence B)*.

(Continued)

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Table 4. Continued

Lipids: pharmacotherapy for LDL-C lowering, other at-risk women

LDL-C–lowering with lifestyle therapy is useful if LDL-C level is ≥130 mg/dL, there are multiple risk factors, and the 10-y absolute CHD risk is 10% to 20% *(Class I; Level of Evidence B)*.

LDL-C lowering is useful with lifestyle therapy if LDL-C level is ≥160 mg/dL and multiple risk factors even if 10-y absolute CHD risk is <10% *(Class I; Level of Evidence B)*.

LDL-C lowering with lifestyle therapy is useful if LDL 190 mg/dL regardless of the presence or absence of other risk factors or CVD *(Class I; Level of Evidence B)*.

In women >60 y of age and with an estimated CHD risk >10%, statins could be considered if hsCRP is >2 mg/dL after lifestyle modification and no acute inflammatory process is present *(Class IIb; Level of Evidence B)*.

Lipids: pharmacotherapy for low HDL-C or elevated non-HDL-C

Niacin or fibrate therapy can be useful when HDL-C is low (<50 mg/dL) or non-HDL-C is elevated (>130 mg/dL) in high-risk women after LDL-C goal is reached *(Class IIb; Level of Evidence B)*.

Diabetes mellitus

Lifestyle and pharmacotherapy can be useful in women with diabetes mellitus to achieve an HbA_{1C} <7% if this can be accomplished without significant hypoglycemia *(Class IIa; Level of Evidence B)*.

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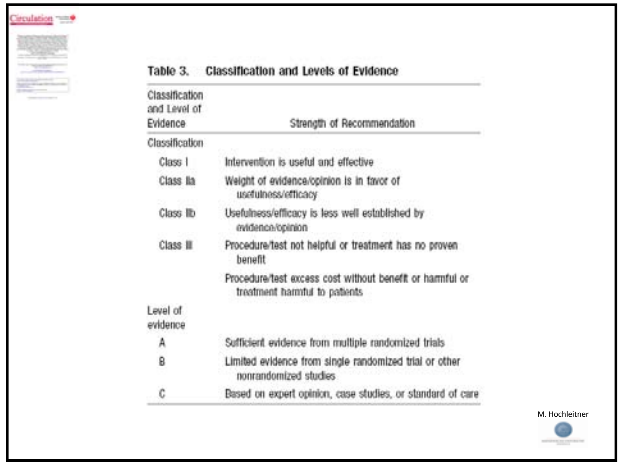

Table 3. Classification and Levels of Evidence

Classification and Level of Evidence	Strength of Recommendation
Classification	
Class I	Intervention is useful and effective
Class IIa	Weight of evidence/opinion is in favor of usefulness/efficacy
Class IIb	Usefulness/efficacy is less well established by evidence/opinion
Class III	Procedure/test not helpful or treatment has no proven benefit
	Procedure/test excess cost without benefit or harmful or treatment harmful to patients
Level of evidence	
A	Sufficient evidence from multiple randomized trials
B	Limited evidence from single randomized trial or other nonrandomized studies
C	Based on expert opinion, case studies, or standard of care

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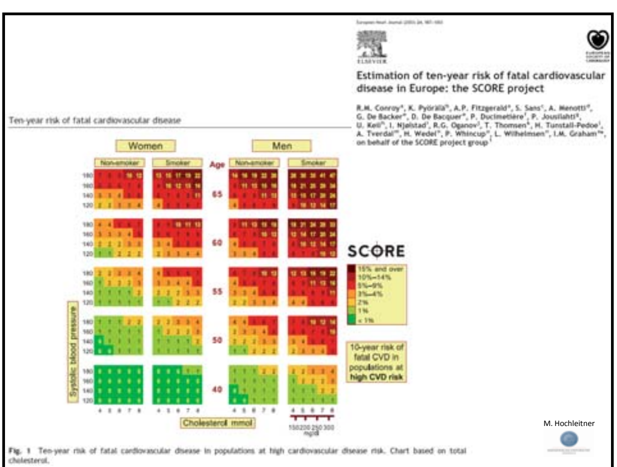

Estimation of ten-year risk of fatal cardiovascular disease in Europe: the SCORE project
R.M. Conroy, K. Pyörälä, A.P. Fitzgerald, S. Sans, A. Menotti, G. De Backer, D. De Bacquer, P. Ducimetière, P. Jousilahti, U. Keil, I. Njølstad, R.G. Oganov, T. Thomsen, H. Tunstall-Pedoe, A. Tverdal, H. Wedel, P. Whincup, L. Wilhelmsen, I.M. Graham, on behalf of the SCORE project group
Ten-year risk of fatal cardiovascular disease
Women
Men
Non-smoker
Smoker
Age
65
60
55
50
40
Systolic blood pressure
Cholesterol mmol
SCORE
15% and over
10%–14%
5%–9%
3%–4%
2%
1%
< 1%
10-year risk of fatal CVD in populations at high CVD risk
Fig. 1 Ten-year risk of fatal cardiovascular disease in populations at high cardiovascular disease risk. Chart based on total cholesterol.
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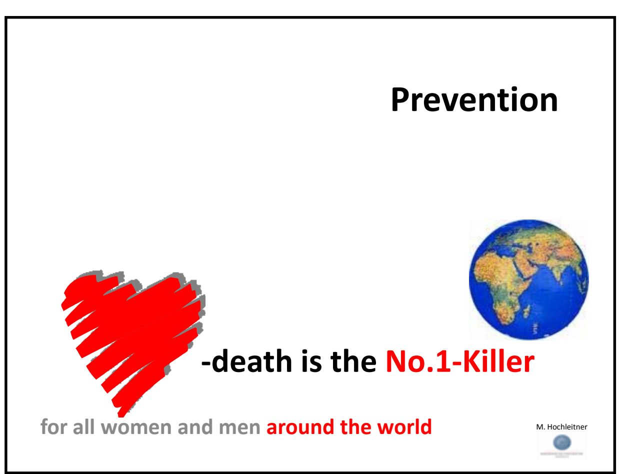

Prevention
-death is the No.1-Killer
for all women and men around the world
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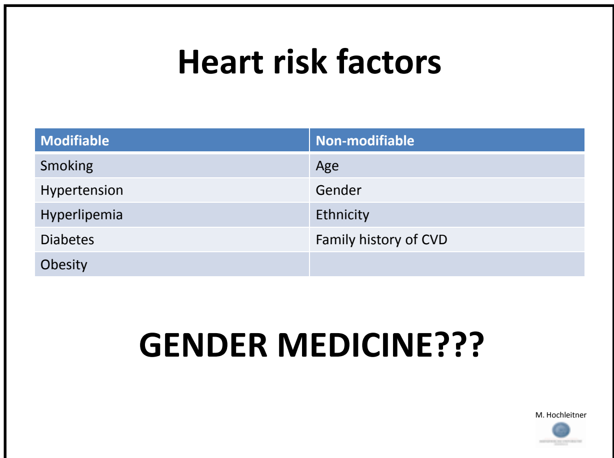

Heart risk factors
Modifiable | Non-modifiable
Smoking | Age
Hypertension | Gender
Hyperlipemia | Ethnicity
Diabetes | Family history of CVD
Obesity
GENDER MEDICINE???
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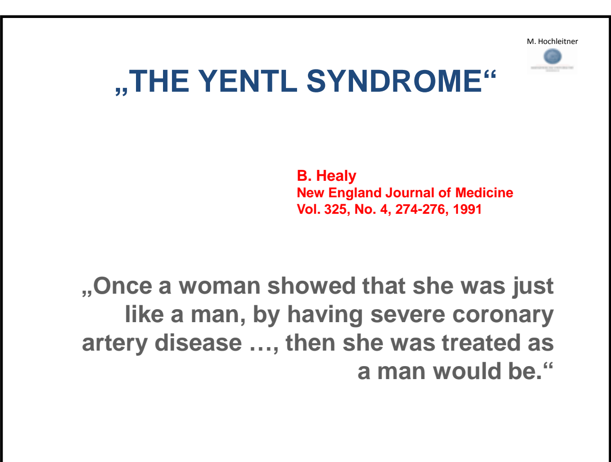

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„THE YENTL SYNDROME“
B. Healy
New England Journal of Medicine
Vol. 325, No. 4, 274-276, 1991
„Once a woman showed that she was just like a man, by having severe coronary artery disease …, then she was treated as a man would be.“

SEX AND GENDER DIFFERENCES IN CANCER PREVENTION
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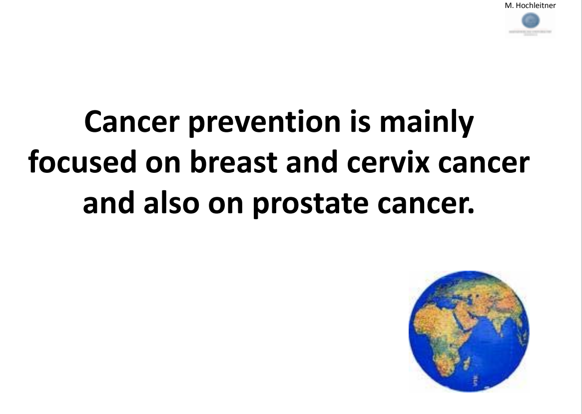

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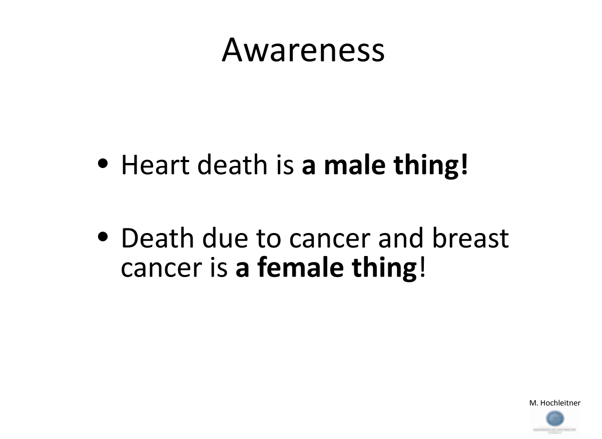
Cancer prevention is mainly focused on breast and cervix cancer and also on prostate cancer.


Awareness
• Heart death is a male thing!
• Death due to cancer and breast cancer is a female thing!
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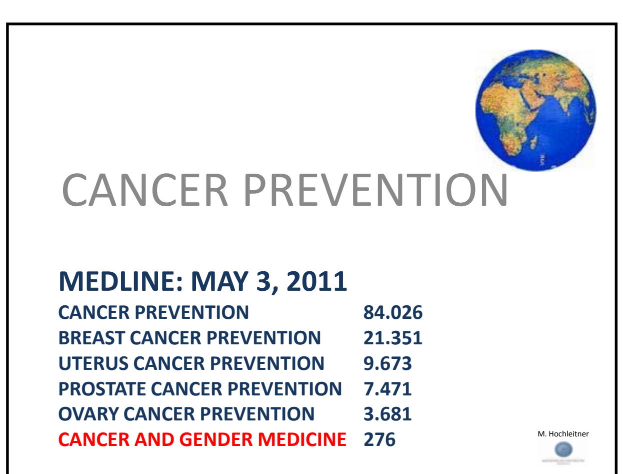
CANCER PREVENTION
MEDLINE: MAY 3, 2011
CANCER PREVENTION 84.026
BREAST CANCER PREVENTION 21.351
UTERUS CANCER PREVENTION 9.673
PROSTATE CANCER PREVENTION 7.471
OVARY CANCER PREVENTION 3.681
CANCER AND GENDER MEDICINE 276
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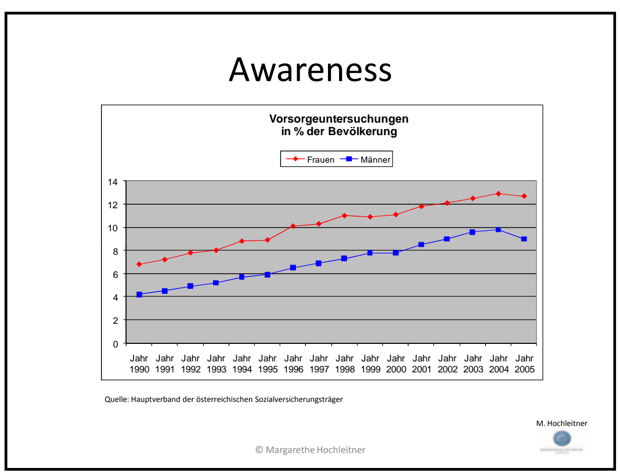
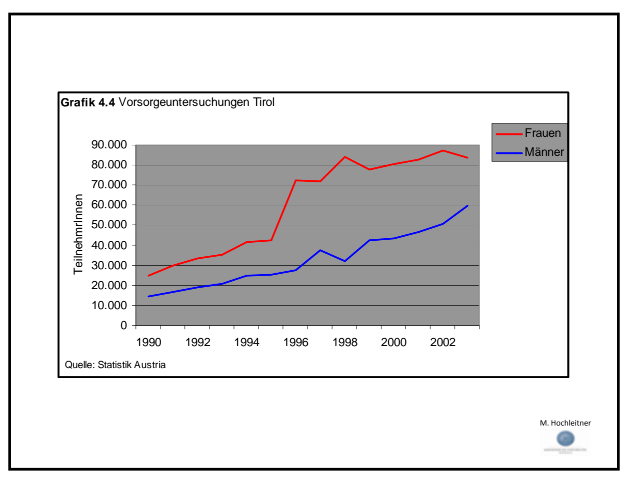
Who takes part in prevention programmes?
GENDER MEDICINE!


Awareness
Vorsorgeuntersuchungen
in % der Bevölkerung
Frauen
Männer
14
12
10
8
6
4
2
0
Jahr 1990
Jahr 1991
Jahr 1992
Jahr 1993
Jahr 1994
Jahr 1995
Jahr 1996
Jahr 1997
Jahr 1998
Jahr 1999
Jahr 2000
Jahr 2001
Jahr 2002
Jahr 2003
Jahr 2004
Jahr 2005
Quelle: Hauptverband der österreichischen Sozialversicherungsträger
M. Hochleitner
© Margarethe Hochleitner


Grafik 4.4 Vorsorgeuntersuchungen Tirol
Frauen
Männer
Teilnehmerinnen
90.000
80.000
70.000
60.000
50.000
40.000
30.000
20.000
10.000
0
1990
1992
1994
1996
1998
2000
2002
Quelle: Statistik Austria
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PREVENTION
GENDER MEDICINE?
GENDER MAINSTREAMING?
M. Hochleitner

Prevention

day 2

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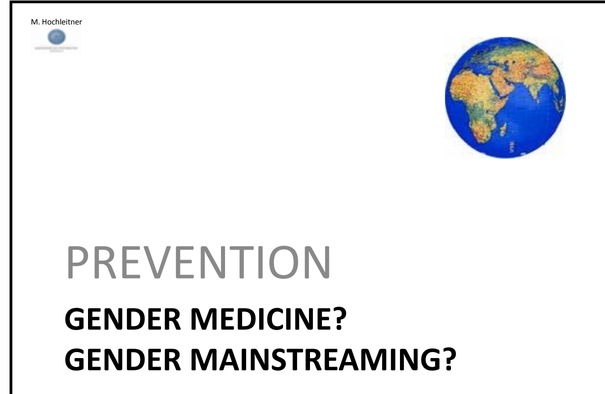
Innsbruck Medical University, Austria

M. Hochleitner



PREVENTION

GENDER MEDICINE?
GENDER MAINSTREAMING?

M. Hochleitner

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Awareness

- Breast cancer is **is a female thing!**

PREVENTION

GENDER MEDICINE?
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Awareness

- Breast cancer and Osteoporosis are **a female thing!**

M. Hochleitner

Awareness

- Heart death is **a male thing!**
- Breast cancer and Osteoporosos are **a female thing!**

M. Hochleitner