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Cardiac Risk Reduction Clinic
Cardiac Rehabilitation Program

Cardiovascular Wellness Program

SACRAMENTO STATE

Road Map to Health: Lifestyle Modifications for the Reversal of Hypertension and Diabetes

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Today's Objectives (as always)

- What is the evidence for the “blue” route to improve blood pressure, diabetes and life expectancy?
- What are the modifiable risk factors for cardiovascular health?

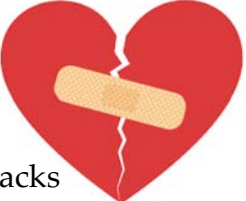
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CDPH and CDC- Call to action


- How do we lower blood pressure and glucose in the blood?

High blood pressure




High glucose

???



Knowledge is power



The power of preventing these:

- Heart attacks
- Heart Failure, Strokes, Obesity
- Peripheral arterial disease
- Amputations, Erectile Dysfunction
- Dementia, Kidney failure
- Premature Death

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Personal Goals!

- Type 2 Diabetes
- High blood pressure
- High cholesterol
- Overweight/Obesity
- Lack of Physical activity
- Stress

COVID19 Pandemic

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Underlying conditions among adults hospitalized with COVID-19

Condition	18-49 years	50-64 years	≥65 years
Hypertension	~18%	~48%	~72%
Obesity	~58%	~48%	~42%
Chronic lung disease	~38%	~28%	~38%
Diabetes	~20%	~32%	~32%
Cardiovasc. disease	~5%	~20%	~50%

Note: Based on data from the COVID-19-Associated Hospitalization Surveillance Network for patients hospitalized in 99 counties in 14 states from March 1-30, 2020. Source: MMWR. 2020 Apr 8;69(early release):1-7

WHAT MAKES AN INDIVIDUAL HIGH-RISK FOR CORONAVIRUS COMPLICATIONS ?

WHY ARE PEOPLE WITH CERTAIN CHRONIC CONDITIONS MORE SEVERELY AFFECTED THAN OTHERS?

Demographics and clinical characteristics	Total (n=131)	Non-survivor (n=54)	Survivor (n=327)	p value
Age, years	50.0 (46.0-67.0)	69.0 (63.0-76.0)	52.0 (45.0-58.0)	<0.0001
Sex				0.15
Female	72 (38%)	16 (30%)	56 (43%)	
Male	119 (62%)	38 (70%)	81 (50%)	
Exposure history	73 (38%)	14 (26%)	59 (44%)	0.028
Comorbidity	91 (68%)	36 (67%)	55 (40%)	0.0010
Hypertension	58 (30%)	26 (48%)	32 (23%)	0.0008
Diabetes	36 (19%)	17 (31%)	19 (14%)	0.0051
Coronary heart disease	15 (8%)	13 (24%)	2 (1%)	<0.0001
Chronic obstructive lung disease	6 (3%)	4 (7%)	2 (1%)	0.047
Stroke	2 (1%)	0	2 (1%)	0.37
Chronic kidney disease	2 (1%)	2 (4%)	0	0.024
Other	22 (12%)	11 (20%)	11 (8%)	0.016

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Effect of potentially modifiable risk factors associated with myocardial infarction in 52 countries (the INTERHEART study): case-control study



Salim Yusuf, Steven Hawken, Stephanie Öunpuu, Tony Dans, Alvaro Avezum, Fernando Lanas, Matthew McQueen, Andrzej Budaj, Prem Pais, John Varigos, Liu Lisheng, on behalf of the INTERHEART Study Investigators*

Lancet 2004; 364: 937-52
Published online
September 3, 2004

This was a large, international, standardized, case-control study (15,152 AMI cases and 14,820 controls from 262 hospitals) designed to determine the strength of association between modifiable risk factors and heart attacks, and to ascertain if this association varies by geographic region.

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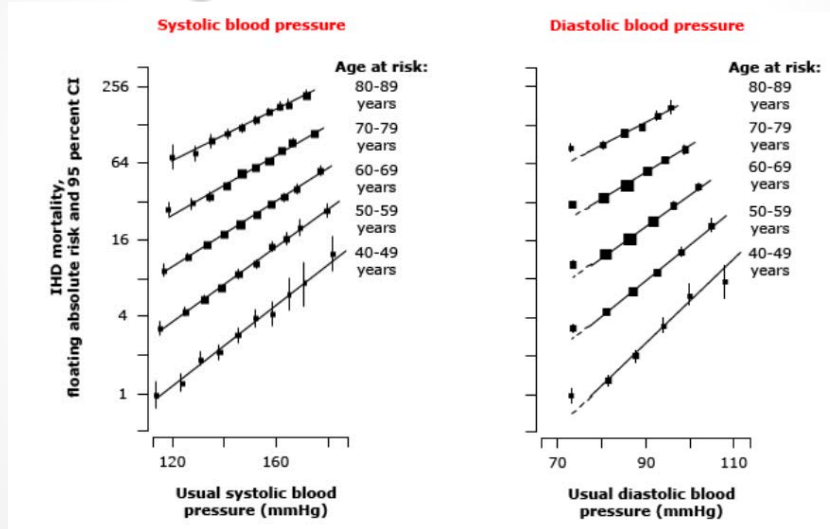
Nine Modifiable risk factors

1. History of high blood pressure
2. History of Diabetes
3. Elevated Cholesterol
4. Truncal Obesity or belly fat
5. Lack of exercise
6. Lack of fruits and vegetables
7. Smoking
8. Alcohol use
9. Psychosocial stress

- What we can measure these, they are the result of what we do, environment and genetics-
- Starting point in the journey
- What we can do- tools for the journey to your personal goals

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Age does not matter!



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RESEARCH

OPEN ACCESS

Check for updates

Healthy lifestyle and life expectancy free of cancer, cardiovascular disease, and type 2 diabetes: prospective cohort study

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BMJ, 2020

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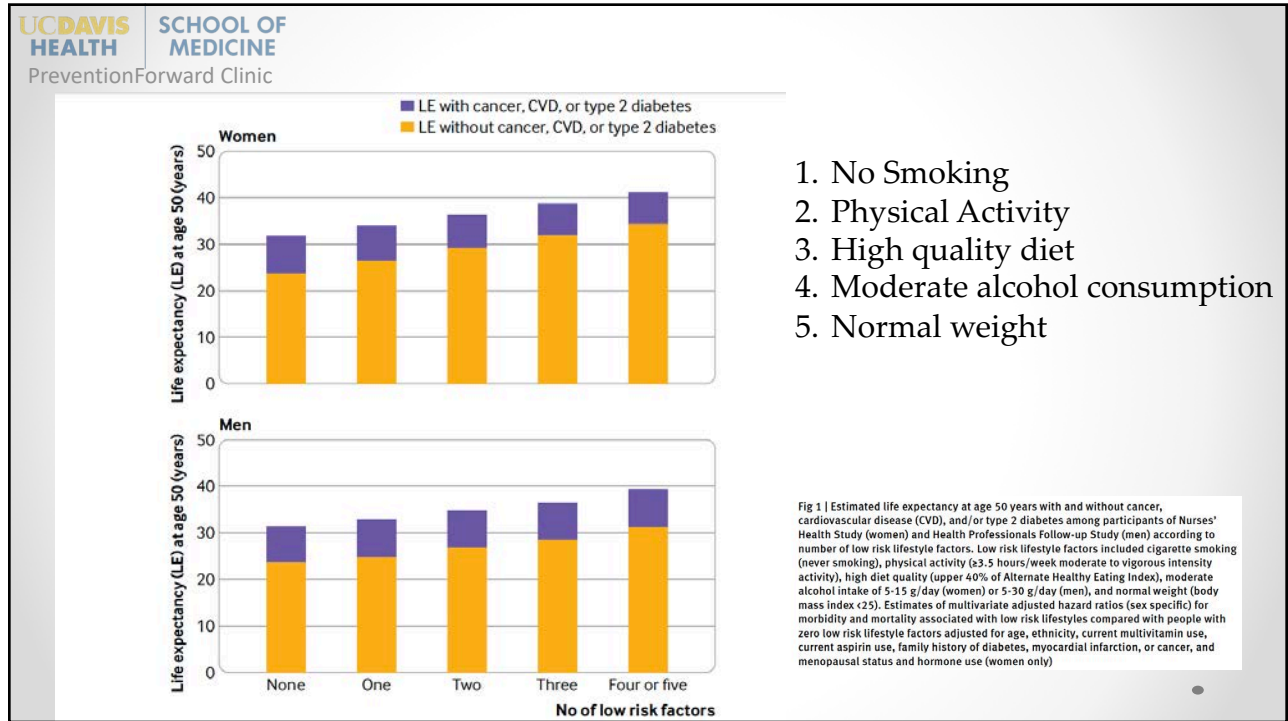
ABSTRACT OBJECTIVE

To examine how a healthy lifestyle is related to life expectancy that is free from major chronic diseases.

CONCLUSION

Adherence to a healthy lifestyle at mid-life is associated with a longer life expectancy free of major chronic diseases.

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1. No Smoking
2. Physical Activity
3. High quality diet
4. Moderate alcohol consumption
5. Normal weight

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Table 7. Best Proven Nonpharmacological Interventions for Prevention and Treatment of Hypertension*

	Nonpharmacological Intervention	Goal	Approximate Impact on SBP		
			Hypertension	Normotension	Reference
Weight loss	Weight/body fat	Best goal is ideal body weight, but aim for at least a 1-kg reduction in body weight for most adults who are overweight. Expect about 1 mm Hg for every 1-kg reduction in body weight.	-5 mm Hg	-2/3 mm Hg	S4.4-2
Healthy diet	DASH dietary pattern†	Consume a diet rich in fruits, vegetables, whole grains, and low-fat dairy products, with reduced content of saturated and total fat.	-11 mm Hg	-3 mm Hg	S4.4-7, S4.4-8
Reduced intake of dietary sodium	Dietary sodium	Optimal goal is <1500 mg/d, but aim for at least a 1000-mg/d reduction in most adults.	-5/6 mm Hg	-2/3 mm Hg	S4.4-10, S4.4-12
Enhanced intake of dietary potassium	Dietary potassium	Aim for 3500–5000 mg/d, preferably by consumption of a diet rich in potassium.	-4/5 mm Hg	-2 mm Hg	S4.4-14
Physical activity	Aerobic	90–150 min/wk 65%–75% heart rate reserve	-5/8 mm Hg	-2/4 mm Hg	S4.4-19, S4.4-20
	Dynamic resistance	90–150 min/wk 50%–80% 1 rep maximum 6 exercises, 3 sets/exercise, 10 repetitions/set	-4 mm Hg	-2 mm Hg	S4.4-19
	Isometric resistance	4 × 2 min (hand grip), 1 min rest between exercises, 30%–40% maximum voluntary contraction, 3 sessions/wk 8–10 wk	-5 mm Hg	-4 mm Hg	S4.4-21, S4.4-78
Moderation in alcohol intake	Alcohol consumption	In individuals who drink alcohol, reduce alcohol‡ to: Men: ≤2 drinks daily Women: ≤1 drink daily	-4 mm Hg	-3 mm Hg	S4.4-20, S4.4-24, S4.4-25

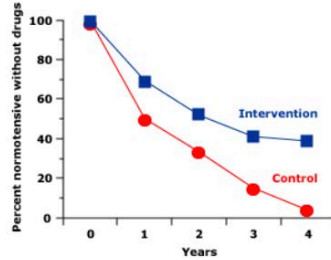
*Type, dose, and expected impact on BP in adults with a normal BP and with hypertension.
 †Detailed information about the DASH diet is available via the NHLBI^{§4,481} and Dashdiet.org.^{§4,482}
 ‡In the United States, 1 “standard” drink contains roughly 14 g of pure alcohol, which is typically found in 12 oz of regular beer (usually about 5% alcohol), 5 oz of wine (usually about 12% alcohol), and 1.5 oz of distilled spirits (usually about 40% alcohol).^{§4,480}
 BP indicates blood pressure; DASH, Dietary Approaches to Stop Hypertension; NHLBI, National Heart, Lung, and Blood Institute; and SBP, systolic blood pressure. Reproduced with permission from Whelton et al.^{§4,481} Copyright © 2017, American College of Cardiology Foundation and the American Heart Association, Inc.

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Does reversal of HTN with lifestyle modification work?

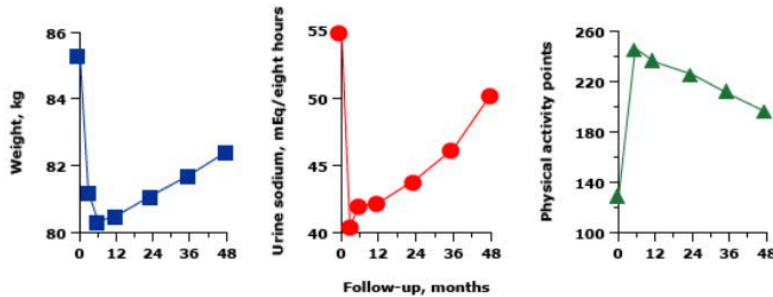
Efficacy of dietary modification in mild hypertension



Ability of combined nutritional intervention - weight loss, salt restriction, and avoidance of excess alcohol (squares) - to maintain normotension as compared with a control group without dietary modification (circles) after cessation of previously successful antihypertensive therapy. Hypertension recurred in over 90 percent of control patients, but in only 60 percent with dietary modification.

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Diminished compliance with nonpharmacologic antihypertensive therapy over time

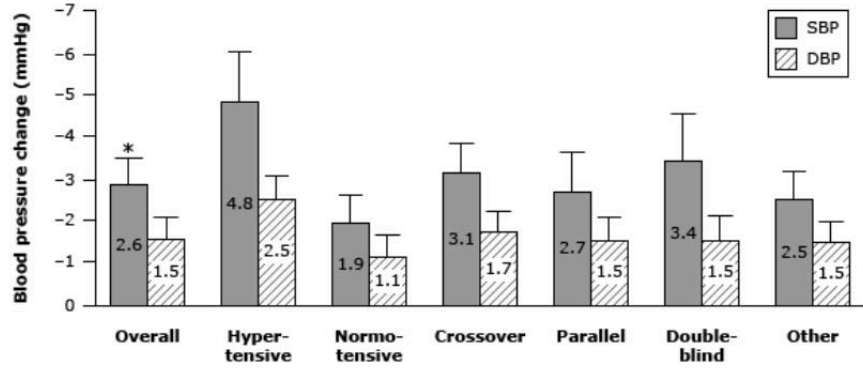


Changes in weight, sodium intake (as estimated from urine sodium excretion), and exercise (measured by physical activity points) in patients with mild diastolic hypertension treated with combined dietary modification. Despite initial compliance, patients tended to return toward but not to baseline levels over a 48-month period. Although not shown, there was a persistent reduction in the number of alcoholic drinks from 3.6 to 2.5 drinks per week.

Data from Neaton JD, Grimm RH Jr, Prineas RJ, et al. Treatment of Mild Hypertension Study. Final results. Treatment of Mild Hypertension Study Research Group. JAMA 1993; 270:713.

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Blood pressure change and sodium reduction



Pooled results from all sodium-reduction trials concerning the mean net change in blood pressure due to restrictions in sodium intake among various subsets of patients.

SBP: systolic blood pressure; DBP: diastolic blood pressure.
* The mean change is compared with control values.

Data from: Cutler JA, Follmann D, Allender PS. Am J Clin Nutr 1997; 65:643S.

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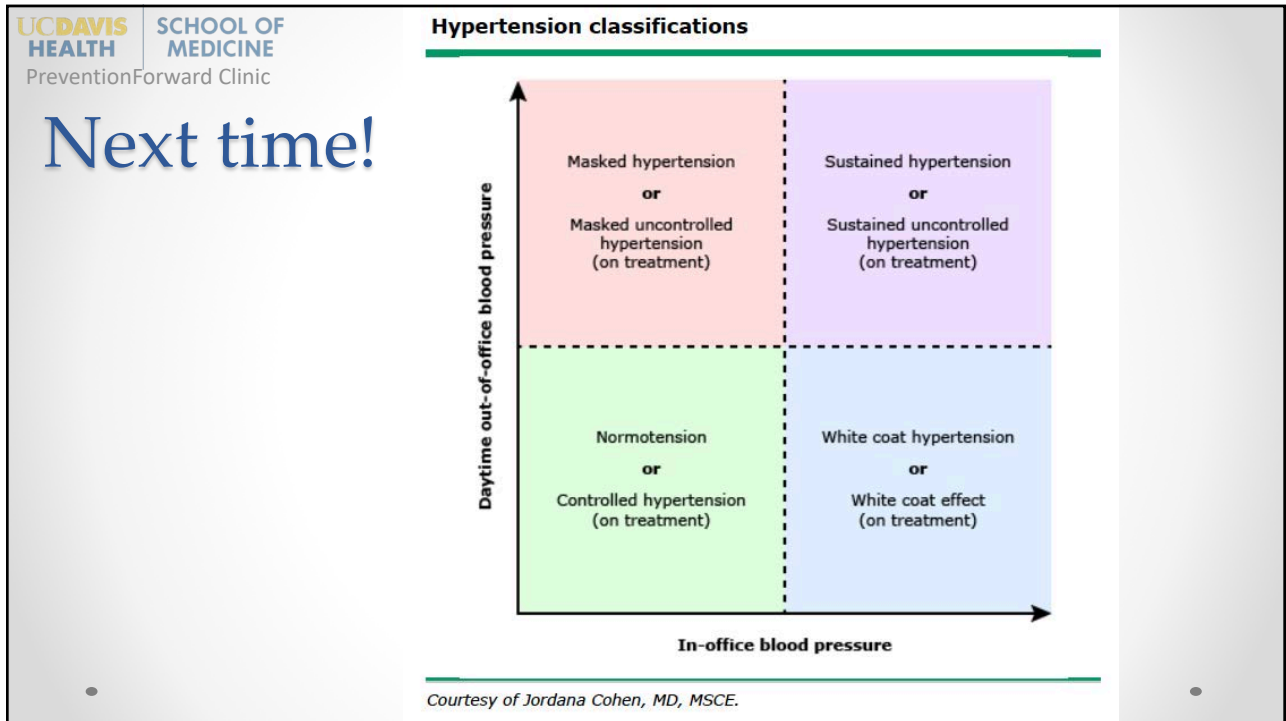
How much sodium should I be not eating?

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Questions?