

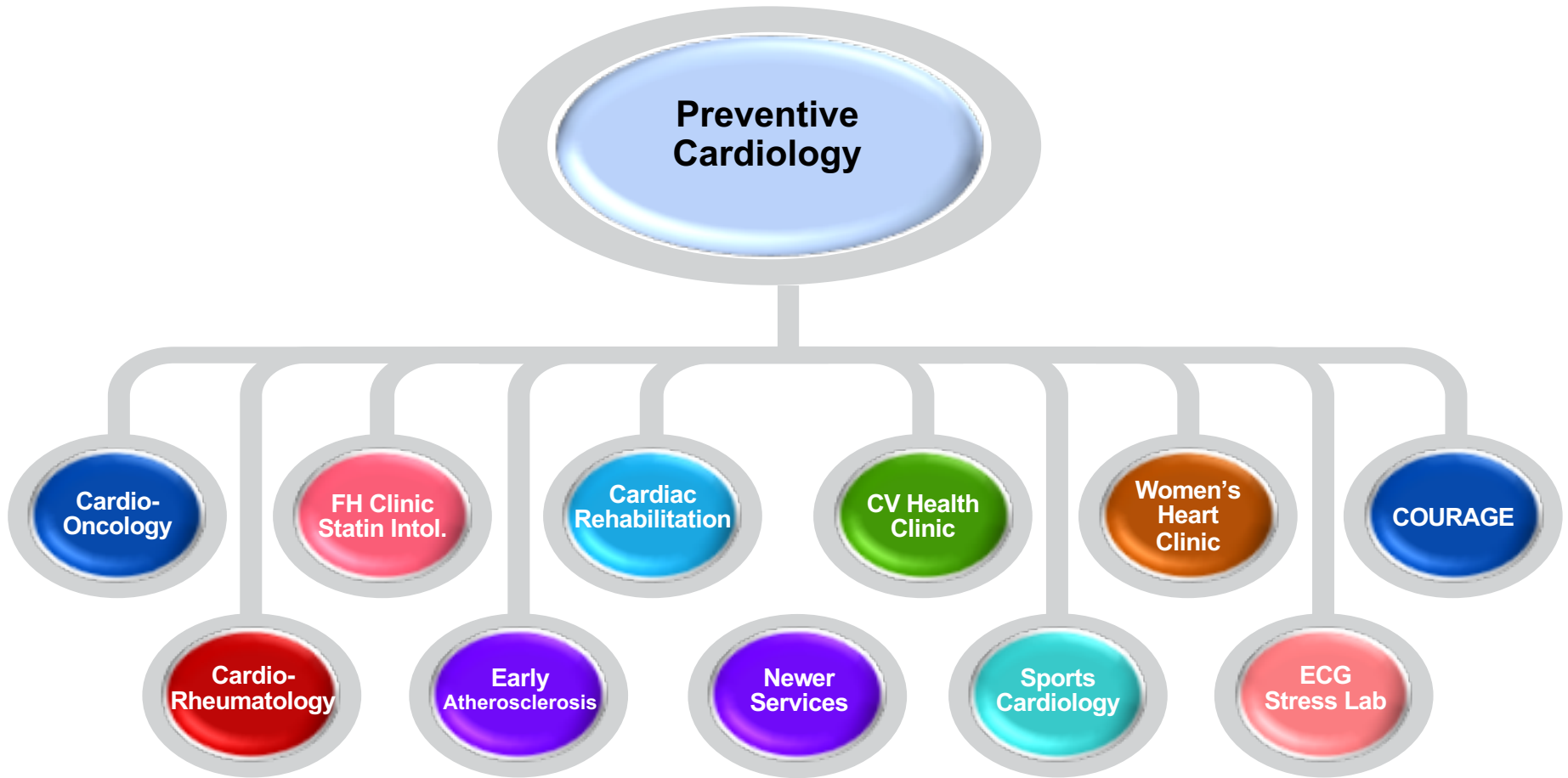
TURIN,
October
25th-27th
2018
Starhotels
Majestic

GIORNATE CARDIOLOGICHE TORINESI



Preventive Cardiology at Mayo Clinic

Francisco Lopez-Jimenez, M.D., M.Sc, FACC, FAHA
Professor of Medicine, Mayo Medical School
Chair, Division of Preventive Cardiology
Co-Director, Artificial Intelligence in Cardiology
Director of Research, Dan Abraham Healthy Living Center

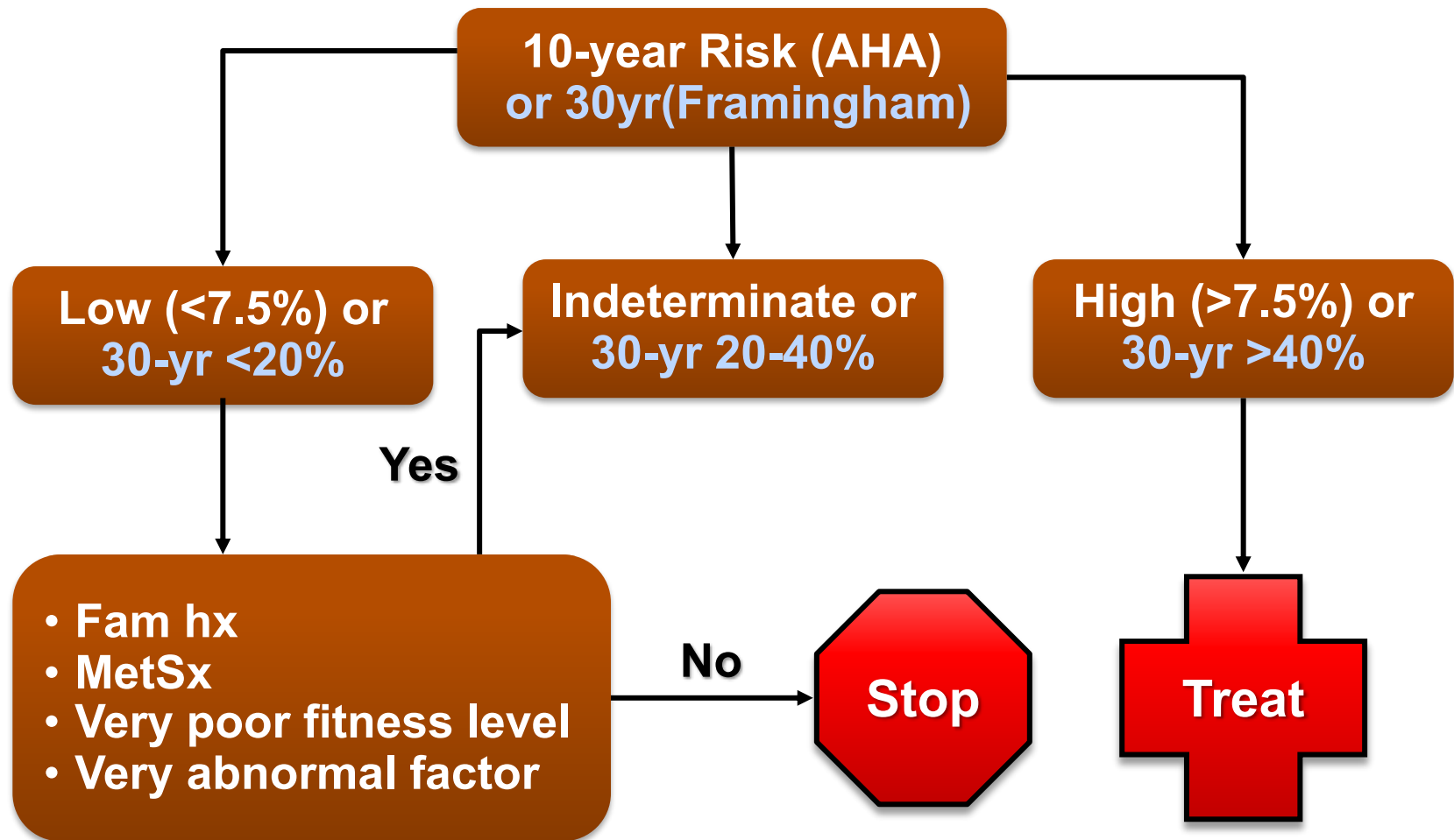


Cardiovascular Risk Assessment

- Lifetime risk for MI/stroke 40%
- 50% of MI could be fatal
- Preventable
- Targeted therapies
 - More accepted
 - Cost effective



Mayo Strategy for CV Risk Assessment in Asymptomatic Patients



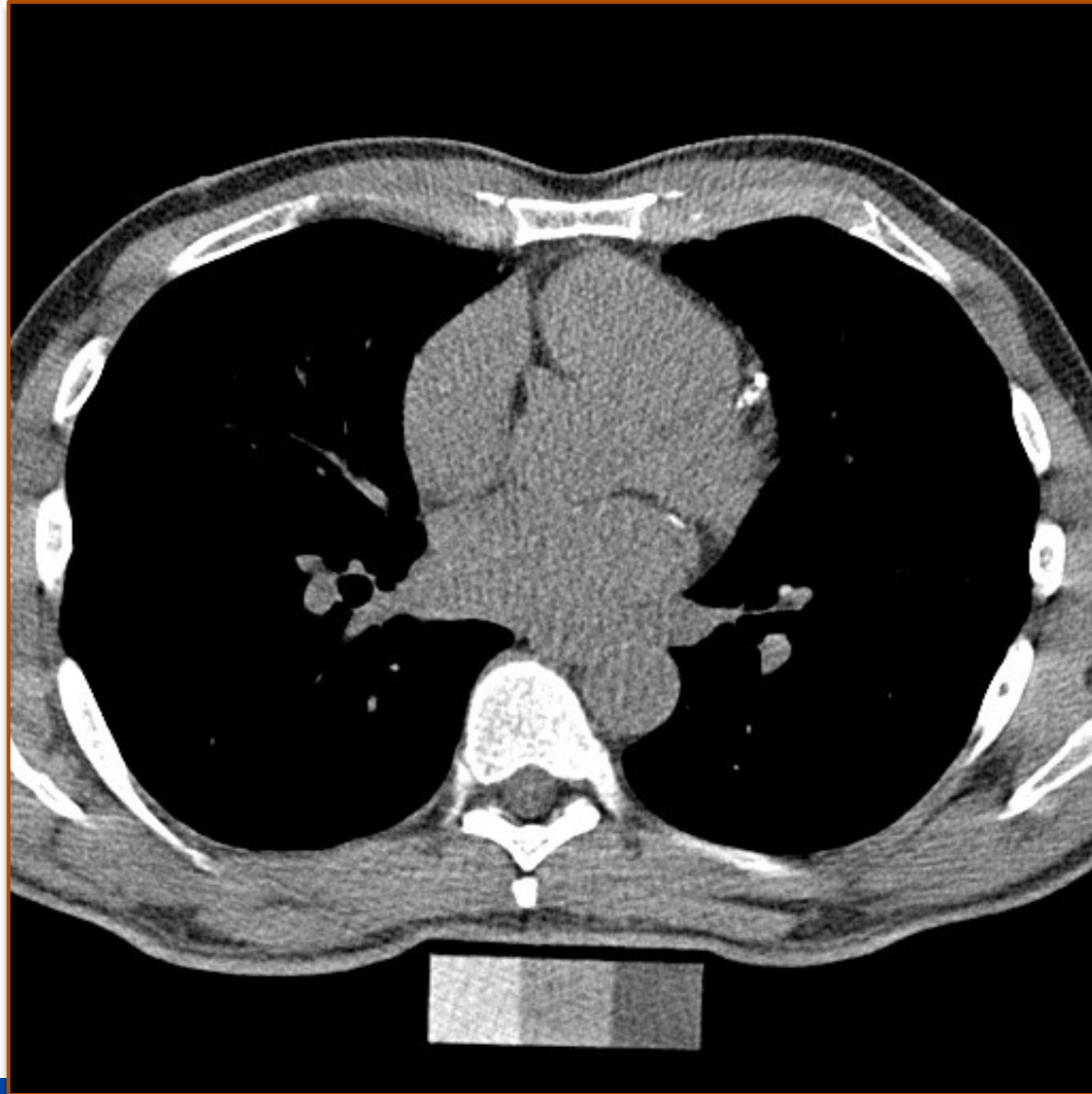
**Indeterminate
or 30-yr 20-40%**

- **Coronary calcium CT**
- **HS-CRP**
- **ABI**
- **C-IMT**
- **Other: Lp(a), EndoFx, PWV**

Any positive

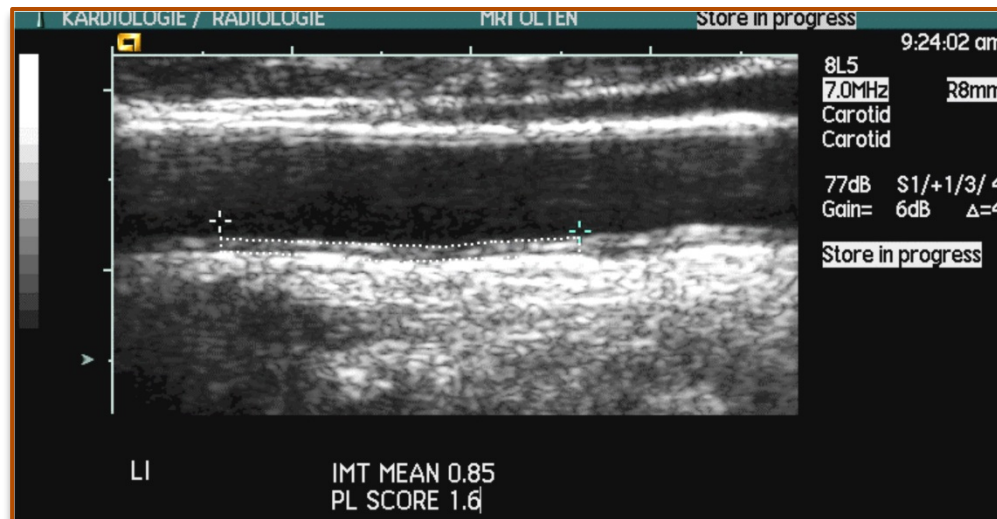


CT to Measure Coronary Calcium



Carotid Intima-Media Thickening

- Early phases of atherosclerosis
- Easy to do
- Prognostic value?
- Passed test of time



Risk Profile Report

Cardiovascular Health Clinic

Mayo Clinic

Provider: Allison, Thomas Ph.D.

Supervising Provider: Basu, Ananda

MBBS, M.D.

Final Report

Created:26-Aug-2014

Printed: 29-Jan-2015

MC 03-333-333
 Name: Boothee, John Wilkes
 Wilkes
 Born: 20-Jun-1995
 Sex: M 19

Traditional Risk Factors	Current Value	Date	Desirable	Intermediate Risk	High Risk
Fasting	Yes				
Total Cholesterol	198 mg/dL	26-Aug-2014	<200	200-240	>240
Triglycerides	240 mg/dL	26-Aug-2014	<150	150-300	>300
HDL Cholesterol	39 mg/dL	26-Aug-2014	≥50	40-49	<40
LDL Cholesterol	145 mg/dL	26-Aug-2014	<100	100-130	>130
Non-HDL Cholesterol	159 mg/dL		<130	130-160	>160
Total to HDL Ratio	5.1		<3.0	3.0-5.0	>5.0
Blood Glucose	89 mg/dL	26-Aug-2014	<100	100-100	>100
Hemoglobin A1c	5.2%	26-Aug-2014	<7.0%	7.0%-8.0%	>8.0%
Systolic BP	180 mmHg		<130.0	130.0-140.0	>140.0
Diastolic BP	85 mmHg		<85.0	85.0-90.0	>90.0
History of Hypertension	Untreated		None	Treated	Untreated
History of Diabetes	No		No		Yes
Family History of Heart Disease in First Degree Relatives	M≥55,F≥65		None	M≥55,F≥65	M<55,F<65
Tobacco Use or Exposure	Current		Never	Past	Current
Body Composition	Current Value		Desirable	Intermediate Risk	High Risk
Height	186 cm				
Weight	72 kg				
Body Mass Index	21 kg/m ²		<25	25-30	>30
Waist Circumference	92 cm		<92	92-102	>102
Body Fat Percentage	20%		<20%	20%-30%	>30%
I Regard My Current Body Weight To Be	Overweight				
Weight Change of 3 lbs in the Past Year	No				

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Lifestyle Factors	Current Value	Desirable	Intermediate Risk	High Risk
Intense Exercise	30 min/wk	≥150 min/wk	1-149 min/wk	0 min/wk
Moderate Exercise	160 min/wk			
Light Exercise	100 min/wk			
Exercise Total	1452 kCal/wk			
Strength Exercise	Gt 30 min/wk	At Goal		
Flexibility Exercise	Daily	At Goal		
Fruits & Vegetables	2 srv/day	>4	2-4	0-1
Saturated Fats	5 srv/day	0-1	2-4	>4
Self-reported Stress Index	5	Low 1-3	Moderate 4-6	High 7-10
Quality of Life Index	5	High 7-10	Moderate 4-6	Low 0-3
Exercise Test	Current Value	Desirable	Intermediate Risk	High Risk
Exercise Test Date	26-Aug-2014			
Exercise Capacity (Predicted)	81%	>120%	80%-120%	<80%
Exercise Heart Rate Response	Normal	Normal		Abnormal
Heart Rate Recovery	113 bpm	>12		≤12
Blood Pressure Response	Hypertensive	Normal	Hypertensive	Hypotensive
Ischemia	Present	Absent	Borderline	Present
Arrhythmias	High grade	None or Low Grade		High Grade

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Other Risk Factors	Current Value	Date	Desirable	Intermediate Risk	High Risk
Homocysteine	9 umol/L	26-Aug-2014	<11	11-13	>13
Lipoprotein(a)	22 mg/dL	26-Aug-2014	≤30	35-31	>35
hsCRP	0.2 mg/L	26-Aug-2014	<1	1-3	>3
Total LDL Particle Count	985	26-Aug-2014	<1000	1000-1200	>1200
Fibrinogen	105 mg/dL	26-Aug-2014	<250	250-325	>325
Creatinine	0.8 mg/dL	26-Aug-2014	0.6-1.2	1.3-2.0	>2.0
Coronary Calcification	1%	26-Aug-2014	<25%	25%-75%	>75%

Vascular Health	Current Value	Desirable	Intermediate Risk	High Risk
Right Arm Systolic BP	135 mmHg	<130	130-140	>140
Right Arm Diastolic BP	80 mmHg	<85	85-90	>90
Left Arm Systolic BP	155 mmHg	<130	130-140	>140
Left Arm Diastolic BP	90 mmHg	<85	85-90	>90
Right Ankle-Brachial Index	0.86	Normal (1.3-0.95)	Mild (0.94-0.80 or 1.31-1.4)	Moderate-severe (<0.80 or >1.4)
Left Ankle-Brachial Index	0.94	Normal (1.3-0.95)	Mild (0.94-0.80 or 1.31-1.4)	Moderate-severe (<0.80 or >1.4)
Right Carotid Artery Disease per Ultrasound	Calcified Vessel	None or mild (<40%)	Yes, moderate (40-69%)	Yes, severe (70-99%) or occlusion
Left Carotid Artery Disease per Ultrasound	Moderate	None or mild (<40%)	Yes, moderate (40-69%)	Yes, severe (70-99%) or occlusion

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Metabolic Syndrome	Current Value	Desirable	Intermediate Risk	High Risk
Elevated Triglycerides (> 150)	Present	None	1 or 2	3 or more
Low HDL (<40)	Present			
Blood Glucose (> 100)	Not Present			
Central Obesity (waist >102cm)	Not Present			
Elevated Blood Pressure (> 130/85)	Present			

Heart Disease Risk Analysis	Current Value	Goal
Pooled Cohort 10 year risk	11.3%	<5%
Framingham 30 year hard risk	45%	<8%
Reynolds 10 year heart disease risk	6%	<3%

Risk Summary

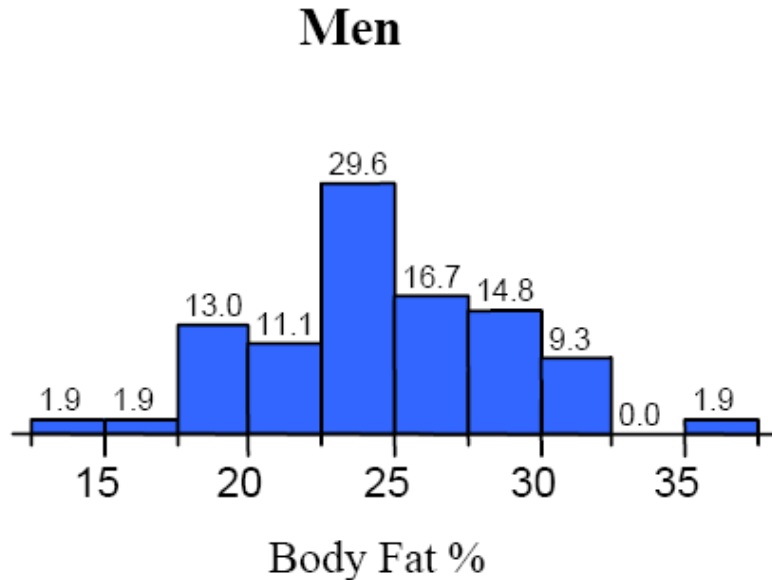
Overall Risk Your overall risk score is **high**

Provider Comments

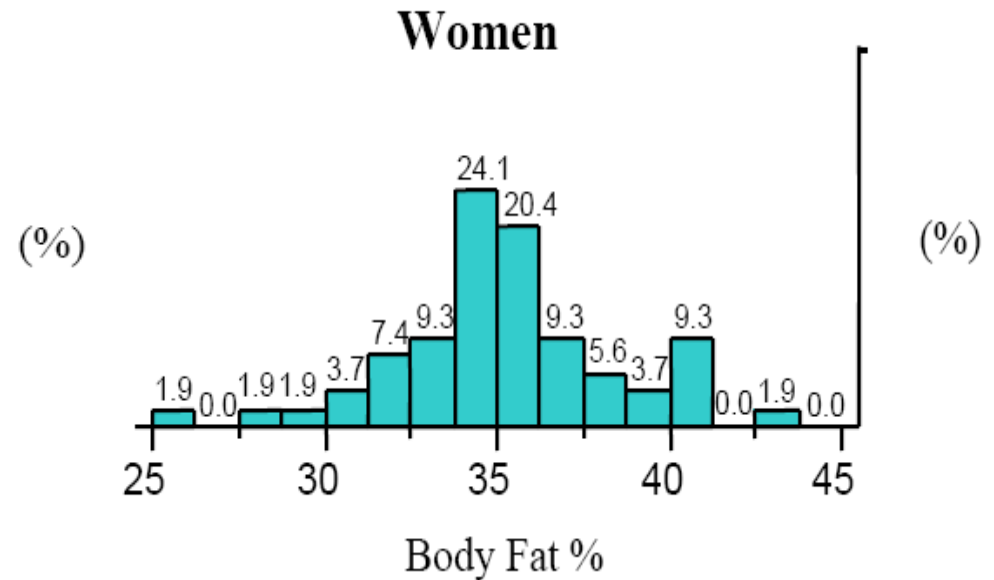
Comments release 1.10.3. Gary Rohret modified at 12:30PM on January 28, 2015.

Measuring Body Fat in Clinical Practice

Variability of BF% in People with BMI 25 kg/m²



Range: 13.8 to 35.3 %



Range: 26.2 to 42.8 %



Normal weight obesity: a risk factor for cardiometabolic dysregulation and cardiovascular mortality

Abel Romero-Corral¹, Virend K. Somers¹, Justo Sierra-Johnson², Yoel Korenfeld¹, Simona Boarin³, Josef Korinek¹, Michael D. Jensen¹, Gianfranco Parati³, and Francisco Lopez-Jimenez^{1*}

¹Mayo Clinic College of Medicine, Rochester, MN, USA; ²Department of Medicine, Atherosclerosis Research Unit, Karolinska Institute, Sweden; and ³Istituto Auxologico Italiano San Luca, Italy

Received 24 June 2008; revised 1 September 2009; accepted 29 September 2009

Aims

We hypothesized that subjects with a normal body mass index (BMI), but high body fat (BF) content [normal weight obesity (NWO)], have a higher prevalence of cardiometabolic dysregulation and are at higher risk for cardiovascular (CV) mortality.

Methods and results

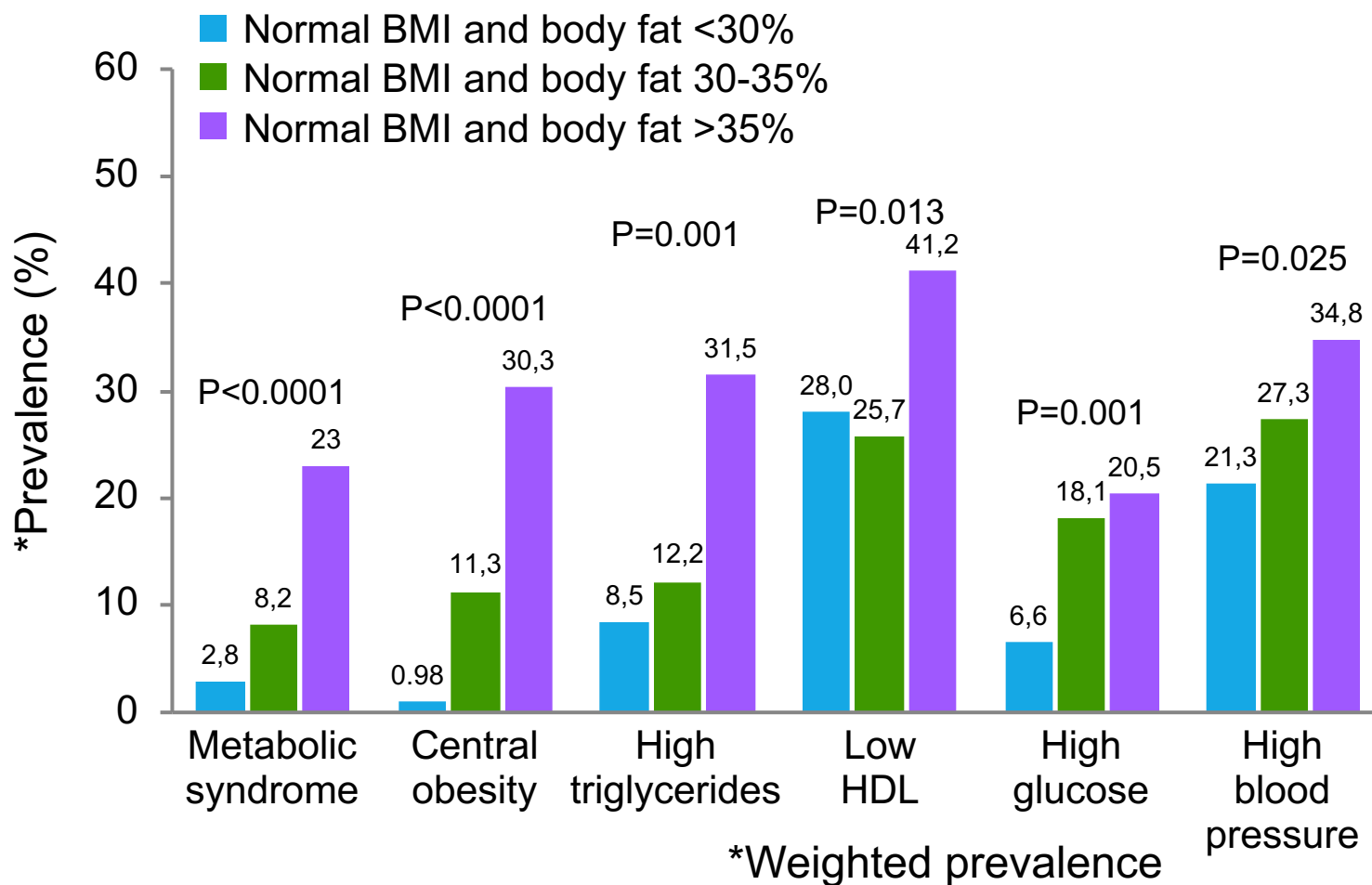
We analysed 6171 subjects >20 years of age from the Third National Health and Nutrition Examination Survey (NHANES III) and the NHANES III mortality study, whose BMI was within the normal range (18.5–24.9 kg/m²), and who underwent a complete evaluation that included body composition assessment, blood measurements, and assessment of CV risk factors. Survival information was available for >99% of the subjects after a median follow-up of 8.8 years. We divided our sample using sex-specific tertiles of BF%. The highest tertile of BF (>23.1% in men and >33.3% in women) was labelled as NWO. When compared with the low BF group, the prevalence of metabolic syndrome in subjects with NWO was four-fold higher (16.6 vs. 4.8%, $P < 0.0001$). Subjects with NWO also had higher prevalence of dyslipidaemia, hypertension (men), and CV disease (women). After adjustment, women with NWO showed a significant 2.2-fold increased risk for CV mortality (HR = 2.2; 95% CI, 1.03–4.67) in comparison to the low BF group.

Conclusion

Normal weight obesity, defined as the combination of normal BMI and high BF content, is associated with a high

Normal Weight Obesity

Metabolic Syndrome Criteria by Body Fat Group: Woman



Normal Weight Obesity and Survival

				Age + race Adj- P value
WOMEN N=1,101	BF < 30 % (N=428)	BF ≥ 30-35 % (N=427)	BF > 35 % (N=246)	
All-Cause Mortality	20 (3.0)	31 (5.6)	22 (8.3)	0.038
Cardiovascular	5 (0.9)	12 (2.1)	12 (4.4) §	0.044 ¶

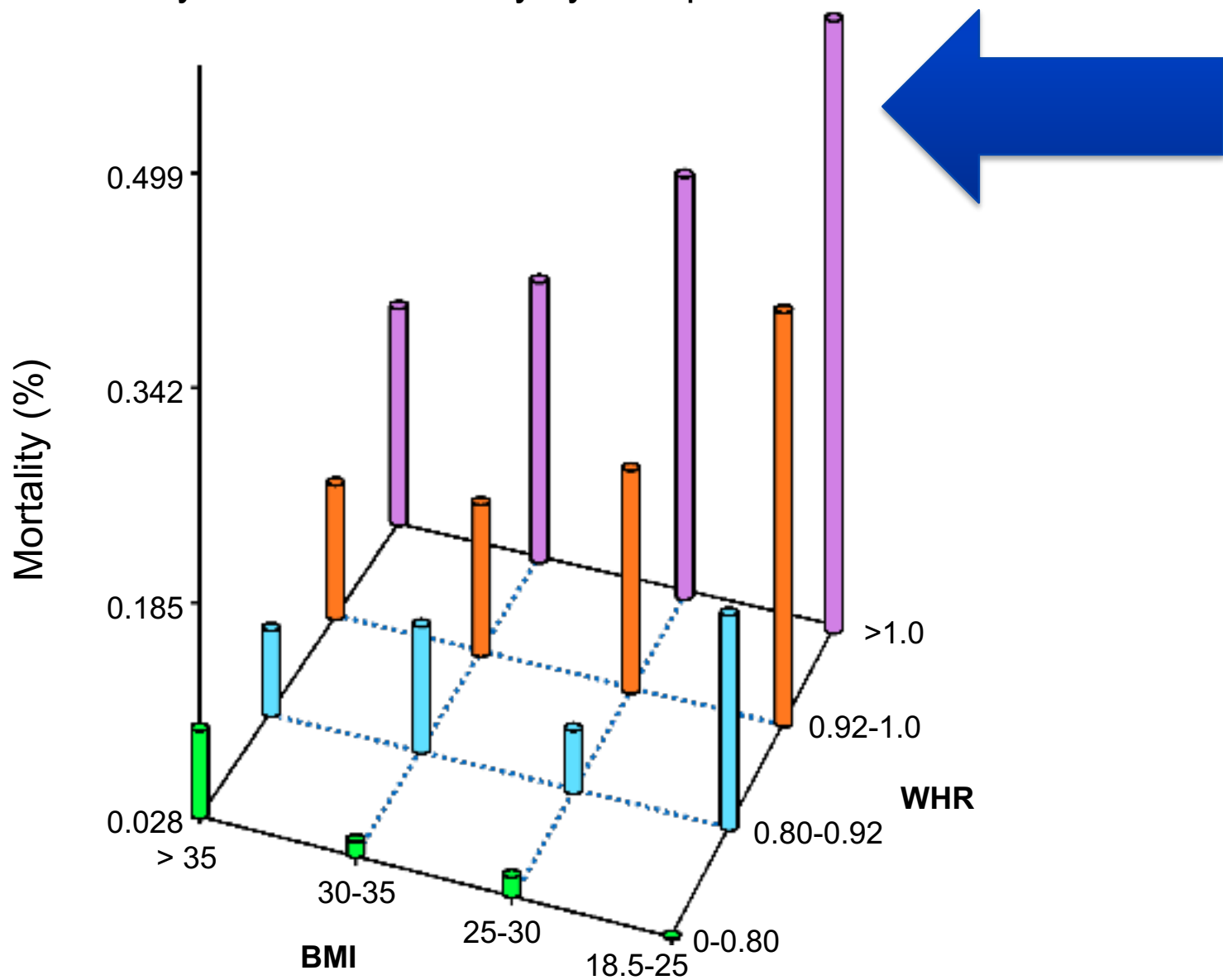
§ P-value <0.05 when compared to BF < 30%

¶ Additionally adjusted for dyslipidemia, HTN, DM, CVD and smoking status.

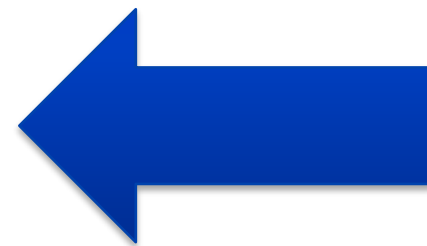
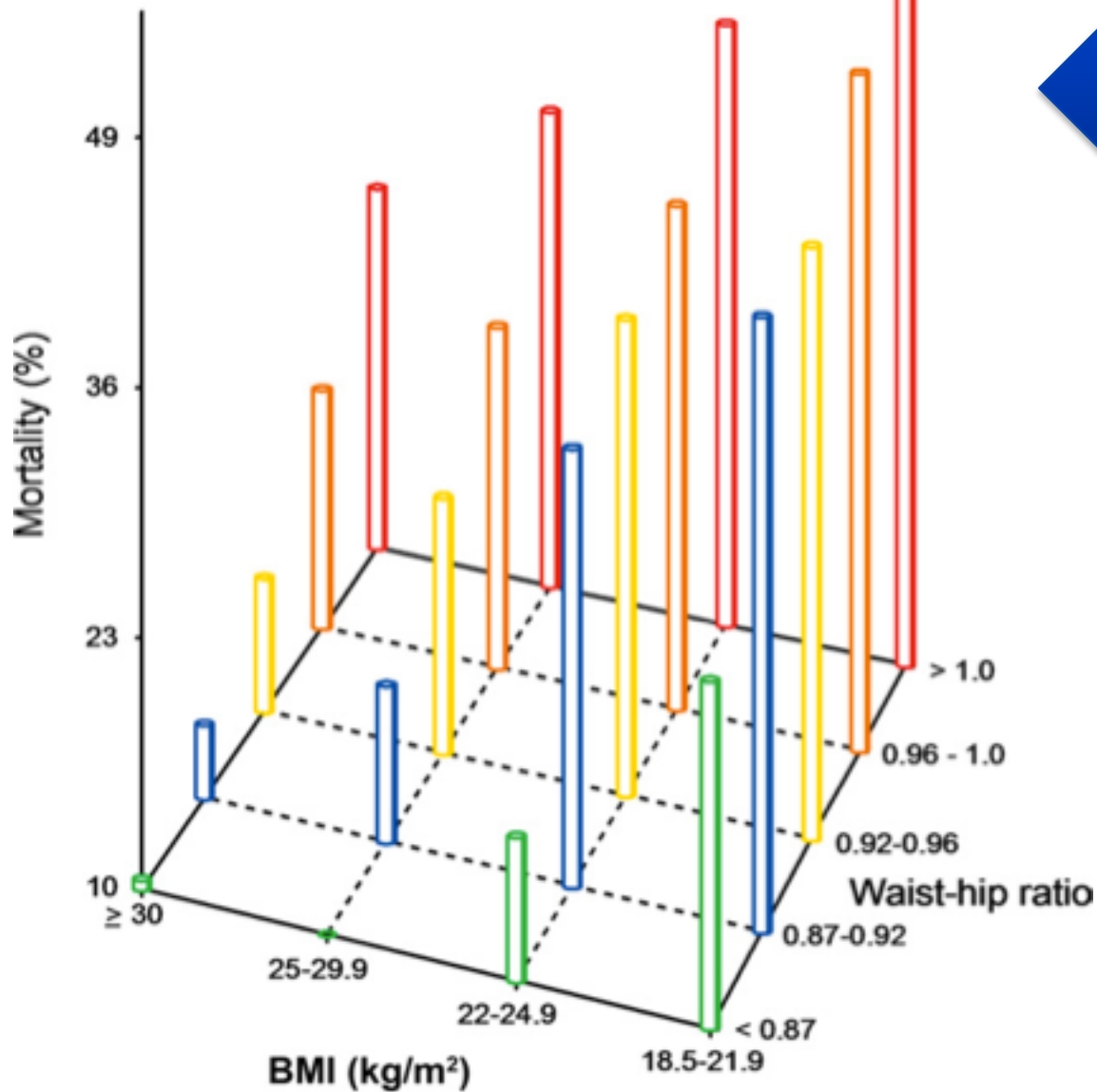
How to Estimate Body Adiposity beyond BMI?



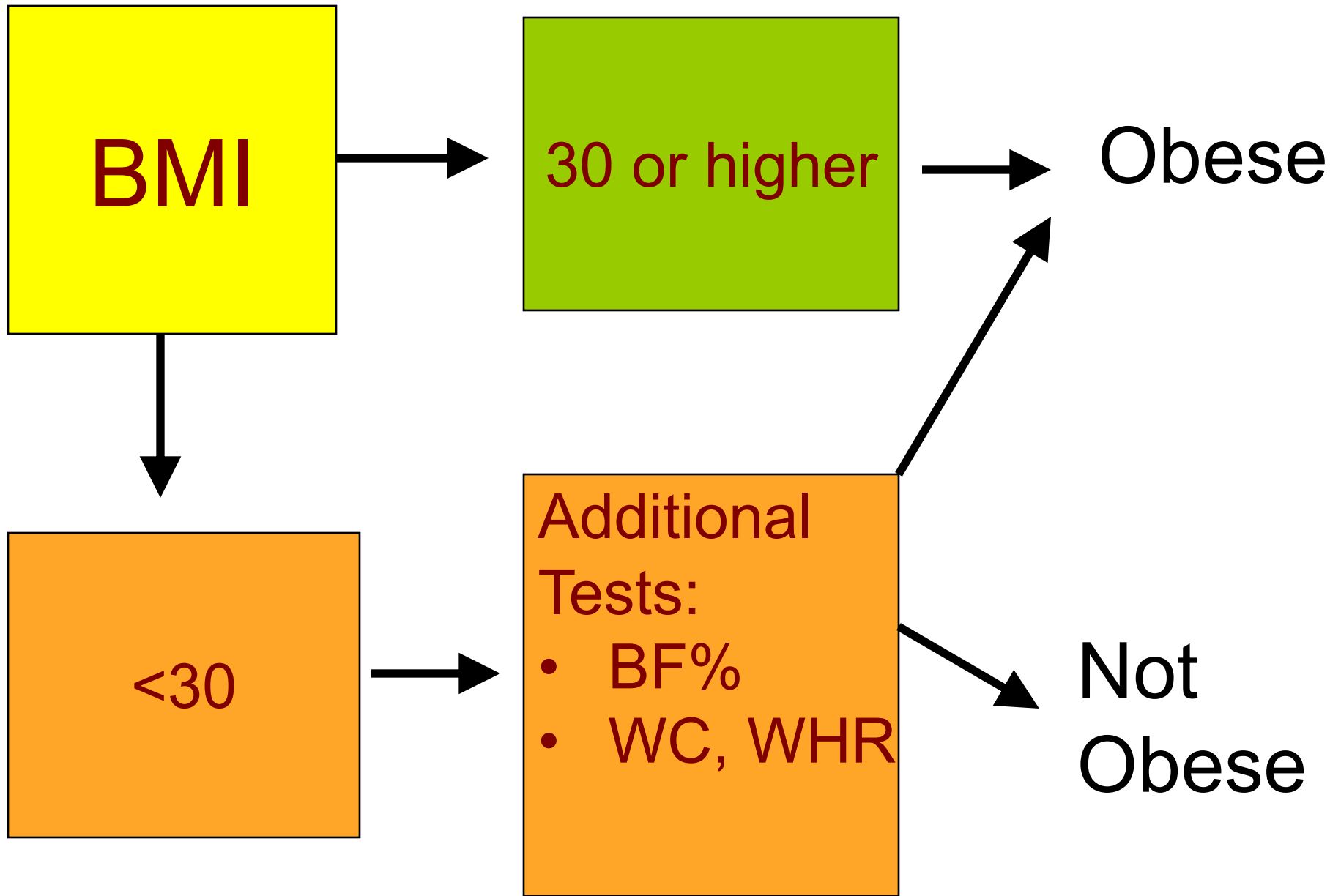
Five-year Crude Mortality by Groups in Males



Five-year Mortality by Groups

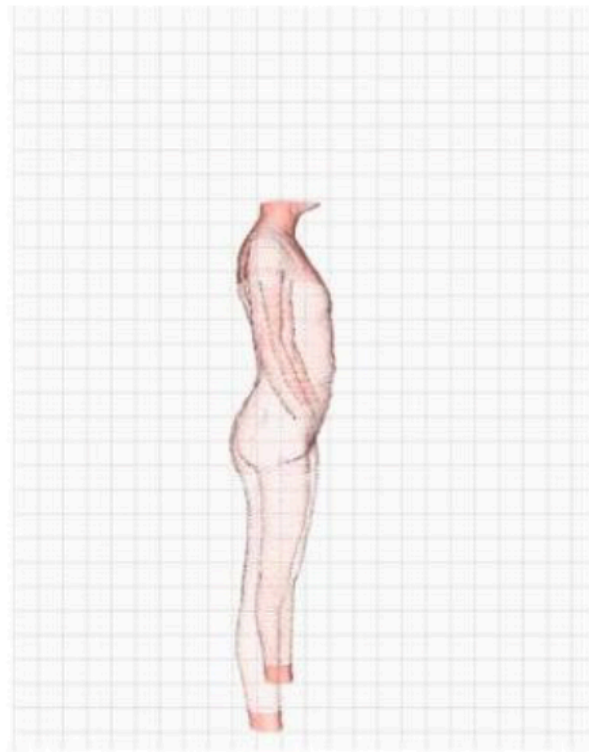
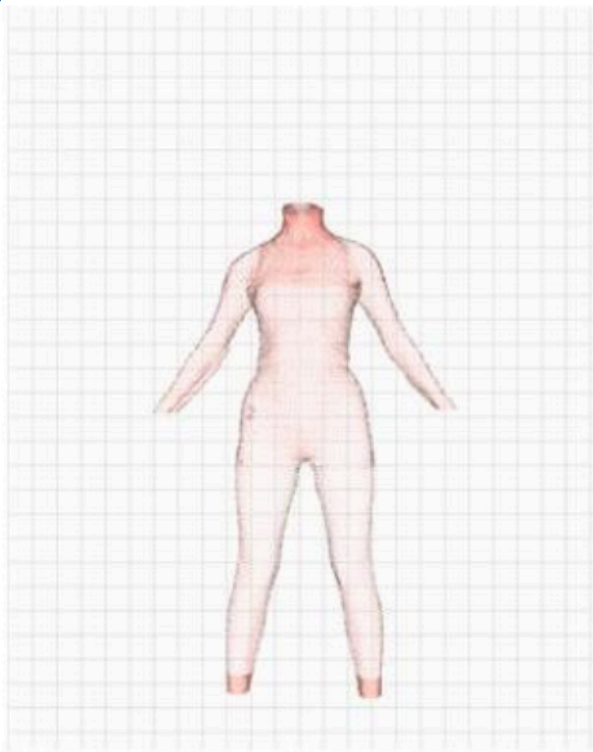


Coutinho T... Lopez-Jimenez F; JACC 2012



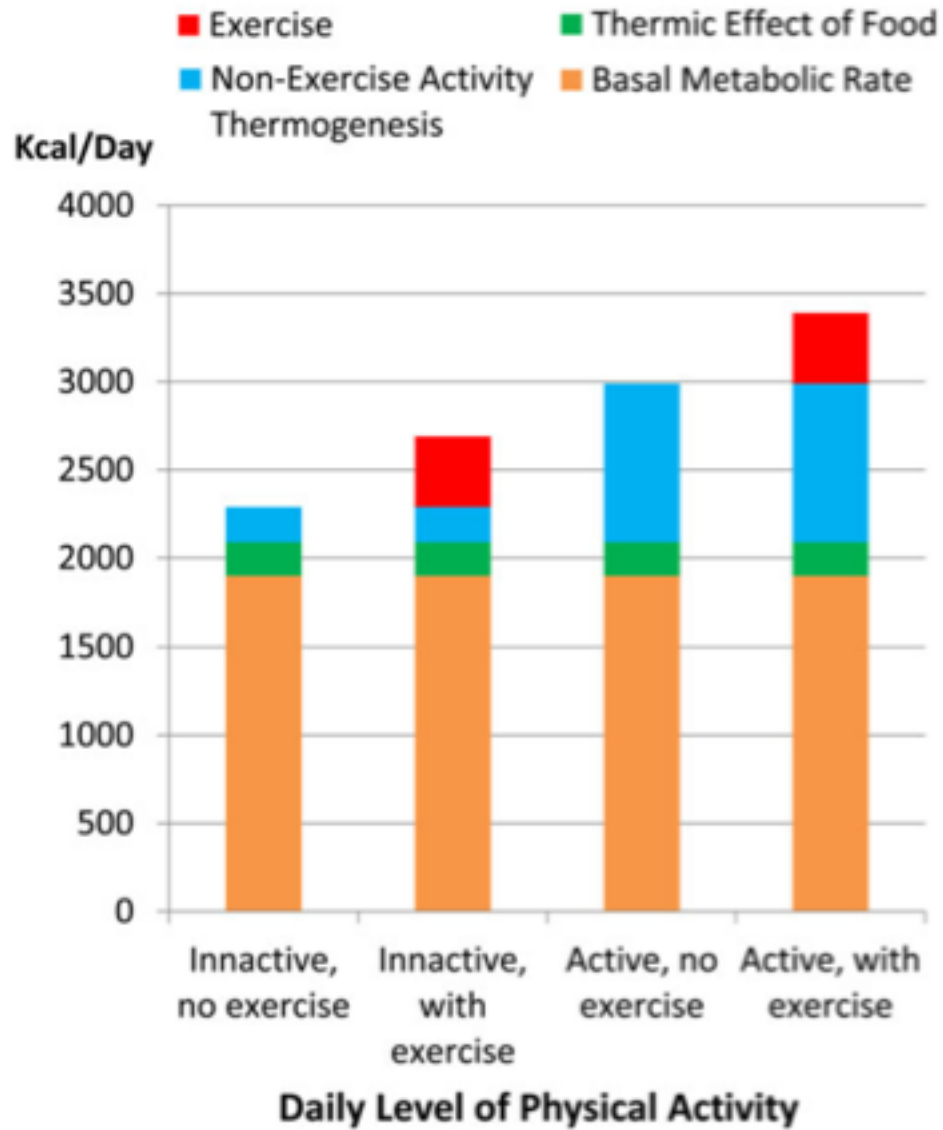


Body Volume Index



Body Section	% Against Total Body Volume	Weight Distribution	Variance Against National Average	Body Section	% Against Total Body Volume	Weight Distribution	Variance Against National Average
Neck	1		█	R.Leg	13		█
Chest	43		█	L.Leg	13		█
Abdomen	15		█	Waist	Girth: 87.0		█
Pelvis	9		█	Mid Abdomen	Girth: 104.2		█
R.Arm	3		█	Hip	Girth: 98.9		█
L.Arm	3		█	Head,hands&feet			

Increasing Physical Activity in the Office



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European Heart Journal
doi:10.1093/eurheartj/ehv356

EDITORIAL

Standing for healthier lives—literally

Francisco Lopez-Jimenez*

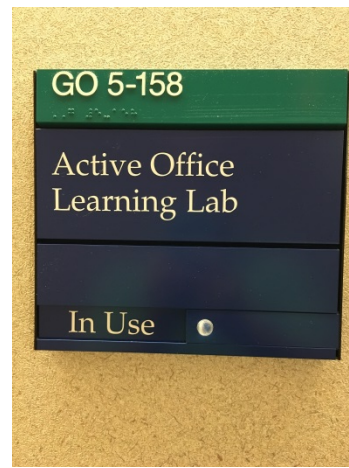
Division of Cardiovascular Diseases, Department of Medicine, Mayo Clinic and Mayo College of Medicine, Rochester, MN, USA















Gratzie!
@DrLopezHeart