

JUNE 25 - 28, 2016

WCPAG FLORENCE

18TH FIGIJ WORLD CONGRESS OF PAEDIATRIC
AND ADOLESCENT GYNAECOLOGY
Official language of the Congress: English



Preventive attitude in adolescence

Osteoporosis A pediatric disease

PREVENTION OF NON TRANSMISSIBLE CHRONIC DISEASES

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URUGUAY

Non transmissible chronic diseases

- **Osteoporosis**
- **OBESITY** : METABOLIC- DIABETIC DISEASE
CARDIOVASCULAR DISEASE
Cancer

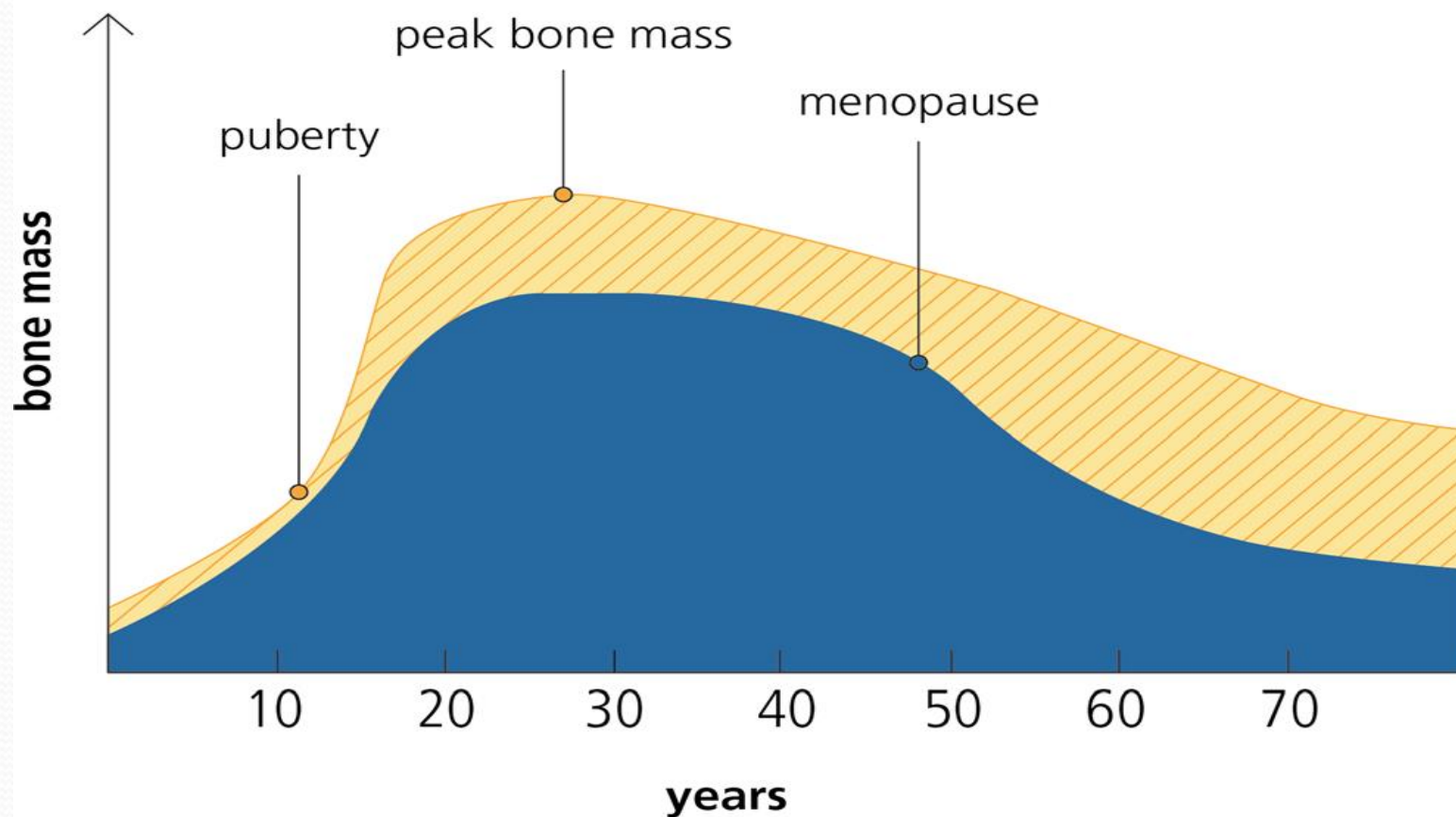


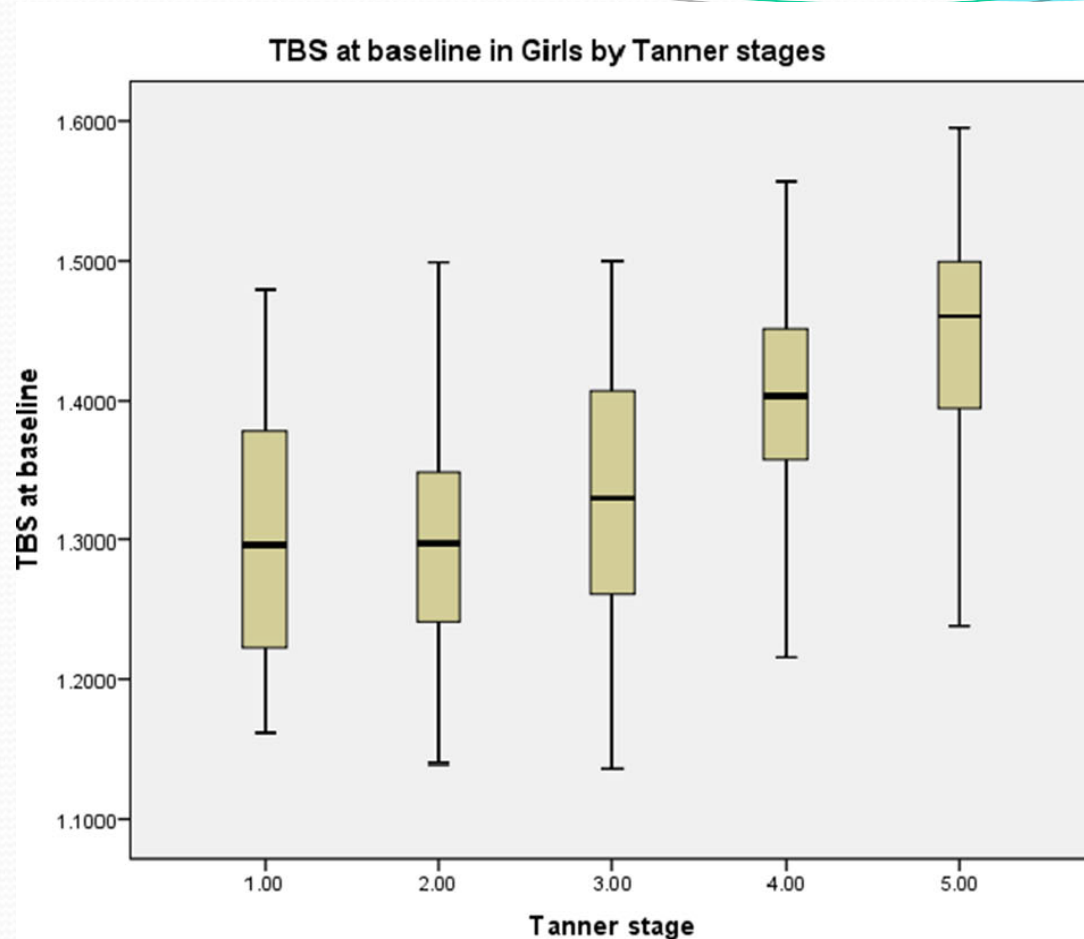
**Pediatric
Diseases**

Bone mass throughout the life course

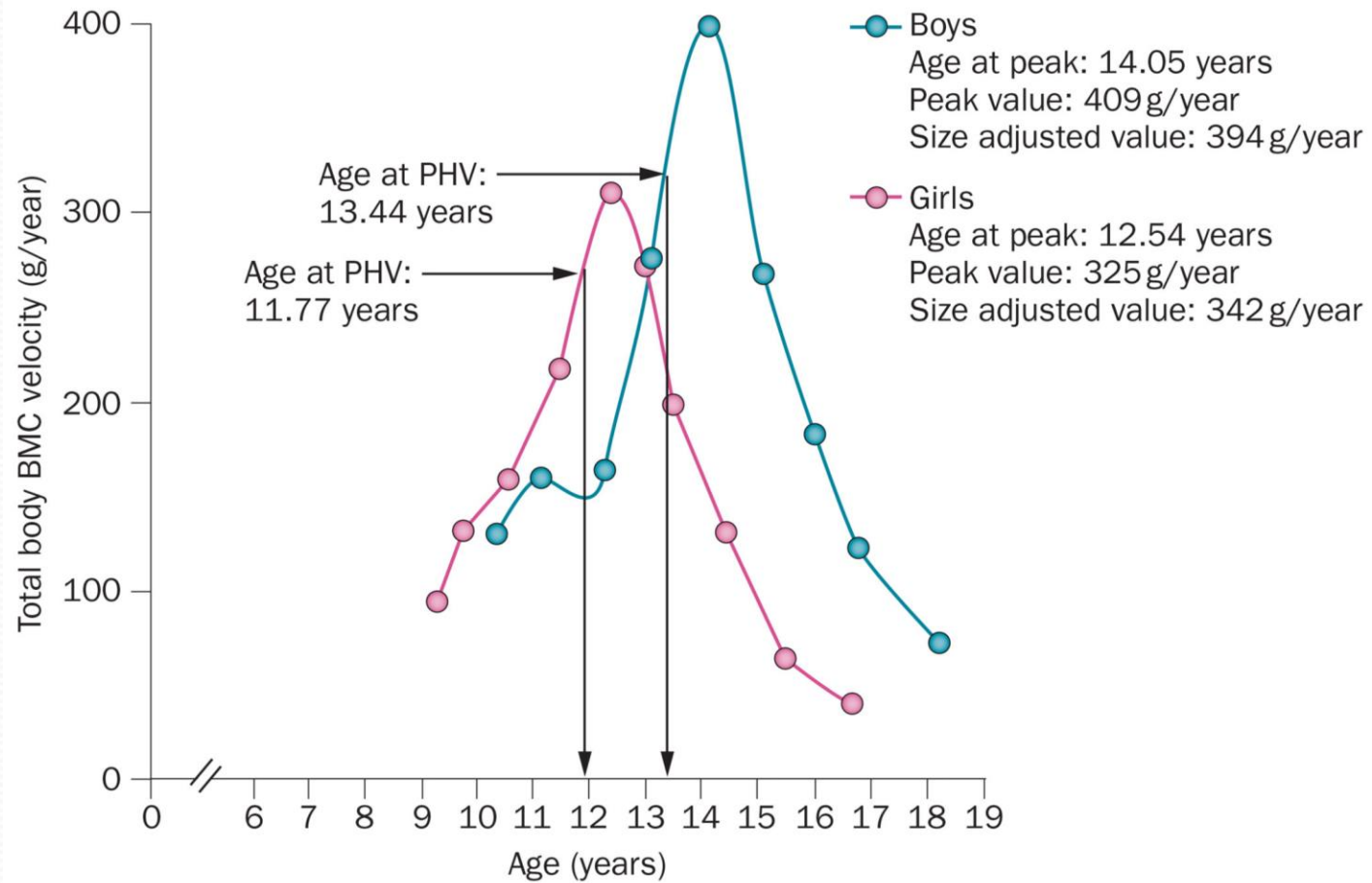
male

female





Shawwa et al. Osteopor Int 2016



Farr, Khosla Nat Rev Endocrinol. Nat Rev Endocrinol. 2015

Factors Affecting Bone Mass

Nonmodifiable

Genetics

Gender

Ethnicity

Modifiable

Nutrition

Calcium

Vitamin D

Sodium

Protein

Soda

Exercise and lifestyle

Body weight and composition

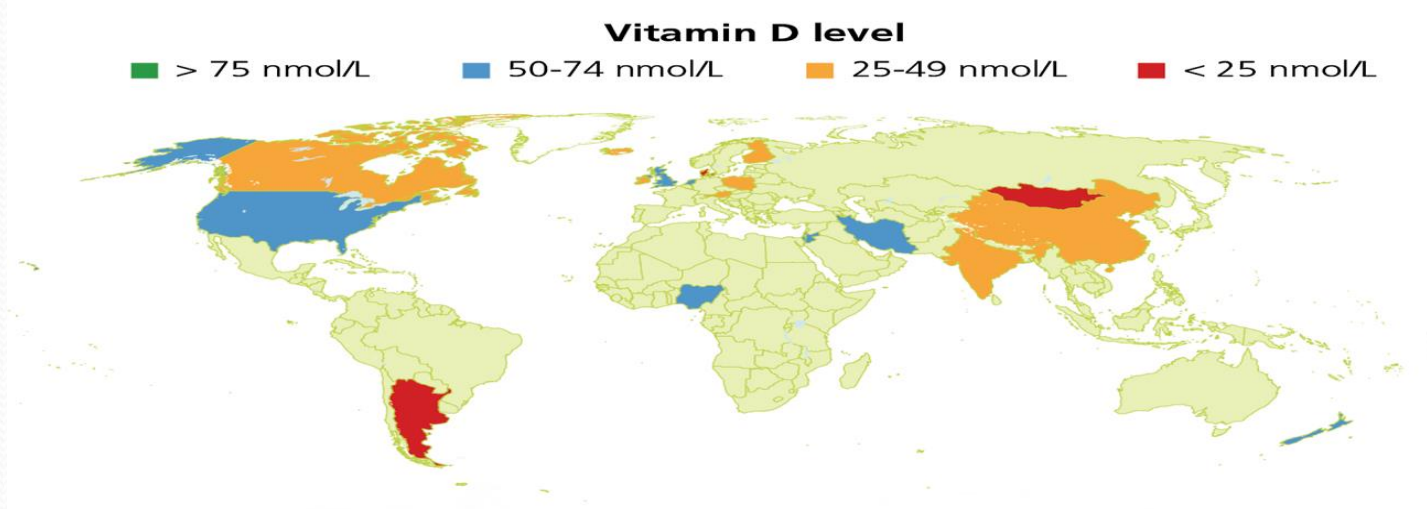
Hormonal status

Calcium and Vitamin D Dietary Reference Intakes

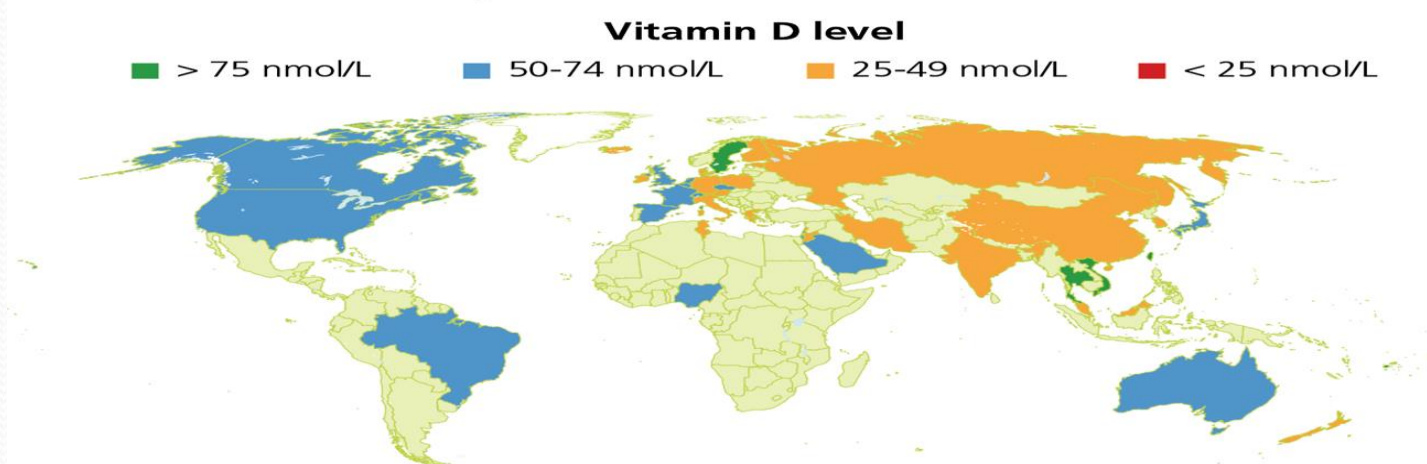
Age	Calcium		Vitamin D	
	RDA (mg/d) (Intake That Meets Needs of $\geq 97.5\%$ of Population)	UL (mg/d)	RDA (IU/d) (Intake That Meets Needs of $\geq 97.5\%$ of Population)	UL (IU/d)
Infants				
0–6 mo	200	1000	400	1000
6–12 mo	260	1500	400	1500
1–3 y	700	2500	600	2500
4–8 y	1000	2500	600	3000
9–13 y	1300	3000	600	4000
14–18 y	1300	3000	600	4000

- Exposure of arms and legs to 0.5 **minimal erythema** dose of sunlight from **5 to 15 minutes**, 2 or 3 times a week, produces approximately **3000 IU of vitamin D**. Subjects with dark skin require exposure 3 to 5 times longer
- Maximal synthesis occurs between 10:00 am and 3:00 pm time in spring and summer
- Sunscreen with a sun protection factor 8 or higher effectively prevents transmission of UV B radiation through the skin and blocks the synthesis of vitamin D

a IOF map of vitamin D status in children and adolescents



b IOF map of vitamin D status in adults



Survey of nutritional habits and physical activity GEOSUR 2005

Average age 9 years old

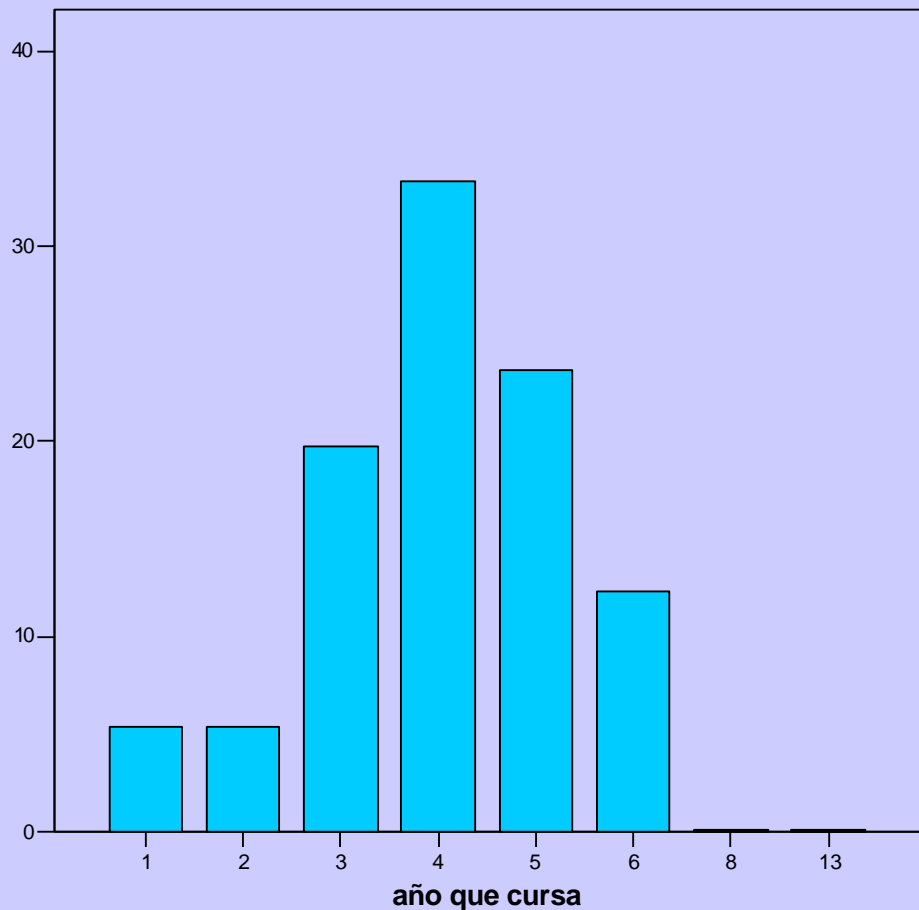
Physical activity. < 50%

- >0% curricular only
- Dairy products consumption < 50 %
- Almost 20% do not take breakfast
 - High consumption of sodas
 - High consumption of snacks
 - No Meals with family

Survey of nutritional habits and physical activity

AVERAGE AGE = 15.77 YEARS OLD

75% ARE LESS THAN 17 YEARS OLD



51% practice few or no physical activity

80% have milk and cheese intake lower than the minimal requisites that are necessary

38% do not accomplish with minimal and necessary calcium requisites

High consumption of sodas

High consumption of alcohol >70%

Tobacco >50%

No significant differences between public and private schools

Levels of Vitamin D

ng/ml	< 20	20 -29	> 30
total	31%	38%	29%
< 15years	43%	36%	21%
15 a 19	29%	38%	30%

12 to 19 YEARS Girls and adolescents section Militar Hospital. Geosur 2013

At least once a day milk intake

	yes	No	No data
total	69%	27%	5%
< 15years	71%	29%	
15 to 19	68%	27%	5%

At least once a day yogurt intake

	yes	No	No data
total	60%	35%	5%
<15years	57%	43%	
15 to 19	60%	34%	6%

At least once a day cheese intake

	yes	No	No data
total	49%	42%	9%
<15years	57%	43%	
15 to 19	48%	41%	11%

Total

100%

Less than 15

16%

15 a 19

80%

No data

4%

sun**Yes****No****No data****Total**

53%

39%

7%

< 15 years

64%

36%**15 a 19**

51%

40%

6%

exercise**Yes****No****No data****Total**

42%

55%

5%

< 15 years

79%

22%

0%

15 a 19

35%

61%

4%

**insufficient consumption of dairy products,
insufficient physical activity,
low levels of vitamin D**

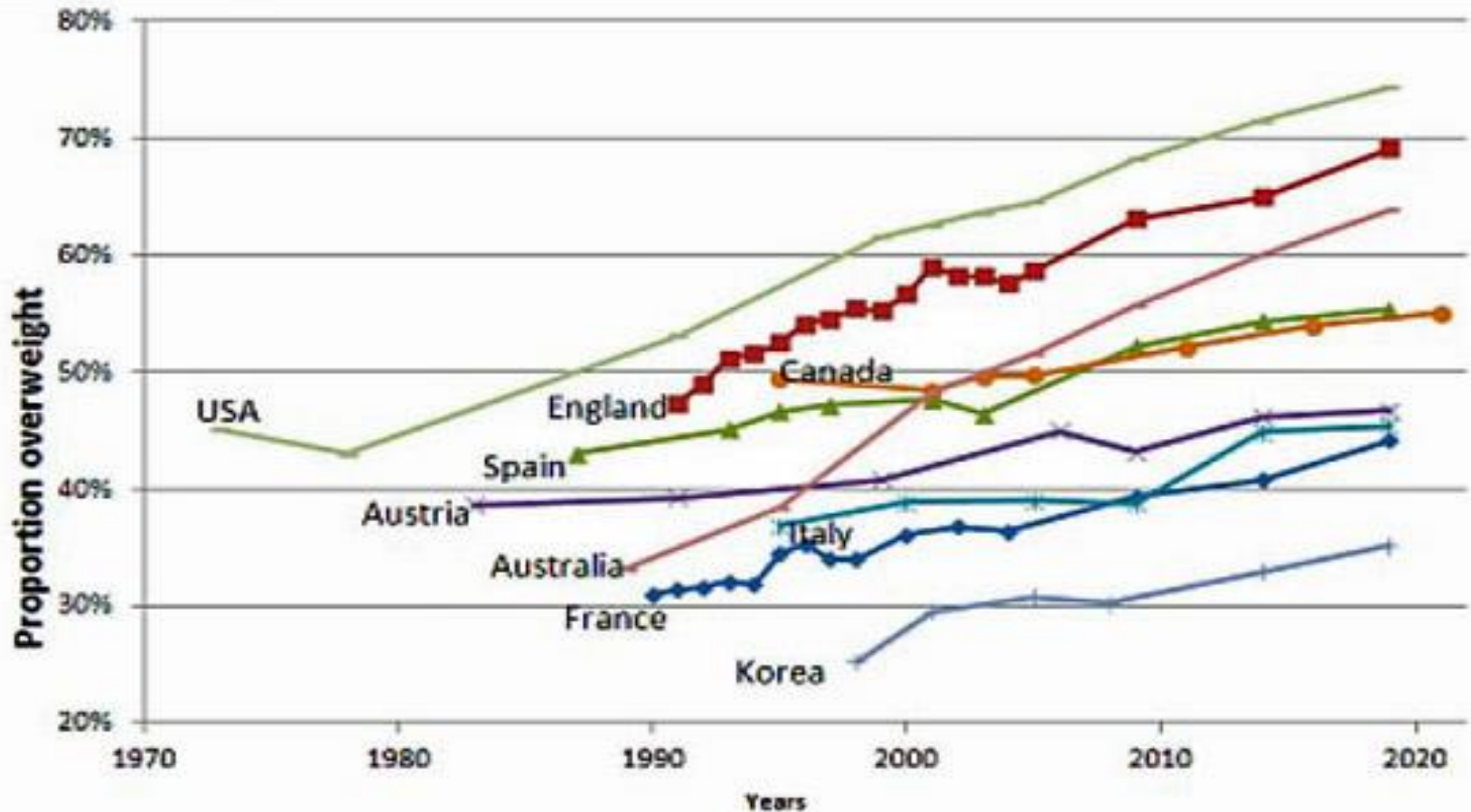


**equal to low peak
bone mass**

*the strategy is to correct these factors from an
early age*

OBESITY

Past and projected future overweight rates in selected OECD countries



NEJM | October 6, 2010

Cardiovascular disease in Latin American women

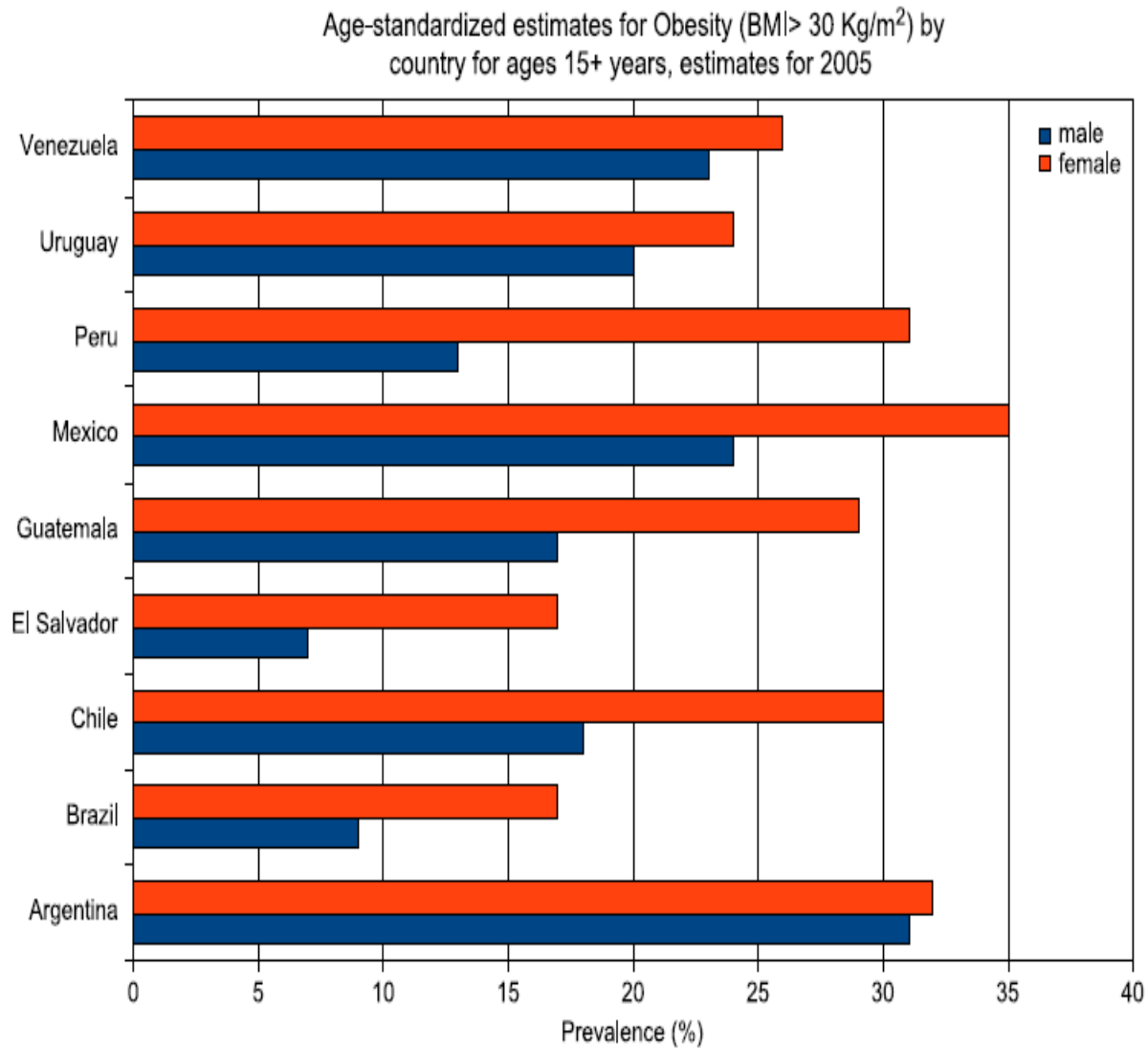
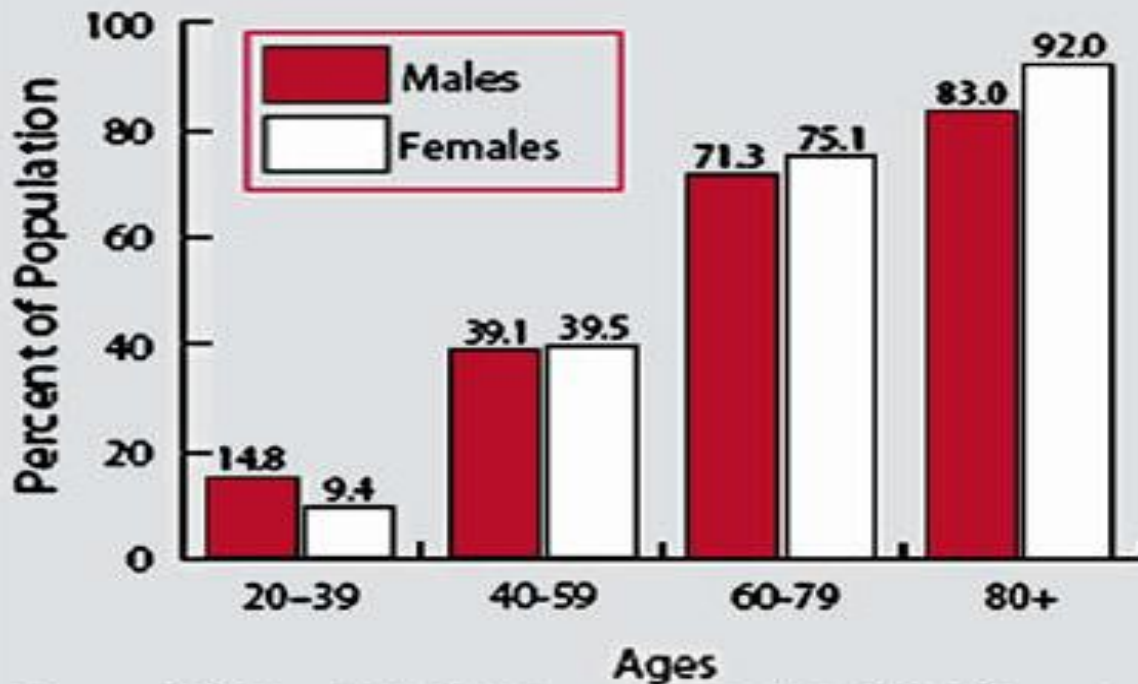


Figure 1 Obesity rates in selected Latin American Countries (WHO). Source: www.who/topics/obesity.

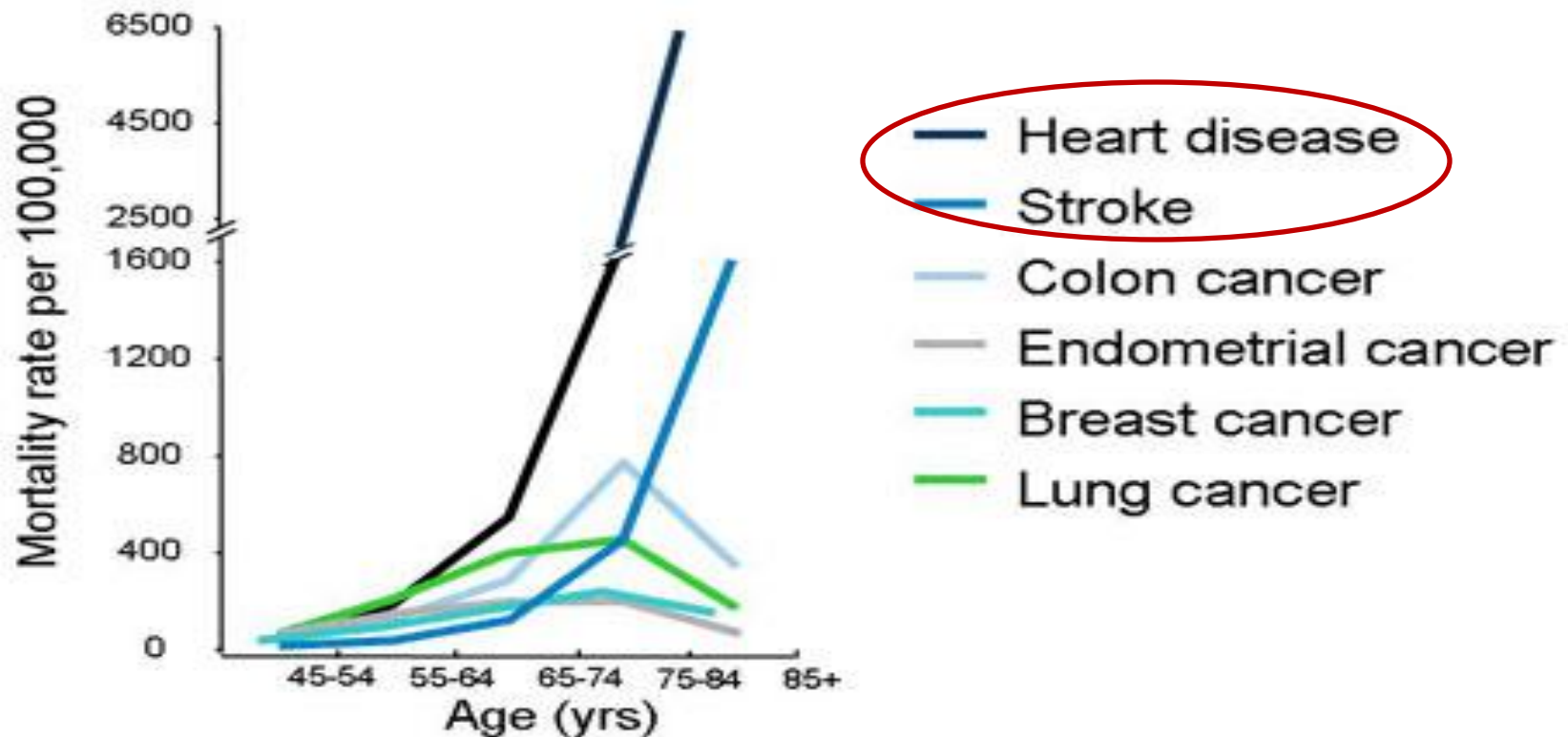
Prevalence of Cardiovascular Diseases in Adults Age 20 and Older by Age and Gender NHANES: 1999–2004



Source: NCHS and NHLBI. These data include CHD, HF, stroke and hypertension

CHRONIC NON TRANSMISSIBLE DISEASES

Mortality Rates in US Women

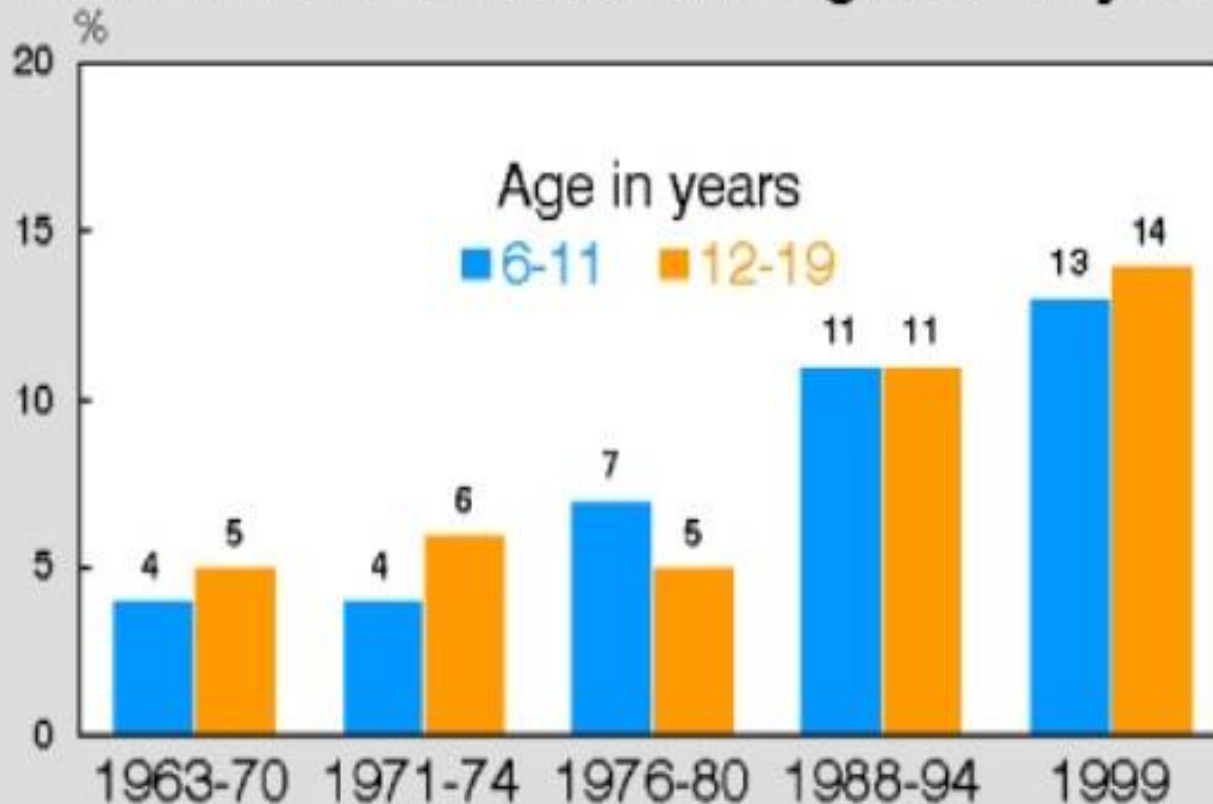


Howe et al. *J Natl Cancer Inst* 2001.
Am Heart Assoc. Heart and Stroke Update 2001.

- Worldwide there are 43 million children under 5 years old who suffer overweight or obesity, most of them in developing countries.
- - According to WHO, 7 % of 43 million children with overweight live in Latin America and other 7 % live in African countries and 5 % in Asian countries.
- - More than a hundred million children under 5 years old have malnutrition and other 165 million have rickets.

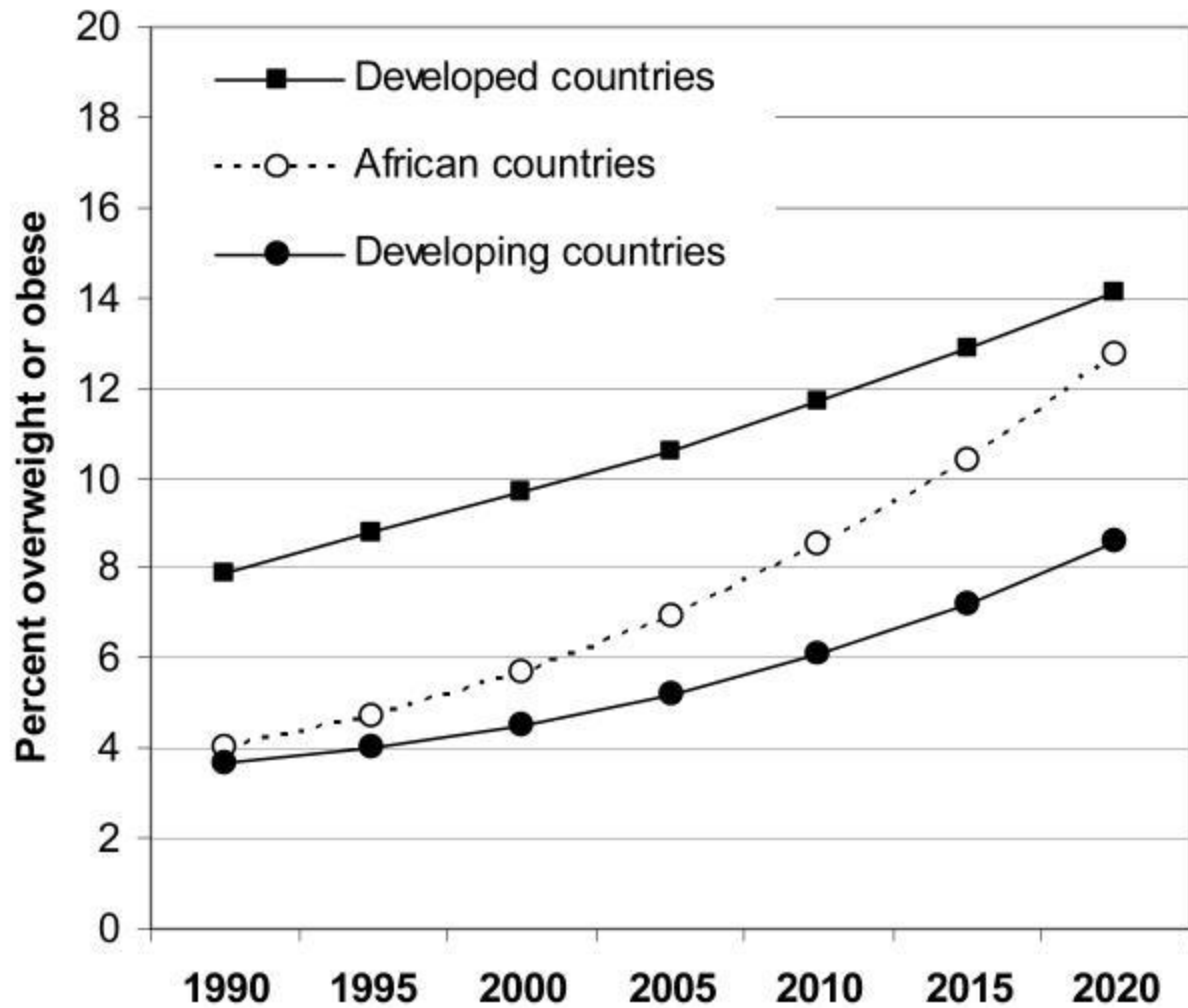
- The increase of subcutaneous fat and visceral fat at 10 years old, have correlation with more BMI in adolescence and adulthood. *Kindblom JM. Diabetes 2006*
- ❖ Truncal obesity in childhood had correlation more frequently with early menarche.

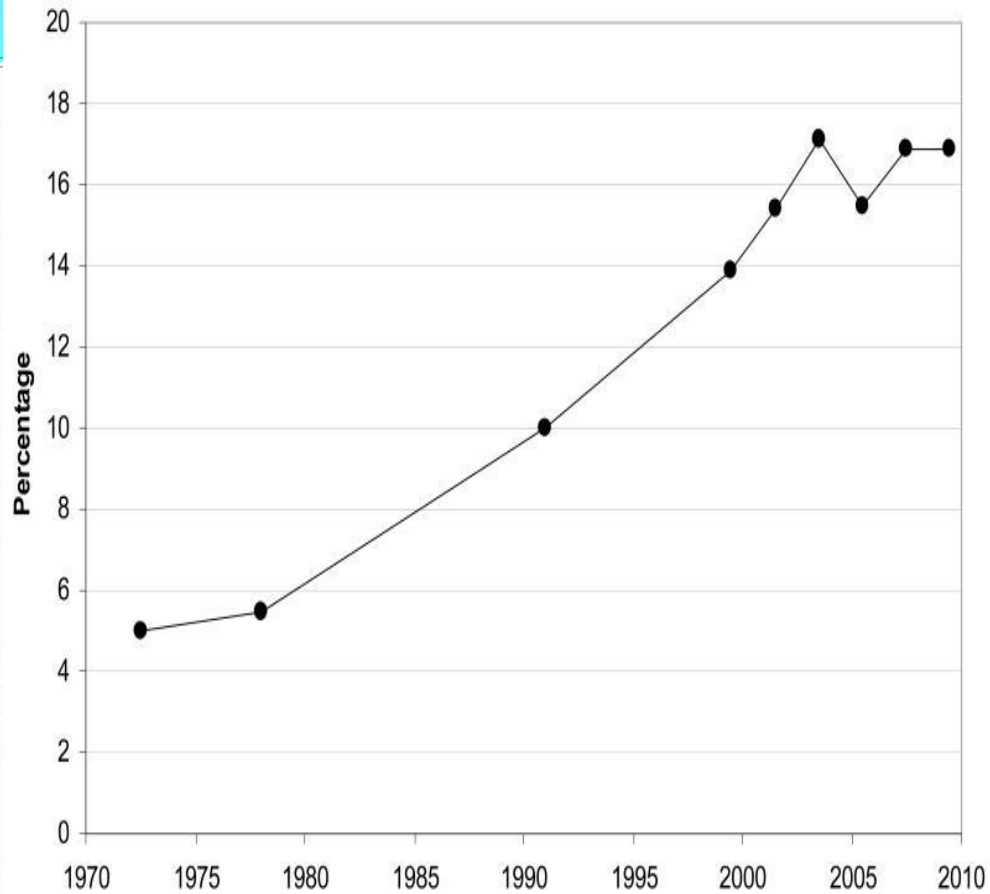
Figure 1. Prevalence of overweight among children and adolescents ages 6-19 years



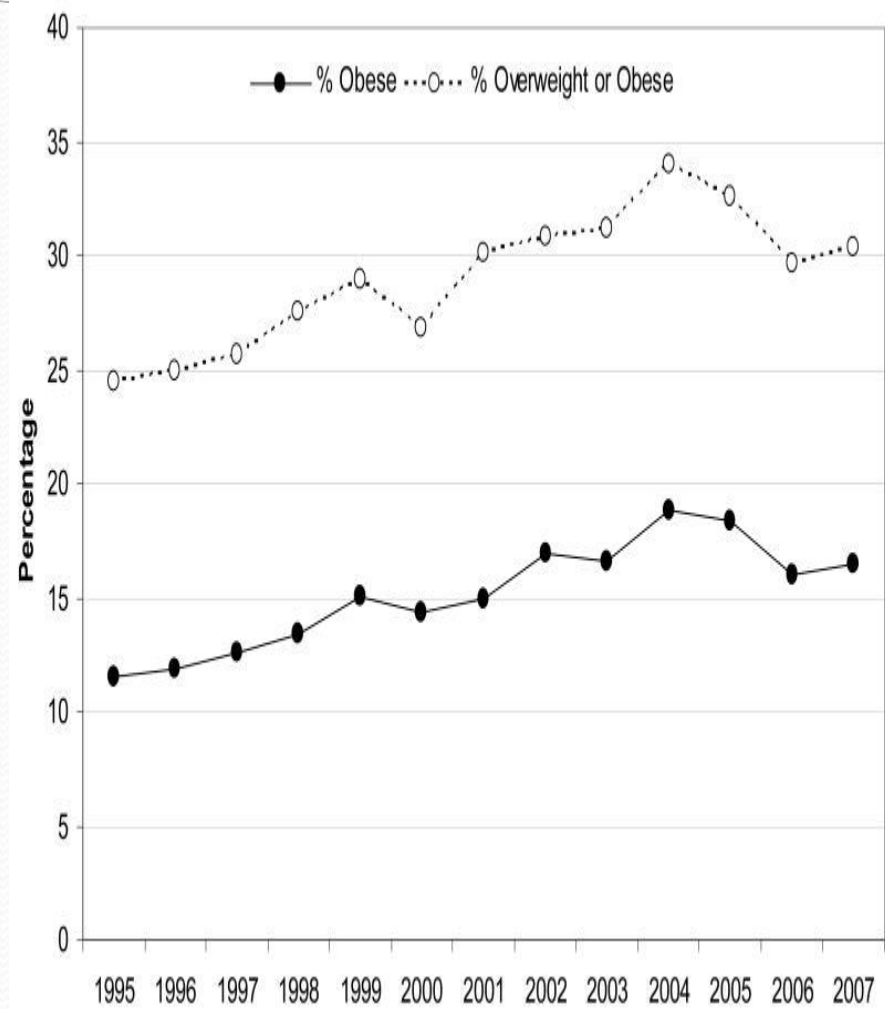
NOTES: Excludes pregnant women starting with 1971-74. Pregnancy status not available for 1963-65 and 1966-70. Data for 1963-65 are for children 6-11 years of age; data for 1966-70 are for adolescents 12-17 years of age, not 12-19 years.

SOURCE: CDC/NCHS, NHES and NHANES.





2-19 años EEUU



2 -15 años Inglaterra

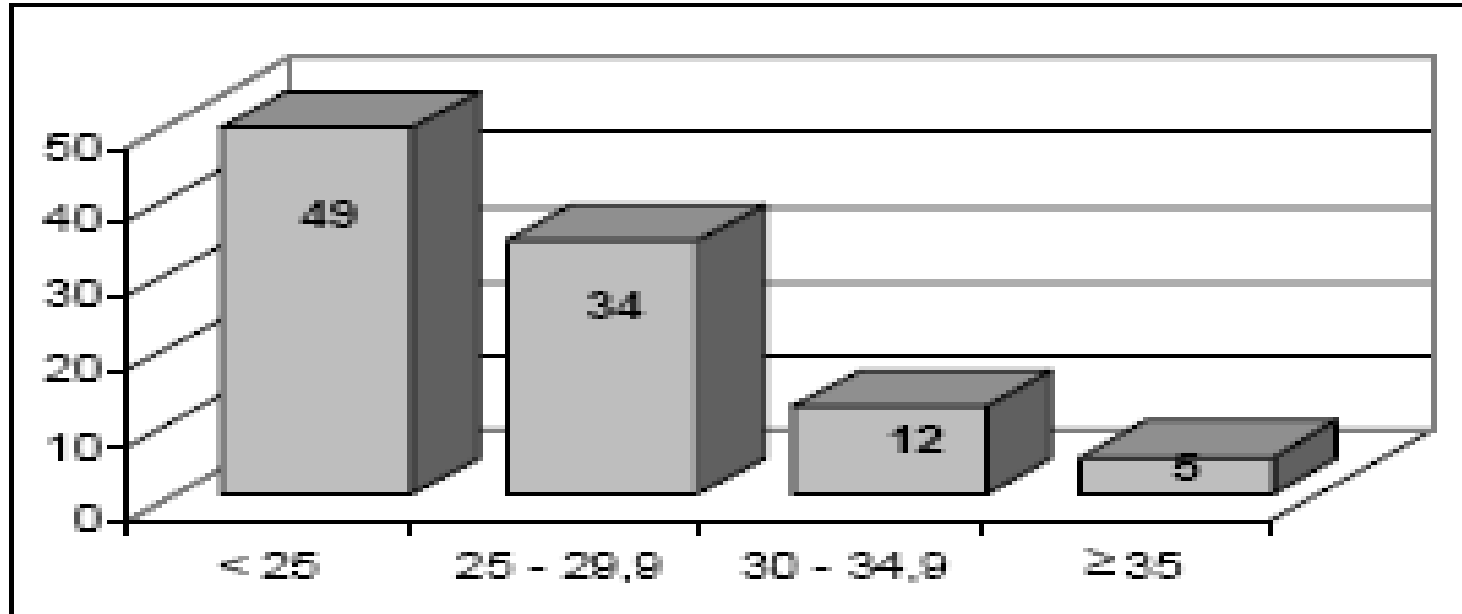
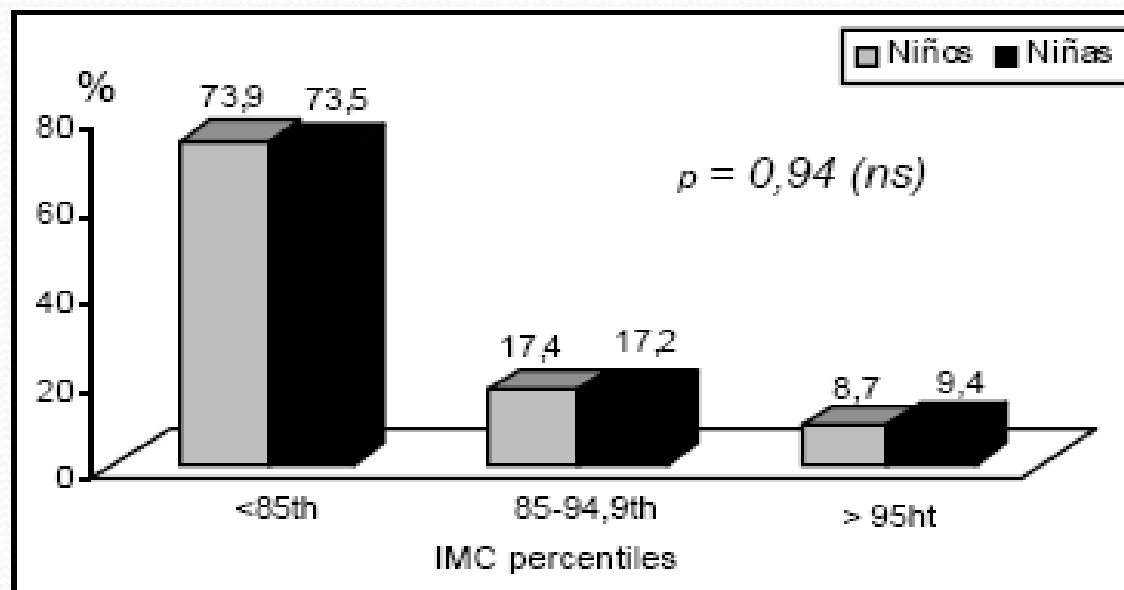


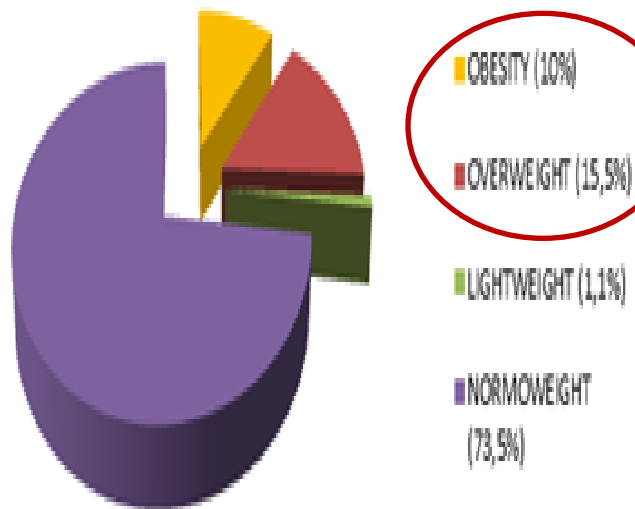
Figura 2. Distribución general del índice de masa corporal. (Uruguay, país urbano, noviembre 1998)



Pisabarro et al. RMU 2002

ENSO children.

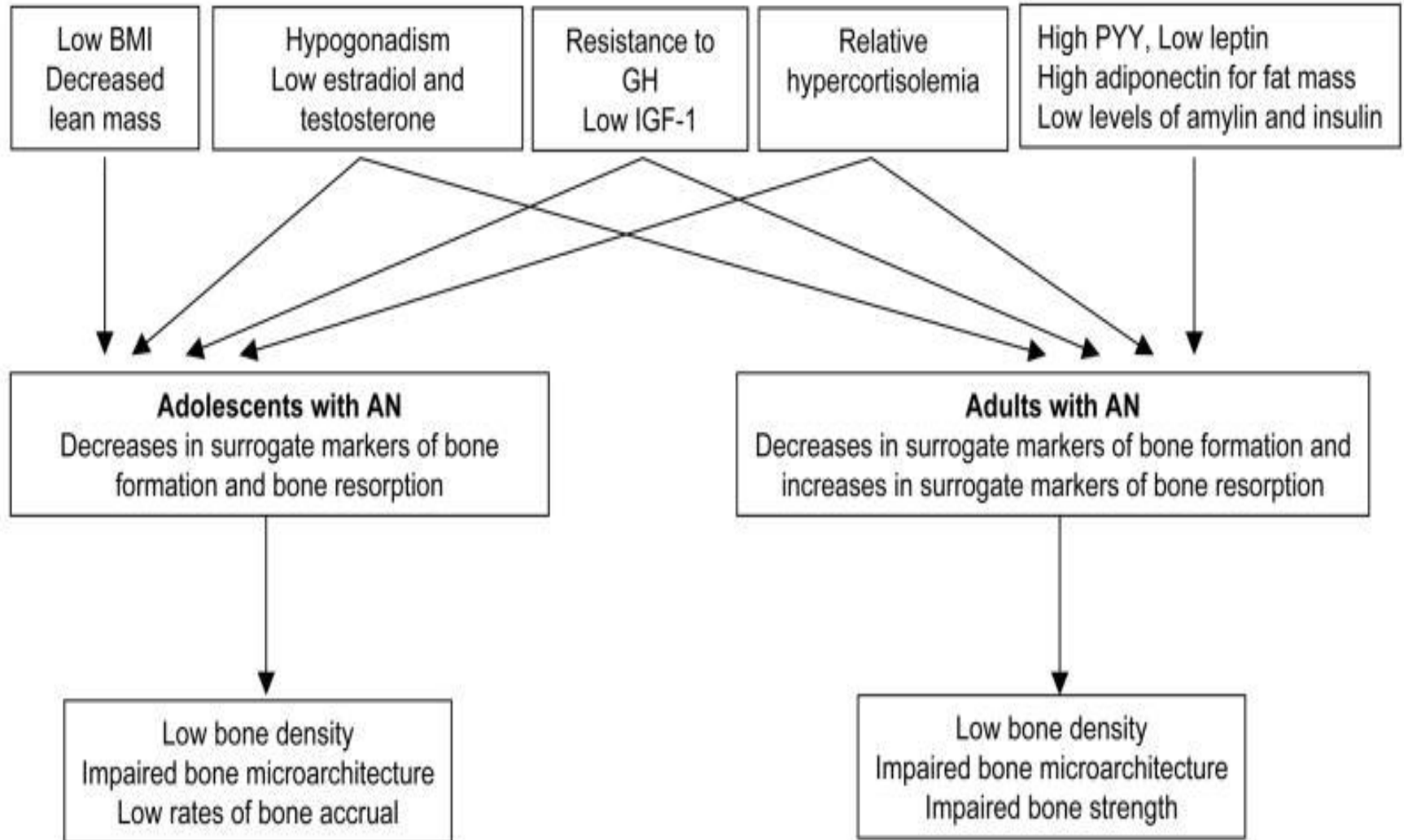
NUTRITIONAL STATUS



Adolescent population assisted
children and adolescent section
Militar Hospital
AGE:12-19 YEARS OLD
2014

- **Obesity plays an important role in metabolic and endocrine disorders.**
- Adipose tissue, above all at visceral level, the true endocrine organ, has an important activity: liberation of cytokines, release of FTNa, IL6, PAI, other substances such as AFF, Leptine, Resistine, etc.
- All these factors promote a pro-inflammatory status, of insuline-resistance , with reproductive affection.

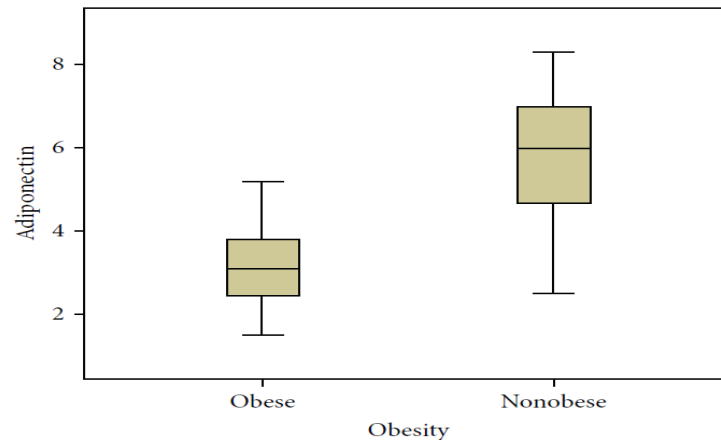
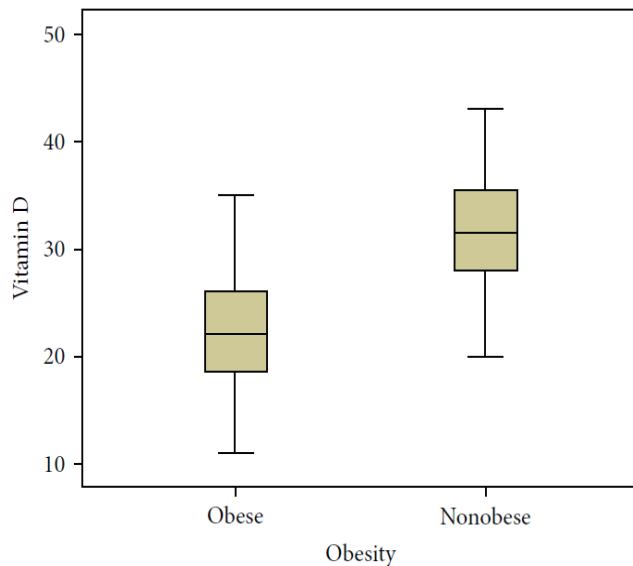
Eating disorder in young. FREQUENT SITUATION

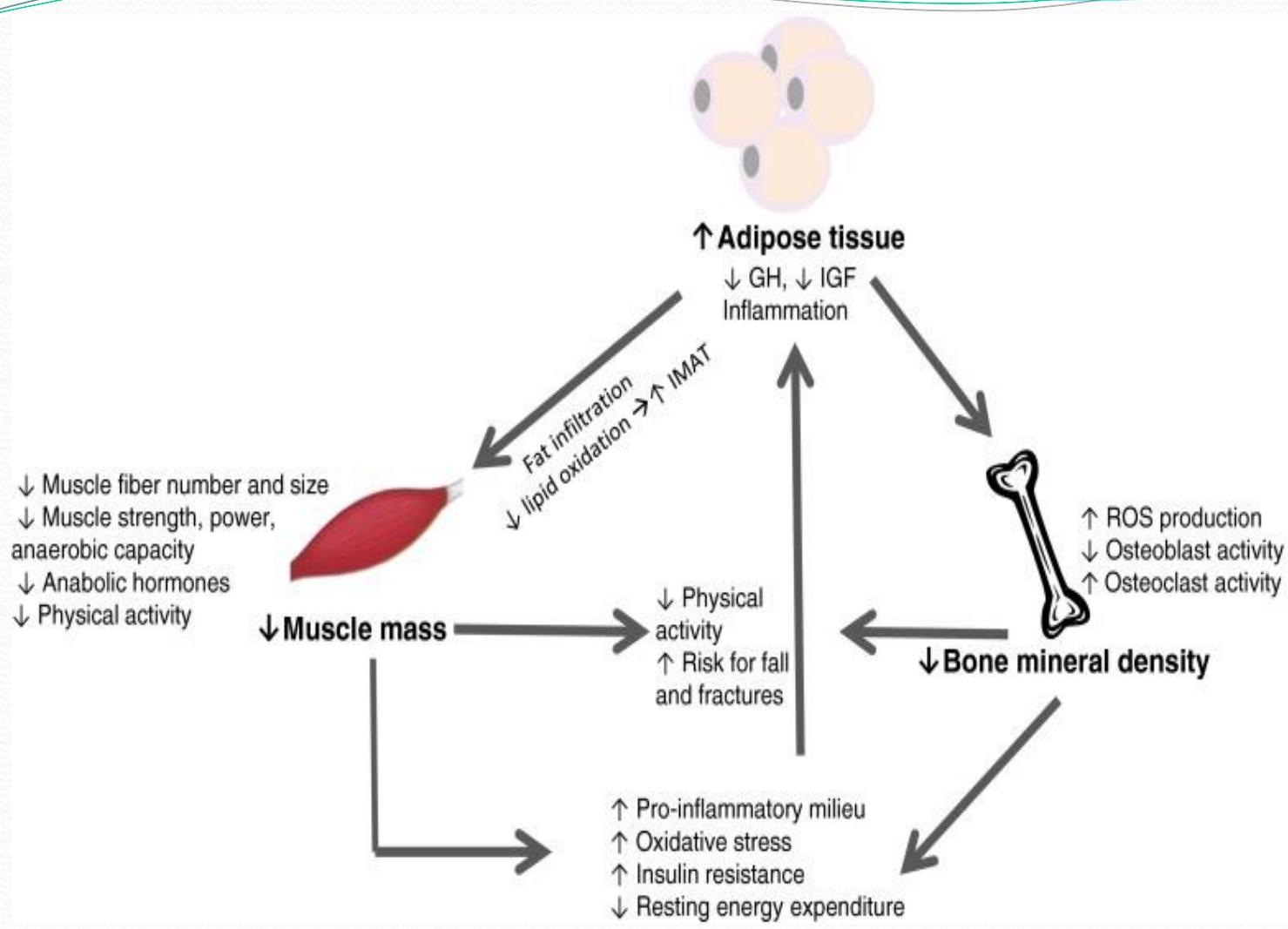


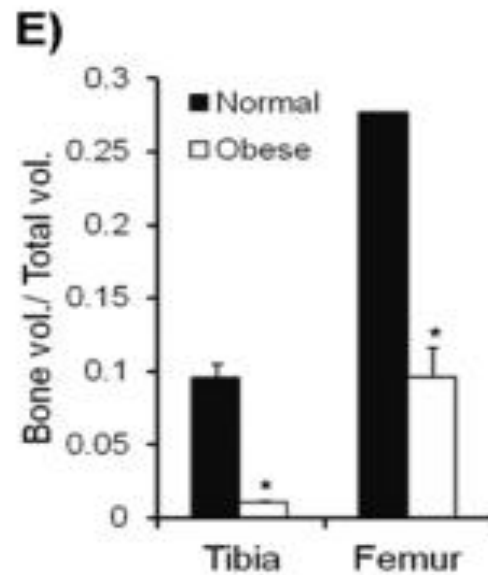
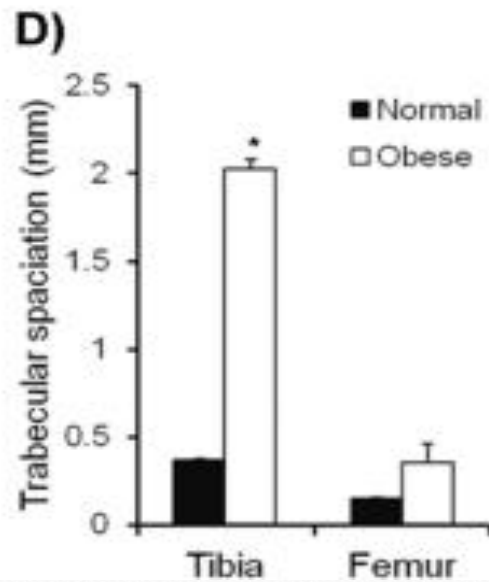
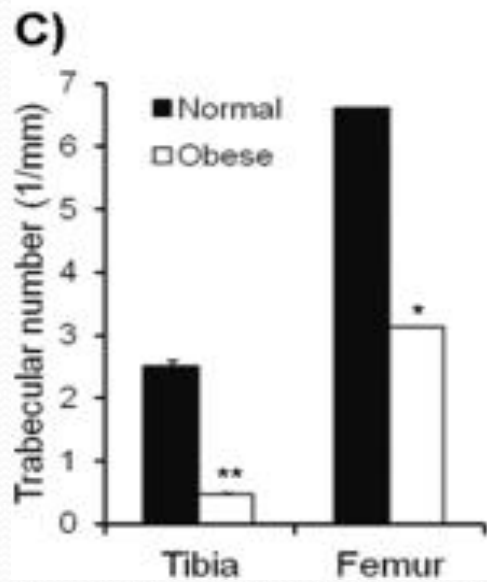
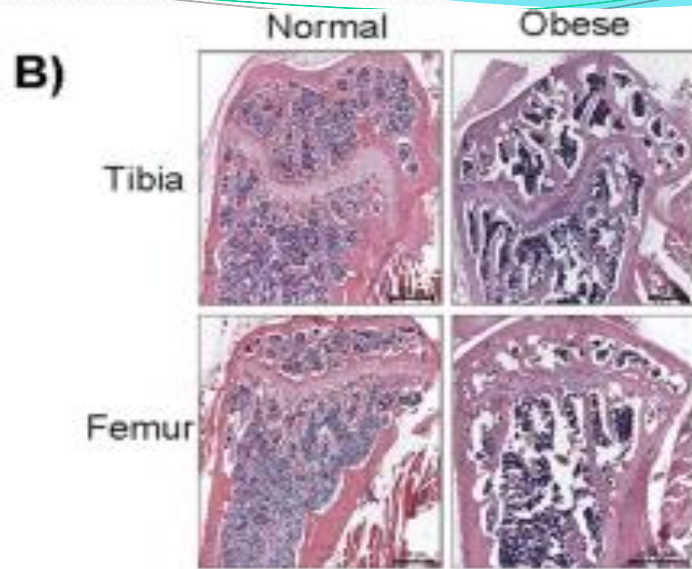
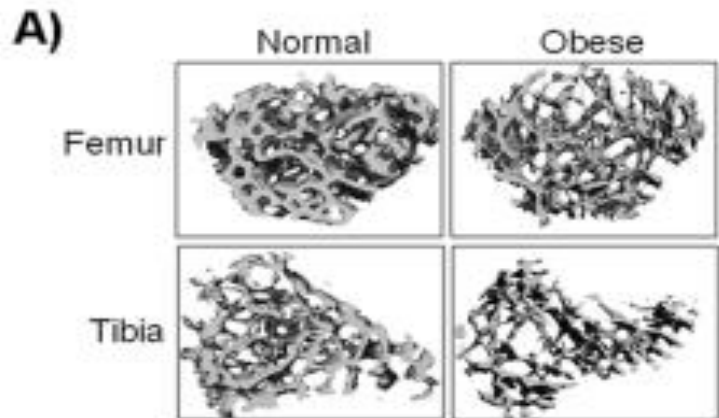
obesity

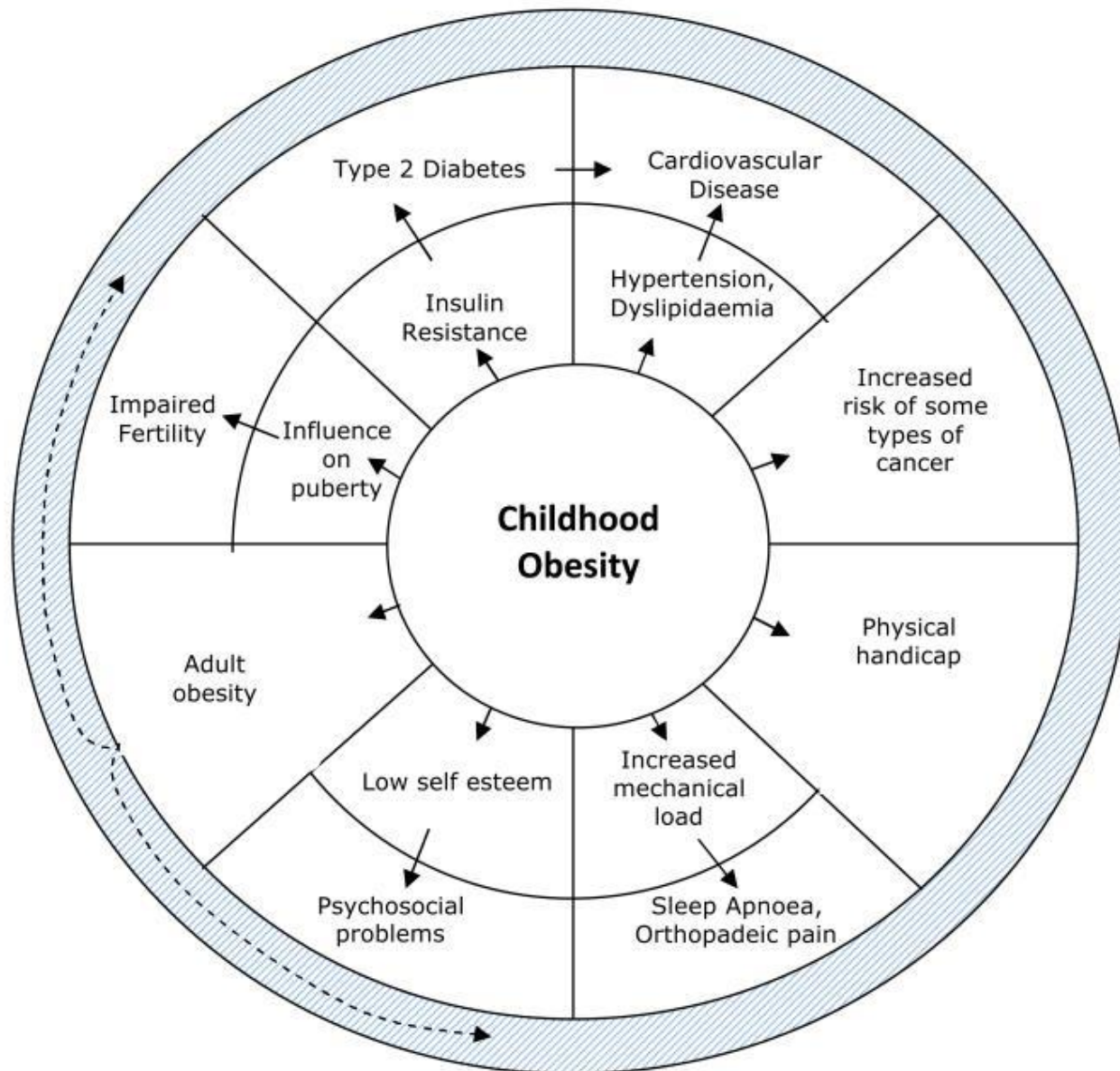
- **Level decrease of Vitamin D**
- **Bone Health Repercussion**
- **Repercussion: immunologic, metabolic.**

Orthopedic Repercussions: morfologic, early growth , bad posture, BMD (?)





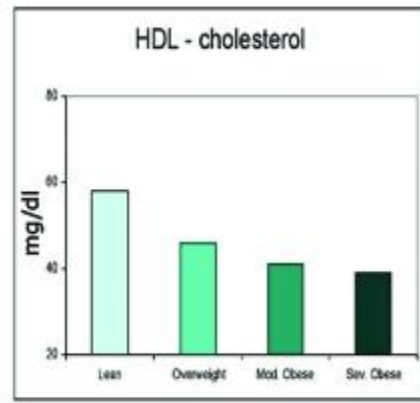
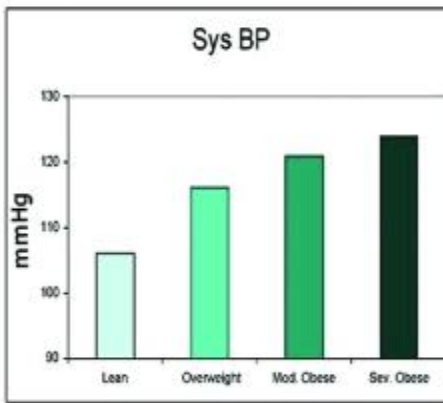
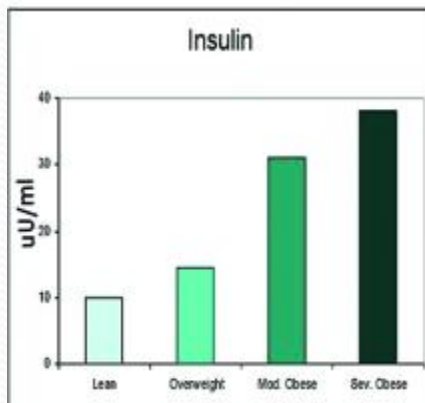
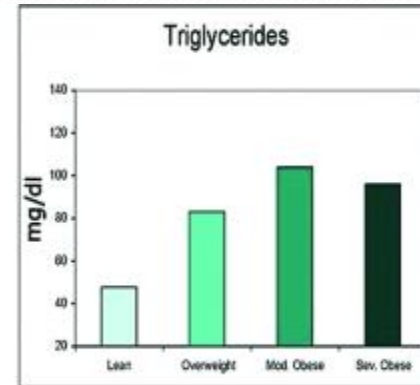
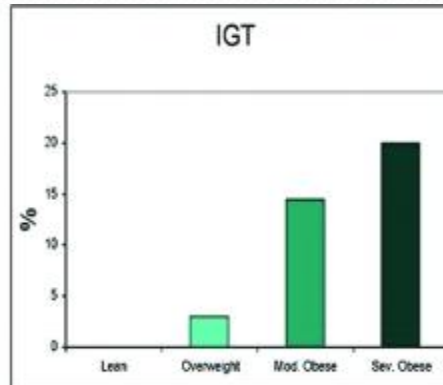
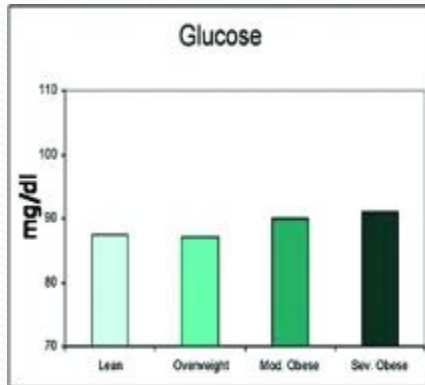




OBESITY

- There are metabolic differences between visceral fat and subcutaneous fat.
- Visceral fat has correlation with adipose tissue that is metabolically active with the increase of inflammatory cytokines and hormonal release resulting in insuline resistance and its consequences.
- Adolescents with visceral obesity have 5 fold more risk to present metabolic syndrome.

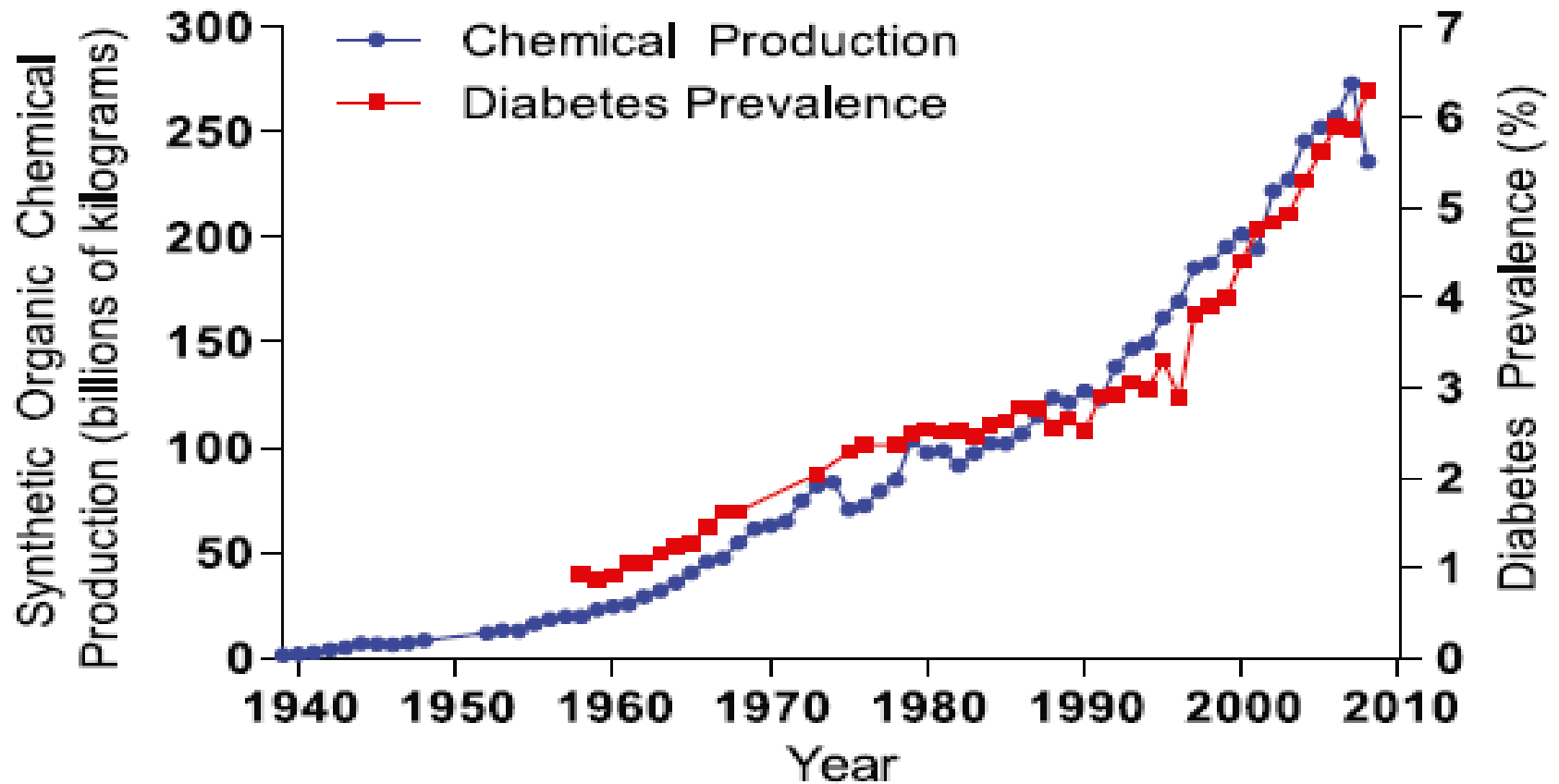
Obesity



Cali A, Caprio S. J Clin Endocrinol Metab 2008

hormone disruptors

Plastics bags, tupper, bottles, glasses, toys



DIABETES, VOL. 60, JULY 2011

PREVENTION

- **Intervention in Risk Stages**
- Prenatal Stage
- First year of life
- Rebound obesity period 3-7 years old –ColeT BMCPediatrics 2004
- Around menarche

- Healthy nutritional stimulus
- Physical activity stimulus
- Sun Exposure

Prevention of non transmissible chronic diseases

- Intervention Strategies: community
- adults-family
- children

Leah M et al. Social Transmission Dynamics on childhood obesity. 2013