

5th Joint Meeting on Adolescence Medicine

10th - 12th November 2011

Aula Consiliare e Sala dei Concerti, Palazzo de Nobili, Catanzaro (Italy)

Epidemiologia dell'obesità nei paesi Arabi

Prof. Mohamed El Kholy

Epidemiology of Obesity in Arab Countries

Epidemiologia dell'obesità nei paesi Arabi

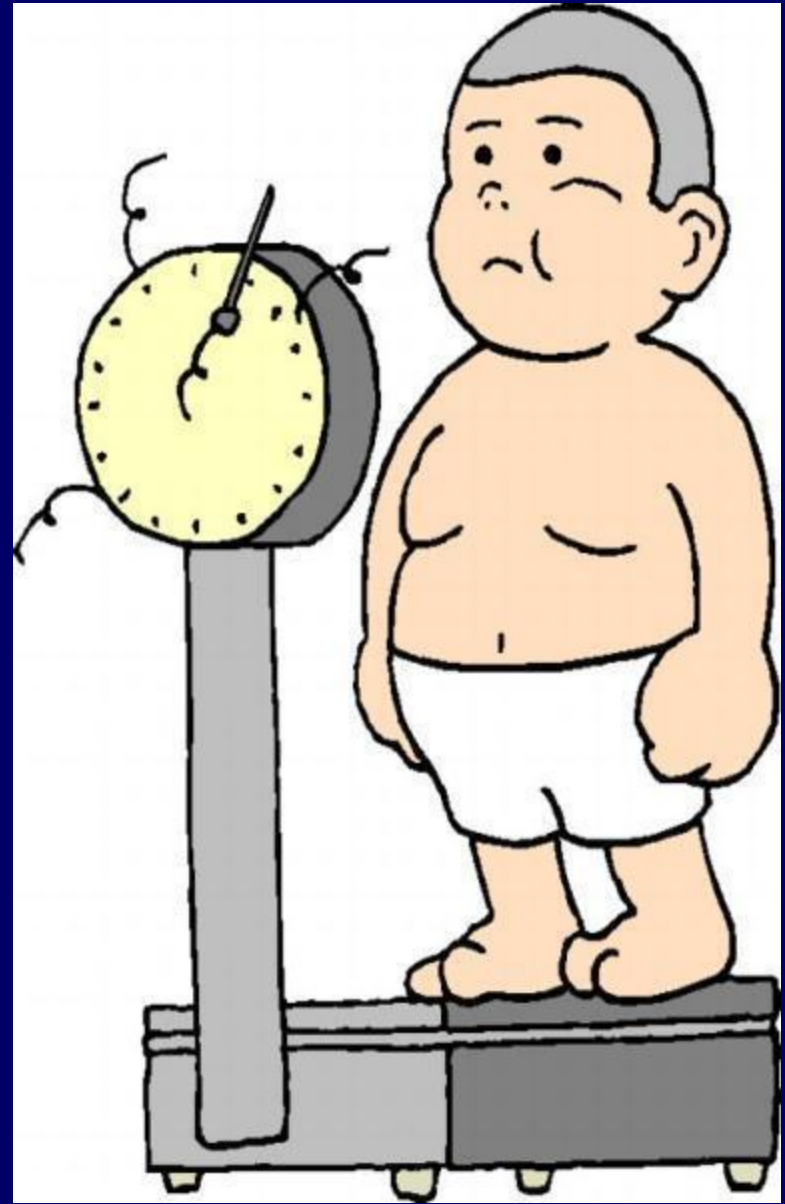
Prof. Mohamed El Kholy

**Ain Shams University
Cairo - Egypt**





Overview





Definition

Obesity is an excessive accumulation of energy in the form of body fat (20%), which impairs health.

The degree of health impairment is determined by three factors:

- the amount of fat
 - the distribution of fat
 - the presence of other risk factors
-



Weight Gain: How Does It Happen?

Energy imbalance

calories consumed not equal to calories used

+

Combination of several factors:

Individual behaviors

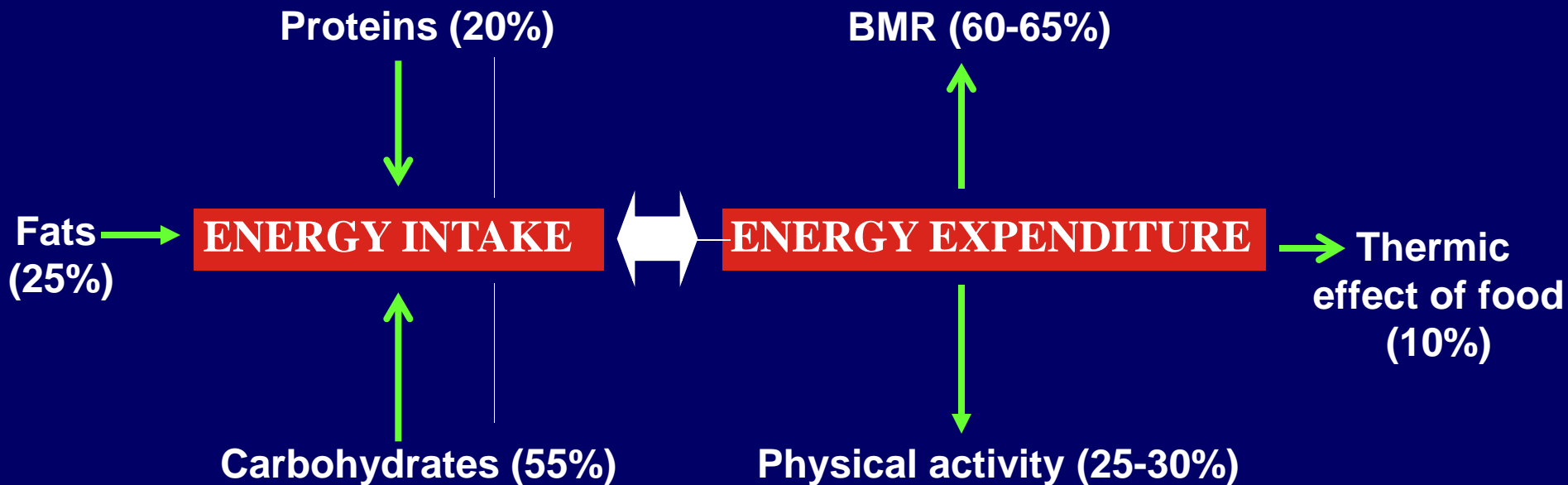
Social interactions

Environmental factors

Genetics



An imbalance in energy intake and energy expenditure





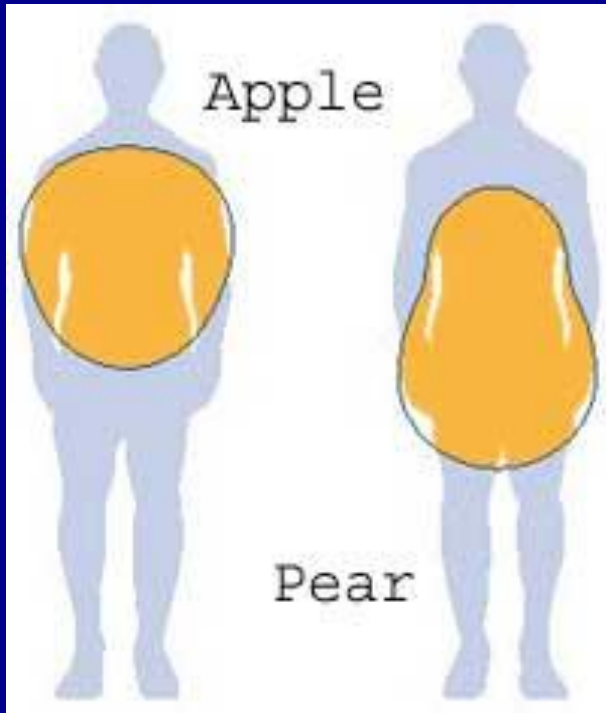
Classification of obesity as per fat distribution

Android (or abdominal or central, males)

- Collection of fat mostly in the abdomen (above the waist)
- Apple-shaped
- **Associated with insulin resistance and heart disease**

Gynoid (below the waist, females)

- Collection of fat on hips and buttocks
 - Pear-shaped
 - **Associated with mechanical problems**
-







Assessment

Is he/she overweight? Obese?

- **BMI**
 - **Skin fold thickness**
 - **Waist circumference; Waist/Hip ratio**
-



Calculating BMI

Body Mass Index (BMI) =

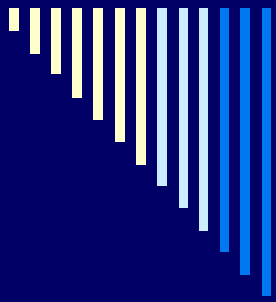
weight (kg)

height squared (meters)

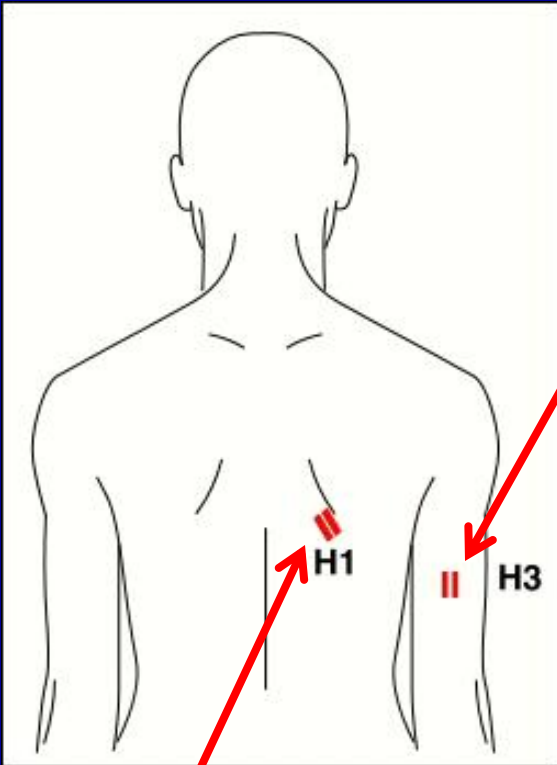
Calculated Body Mass Index

44"-68" and 95 lbs.-112 lbs.

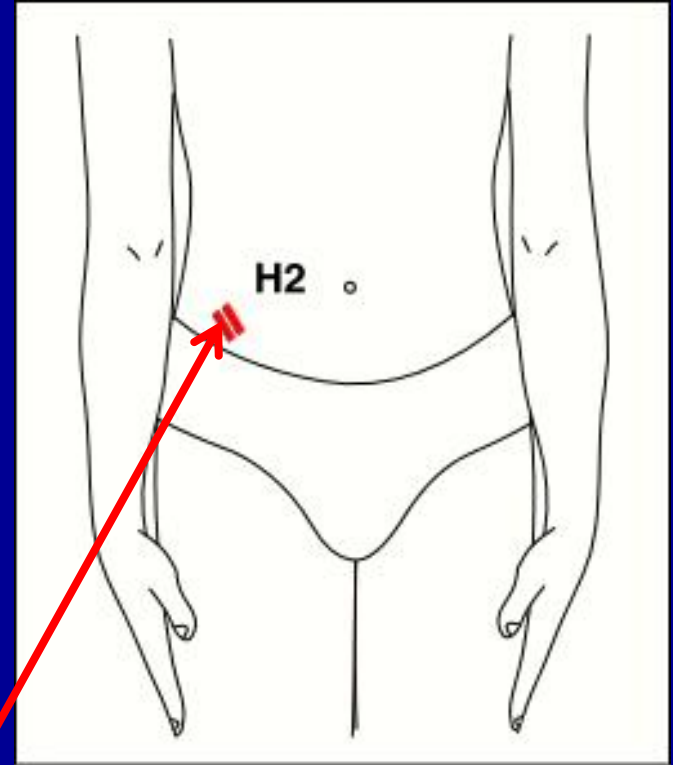
Height		Weight																
		Whenever a child's specific height or weight measurement is not listed, round to the closest number in the table.																
Kg		43.1	43.5	44.0	44.5	44.9	45.4	45.8	46.3	46.7	47.2	47.6	48.1	48.5	49.0	49.4	49.9	50.8
Lb		95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	112
Cm	In																	
111.8	44	34.5	34.9															
113.0	44.5	33.7	34.1	34.4	34.8													
114.3	45	33.0	33.3	33.7	34.0	34.4	34.7											
115.6	45.5	32.3	32.6	32.9	33.3	33.6	34.0	34.3	34.6	35.0								
116.8	46	31.6	31.9	32.2	32.6	32.9	33.2	33.6	33.9	34.2	34.6	34.9						
118.1	46.5	30.9	31.2	31.5	31.9	32.2	32.5	32.8	33.2	33.5	33.8	34.1	34.5	34.8				
119.4	47	30.2	30.6	30.9	31.2	31.5	31.8	32.1	32.5	32.8	33.1	33.4	33.7	34.1	34.4	34.7		
120.7	47.5	29.6	29.9	30.2	30.5	30.8	31.2	31.5	31.8	32.1	32.4	32.7	33.0	33.3	33.7	34.0	34.3	34.9
121.9	48	29.0	29.3	29.6	29.9	30.2	30.5	30.8	31.1	31.4	31.7	32.0	32.3	32.7	33.0	33.3	33.6	34.2
124.5	49	27.8	28.1	28.4	28.7	29.0	29.3	29.6	29.9	30.2	30.5	30.7	31.0	31.3	31.6	31.9	32.2	32.8
127.0	50	26.7	27.0	27.3	27.6	27.8	28.1	28.4	28.7	29.0	29.2	29.5	29.8	30.1	30.4	30.7	30.9	31.5
129.5	51	25.7	25.9	26.2	26.5	26.8	27.0	27.3	27.6	27.8	28.1	28.4	28.7	28.9	29.2	29.5	29.7	30.3
132.1	52	24.7	25.0	25.2	25.5	25.7	26.0	26.3	26.5	26.8	27.0	27.3	27.6	27.8	28.1	28.3	28.6	29.1
134.6	53	23.8	24.0	24.3	24.5	24.8	25.0	25.3	25.5	25.8	26.0	26.3	26.5	26.8	27.0	27.3	27.5	28.0
137.2	54	22.9	23.1	23.4	23.6	23.9	24.1	24.4	24.6	24.8	25.1	25.3	25.6	25.8	26.0	26.3	26.5	27.0
139.7	55	22.1	22.3	22.5	22.8	23.0	23.2	23.5	23.7	23.9	24.2	24.4	24.6	24.9	25.1	25.3	25.6	26.0
142.2	56	21.3	21.5	21.7	22.0	22.2	22.4	22.6	22.9	23.1	23.3	23.5	23.8	24.0	24.2	24.4	24.7	25.1
144.8	57	20.6	20.8	21.0	21.2	21.4	21.6	21.9	22.1	22.3	22.5	22.7	22.9	23.2	23.4	23.6	23.8	24.2
147.3	58	19.9	20.1	20.3	20.5	20.7	20.9	21.1	21.3	21.5	21.7	21.9	22.2	22.4	22.6	22.8	23.0	23.4
149.9	59	19.2	19.4	19.6	19.8	20.0	20.2	20.4	20.6	20.8	21.0	21.2	21.4	21.6	21.8	22.0	22.2	22.6
152.4	60	18.6	18.7	18.9	19.1	19.3	19.5	19.7	19.9	20.1	20.3	20.5	20.7	20.9	21.1	21.3	21.5	21.9
154.9	61	17.9	18.1	18.3	18.5	18.7	18.9	19.1	19.3	19.5	19.7	19.8	20.0	20.2	20.4	20.6	20.8	21.2
157.5	62	17.4	17.6	17.7	17.9	18.1	18.3	18.5	18.7	18.8	19.0	19.2	19.4	19.6	19.8	19.9	20.1	20.5
160.0	63	16.8	17.0	17.2	17.4	17.5	17.7	17.9	18.1	18.2	18.4	18.6	18.8	19.0	19.1	19.3	19.5	19.8
162.6	64	16.3	16.5	16.6	16.8	17.0	17.2	17.3	17.5	17.7	17.9	18.0	18.2	18.4	18.5	18.7	18.9	19.2
165.1	65	15.8	16.0	16.1	16.3	16.5	16.6	16.8	17.0	17.1	17.3	17.5	17.6	17.8	18.0	18.1	18.3	18.6
167.6	66	15.3	15.5	15.7	15.8	16.0	16.1	16.3	16.5	16.6	16.8	16.9	17.1	17.3	17.4	17.6	17.8	18.1
170.2	67	14.9	15.0	15.2	15.3	15.5	15.7	15.8	16.0	16.1	16.3	16.4	16.6	16.8	16.9	17.1	17.2	17.5
172.7	68	14.4	14.6	14.7	14.9	15.1	15.2	15.4	15.5	15.7	15.8	16.0	16.1	16.3	16.4	16.6	16.7	17.0



If a child with an elevated BMI has an elevated body weight predominantly due to an abnormally large lean body mass, then further evaluation of body fat by **skin folds**.



**H3 Triceps
skinfold**



H2 Suprailiac skinfold

H1 Subscapular skinfold





It is measured in centimeters at the midpoint between the lower border of the rib cage and the upper border of the pelvis



BMI

The Childhood Obesity Working Group of the International Obesity Task Force (IOTF) reference uses sex- and age-specific BMI cutoffs that correspond to BMI **25 kg/m² for overweight** and **30 kg/m² for obesity at age 18 years**



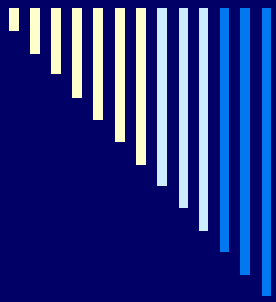
ITEMS

BMI

UNDER WEIGHT	≤ 18.5
NORMAL	18.5 – 24.9
OVER WEIGHT	25.0 – 29.9
OBESITY	30.0 – 34.9
OBESITY	35.0 – 39.9
EXTREME OBESITY	≥ 40



The Centers for Disease Control and
Prevention (CDC) reference uses
BMI percentiles for ages **2–20 years**.



Overweight is defined as a BMI at or above the **85th percentile** for children of the same age and sex.

Obesity is defined as a BMI at or above the **95th percentile** for children of the same age and sex.

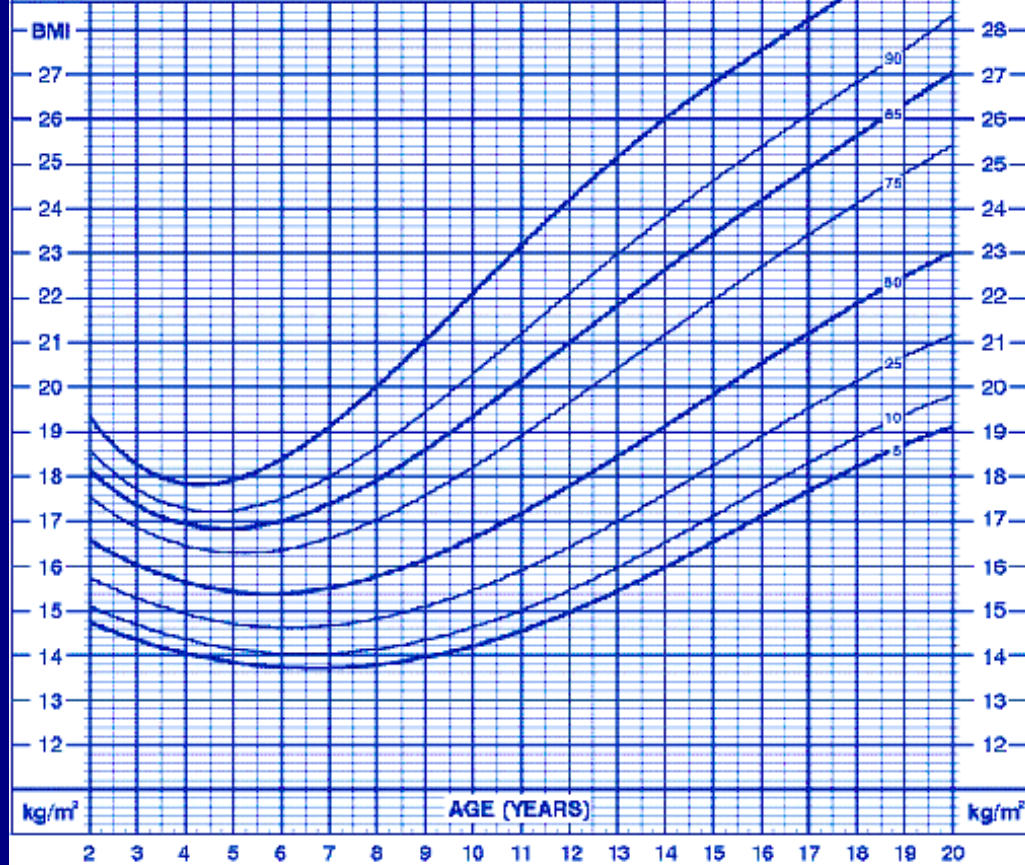
2 to 20 years: Boys
Body mass Index-for-age percentiles

NAME _____

RECORD # _____

Date	Age	Weight	Stature	BMI*	Comments

*To Calculate BMI: Weight (kg) ÷ Stature (cm) ÷ Stature (cm) x 10,000
 or Weight (lb) ÷ Stature (in) ÷ Stature (in) x 703



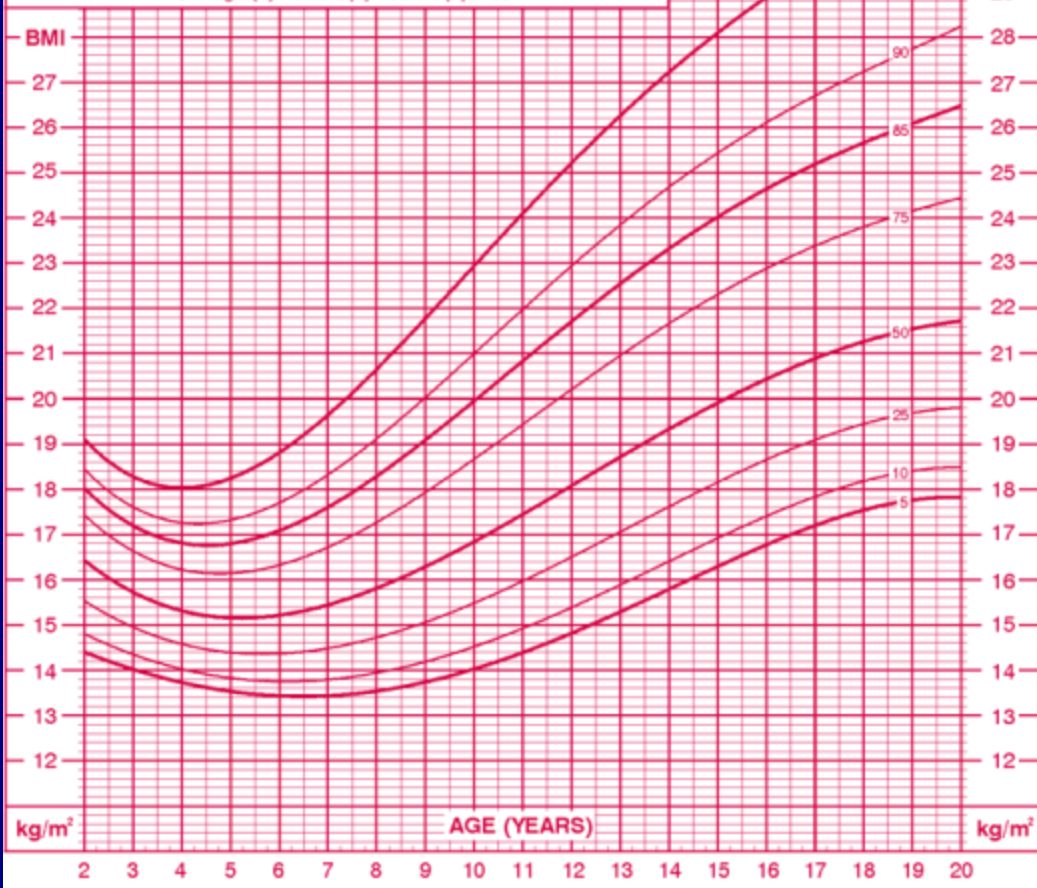
2 to 20 years: Girls
Body mass index-for-age percentiles

NAME _____

RECORD # _____

Date	Age	Weight	Stature	BMI*	Comments

*To Calculate BMI: Weight (kg) ÷ Stature (cm) ÷ Stature (cm) x 10,000
or Weight (lb) ÷ Stature (in) ÷ Stature (in) x 703



Published May 30, 2000 (modified 10/16/00).
SOURCE: Developed by the National Center for Health Statistics in collaboration with
the National Center for Chronic Disease Prevention and Health Promotion (2000).
<http://www.odc.gov/growthcharts>



Epidemiology of Obesity in Arab Countries

**(East Mediterranean, Arabic peninsula and
northern Africa)**

***Epidemiologia dell'obesità
nei paesi Arabi***

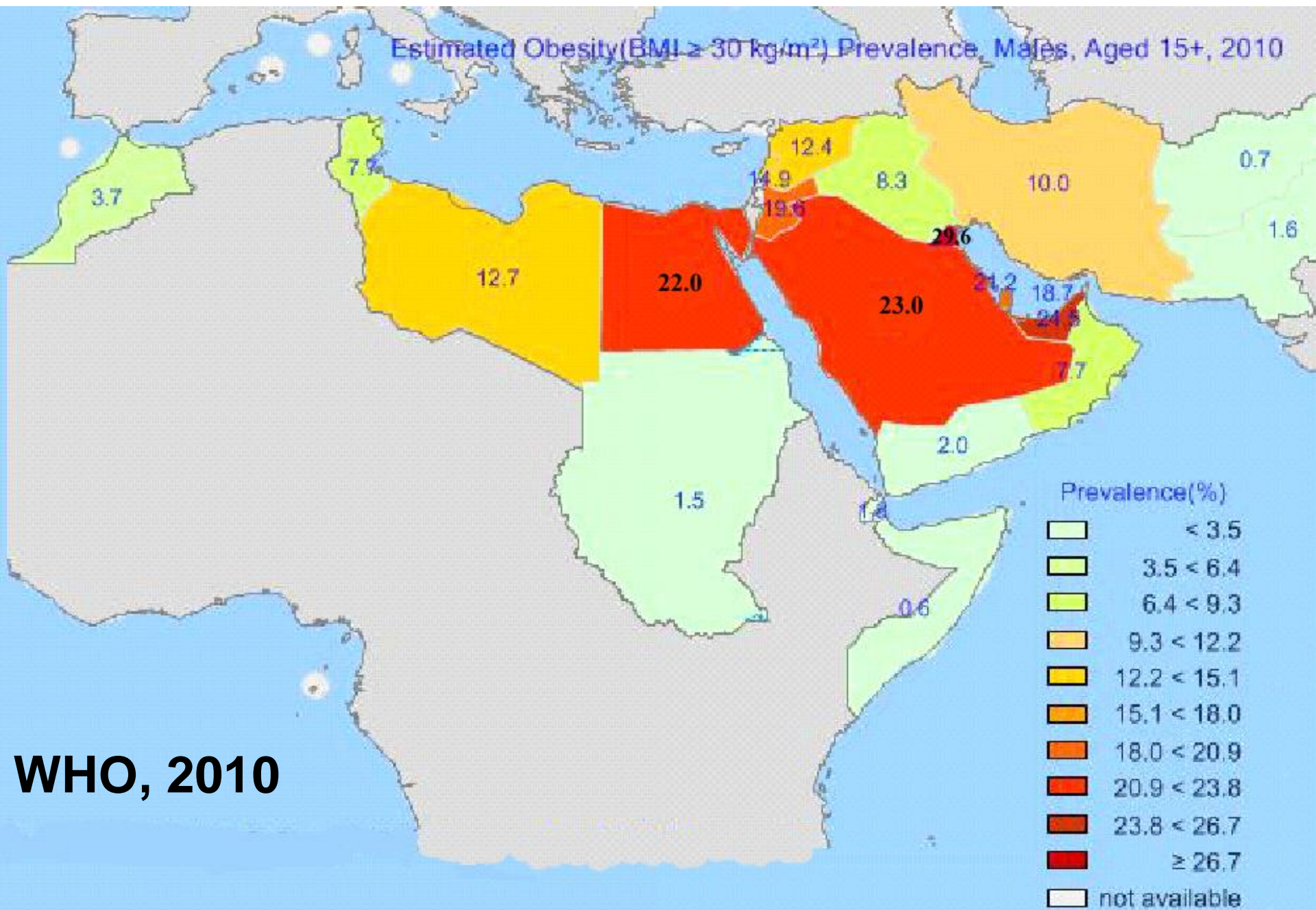
It is the most common nutritional disorder in developed countries and **is becoming significant** in the **developing countries**.

The prevalence of obesity has increased at an **alarming rate** during the last three decades.

This parallels **rapid urbanization, increased industrial development** and **improved living conditions**.

Prevalence of **adulthood** obesity
in Arab countries

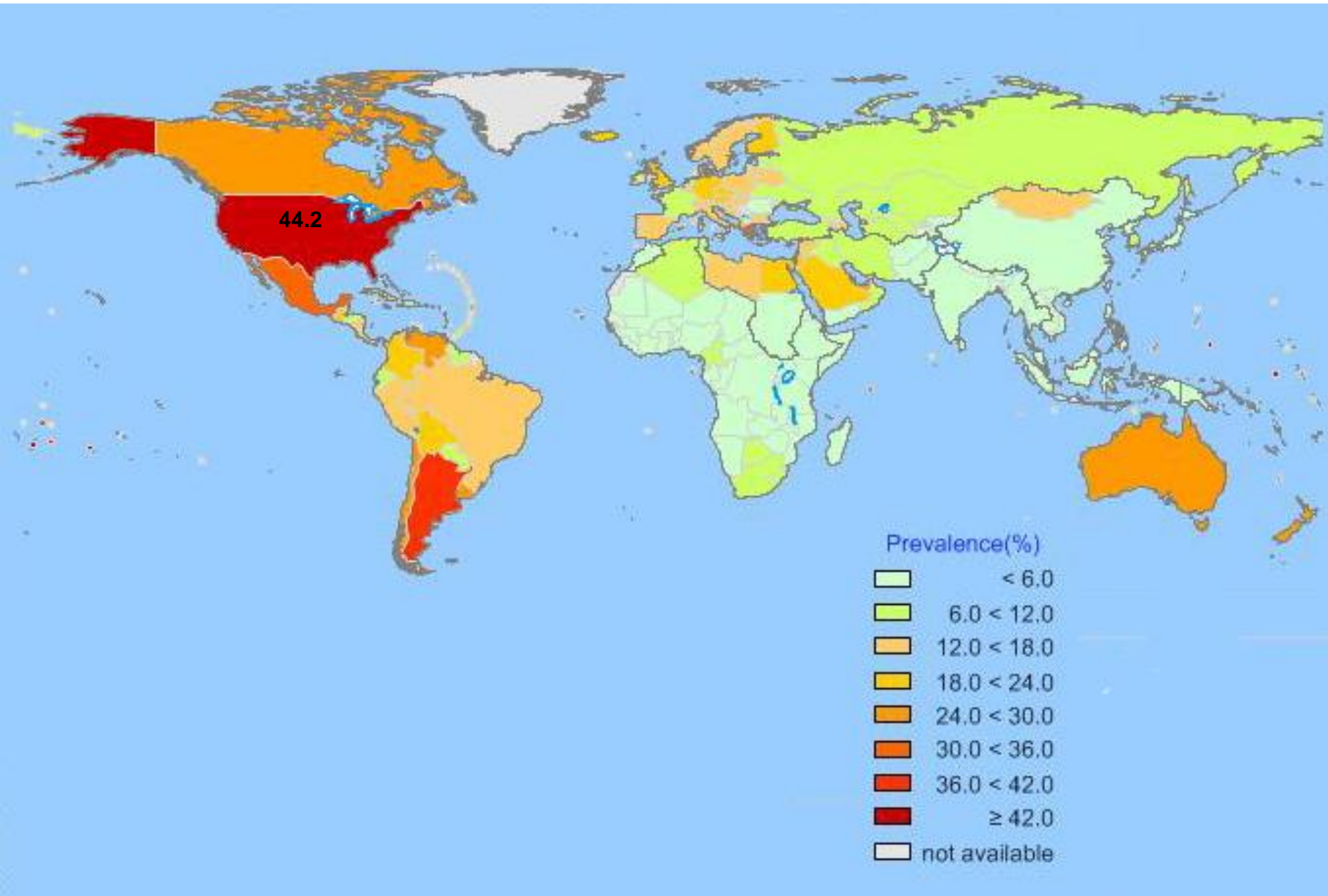
Estimated Obesity(BMI ≥ 30 kg/m²) Prevalence, Males, Aged 15+,



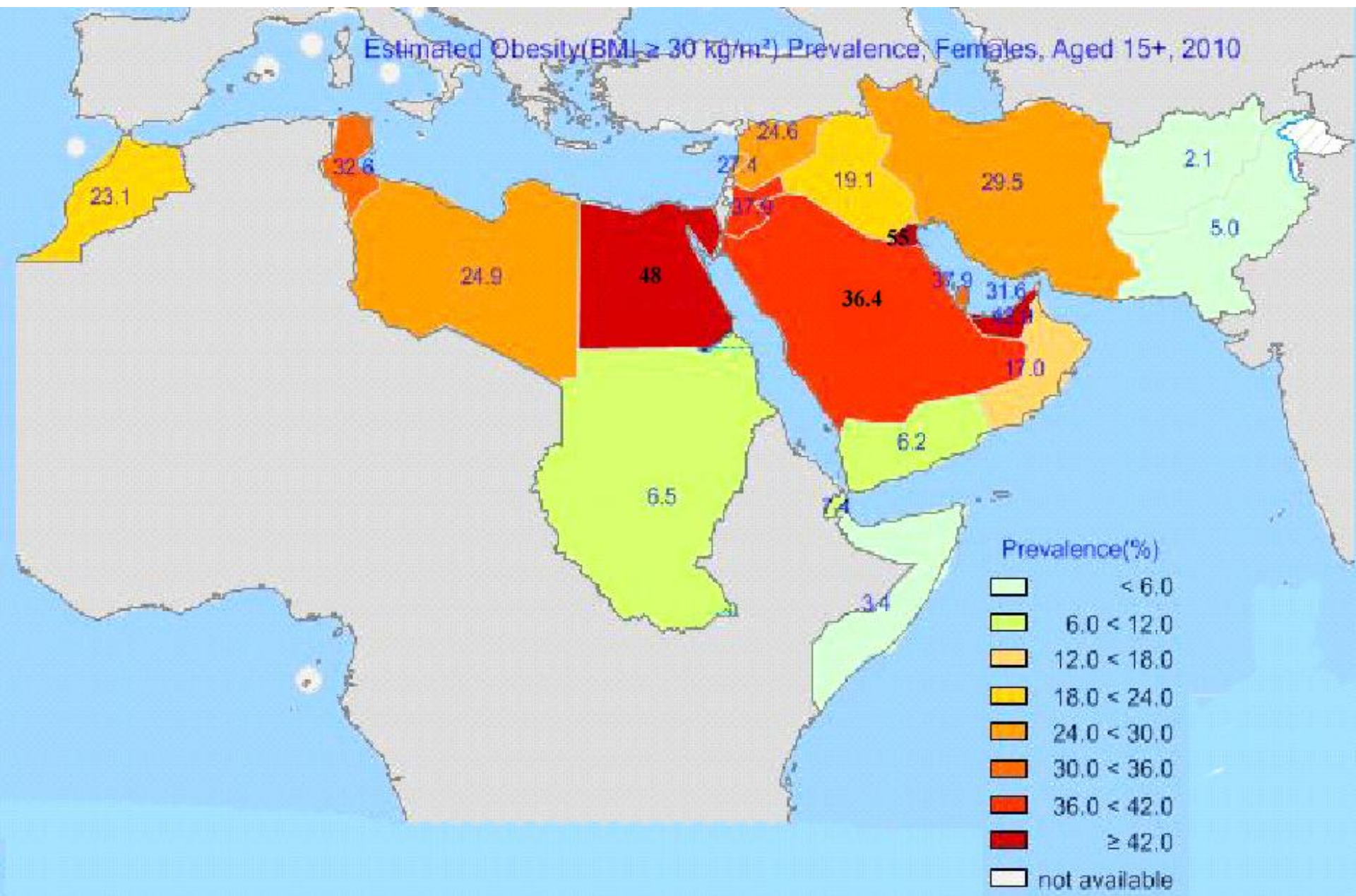
Estimated Obesity(BMI \geq 30 kg/m²) Prevalence, Males, Aged 15+,

Country	Prevalence(%)
Kuwait	29.6
United Arab Emirates	24.5
Saudi Arabia	23.0
Egypt	22.0
Bahrain	21.2
Jordan	19.6
Qatar	18.7
Lebanon	14.9
Libyan Arab Jamahiriya	12.7
Syrian Arab Republic	12.4
Iran (Islamic Republic of)	10.0
Iraq	8.3
Tunisia	7.7
Oman	7.7
Morocco	3.7
Yemen	2.0
Djibouti	1.8
Pakistan	1.6
Sudan	1.5
Afghanistan	0.7
Somalia	0.6

Estimated Obesity(BMI ≥ 30 kg/m²) Prevalence, Males, Aged 15+,



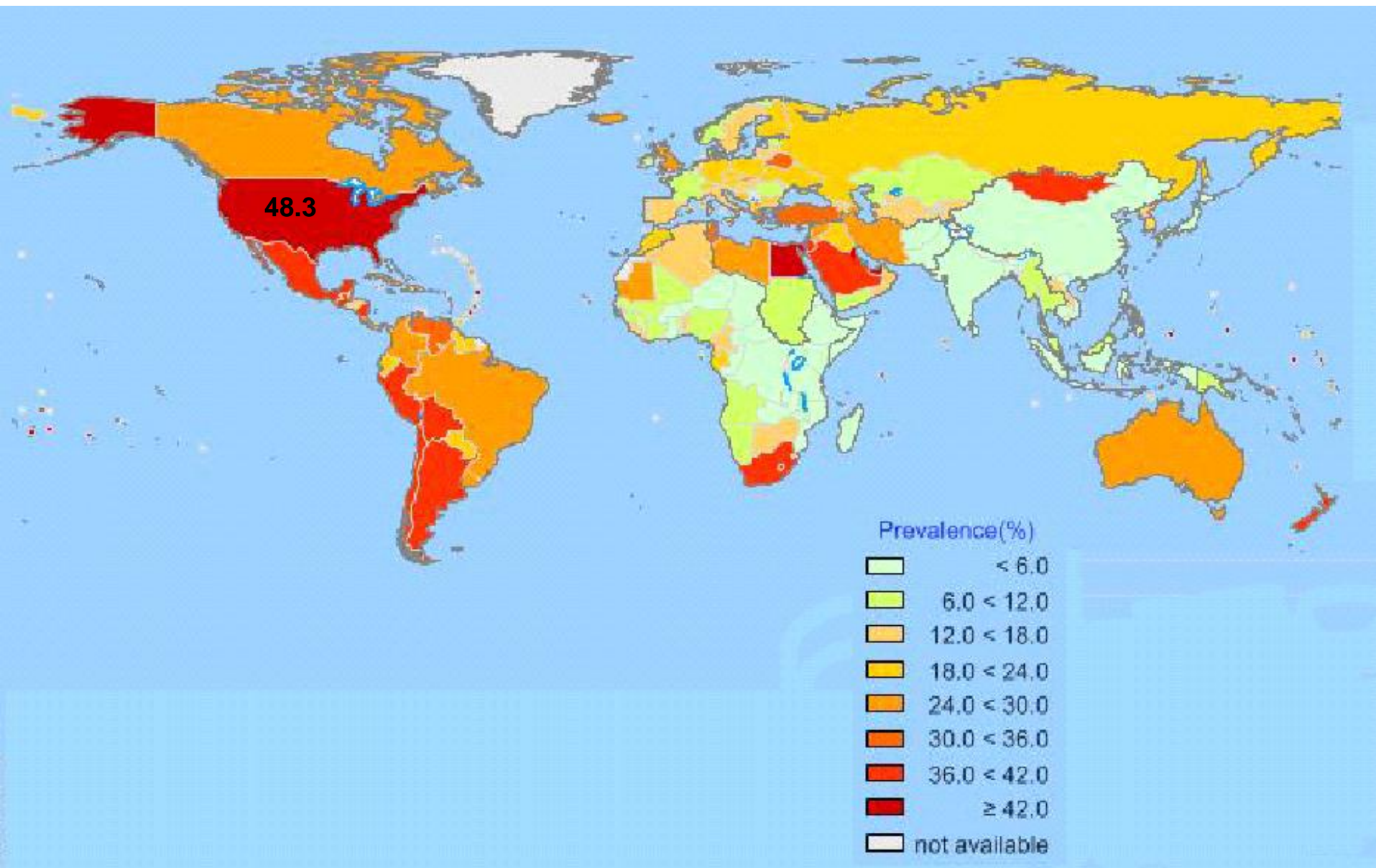
Estimated Obesity(BMI ≥ 30 kg/m²) Prevalence, Females, Aged 15+,



Estimated Obesity(BMI \geq 30 kg/m²) Prevalence, Females, Aged 15+,

Country	Prevalence(%)
Kuwait	55.2
Egypt	48.0
United Arab Emirates	42.0
Bahrain	37.9
Jordan	37.9
Saudi Arabia	36.4
Tunisia	32.6
Qatar	31.6
Iran (Islamic Republic of)	29.5
Lebanon	27.4
Libyan Arab Jamahiriya	24.9
Syrian Arab Republic	24.6
Morocco	23.1
Iraq	19.1
Oman	17.0
Djibouti	7.4
Sudan	6.5
Yemen	6.2
Pakistan	5.0
Somalia	3.4

Estimated Obesity(BMI ≥ 30 kg/m²) Prevalence, Females, Aged 15+,



Ranking of the prevalence of obesity in Arabic and non Arabic speaking countries. 15-100 years (WHO 2010)

Country	Male
USA	44%
Greece	30%
Mexico	30%
Kuwait	30%
UAE	25%
UK	24%
Saudi	23%
Egypt	22%
Bahrain	21%

Country	Female
Kuwait	55%
USA	48%
Egypt	48%
UAE	42%
Mexico	41%
Bahrain	38%
Jordan	38%
Saudi	36%
Tunisia	33%

The prevalence of obesity has increased at an alarming rate and appears to be more pronounced in women.

2 - 55% in adult females

1% - 30% in adult males

EGYPT - UNICEF 2008



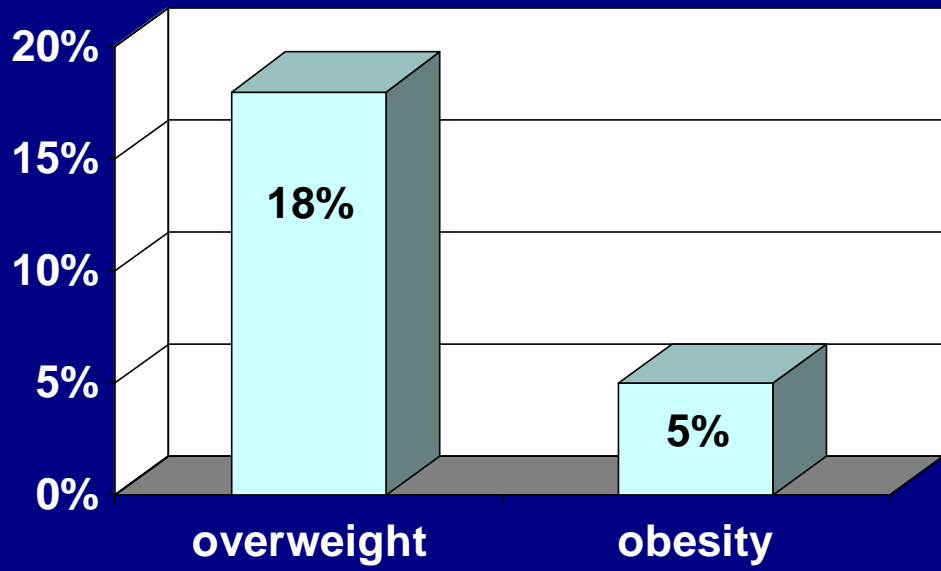
Egypt - WHO 2010

22%

48%

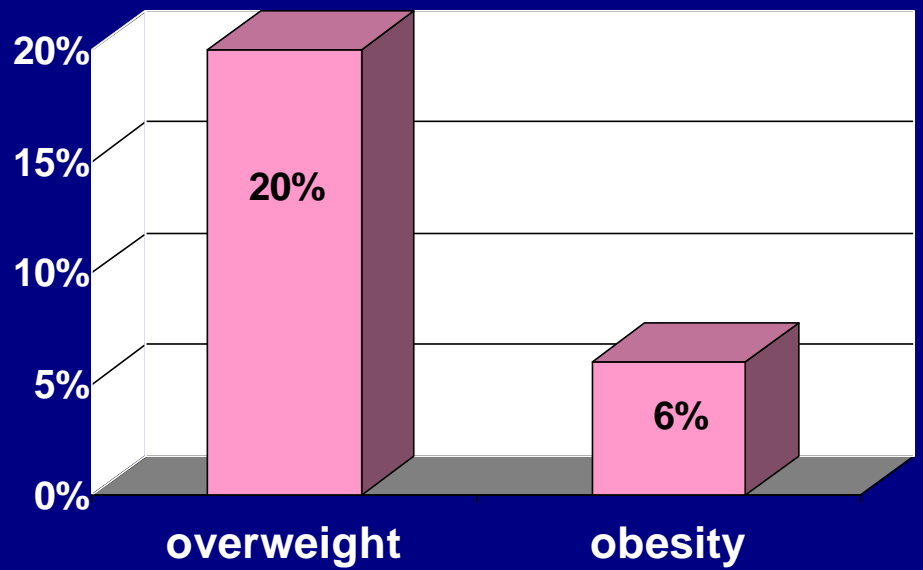
**Prevalence of childhood and adolescents
obesity in Arab countries**

10 – 19 years



■ Boys

Egypt
UNICEF 2008



■ Girls

Prevalence of obesity Data are for children and adults aged between 2-19.

Arab Country	Age	Males	Females
Bahrain	12-17	15%	18%
UAE	5-17	13%	13%
Syria	15-18	12%	6%
Kuwait	5-13	9%	11%
Qatar	12-17	8%	5%
Lebanon	3-19	8%	3%
Tunisia	11-19	6%	10%
Egypt	11-19	6%	8%
Saudi Arabia	1-18	6%	7%

Arab Country	Age	Male	Female
Bahrain	12-17	15%	18%
USA	6-17	13%	14%
UAE	5-17	13%	13%
Syria	15-18	12%	6%
Kuwait	5-13	9%	11%
Cyprus	11-19	9%	7%
Qatar	12-17	8%	5%
Lebanon	3-19	8%	3%
Tunisia	11-19	6%	10%
Egypt	11-19	6%	8%
Brazil	7-10	6%	7%
Saudi	1-18	6%	7%
India	2-17	5%	4%
France	3-17	3%	3%
Turkey	12-17	2%	2%
China	7-17	1%	1%

2001-2010

The prevalence of obesity in children and adolescents in **Arab countries** ranges from **5% - 14%** in **males** and **3% - 18%** in **females**.

Europe: 5%

USA: 14%

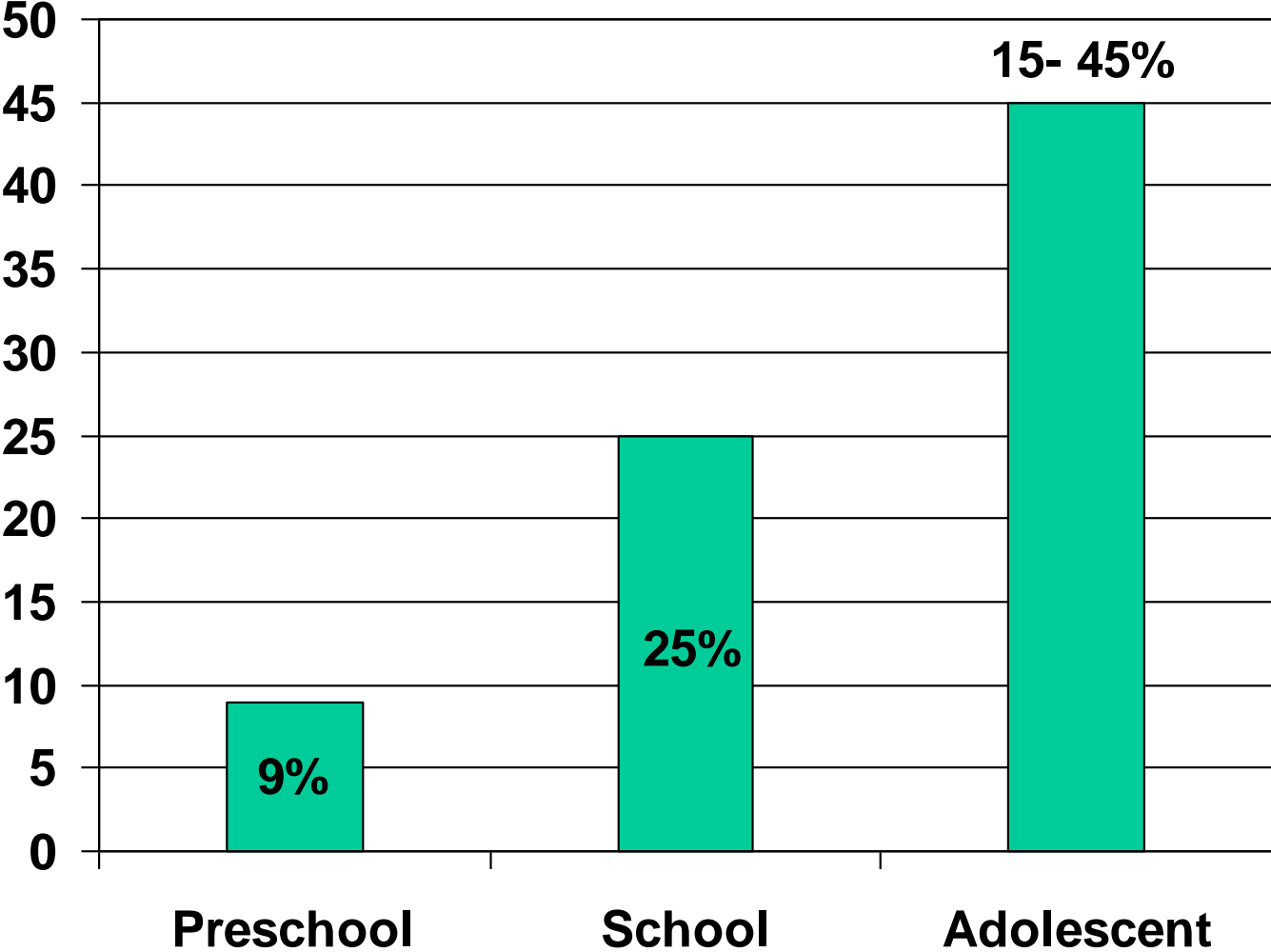
Prevalence of obesity and overweight by age

*Steady increase in the prevalence of
overweight/obesity with increasing
growth and stage of puberty*

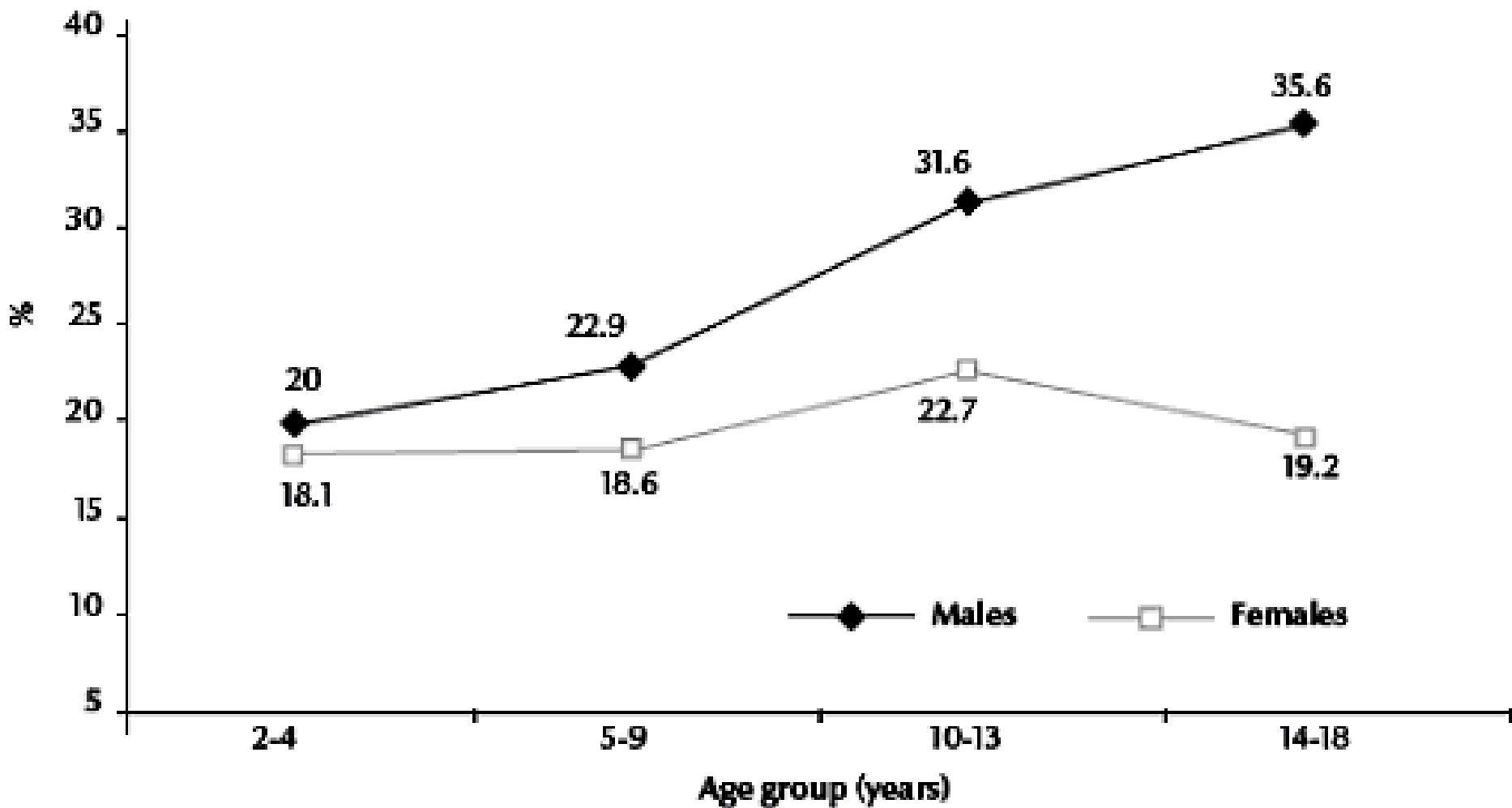
**Childhood obesity generally
persists during adulthood**

One third of obese Arabic-speaking **preschool** children and **half** of obese **school-age** children were also obese at adulthood according to a survey of data collected between 1970 - 1992.

Obesity in the Eastern Mediterranean Region



Distribution of obesity by age group and sex



Saudi Arabia 2010

**Factors associated with obesity in
the Eastern Mediterranean Region**

“obesogenic environment”





Change in dietary habits

Food consumption patterns and dietary habits in this region have changed markedly during the past 4 decades

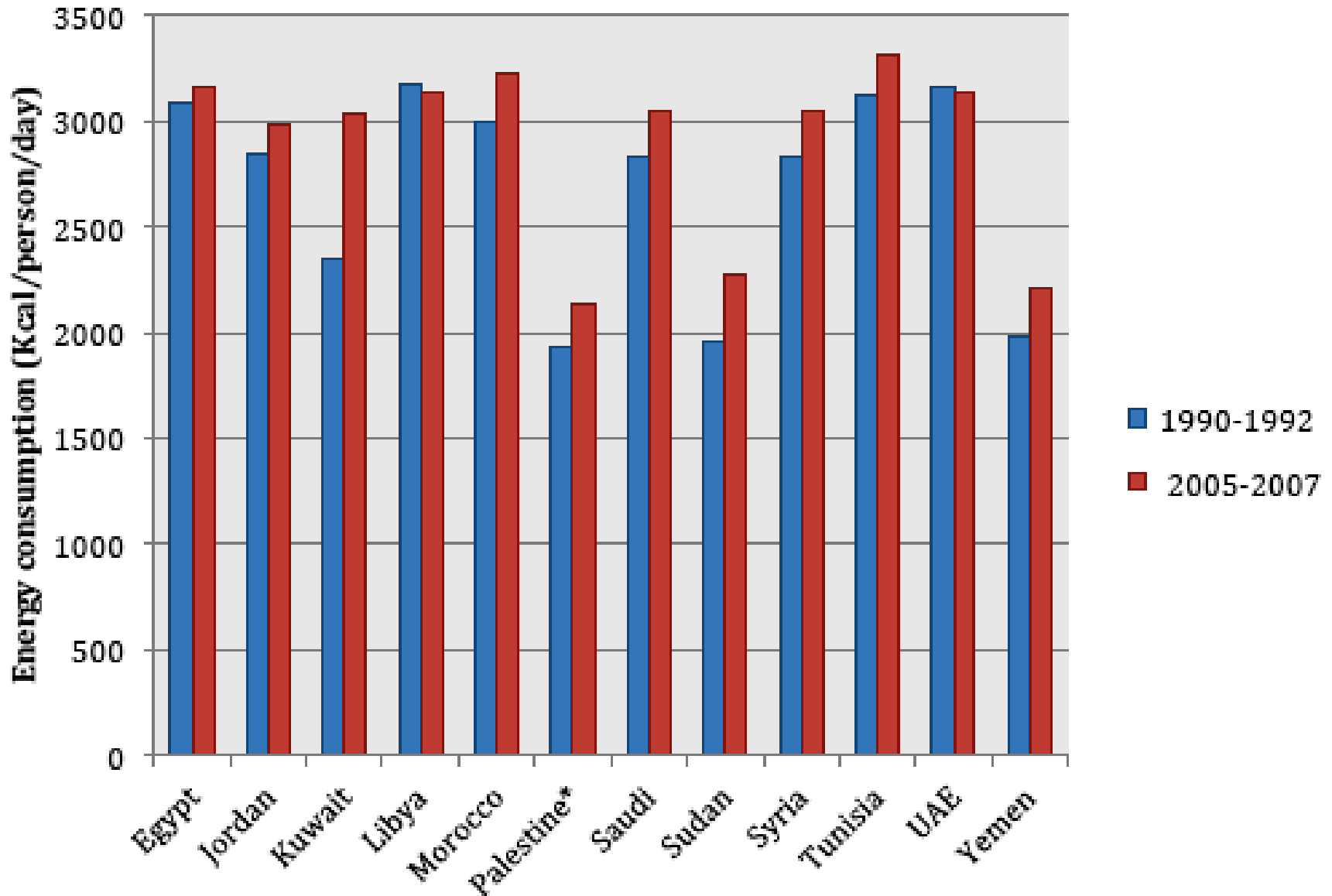
A **shift** from traditional foods to more **westernized foods**, which are characterized by **high fat, high cholesterol, high sodium, high sugar and low fibre.**

Ten percent of males and females in Egypt drink **five or more cans of soda** a day.

From 1971–1997 daily per capita **fat intake** showed notable increases, ranging from **13.6% in Sudan** to **143% in Saudi Arabia**.

The dietary energy consumption per person- FAO 2010

Average energy consumption per person: 2780 kcal/day



Sociodemographic and economic factors

Urbanization and modernization

In general, obesity in this Region was found to be more prevalent in **urban areas** and those

- ✓ **of higher socioeconomic status,**
- ✓ **currently married,**
- ✓ **who watched television more than 2 hours per day,**
- ✓ **consumed fresh fruit less than 3 times a week, and**
- ✓ **owned cars.**

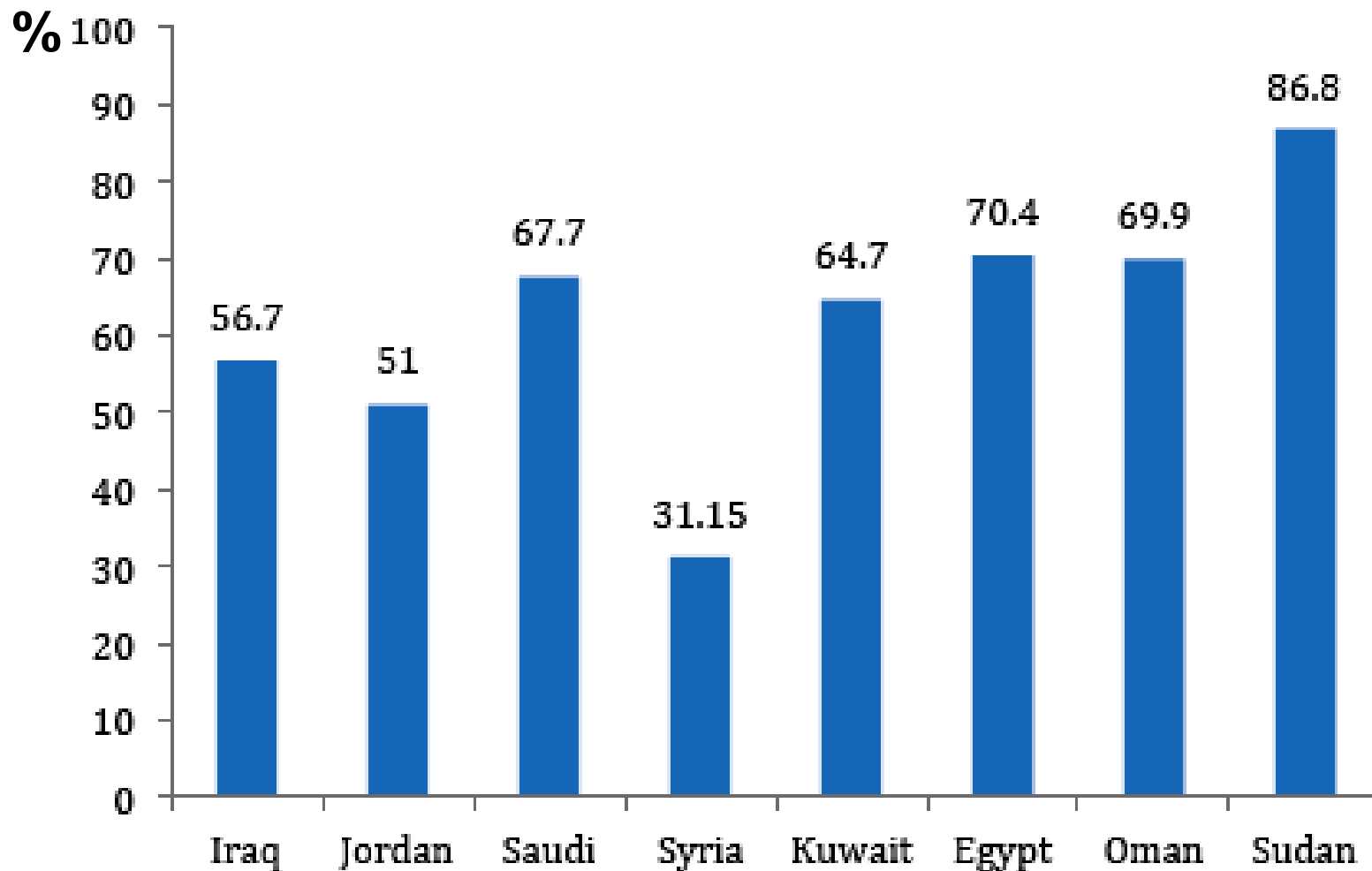
Inactivity and patterns of physical activity

The availability of **cars**, more involvement in **office work**, the widespread use of **computers**, **televisions** and electronic gaming devices have encouraged a **more sedentary lifestyle**

In **Egypt, only 2% of adults (20–70 years) were reported as practicing exercise in a typical day, 8.5% practicing during the weekend and 2.5% during their annual leave.**

In **Saudi Arabia, about 53.5% of men aged 19 years and older were totally physically inactive, and another 27.5% were irregularly active. Only 19% were active on a regular basis.**

Prevalence of low physical activity in the Eastern Mediterranean Region WHO 2003-2007



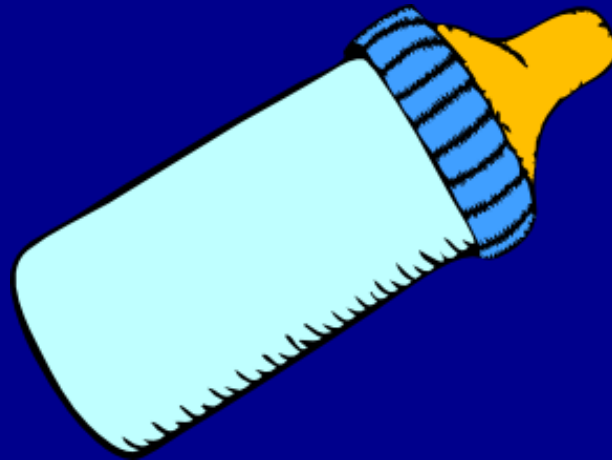
Daily activity < 10 min

Pregnancy and multiparity

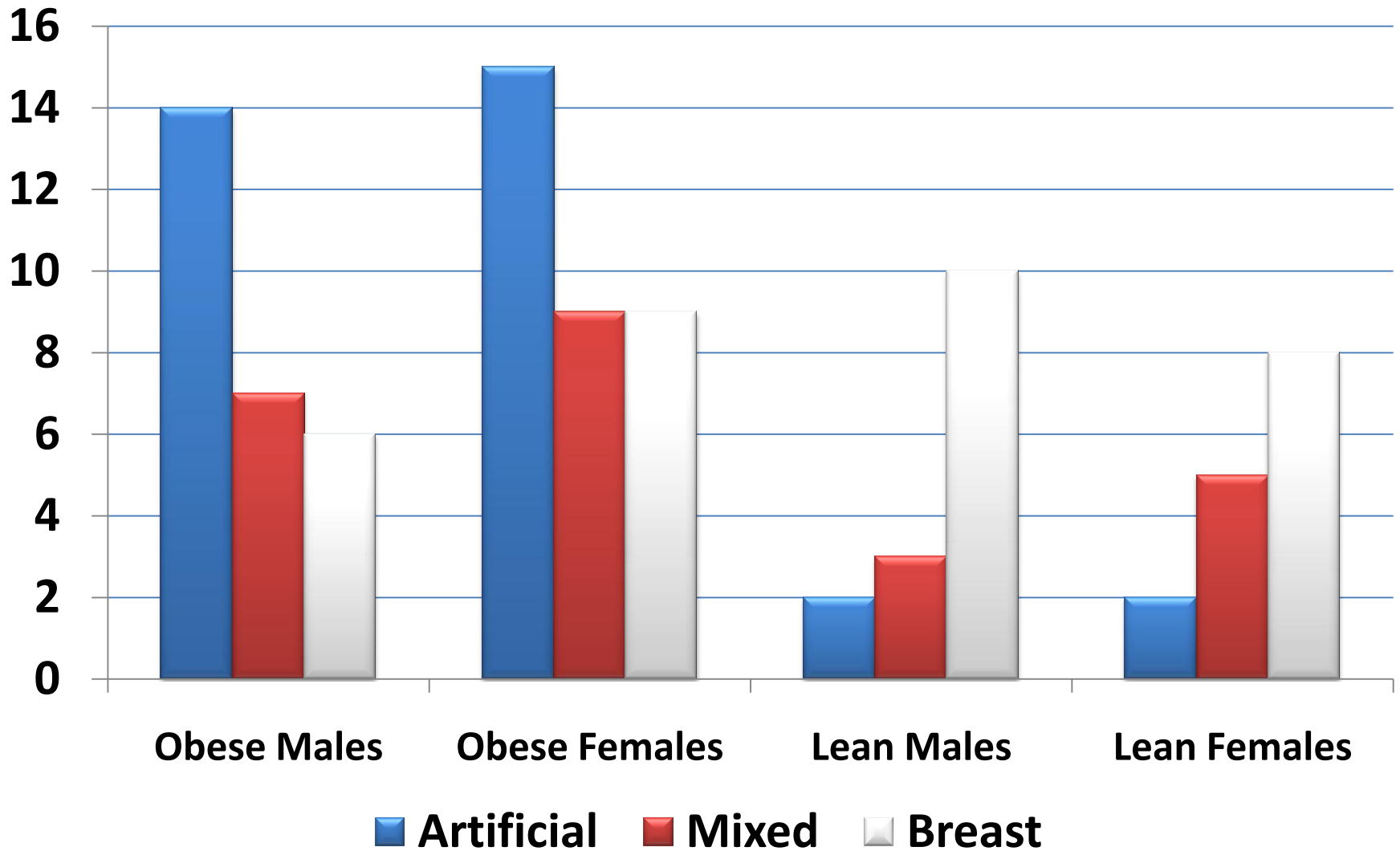
In Saudi Arabia, the mean BMI increased significantly with parity. It was **25.1** in **nulliparous women**, increasing to **27.1**, **29.8** and **31.7** in women with parity 1–2, 3–4 and > 4 respectively.

Other factors

The decline in exclusive breastfeeding and high dependence on **bottle-feeding**.

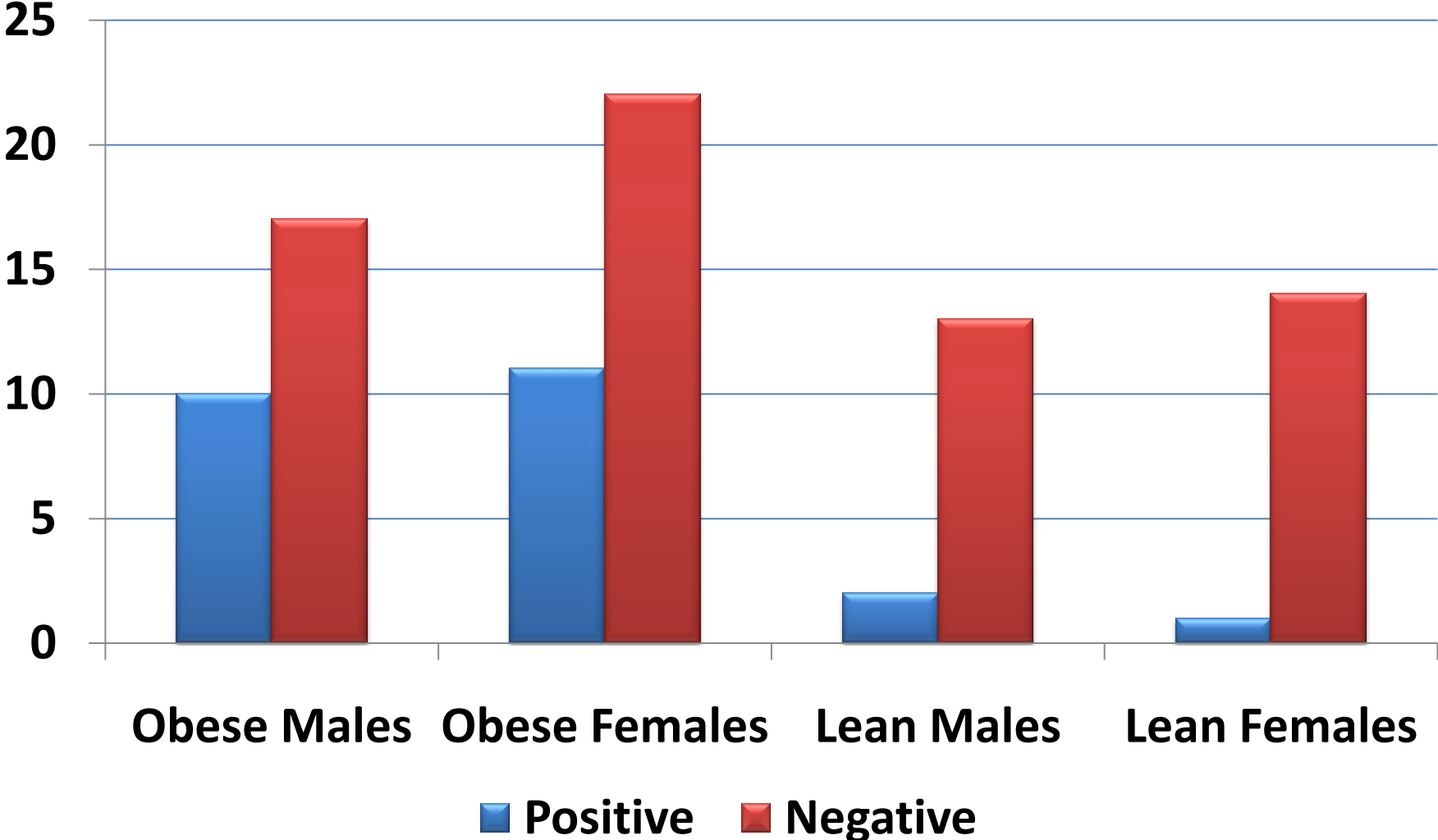


Mode of feeding in the first 6 months of life



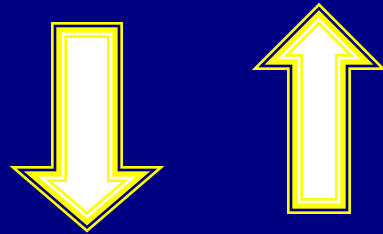
**Obese children generally live in
obese families.**

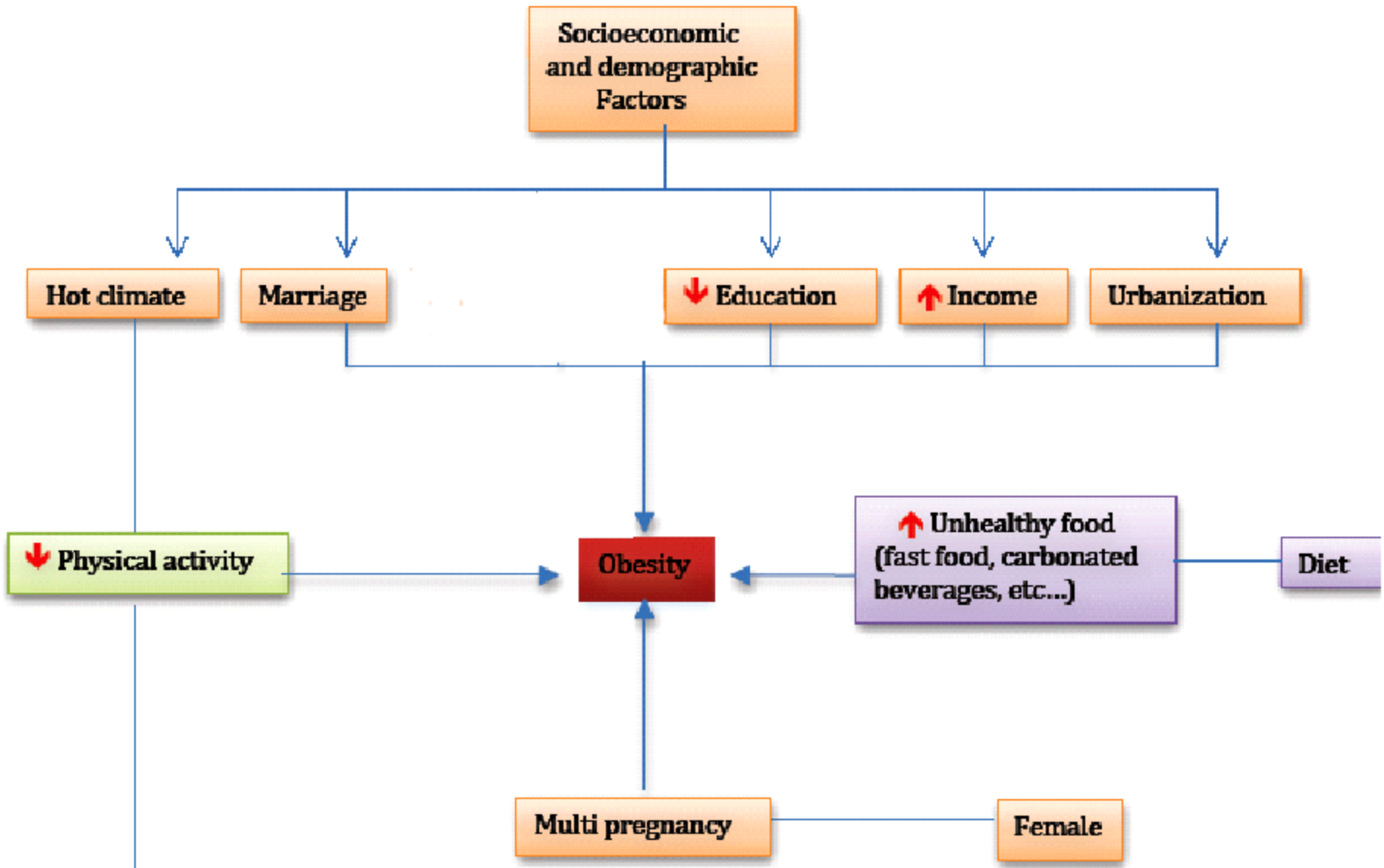
Family history of obesity



OVERWEIGHT CHILDREN = OVERWEIGHT ADULTS

- 14% if obese as infant
- 25% if obese at preschool
- 41% if obese at 7 years
- 75% if obese at 12 years
- 90% if obese at adolescence
- **80% if both parents are obese**







How Much is 1200 Calories?



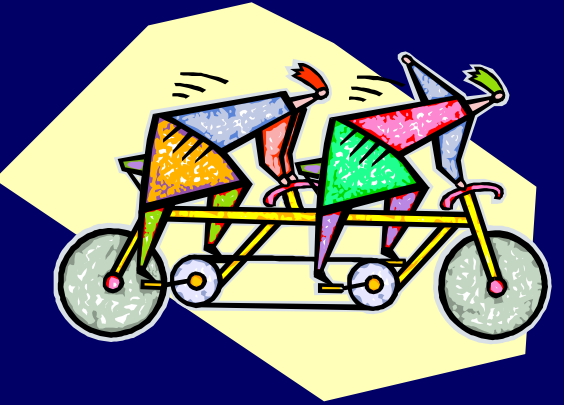
1 Big Mac (580)

1 SMALL Fries (210)

1 SMALL shake (430)

What does it take to burn 1000 calories per week?

Running
11 miles



Cycling 22 miles



Walking
12 miles



Dancing 3 hours



In conclusion..

The need for a public intervention is crucial to prevent or reduce overweight and obesity in the young. This intervention should be comprehensive, **targeting children as well as parents** with special stress on the importance of **diet** and **healthy lifestyle**.



Le Figaro:

“Le Danemark lance la première taxe sur le gras”

All food products > 2.3% fatty acids



2.15 euros/Kg of saturated fat



=





First

ELECTRONIC

Youth Revolution

25 January 2011

An aerial photograph of a massive crowd of people gathered in an urban area, likely during a protest or public demonstration. The crowd is dense and extends across a large open space. In the background, several tall buildings and skyscrapers are visible under a clear blue sky. A white dove graphic is overlaid on the left side of the image, flying towards the right. The text "grazie per l'attenzione" is written in large, bold, yellow letters across the center of the crowd.

grazie per l'attenzione

Prevalence of 95th percentiles of adolescents 15 yr of age by gender (1997-1998)

Country	Boys%	Girls %
	>95%	>95%
United States	13.9	15.1
Greece	10.8	5.5
Germany	5.4	5.1
Portugal	5.2	6.7
Belgium	5.2	5.8
Finland	4.9	5.1
Sweden	4	3.4
Denmark	3.2	4
France	2.7	4
Czech	1.9	5.8

An aerial photograph of a massive crowd of people filling a city street, likely during a large-scale event or protest. The crowd is dense and extends far into the distance. In the background, various city buildings and structures are visible under a clear sky. Overlaid on the center of the image is the text "THANK YOU" in large, bold, colorful letters. The word "THANK" is split into four colors: red, pink, cyan, and green. The word "YOU" is split into three colors: blue, pink, and orange. The text has a slight 3D effect with a dark blue shadow.

**THANK
YOU**

