

# Childhood Obesity

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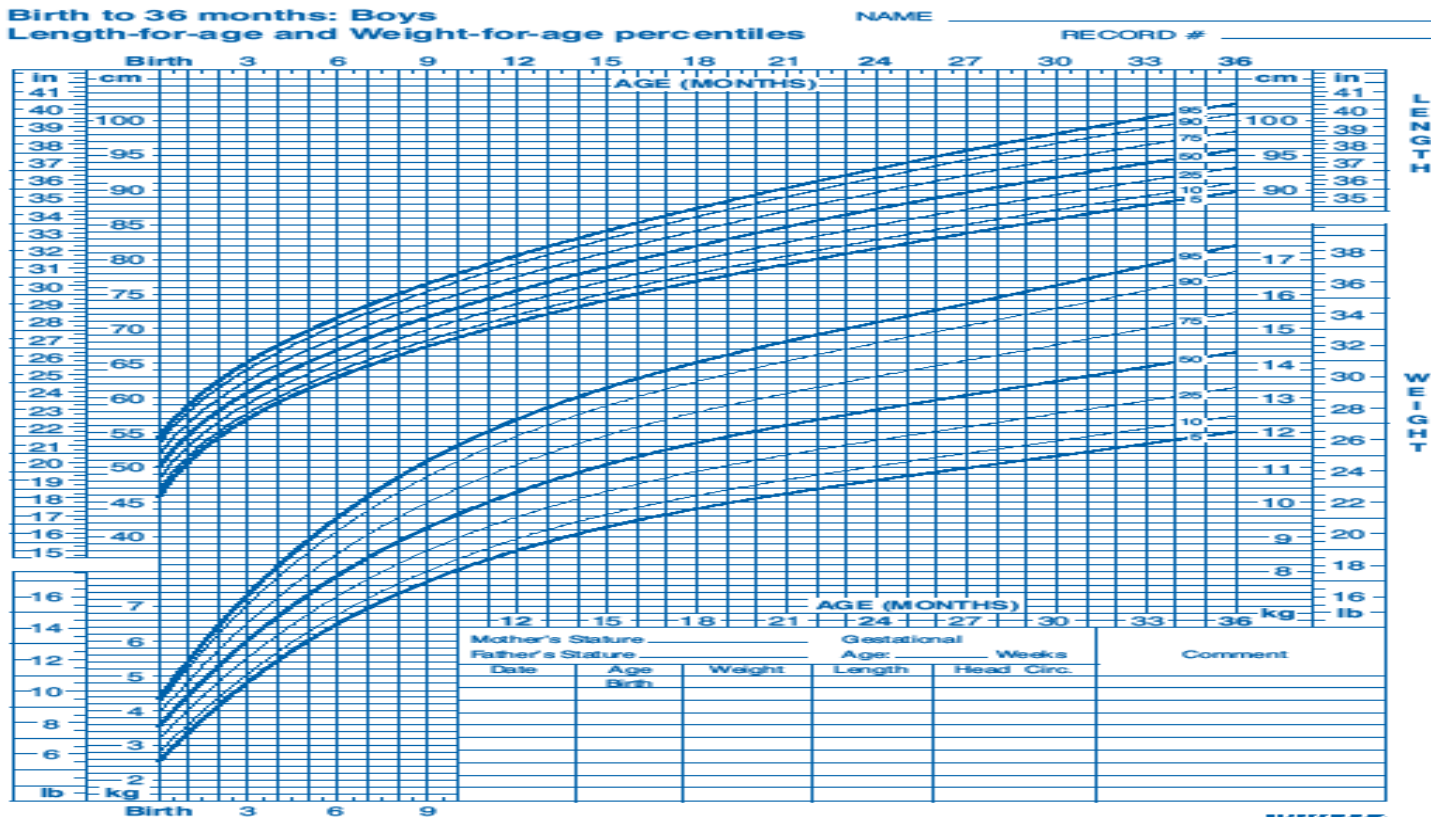
# What is obesity?

- Body Mass Index  $>30 \text{ kg/m}^2$
- Ranges:
  - Under-weight:  $<18 \text{ kg/m}^2$
  - Normal:  $20\text{-}25 \text{ kg/m}^2$
  - Overweight:  $25\text{-}30 \text{ kg/m}^2$
  - Obese:  $30\text{-}35 \text{ kg/m}^2$
  - Morbidly obese:  $>35 \text{ kg/m}^2$

## Formula:

$$\frac{\text{Weight (kg)}}{\text{Height}^2 (\text{m}^2)}$$

– BOYS birth-3 YEARS



McGraw-Hill

– GIRLS birth-3 YEARS

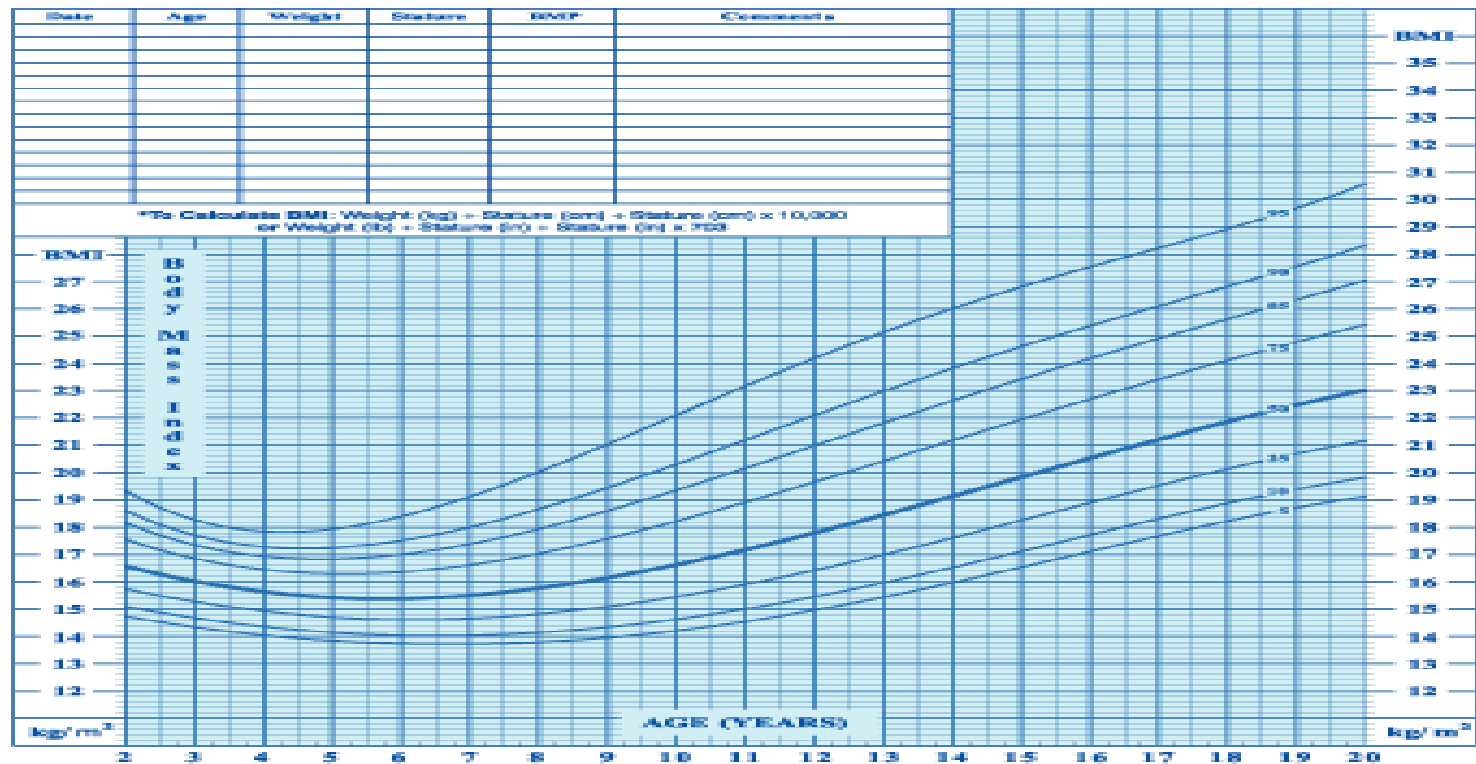


**RESEARCH + ANALYTICS + CONSULTING**

– BOYS 2-20 YEARS

### Body mass index-for-age percentiles

NAME \_\_\_\_\_

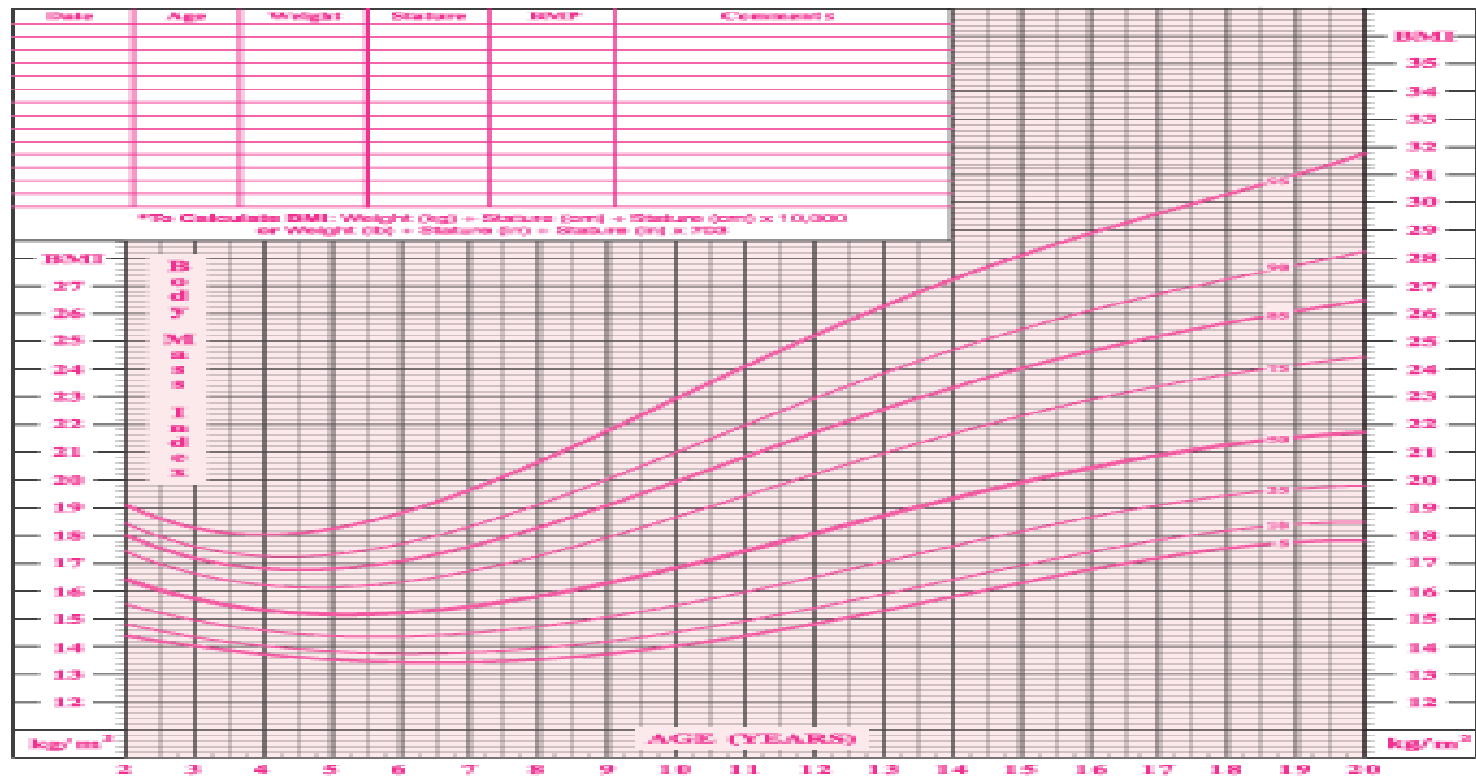


**SOURCE :** Developed by the National Center for Health Statistics in collaboration with the National Center for Chronic Disease Prevention and Health Promotion (CDC).  
<http://www.cdc.gov/growthcharts>

– GIRLS 2-20 YEARS

### Body mass index-for-age percentiles

## About Pediatrics



**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.cdc.gov/nchs/data/brfss>.

# The extent of the problem

- Childhood obesity is one of Europe's most serious public health challenges. Around 20% of European children are overweight and one third of them obese<sup>1</sup>. And as childhood obesity has the status of a disease, it is now classified as an epidemic<sup>2</sup>.

1

[http://ec.europa.eu/health/ph\\_determinants/socio\\_economics/documents/ev\\_091003\\_coll\\_en.pdf](http://ec.europa.eu/health/ph_determinants/socio_economics/documents/ev_091003_coll_en.pdf)

2 [www.euro.who.int/obesity](http://www.euro.who.int/obesity)

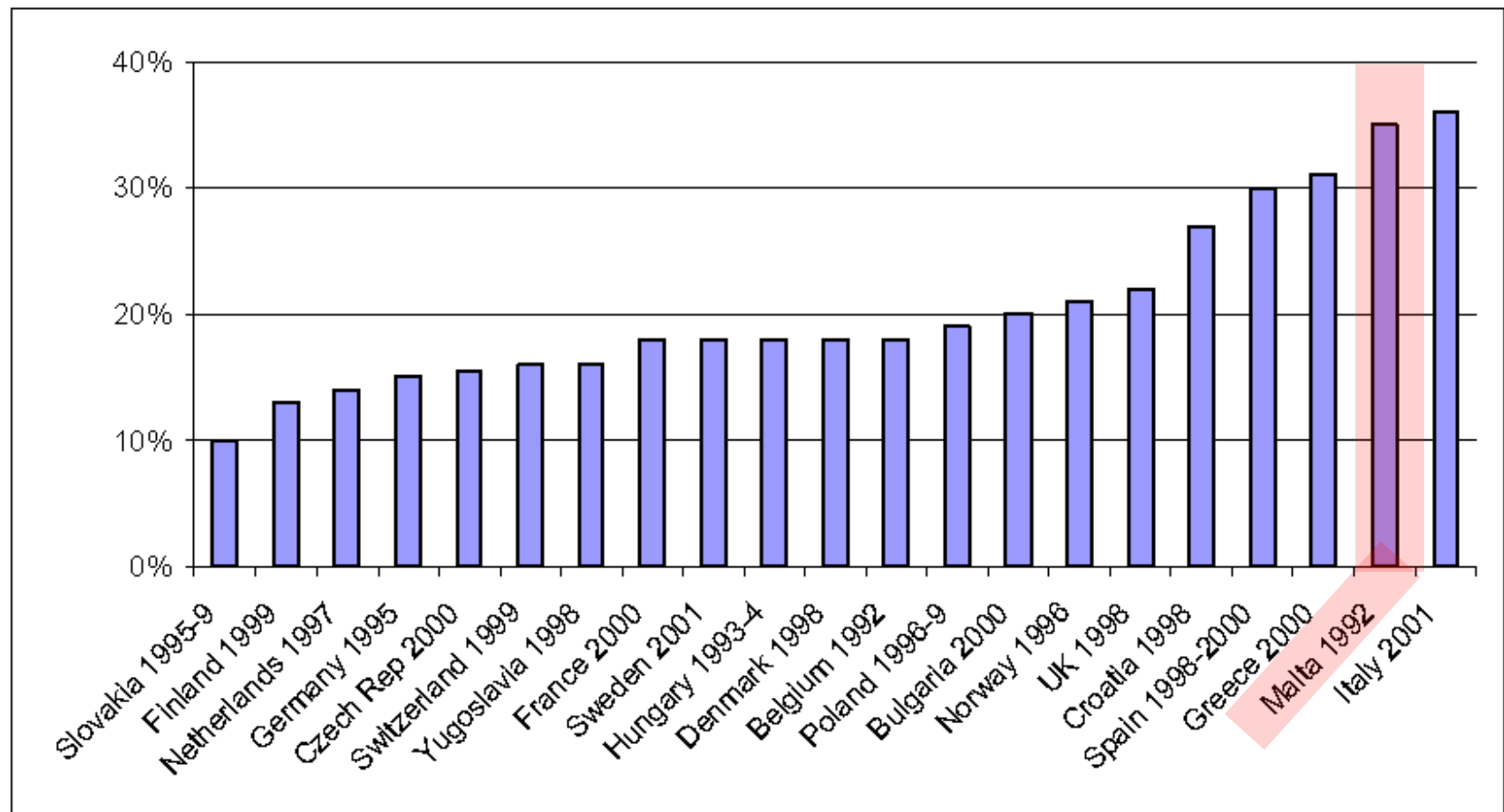
# Obese Children in Malta

- Several Maltese studies have indicated that a significant number of Maltese children are Overweight or Obese. In a Study carried out by Grech & Farrugia Sant'Angelo (2008) using the Criteria issued by the C.D.C. **one third of children aged 5 – 6 years** were classified as overweight/obese.

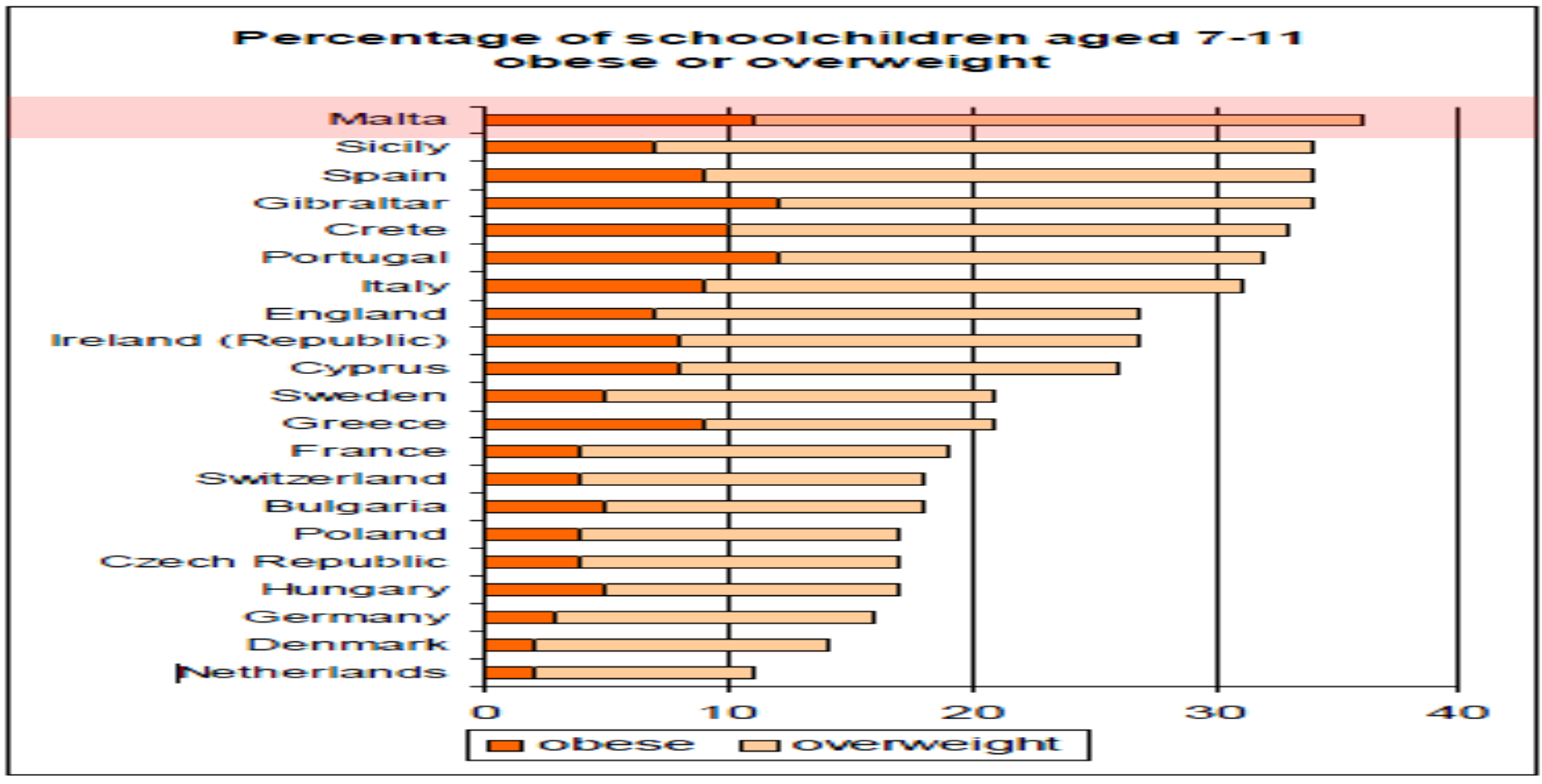
# Obese Children in Malta

Year of assessment	2007	2008	2010
<b>Mean age (yrs)</b>	5.80	6.88	8.68
<b>Males</b>			
<b>Total (n)</b>	1792	1754	1558
<b>Cutoff overweight (BMI)</b>	16.75	17.10	17.75
<b>Overweight (n)</b>	369	304	430
<b>Overweight (%)</b>	20.6	17.3	27.6
<b>Cutoff Obesity (BMI)</b>	18.25	18.75	19.75
<b>Obesity (n)</b>	349	301	317
<b>Obesity (%)</b>	19.5	17.2	20.3
<b>Overweight+obese (n)</b>	718	605	747
<b>Overweight+obese (%)</b>	40.1	34.5	47.9
<b>Females</b>			
<b>Total (n)</b>	1669	1680	1531
<b>Cutoff overweight (BMI)</b>	17.10	17.40	18.25
<b>Overweight (n)</b>	311	239	338
<b>Overweight (%)</b>	18.6	14.2	22.1
<b>Cutoff Obesity (BMI)</b>	18.85	19.40	20.75
<b>Obesity (n)</b>	215	261	266
<b>Obesity (%)</b>	12.9	15.5	17.4
<b>Overweight+obese (n)</b>	526	500	604
<b>Overweight+obese (%)</b>	31.5	29.8	39.5

# 2002 Prevalence of overweight in children over 10 years



# Overweight & obesity in children aged 7-11 years of age (2005)



# Overweight & obesity in children aged 7-11 years of age (2008 vs. 2010) by region

	2008				2010			
	N Dist	Gozo	W Dist	S Harbour	N Dist	Gozo	W Dist	SE Dist
Mean	16.81	17.43	16.74	17.11	18.22	19.11	18.32	18.32
Standard Error	0.16	0.24	0.16	0.18	0.22	0.35	0.23	0.25
Median	16.32	16.85	16.05	16.25	17.29	18.04	17.17	17.28
Standard Deviation	2.52	2.78	2.65	2.95	3.36	4.07	3.63	3.89
n	264	132	272	270	227	137	258	242

# Overweight & obesity in children aged 7-11 years of age (2008 vs. 2010) by school

2008	Males (n=1754)				Females (n=1680)			
	State	Church	Indep	Gozo	State	Church	Indep	Gozo
<b>Mean</b>	17.2	16.8	16.5	17.2	16.9	16.7	17.1	17.0
<b>Standard Error</b>	0.1	0.1	0.1	0.2	0.1	0.1	0.3	0.2
<b>Median</b>	16.3	16.4	16.2	16.7	16.3	16.1	16.3	16.4
<b>Mode</b>	16.3	14.4	13.1	15.4	13.9	16.6	15.8	12.8
<b>Standard Deviation</b>	3.2	2.4	2.0	2.7	2.9	2.6	3.1	2.5
<b>Sample Variance</b>	10.0	5.9	4.1	7.4	8.2	6.6	9.7	6.2
<b>Kurtosis</b>	7.1	6.6	3.1	5.4	5.0	3.9	3.2	1.9
<b>Skewness</b>	2.2	2.0	1.4	1.9	1.8	1.7	1.6	1.3
<b>n</b>	1018	368	248	120	832	598	141	109

F=5.2, p=0.001

F=1.1, p=0.4

2010	Males (n=1558)				Females (n=1531)			
	State	Church	Indep	Gozo	State	Church	Indep	Gozo
<b>Mean</b>	18.9	18.4	17.8	18.9	18.5	18.2	18.7	18.5
<b>Standard Error</b>	0.1	0.2	0.2	0.3	0.1	0.1	0.4	0.3
<b>Median</b>	17.7	17.7	17.2	18.0	17.3	17.3	17.4	17.3
<b>Mode</b>	16.4	17.0	20.7	15.4	14.0	13.8	15.1	20.1
<b>Standard Deviation</b>	4.1	3.4	2.9	3.7	3.8	3.5	4.2	3.7
<b>Sample Variance</b>	16.7	11.6	8.5	14.0	14.7	12.0	17.4	14.0
<b>Kurtosis</b>	2.3	4.8	3.0	1.2	2.0	1.7	3.5	2.0
<b>Skewness</b>	1.4	1.7	1.4	1.3	1.3	1.2	1.9	1.4
<b>n</b>	894	342	198	124	716	578	115	122

F=5.1, p=0.002

F=0.7, p=0.5

- Genetics - ??
- Diet
  - Fast food
  - Incorrect cooking methods
  - Rewards
    - 50-100 kcal in excess => obesity
- Physical inactivity
  - Hobbies
  - Excessive school/homework
  - Decreased/limited physical exercise
- Hormones

The causes of childhood obesity

# Food matters causing obesity

- ◉ Maternal nutrition before childbirth
- ◉ Breastfeeding
- ◉ Marketing to pre-school children
- ◉ Marketing to school children
- ◉ Promotion of fast foods and drinks
- ◉ Catering and restaurants
- ◉ Food labelling

# Potential complications of childhood obesity

Early physical problems

Type 2 diabetes, early puberty, sleep apnoea, liver problems, hypertension, disorders in blood lipids (triglycerides and cholesterol), arterial changes, gallstones, flat feet.

Early psychological problems

Negative self image, low self esteem, social stigma

Increased risk of adult obesity and its problems, physical, social and psychological

Early onset cardiovascular disorders, metabolic syndrome

# Treating childhood obesity – factors predicting success

- Factors predicting success are:
  - Frequent intervention visits.
  - Including parents in the dietary treatment program.
  - Strong social support of dietary intervention from others involved in preparing food.
  - Regular exercise prescription including social support.

- In treating most obese children, the main emphasis should be to prevent weight gain above what's appropriate for expected increases in height. This is called prevention of increased weight gain velocity. For many children this may mean limited or no weight gain while they grow taller.

Treating childhood obesity –  
main emphasis

# Preventing & Treating childhood obesity

- Reaching and maintaining an appropriate body weight is important. That is why recommendations that focus on **small** but **permanent** changes in eating may work better than a series of short-term changes that can't be sustained.

# Preventing & Treating childhood obesity - recommendations

1. Reducing dietary fat is the easiest change.  
Highly restrictive diets that forbid favorite foods are likely to fail. They should be limited to rare patients with severe complications who must lose weight quickly.

# Preventing & Treating Childhood Obesity - recommendations

2. Becoming more active is widely recommended. Increased activity is common in all studies of successful weight reduction. Create an environment that fosters physical activity.

# Preventing & Treating childhood obesity - recommendations

3. Parents' involvement in modifying obese children's behaviour is important. Parents who model healthy eating and activity can positively influence their children's health.

### Savoury Items

- A selection of fresh and toasted sliced sandwiched bread, rolls, baguettes, ftira, buns, ciabatta, pocket bread, pittas with healthy fillings, preferably using wholegrain breads.
- Ħobż biż-żejt - Maltese bread with tuna, tomatoes, onions, lettuce and beans.
- A selection of pizzas with healthy toppings, preferably using a wholegrain dough base.
- Hot dishes, such as baked rice and pasta and vegetable lasagne.
- Cold rice, couscous and pasta dishes.
- Pies and quiches with healthy fillings.
- Baked potatoes, plain or with healthy fillings such as ricotta, low fat cheese, tuna, vegetables, corn and pulses.
- Home-made soups low in fat and salt, made with fresh or frozen ingredients.

### Salads and Dips

- A selection of salads.
- A selection of dips – vegetable, tuna, ricotta, bean, bigilla, hummus.

H.E.L.P.  
Document  
– permissible  
foods

### Savoury Snacks

- Galletti, water crackers, crackers, rice cakes and crispbreads, preferably wholegrain and low fat, low salt varieties.
- Nuts and seeds, not fried, without added salt or added sugars.
- Dried beans and chickpeas, natural or roasted, without added salt or added sugars.
- Soya nuts, without added salt or added sugars.
- Air-popped popcorn, without added butter.

### Sweet Snacks

- Qagħaq tal-ħmira
- Biskuttelli
- Chelsea Buns.
- Plain cakes, muffins and biscuits, low in fat and sugar and high in fibre.
- Fruit breads and currant buns, low in fat and sugar.
- Breakfast cereals and cereal bars, low in fat and sugar, high in fibre.

H.E.L.P. Document –  
permissible foods

## Fruits & Desserts

- Individual fresh fruits and fresh fruit salads
- Canned fruit in its own juice, unsweetened
- Dried fruit, plain, with no added fats
- Fresh or frozen yoghurts
- Soya desserts
- Fruit granitas or iced lollies

## Drinks

- Water, still or sparkling
- 100% pure fruit/vegetable juices
- Fresh milk or UHT, preferably fresh:

For Primary school pupils – containing:

4% or less total fats and less than 15% total carbohydrates

For Secondary school students –

containing: 2.5% or less total fats and less than 15% total carbohydrates

- Hot tea, using plain leaves
- Cold or hot milk drinks
- Drinks made from fruits, vegetables, yoghurt or milk, or from a combination of these, including smoothies
- Oat, Soya or rice drinks
- Low fat chocolate drinks

H.E.L.P.  
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permissible foods  
& beverages

# Foods

- Fried foods
- Potato chips
- High fat, high salt processed foods, such as sausages, hot dogs, burgers, fish cakes, battered and crumb-coated fried products, salami, mortadella, luncheon meat, processed cheese.
- Pizzas with high fat and high salt toppings, such as sausages, salami, peperoni, high fat cheese.
- Pastizzi, sausage rolls, hot dogs, savoury pastries.
- Doughnuts, cream and jam cakes, iced cakes, sweet pastries.
- Chocolates, sweets and confectionery.
- Ice-creams
- Yoghurts and desserts
- Breakfast cereals and cereal bars
- Bagged savoury snacks, potato, maize, wheat and rice-based snacks

H.E.L.P.  
Document –  
prohibited foods

# Beverages

Flavoured water

- Soft drinks (regular and diet)
- Iced teas
- Energy drinks
- Coffee
- Beverages containing caffeine including caffeinated water.
- Juices which are not 100% fruit/vegetable juice and/or have added sugar or additional sweeteners.
- Fresh or UHT milk, and cold or hot milk drinks:

For Primary school pupils

– containing more than 4% fat content, and/or more than 15% total carbohydrates.

For Secondary school students

- containing more than 2.5% fat content, and/or more than 15% total carbohydrates.

- Fruit nectars and fruit or juice drinks.
- Oat, soya or rice drinks.
- Drinks made from fruit, yoghurt or milk, or from a combination of these (including smoothies).

H.E.L.P.  
Document –  
prohibited  
beverages

- To provide clear and consistent consumer information, e.g. on food labels;
- To encourage food companies to provide lower energy, more nutritious foods marketed for children;
- To develop criteria for advertising that promotes healthier eating;
- To improve maternal nutrition and encourage breast-feeding of infants;
- To design secure play facilities and safe local neighbourhoods;
- To encourage schools to enact coherent food, nutrition and physical activity policies;
- To encourage medical and health professionals to participate in the development of public health programmes.

W.H.O. strategies to reduce  
childhood obesity

## Malta - April 2010

- A Strategy for the Prevention and Control of Non-communicable Diseases in Malta

## Risk factors addressed in N.C.D. Strategy - Malta 2010

- ◉ Unhealthy Diet
- ◉ Physical Inactivity
- ◉ Tobacco
- ◉ Alcohol
- ◉ Obesity
- ◉ Raised Blood Sugar
- ◉ Raised Blood Pressure
- ◉ Raised Serum Cholesterol

Thank you for your attention