

THE HEALTH IMPACT of OVERWEIGHT & OBESITY – LOSE & WIN

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OVERVIEW

- Epidemiology & Pathophysiology of Overweight & Obesity
- Classification
- Associated Co-Morbidities
- Aetiology (current theories)
- Treatment options including Lifestyle changes & Pharmacotherapy

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OBESITY

Definition: Excessive accumulation
of body fat

- **Chronic Disease** [WHO]
- Worldwide epidemic

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OVERWEIGHT & OBESITY (excess Body Fat)

- ↑ Adipocyte (fat cell) volume
{Triglycerides deposited in fat cells }
- ↑ # Adipocytes

NB Triglycerides in fat cells undergo
constant metabolic transformation
→ increase in the levels of all components
of lipid metabolism → Hyperinsulinaemia;
Hypertlipoproteinaemia;

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PREVALENCE OF OVERWT & OBESITY JAMAICA

OVERWEIGHT

- WOMEN 65.8 %
- MEN: 32.5 %

OBESITY

- WOMEN 32 %
- MEN 10 %

(CFNI, 2007)

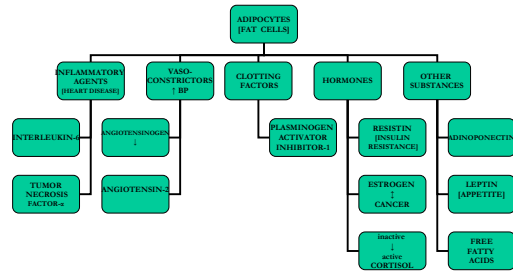
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VISCERAL FAT

- Highest metabolic rate
- Central obesity → more severe
health consequences viz Type 2 DM;
Hypertension; Coronary Artery
Disease; Breast & Colon cancer...

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BIOCHEMISTRY OF FAT CELLS



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Obesity is usually assessed by Body Mass Index (BMI)

$$\text{BMI} = \frac{\text{weight (lb.)} \times 704}{\text{height} \times \text{height (in.)}}$$

- acceptable approximation of body fat
- strong correlation with morbidity and mortality
- easily calculated

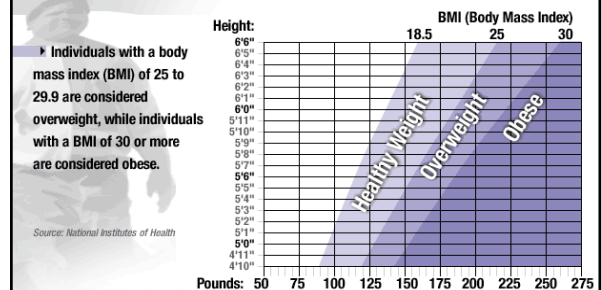
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GUIDELINES FOR ASSESSING INDIVIDUAL HEALTH RISKS

Body Mass Index Reference Table

BMI	Interpretation
< 18.5	Underweight
18.5-24.99	Normal/Healthy
> 25	Overweight
25.0-29.99	- Pre obese
30.0-34.99	-Obese Class I
35.0-39.99	-Obese Class II
≥ 40	- Obese Class III

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DEFINITION OF 'ACCEPTABLE WEIGHT'

WHAT YOU WEIGH NOW - IF YOU WERE 12 INCHES TALLER...

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DOES THIS APPLY TO YOU?

I'M NOT OVERWEIGHT – I'M JUST UNDERTALL...

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Obesity is Associated with an Increased Risk of:

- Premature death
- Type 2 diabetes
- Heart disease
- Stroke
- Hypertension
- Gallbladder disease
- Osteoarthritis (degeneration of cartilage and bone in joints)
- Sleep apnea
- Asthma
- Breathing problems
- Cancer (endometrial, colon, kidney, gallbladder and postmenopausal, breast cancer)
- High blood cholesterol
- Complications of pregnancy
- Menstrual irregularities
- Hirsutism (presence of excess body and facial hair)
- Stress incontinence (urine leakage caused by weak pelvic-floor muscles)
- Increased surgical risk
- Psychological disorders such as depression
- Psychological difficulties due to social stigmatization

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AETIOLOGY of Obesity

Individuals

+ve *Energy balance* (energy intake exceeds requirements)

- Genetics – Basal Metabolism & Body fat distribution
- The Environment - ↑ Food Availability
- ↓ Physical Activity
- Psychosocial issues e.g. Emotional factors

External factors

- Policy decisions

NB Obesity is a complex, multifactorial disease and the aetiology is not completely understood.

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+ve Energy Balance

Intake

influenced by

- Taste
- Hunger - physiological drive to eat
- Appetite – psychological drive to eat
- Environment eg family eating habits
- Portion size

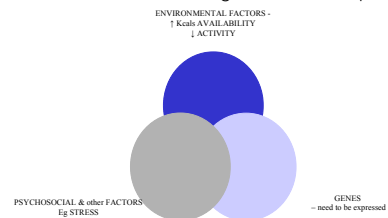
Requirement influenced by

- Physical activity
- Gender
- Weight

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OBESITY –

can be viewed as nurture allowing nature to be expressed



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Energy Requirement

Determined by

- Weight
- Height
- Age
- Gender
- Level of activity

Calorie: unit measuring the amount of energy supplied by food

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ESTIMATION OF CALORIC REQUIREMENT

For Weight maintenance (non-pregnant, non lactating adult):

10 kcals / lb body weight

+

20 % kcals (sedentary lifestyle)

33 % (light physical activity)

50 % (moderate physical activity)

75 % (heavy activity)

NB Decrease requirement by 100 kcals for every 10 yrs of age over age 30.

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EXAMPLE

CALCULATION OF CALORIC REQUIREMENT

120 lb woman who engages in low levels of physical activity requires:

$$\begin{aligned} 10 \times 120 &= 1200 \text{ kcals} + 33 \% (1200 \times .33 = 400) \\ &= 1200 + 400 \\ &= 1600 \text{ kcals/day (to maintain body wt)} \end{aligned}$$

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PORTION SIZE CHANGES (1977-1996:- JAMA)

SOFT DRINKS (387 → 588 ml or 12 → 20 oz)	51.9 %
Hamburger	22.8 %
French fries	16.2 %
Salty snacks	59.9 %

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Energy Expenditure

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EXERCISE OF CHOICE

"IF IT WASN'T FOR WRESTLING
WITH MY CONSCIENCE ...I'D
GET NO EXERCISE AT ALL!"

Anonymous

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TREATMENT FOR OBESITY

- Lifestyle change
 - diet
 - exercise
 - behaviour change
- Team approach
 - Physician
 - Nutritionist
 - Psychologist
 - Exercise specialist
- Medication
- Surgery

NB LONG TERM TREATMENT with a focus on 'Healthy Lifestyle'
that can be maintained. [Diet sheets unsuccessful]

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LIFESTYLE CHANGE

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DIETARY GUIDELINES

- Published jointly every 5 yrs by
 1. US Dept. Agriculture [USDA]
 2. Dept. Health & Human Services
 - Science based advice for Americans 3 yrs. and older
 - Promote health, prevent chronic diseases
- NB Dietary guidelines for Jamaica – work in progress (spearheaded by MOH)

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DIETARY GUIDELINES

- **Variety** of foods - all the food groups
- ↓ Total fat. Type of fat - low in saturated & *trans fats, as well as cholesterol
- More complex Carbs with fibre.
- ↓ Sugars
- Less energy dense foods
- Moderate salt and sodium intake [sp. ethnic groups at risk] / ↑ Potassium intake
- Moderate intake of alcohol, if any

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FOOD GUIDE PYRAMID

'new'



- Inclusion of ACTIVITY
- Emphasis on: UNREFINED FOODS eg Whole grains / ground provisions at Base of Pyramid

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Fat - Types

- Saturated fat
- Polyunsaturated fat
- Monounsaturated fat
- Trans fat*

* (unsaturated fats & oils altered by hydrogenation)

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TYPES OF CHOs

- **SIMPLE** CHOs eg Glucose
- **COMPLEX** CHOs eg White rice
- **COMPLEX** CHOs **with FIBRE** eg brown rice; sweet potato

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'GOOD' VS 'BAD' FATS & CARBS

Examples

- WHITE RICE vs BROWN RICE
 - SWEET POTATO vs POTATO CHIPS
 - AVOCADO PEAR vs PORK FAT
- NB GRAIN INTAKE ≥ 50 % whole grains (bran, germ, endosperm)

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Nutrition Facts	
Serving Size 1/2 cup (125g)	
Servings Per Container 6	
Amount Per Serving	
Calories 80	Calories from Fat 10
% Daily Value*	
Total Fat 1.5g	2%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 520mg	21%
Total Carbohydrate 15g	5%
Dietary Fiber less than 1g	3%
Sugars 10g	
Protein 2g	
Vitamin A 10% • Vitamin C 30%	
Calcium 4%	

ALCOHOL INTAKE

1 Serving
 12 oz beer
 1½ oz distilled liquor
 4-5 oz wine

MEN	WOMEN
• 2 DRINKS / DAY	• 1 DRINK / DAY

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Fad Diets

Examples

- Cabbage soup diet
- Grapefruit Diet
- Hollywood 48 Hour Miracle Diet
- 'Cleansing' diet – Maple syrup + cayenne pepper...

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10 POINTS To Assess your Weight Loss Plan

- WILL THE DIET MEET ALL NUTRITIONAL NEEDS?
- ARE ALL THE FOOD GROUPS INCLUDED? (WIDE VARIETY OF FOODS)
- DOES THE PROGRAMME STRESS STEADY, LONG TERM WEIGHT LOSS ?
- IS THE PLAN SUSTAINABLE?
- DOES THE DIET MINIMIZE HUNGER AND FATIGUE ? (AT LEAST 1000 CALORIES / DAY)
- ARE THE FOODS READILY OBTAINABLE & CULTURALLY APPROPRIATE?
- ARE THE FOODS SUGGESTED AFFORDABLE ?
- IS THE PLAN POSSIBLE IN SOCIAL SETTINGS? e.g. Restaurants etc.
- DOES THE PLAN PROMOTE CHANGES IN EATING HABITS & LIFESTYLE SO THAT WEIGHT MAINTENANCE WILL BE POSSIBLE?
- DOES THE PLAN EMPHASIZE REGULAR PHYSICAL ACTIVITY?

NB The Dieter should be encouraged to see a Physician especially if the person has existing health problems, ≥ 35 yrs , or plans to perform vigorous exercise

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PHYSICAL ACTIVITY RECOMMENDATIONS

- For **HEALTH benefits**, physical activity should be moderate or vigorous and add up to at least **30 mins. / day** most days – in addition to usual daily activities

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FOR WEIGHT LOSS

- ≥ 60 mins. of moderate to vigorous physical activity / day

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MODERATE PHYSICAL ACTIVITY

- Walking briskly (~ 3½ miles/hr)
- Dancing
- Golf (walking and carrying clubs)
- Bicycling (< 10 miles/hr.)
- Weight training (general light workout)

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VIGOROUS PHYSICAL ACTIVITY

- Running / Jogging (≥ 5 miles / hr.)
- Bicycling (≥ 10 miles / hr.)
- Aerobics
- Fast walking (≥ 4½ miles / hr.)
- Weight lifting (vigorous effort)...

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BEHAVIOUR MODIFICATION

- SELF MONITORING DIARY
- ↓ PORTION SIZE
- ↑ FIBRE / ↑ WATER / ↓ ALCOHOL
- COGNITIVE RESTRUCTURING
- STIMULUS CONTROL
- Manage 'NON-HUNGER TRIGGERS' → EATING eg Stress; Anger; Pain
- EATING BEHAVIOUR eg ↓ Rate of Chewing
- Establish a 'SUPPORTIVE ENVIRONMENT'

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Anti-Obesity Medication

- ORLISTAT (Xenical; Alli)
- Sibutramine (Ruductil or Meridia)
- Metformin

NB Benefits should outweigh risk (potential side effects)

OTC Fibre supplements eg Guar gum have been used to inhibit digestion and lower calorie absorption

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SUMMARY

- Obesity is a chronic disease and the epidemic of the 21st century
- It is associated with more than 26 chronic, nutrition related diseases
- The aetiology is not completely understood, but there are interactions between genetic, environmental and behavioural factors
- Treatment should include lifestyle modification and there are FDA approved drugs

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CONCLUSION:

- EAT LESS
- MOVE MORE
- LOSE & WIN

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