



OBESITY

PATHOPHYSIOLOGY & GENETICS

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OVERWEIGHT AND OBESITY ARE DEFINED AS ABNORMAL OR EXCESSIVE FAT ACCUMULATION THAT MAY IMPAIR HEALTH. BODY MASS INDEX (BMI) IS A SIMPLE INDEX OF WEIGHT-FOR-HEIGHT THAT IS COMMONLY USED TO CLASSIFY OVERWEIGHT AND OBESITY IN ADULTS. IT IS DEFINED AS A PERSON'S WEIGHT IN KILOGRAMS DIVIDED BY THE SQUARE OF HIS HEIGHT IN METERS (KG/M^2).

FOR ADULTS, WHO DEFINES OVERWEIGHT AND OBESITY AS FOLLOWS:

- OVERWEIGHT IS A BMI GREATER THAN OR EQUAL TO 25
- OBESITY IS A BMI GREATER THAN OR EQUAL TO 30.

ONSET OF OBESITY:

-GESTATION AND EARLY LIFE

-CHILDHOOD AND ADOLESCENCE

-WOMAN:

PEREGNANCY

MENOPAUSE

ORAL CONTRACEPTIVES



BEHAVIORAL :

- PHYSICAL ACTIVITY

- DIET

- EATING PATTERNS

 - FREQUENCY OF EATING

 - NIGHT-EATING SYNDROME

- CESSATION OF SMOKING

The background is a dark teal gradient. In the corners, there are decorative white circuit-like lines with small circles at the ends, resembling a network or data flow diagram.

MEDICAL:

-HYPOTHALAMIC OBESITY

-CUSHING'S SYNDROME

-HYPOTHYROIDISM

-POLYCYSTIC OVARY SYNDROME

-MENTAL HEALTH DISORDERS

MEDICATIONS :

-ANTIDEPRESSANTS

AMITRIPTYLINE, CLOMIPRAMINE, DOXEPIN, AND IMIPRAMINE ARE ASSOCIATED WITH SIGNIFICANT WEIGHT GAIN

-ANTIEPILEPTICS

VALPROATE AND CARBAMAZEPINE

-ANTIHYPERGLYCEMICS

INSULIN AND THE SULFONYLUREAS ARE ASSOCIATED WITH MODEST WEIGHT GAIN



SOCIOECONOMIC AND ETHNIC FACTORS:

NUTRITION

EDUCATION

NEIGHBORHOOD FOOD

ENVIRONMENTS

ELEMENTS OF THE BUILT ENVIRONMENT

ETHNICITY ALSO INFLUENCES THE INCIDENCE OF OBESITY

BLACK WOMEN OF ALL AGES ARE MORE OBESE THAN WHITE WOMEN



HERITABLE FACTORS :

STUDIES OF TWINS, ADOPTEES, AND FAMILIES ALL SUGGEST THE EXISTENCE OF GENETIC FACTORS IN HUMANS WITH OBESITY. THE HERITABILITY OF OBESITY ESTIMATED FROM TWIN STUDIES IS HIGH, RANGING FROM 60 TO 90 PERCENT, WITH ONLY SLIGHTLY LOWER VALUES IN TWINS RAISED APART COMPARED WITH THOSE RAISED TOGETHER. SIMILARLY, IN ADOPTEES, THE BODY MASS INDEX (BMI) CORRELATES WITH THAT OF THEIR BIOLOGIC PARENTS RATHER THAN THAT OF THEIR ADOPTIVE PARENTS.

SINGLE-GENE DEFECTS:

-PRADER-WILLI SYNDROME:

GENETIC ABNORMALITIES OF THE LONG ARM OF CHROMOSOME 15 (Q11-13)

-BARDET-BIEDL SYNDROME: 6 MUTATIONS IN AT LEAST 15 GENES

-LEPTIN GENE/LEPTIN RECEPTOR GENE

LEPTIN IS PRODUCED IN FAT CELLS, THE PLACENTA, AND, TO A LESSER DEGREE, IN THE GUT IT SIGNALS THE BRAIN ABOUT THE QUANTITY OF STORED FAT.

PATHOPHYSIOLOGY OF OBESITY

- GUT MICROBIOME

- AFFERENT SIGNALS FROM GASTROINTESTINAL TRACT

 - GHRELIN: INCREASES FOOD INTAKE

- NEUROPEPTIDE Y: IS ONE OF THE MOST POTENT STIMULATORS OF FOOD INTAKE

BODY FAT DISTRIBUTION :

AS WITH TOTAL BODY FAT, THE DISTRIBUTION OF VISCERAL AND SUBCUTANEOUS FAT ALSO HAS GENETIC DETERMINANTS. GONADAL STEROIDS PLAY A MAJOR ROLE IN THE DISTRIBUTION OF BODY FAT. AT THE ONSET OF PUBERTY, BOYS EXPERIENCE A DECREASE IN FAT MASS AND INCREASE IN LEAN BODY MASS, WHEREAS WOMEN INCREASE THEIR BODY FAT RELATIVE TO THEIR MUSCLE MASS; THESE DIFFERENCES PERSIST THROUGHOUT LIFE.