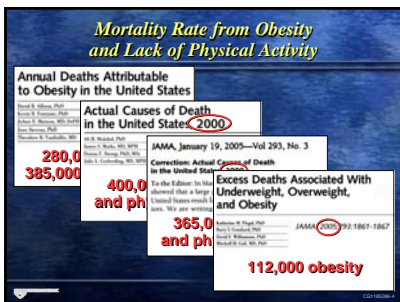
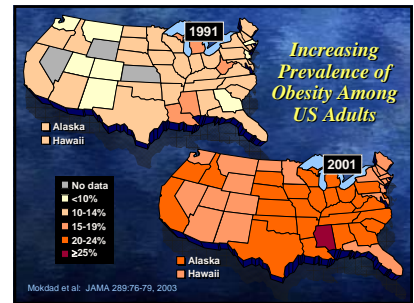


Mayo Clinic

The Metabolic Syndrome (Syndrome X) A Modern Day Epidemic

Amy W. Williams, MD



- ### Definition of Metabolic Syndrome
- Must have 3 of 5 risk factors
1. Abdominal waist circumference
Women >35 inch
Men >40 inch
 2. Low HDL cholesterol
Women <50 mg/dL
Men <40 mg/dL
 3. Hypertriglyceridemia >150 mg/dL
 4. High blood pressure ≥130/85 mm Hg
 5. High fasting glucose ≥110 mg/dL

Body Mass Index (BMI)

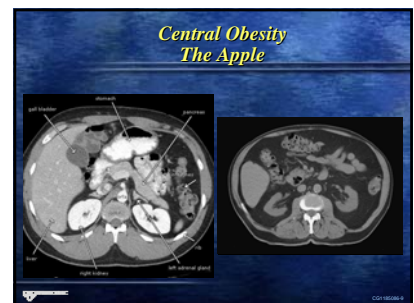
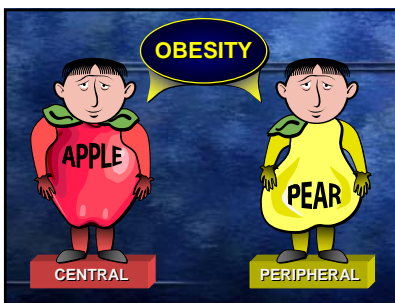
$BMI = kg/m^2$ (1 kg = 2.2 pounds)
(1 meter = 39.37 inches)

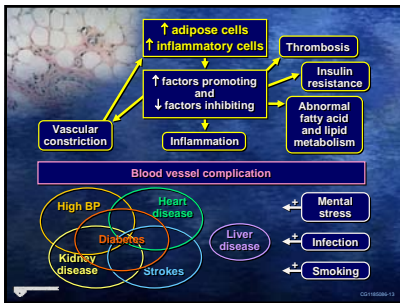
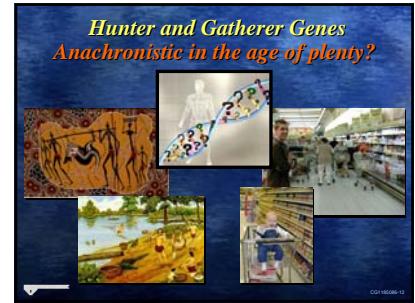
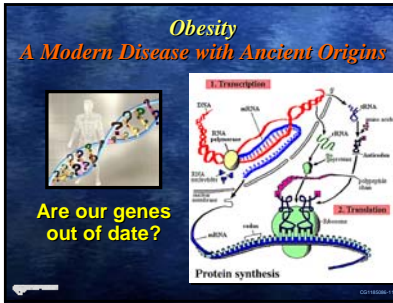
BMI of...

- <18.5 = underweight
- 18.5-24.9 = ideal weight
- 25-29.9 = overweight
- >29.9 = obese

Determining Your Body Mass Index (BMI)

BMI (kg/m ²)	19	20	21	22	23	24	25	26	27	28	29	30	35	40
59	91	96	100	105	110	115	119	124	129	134	138	143	167	191
60	94	99	104	109	114	119	124	128	133	138	143	148	173	198
61	100	106	111	116	122	127	132	137	143	148	153	159	185	211
62	104	109	115	120	126	131	136	142	147	153	158	164	191	218
63	107	113	118	124	130	135	141	146	152	158	163	169	197	225
64	110	116	122	128	134	140	145	151	157	163	169	174	204	232
65	114	120	126	132	138	144	150	156	162	168	174	180	210	240
66	118	124	130	136	142	148	155	161	167	173	179	186	216	247
67	121	127	134	140	146	153	159	166	172	178	185	191	223	255
68	125	131	138	144	151	158	164	171	177	184	190	197	230	262
69	128	135	142	149	155	162	169	176	182	189	196	203	236	270
70	132	139	146	153	160	167	174	181	188	195	202	207	243	278
71	136	143	150	157	165	172	179	186	193	200	208	215	250	286
72	140	147	154	162	169	177	184	191	199	206	213	221	258	294
73	144	151	159	166	174	182	189	197	204	212	219	227	265	302
74	148	155	163	171	179	186	194	202	210	218	225	233	272	311
75	152	160	168	176	184	192	200	208	216	224	232	240	279	319
76	156	164	172	180	189	197	205	213	221	230	238	246	287	328





- ### What does this mean to dental Outcomes
- Increased dental disease
 - Decreased utilization of dental care
 - Poor accommodations (dental chairs)
 - Increased risk of procedural complications

Relationship of BMI, Periodontitis & Tannerella forsythia

121 periodontally healthy
574 chronic periodontitis

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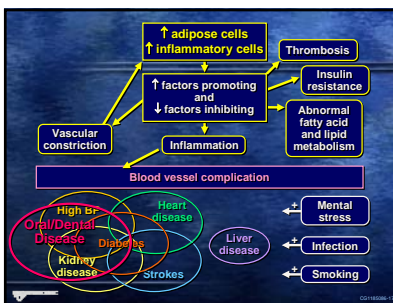
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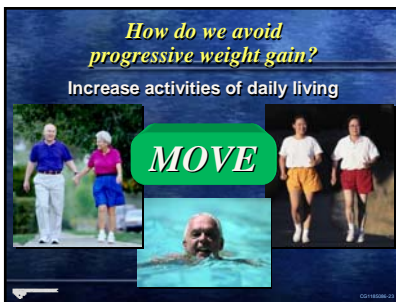
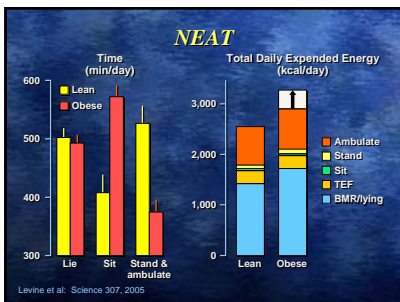
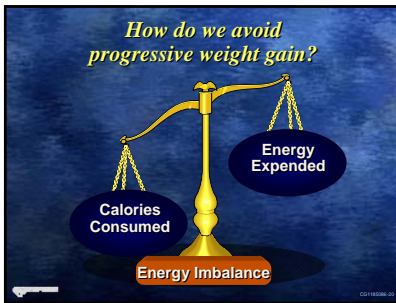
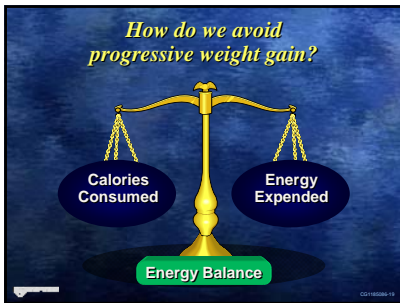
- BMI
- Probing pocket depth
- Clinical attachment level
- Bleeding on probing, gingival redness
- Visible plaques
- Subgingival plaque sample analysis-40 bacterial species (DNA-DNA hybridization)

Relationship of BMI, Periodontitis & Tannerella forsythia

1. Overweight and Obese more periodontitis most marked if < 46.8 years of age
2. Obese – significantly higher Tannerella forsythia overgrowth

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- How do we avoid progressive weight gain?*
- Habits of 3,000 individuals who are successful at maintaining their weight
1. Low fat diet
 2. Closely monitor weight and food consumption
 3. Exercise for >1 hour/day
 4. Eat breakfast
-

- How do we avoid progressive weight gain?*
- Recommendations**
- Diet**
- Rich in fruits, vegetable, whole grains
 - Low in saturated fat (red meats, high fat dairy, French fries)
 - Increase food with low sugar content
 - Decrease sweets, desserts, refined grains

- How do we avoid progressive weight gain?*
- Recommendations**
- Exercise**
- 30 minutes of moderate exercise per day
- Light to moderate alcohol consumption is OK



Is Obesity and the Metabolic Syndrome Reversible?

Diabetes Prevention Program
4 major trials

- **Exercise**
 - 150 min/wk
- **Weight loss**
 - 7% reduction
- **Medication**

53-58% ↓ in type 2 DM

31% ↓ in type 2 DM

Medications for Treatment of Obesity

- Use with diet modification and physical activity
- **Orlistat**
 - Decreases intestinal fat absorption
- **Sibutramine**
 - Induces a feeling of satiety
 - Increases thermogenesis

How do we improve complication risk factors?

- **Drugs for control of elevated lipids and hypertension**
- **Control glucose**
- **Stop smoking**

Therapeutic Lifestyle Changes

Nutrient	Recommendation
Total fat	25-35% of total calories
<7% saturated	
≤10% polyunsaturated	
≤20% monounsaturated	
Carbohydrate	50-60% of total calories
Protein	~15% of total calories
Calories	Balance between energy intake and expenditure to maintain desirable body weight/prevent weight gain
Cholesterol	<200 mg/day
Fiber	20-30 g/day

The Key to Health

Weight Reduction and Physical Activity

- Decreases insulin resistance
- Improves blood pressure
- Improves lipid
- Improves NAS
- Decreases risk disease
- Decreases risk for stroke
- Decreases risk for chronic kidney disease

Decrease risk for Oral & Dental Disease

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