



Prediabetes: An Overview

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Objectives

- Definitions
- Prevalence of prediabetes and diabetes
- Physiology of prediabetes
- Link between prediabetes and oral health

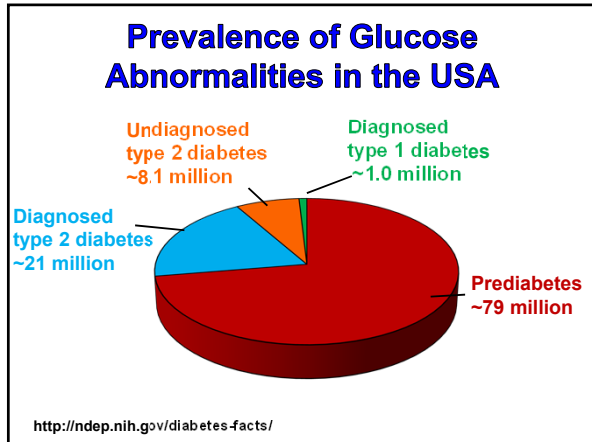


Definitions

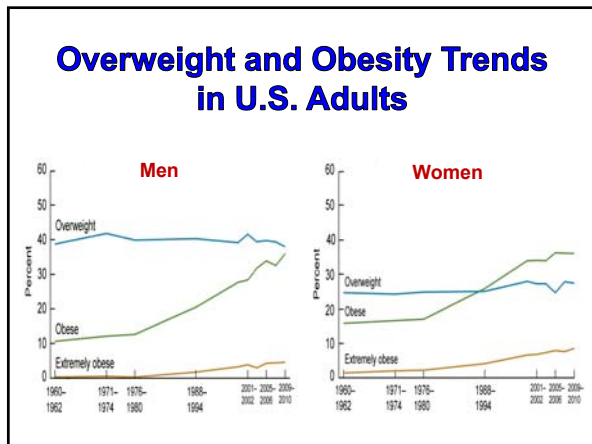
Diagnosis	Fasting Plasma Glucose (mg/dL)	OGTT (2 hr post glucose load) (mg/dL)	HbA1c (%)
Normal	<100	<140	<5.7
IFG*	100-125		5.7-6.4
IGT**		140-199	5.7-6.4
Diabetes	≥126	≥200	≥6.4

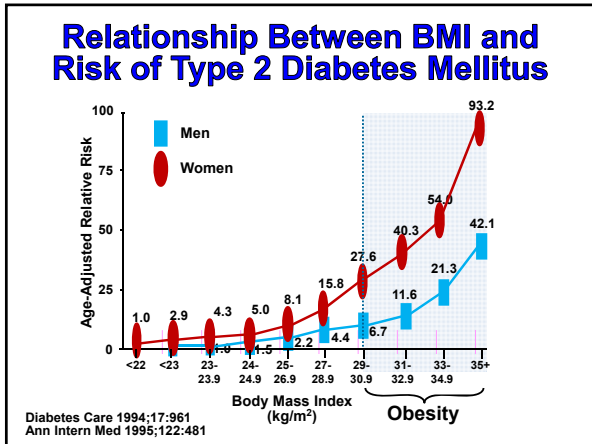
OR: ≥ 200 mg/dl casual plasma glucose (regardless of time since last meal) plus symptoms of diabetes (polyuria, polydipsia, unexplained weight loss)

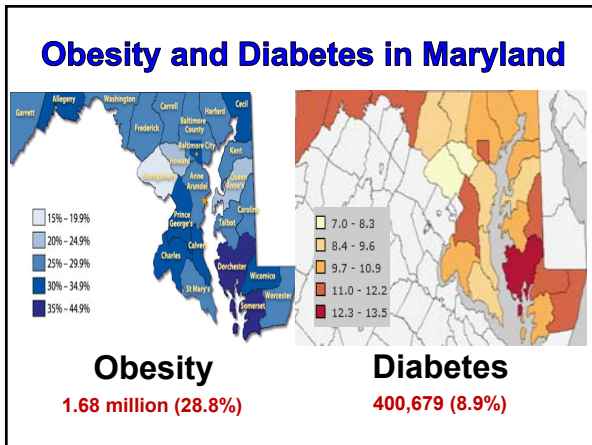
*IFG – impaired fasting glucose; **IGT – impaired glucose tolerance

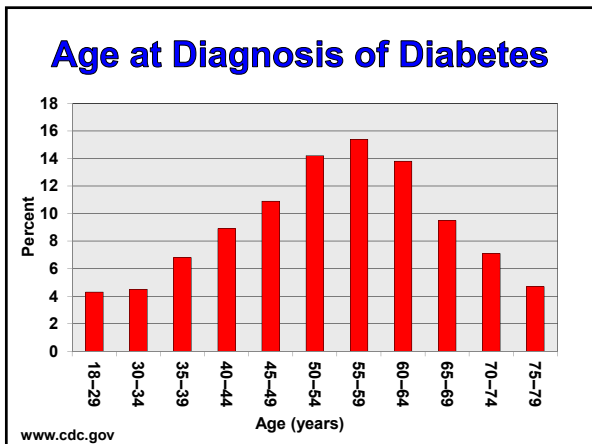


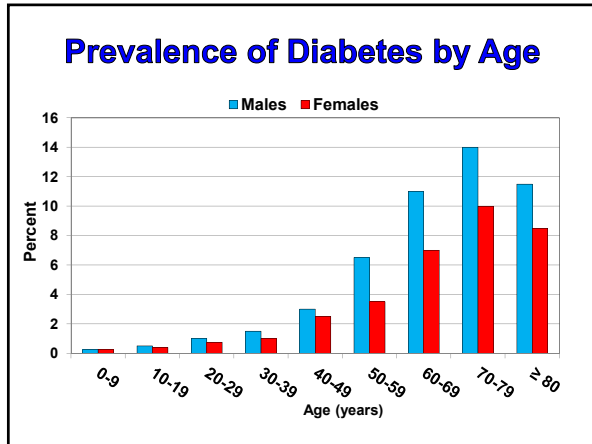
- ### Type 2 Diabetes Risk Factors
- Obesity
 - Family History
 - Age
 - Race/ethnicity
 - Impaired fasting glucose/impaired glucose tolerance
 - Gestational diabetes or baby >9 lb
 - Polycystic ovarian syndrome

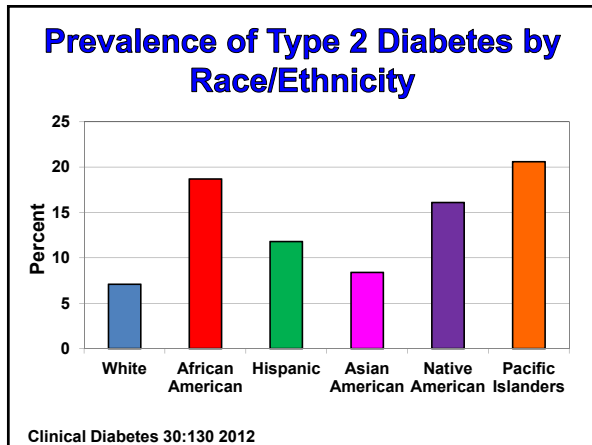












Metabolic Syndrome

Trait	Measurement
Fasting glucose	≥100 mg/dL
Abdominal obesity-waist circumference	
Men	>40 inches
Women	>35 inches
Triglycerides	≥150 mg/dL
HDL cholesterol	
Men	<40 mg/dL
Women	<50 mg/dL
Blood pressure	≥130/85 mm Hg

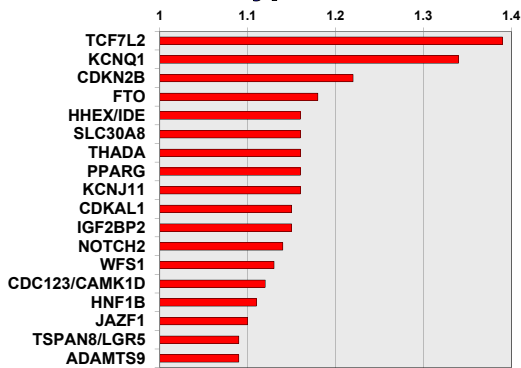
Risk of Type 2 Diabetes with Family History of Diabetes

Population	%
General population	9.3
Identical twin	60-90
Brother/Sister	40
Child of diabetic father	40
Child of diabetic mother	40

Type 2 Diabetes Genetic Studies

- Over 70 genes associated with prediabetes and type 2 diabetes
 - Beta cell function/insulin secretion
 - Beta cell formation
 - Insulin signaling pathway
 - Adipocyte differentiation
 - Weight
 - Unknown

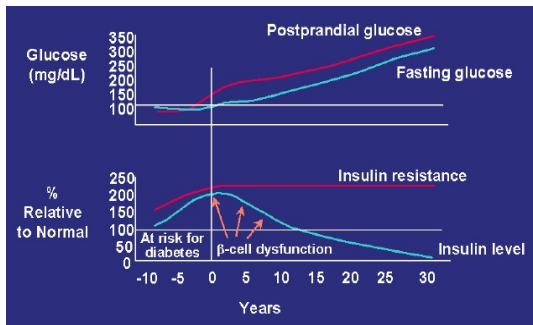
Genetics of Type 2 Diabetes



Medicographia 31:307 2009

Per allele odds ratio

Natural History of Type 2 Diabetes

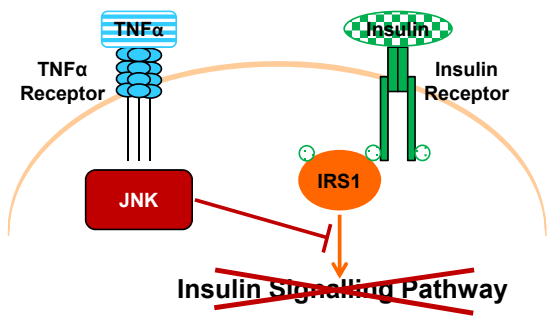


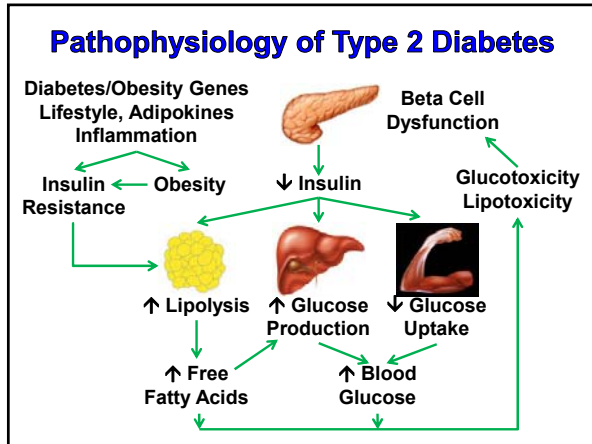
Bergental R, Kendall D. International Diabetes Center

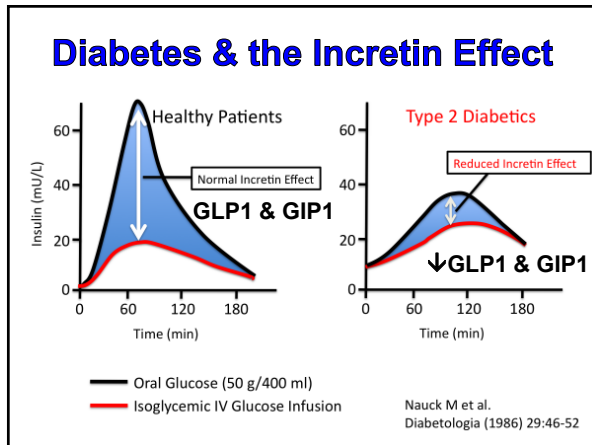
Pathophysiology of Type 2 Diabetes

Diabetes/Obesity Genes
Aging, Lifestyle
Adipokines, Inflammation

TNF α and Insulin Resistance





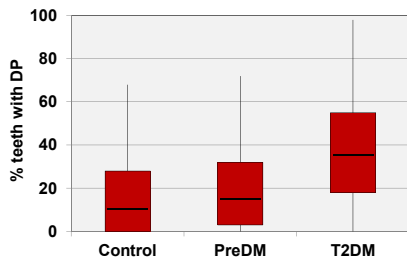


- ### Prediabetes and Associated Disorders
- Periodontal disease
 - Cardiovascular disease
 - Cognitive dysfunction
 - Hypertension
 - Obstructive sleep apnea
 - Low testosterone
 - Fatty liver disease
 - Cancer

Diabetes and Periodontal Disease: a two-way relationship

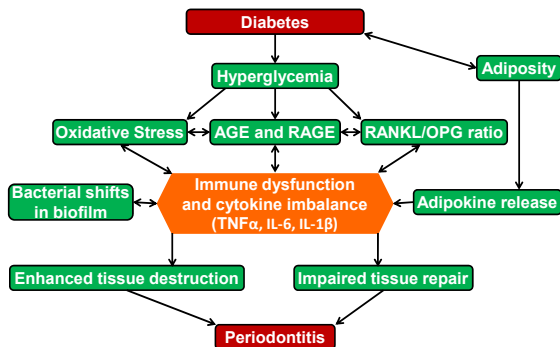
Diabetes \rightleftharpoons Periodontitis

Periodontal Disease in Newly Diagnosed Pre-DM and Type 2 DM

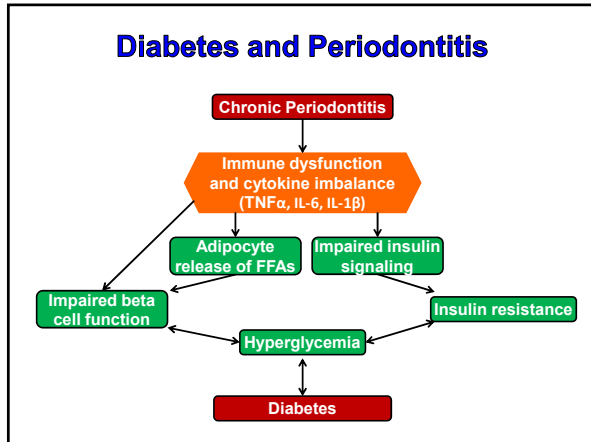


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Diabetes and Periodontitis



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UNIVERSITY OF MARYLAND SCHOOL OF MEDICINE AND DENTISTRY COLLABORATION



- Over the past 3 years, >400 students University of Maryland second year dental students trained on how to use a glucometer and how to interpret results

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- Identify patients at high risk for diabetes using a screening questionnaire
- Fingerstick glucose if meet high risk criteria
- Referred to PCP or endocrinologist if fasting glucose ≥ 100 mg/dL or nonfasting ≥ 140 mg/dL

**UNIVERSITY OF MARYLAND
SCHOOL OF MEDICINE AND
DENTISTRY COLLABORATION**

- 49 of 67 patients → high risk for diabetes
- Given pamphlets about lifestyle changes and diabetes risk factors
- 26 of 28 patients agreed to fingerstick blood sugar check
- 3 patients referred back to PCP for follow-up of elevated glucose

QUESTIONS