

Abandon the present classification of type 1 and type 2 diabetes

Cees J. Tack, MD

Radboudumc

1

Two types of diabetes:

Harry Himsworth 1936

Insulin-sensitive and
Insulin-insensitive diabetes



Radboudumc

2

Constitution and insulin sensitivity in diabetes mellitus

John Lister, John Nash and Una Ledingham

British Medical Journal 1951; 1: 376

Radboudumc

3

“There are two broad groups of diabetics – the young thin, non-arteriosclerotic group with normal blood pressure and usually an acute onset to the disease, and the older, obese, arteriosclerotic group with hypertension and usually an insidious onset ... these types we have provisionally designated type I and type II, respectively”

Radboudumc

4

Classification of diabetes

“It has been traditional to classify diabetes into juvenile- and maturity-onset types. Such a classification is probably acceptable as a kind of clinical shorthand as long as it is recognized that the descriptions are generalizations and that overlap syndromes occur.”

Harrison's "Principles of Internal medicine", 9th ed, 1979

Radboudumc

5

Reason for new classification

- The 1980 WHO classification was based on therapy (IDDM vs NIDDM)
- The 1997 ADA classification opted for insulin secretion = functional basis on the therapeutic classification

Radboudumc

6

Figure 1: Disorders of glycaemia: aetiological types and clinical st. (WHO, 1999)

	Normoglycaemia		Hyperglycaemia	
	Normal glucose tolerance	Impaired glucose regulation (IGT and/or IFG)	Diabetes Mellitus	Diabetes Mellitus
Types				
Type 1	←-----→			
• Autoimmune	←-----→			
• Idiopathic	←-----→			
Type 2*	←-----→			
• Predominantly insulin resistance	←-----→			
• Predominantly insulin secretory defects	←-----→			
Other specific types†	←-----→			
† Gestational Diabetes**	←-----→			

* In rare instances patients in these categories (e.g. Vector Toxicity, Type 1 presenting in pregnancy, etc.) may require insulin for survival.

Radboudumc

7



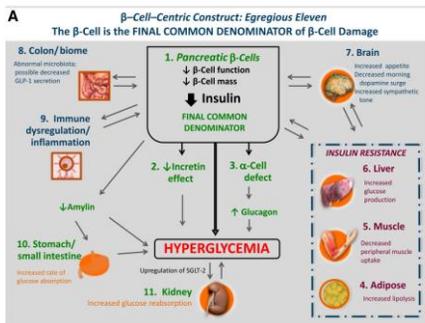
The Time Is Right for a New Classification System for Diabetes: Rationale and Implications of the β -Cell-Centric Classification Schema

Stanley S. Schwartz,¹ Solomon Epstein,² Barbara E. Corkey,³ Struan F.A. Grant,⁴ James R. Gavin III,⁵ and Richard B. Aguirre⁶

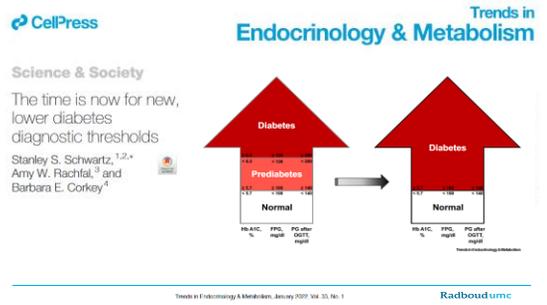
Diabetes Care 2016;39:179–186 | DOI: 10.2337/dci15-1585

Radboudumc

8



9



10



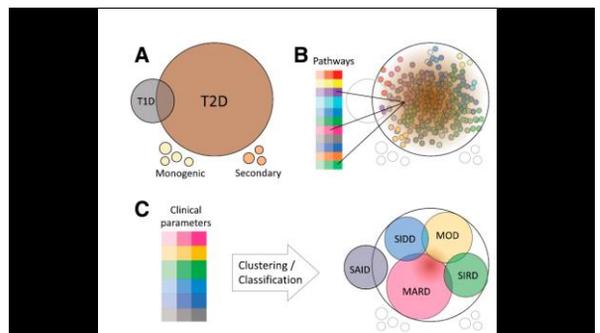
Subtypes of Type 2 Diabetes Determined From Clinical Parameters

Emma Ahlqvist,¹ Rashmi B. Prasad,¹ and Leif Groop^{1,2}

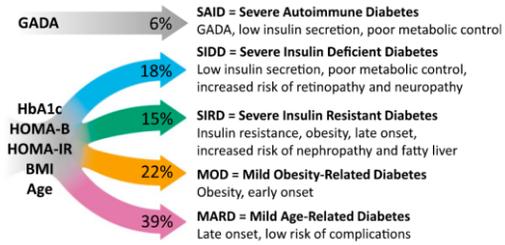
Diabetes 2020;69:2086–2093 | <https://doi.org/10.2337/db20-0007>

Radboudumc

11



12



Radboudumc

13

Viewpoint

Is type 2 diabetes a category error?

Edwin A M Gale

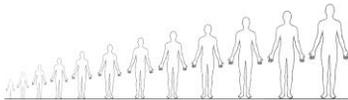
Lancet 2013; 381: 1956-57

Type 2 diabetes is a disease in search of a definition

Radboudumc

14

Is type 1-2 circular reasoning?



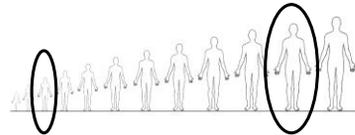
Height: a dimensional variable

Courtesy: Edwin Gale

Radboudumc

15

Comparison of extremes



Courtesy: Edwin Gale

Radboudumc

16

Short vs tall people

Genetic

- Parental height
- Ethnic difference
- Genetic syndromes

Developmental

- Birth weight
- Nutrition
- Intrauterine disease

Environmental

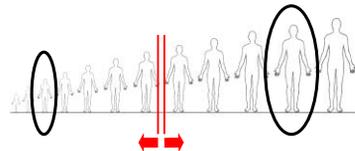
- Social class
- Nutrition, illness

Function

- Basketball

Prognosis

- Longevity



Radboudumc

Radboudumc

17

18

REPRINT OF: CLASSIFICATION OF DIABETES MELLITUS

Amanda Adler, Peter Bennett, Stephen Colagiuri Chair, Edward Gregg, KM Venkat Narayan, Maria Inês Schmidt, Eugene Sotgiu, Naoko Tajima, Nikhil Tandon, Nigel Unwin, Sarah Wild, John Yudkin, Naomi Levitt, Viswanathan Mohan, Sarah Montgomery, Moffat J Nyirenda, Jaakko Tuomilehto, Saskia Den Boon, Samantha Hocking

PII: S0168-8227(21)00331-4
 DOI: <https://doi.org/10.1016/j.diabres.2021.108972>
 Reference: DIAB 108972

To appear in: *Diabetes Research and Clinical Practice*

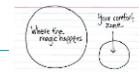


Unlike the previous classification, this classification does not recognize subtypes of type 1 diabetes and type 2 diabetes and includes new types of diabetes ("hybrid types of diabetes" and "unclassified diabetes").

Hybrid forms of diabetes
Slowly evolving immune-mediated diabetes of adults
Ketosis prone type 2 diabetes
Other specific types (see Tables)
Monogenic diabetes
- Monogenic defects of β -cell function
- Monogenic defects in insulin action
Diseases of the exocrine pancreas
Endocrine Disorders
Drug- or chemical-induced
Infections
Uncommon specific forms of immune-mediated diabetes
Other genetic syndromes sometimes associated with diabetes
Unclassified diabetes
This category should be used temporarily when there is not a clear diagnostic category especially close to the time of diagnosis of diabetes
Hyperglycaemia first detected during pregnancy
Diabetes mellitus in pregnancy
Gestational diabetes mellitus



Gooi je oude schoenen weg vóórdat je nieuwe hebt!!



Zolang je je blijft vasthouden aan het oude, is er geen ruimte voor iets nieuws.

Abandon the present classification of type 1 and type 2 diabetes!