

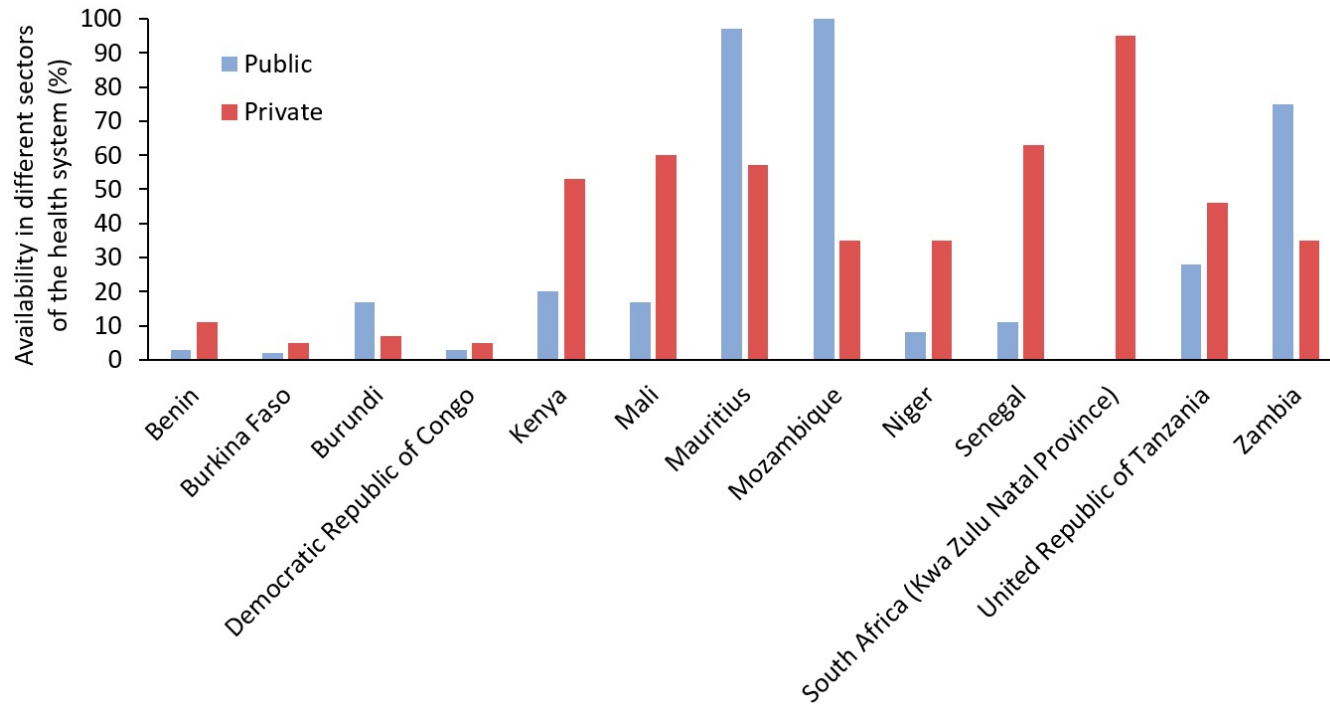
# Typ 2 diabetes - en epidemi som drabbar Afrika

Tommy Olsson

Umeå universitet/

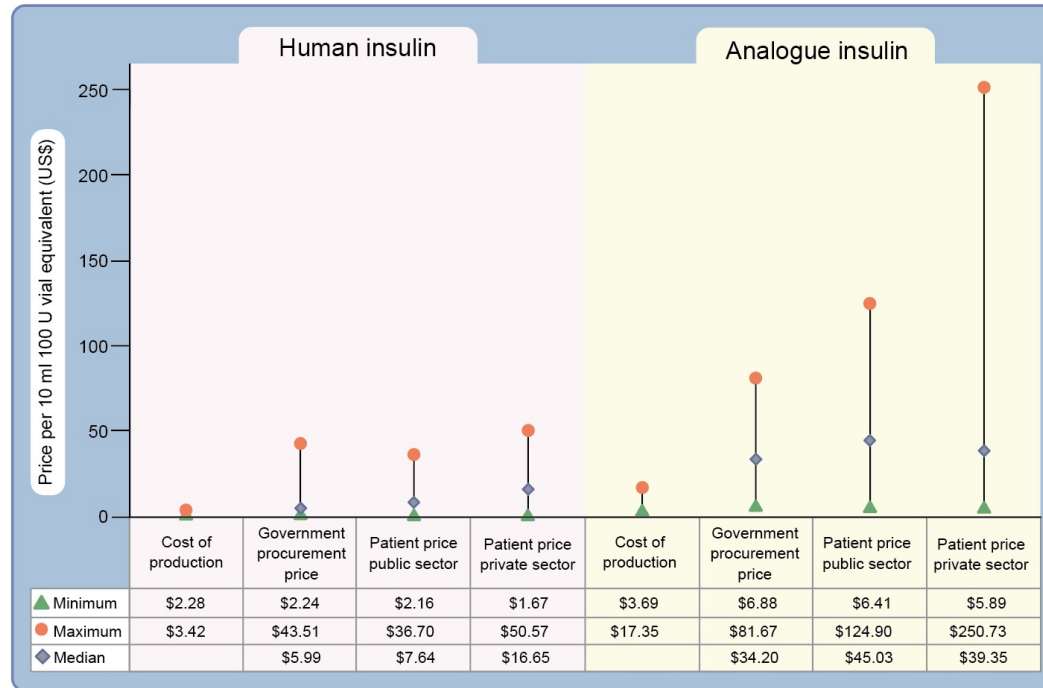
Norrlands universitetssjukhus

# Tillgång till insulin i Afrika, söder om Sahara



Beran D et al, 2021

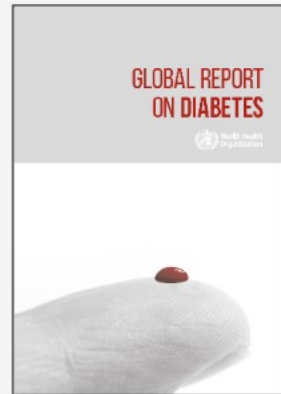
# Insulinkostnader



Beran D et al 2021

# A global concern....

## **Global report on diabetes**



On the occasion of World Health Day 2016, WHO issues a call for action on diabetes, drawing attention to the need to step up prevention and treatment of the disease.

The first WHO *Global report on diabetes* demonstrates that the number of adults living with diabetes has almost quadrupled since 1980 to 422 million adults. Factors driving this dramatic rise include overweight and obesity.

In 2012 alone diabetes caused 1.5 million deaths. Its complications can lead to heart attack, stroke,

blindness, kidney failure and lower limb amputation.

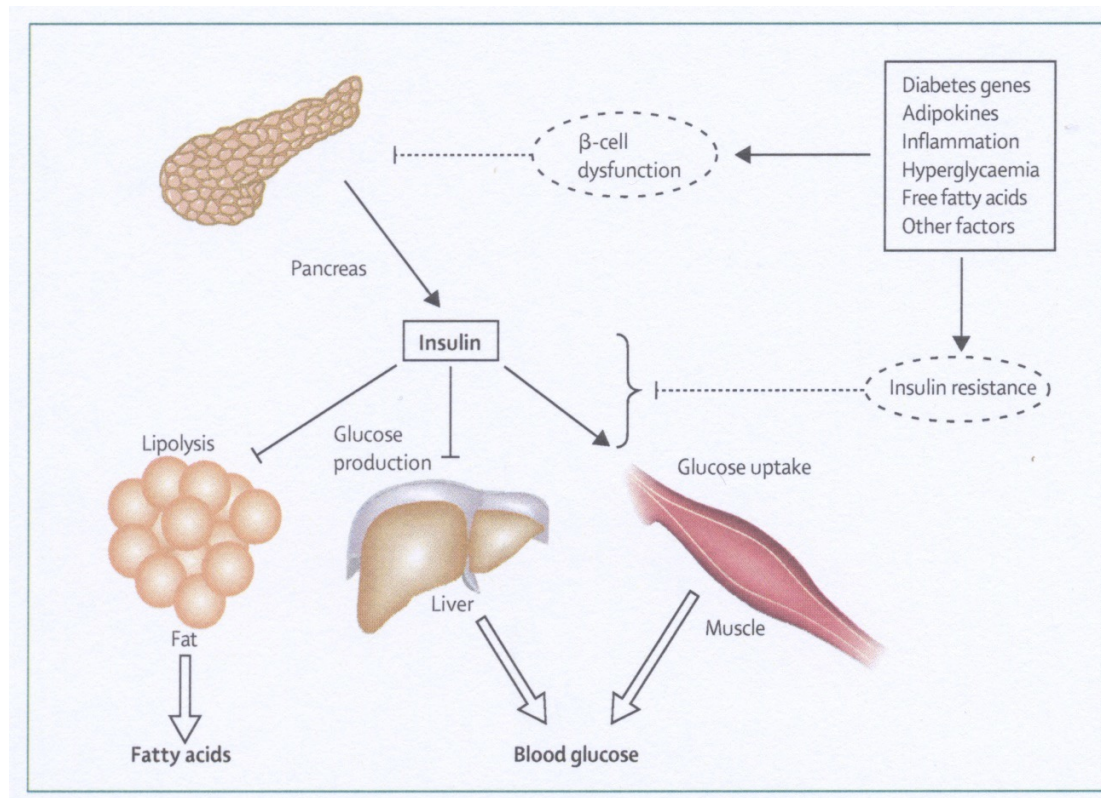
The new report calls upon governments to ensure that people are able to make healthy choices and that health systems are able to diagnose, treat and care for people with diabetes. It encourages us all as individuals to eat healthily, be physically active, and avoid excessive weight gain.

Kostnad 2030 minst  
2,5 biljoner globalt

Global burden.....

- The worldwide prevalence of diabetes has increased to > 8,5%
- "Type 2 diabetes now also occurs among children"

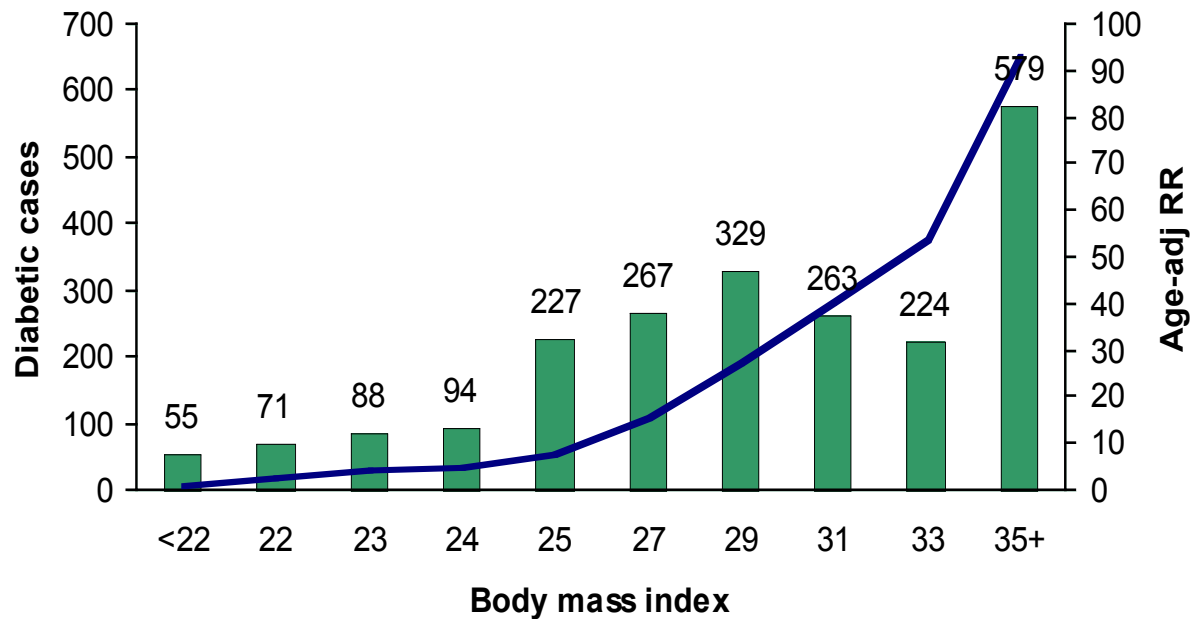
# Flera organ samverkar vid utveckling av typ 2 diabetes



Fr Stumvoll et al, 2005

# Sambandet mellan kroppsvikt och risk för typ 2 diabetes

The Nurses' Health Study (n=114 281)



Fr Colditz G A et al,1995

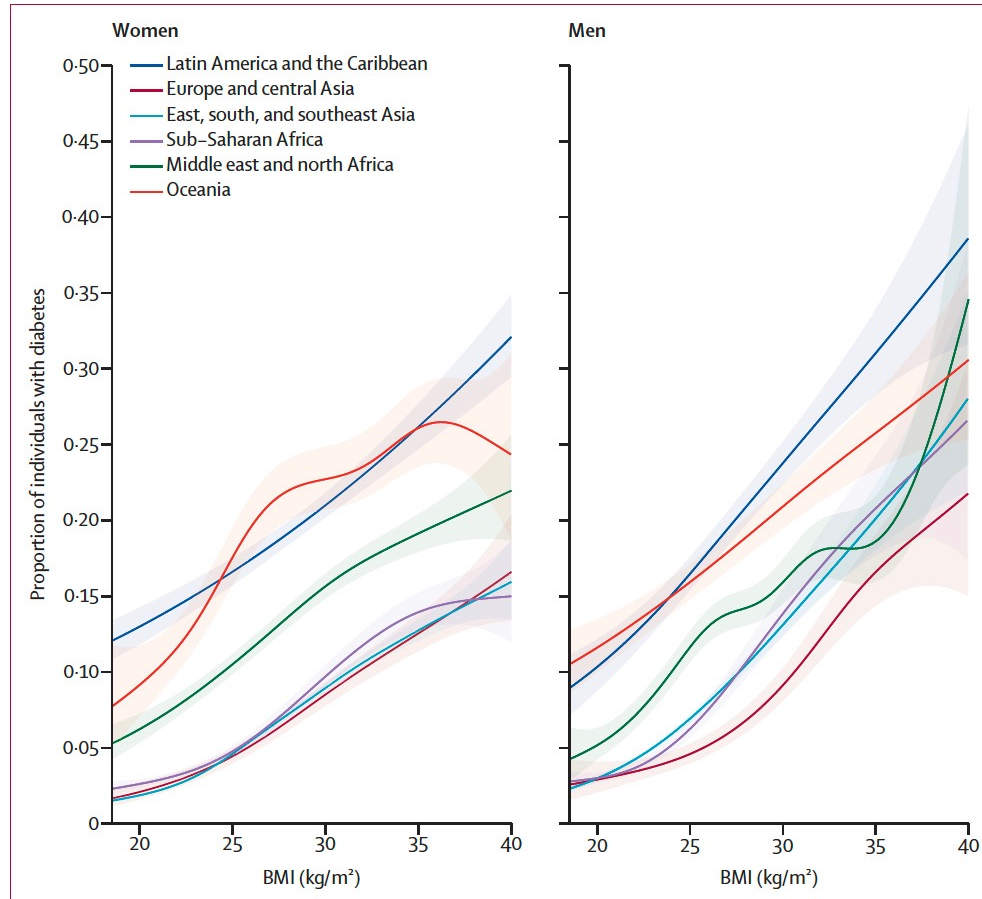
# Body-mass index and diabetes risk in 57 low-income and middle-income countries: a cross-sectional study of nationally representative, individual-level data in 685 616 adults

*Felix Teufel\*, Jacqueline A Seiglie\*, Pascal Geldsetzer, Michaela Theilmann, Maja E Marcus, Cara Ebert, William Andres Lopez Arboleda, Kokou Agoudavi, Glennis Andall-Brereton, Krishna K Aryal, Brice Wilfried Bicaba, Garry Brian, Pascal Bovet, Maria Dorobantu, Mongal Singh Gurung, David Guwatudde, Corine Houehanou, Dismand Houinato, Jutta M Adelin Jorgensen, Gibson B Kagaruki, Khem B Karki, Demetre Labadarios, Joao S Martins, Mary T Mayige, Roy Wong McClure, Joseph Kibachio Mwangi, Omar Mwalim, Bolormaa Norov, Sarah Crooks, Farshad Farzadfar, Sahar Saeedi Moghaddam, Bahendeka K Silver, Lela Sturua, Chea Stanford Wesseh, Andrew C Stokes, Utibe R Essien, Jan-Walter De Neve, Rifat Atun, Justine I Davies, Sebastian Vollmer, Till W Bärnighausen, Mohammed K Ali, James B Meigs, Deborah J Wexler, Jennifer Manne-Goehler*

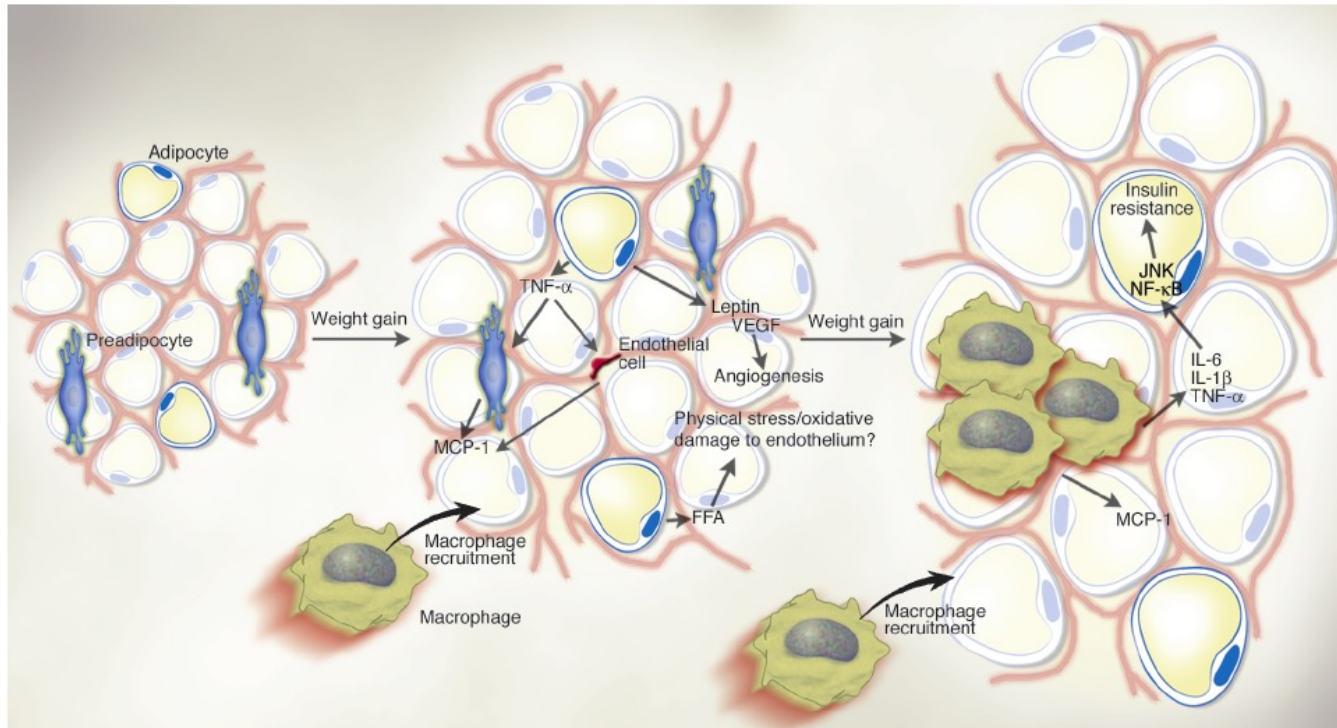
Lancet 2021;398:238



# Förekomst av diabetes i relation till BMI i olika populationer

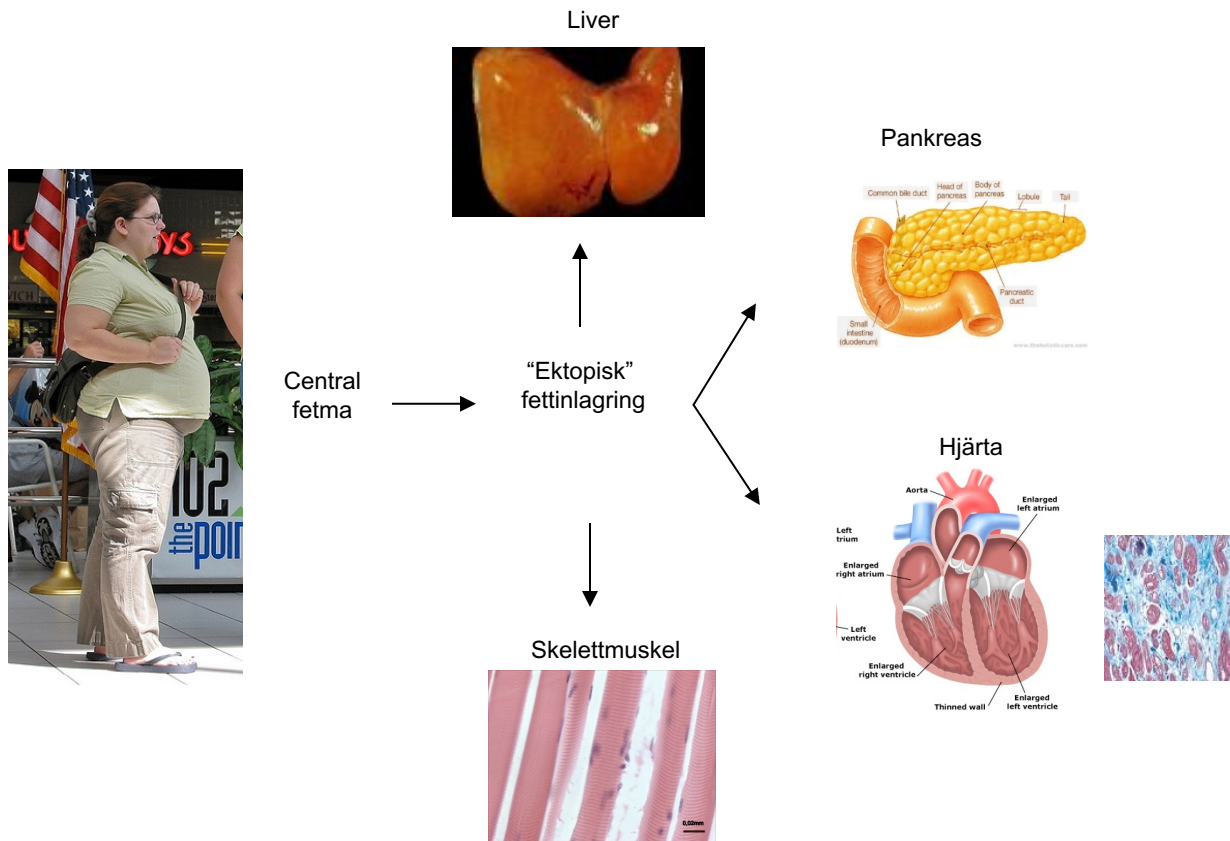


# HIV o a infektioner: Inflammation i fettväven



Fr Wellen & Hotamisligil, 2003

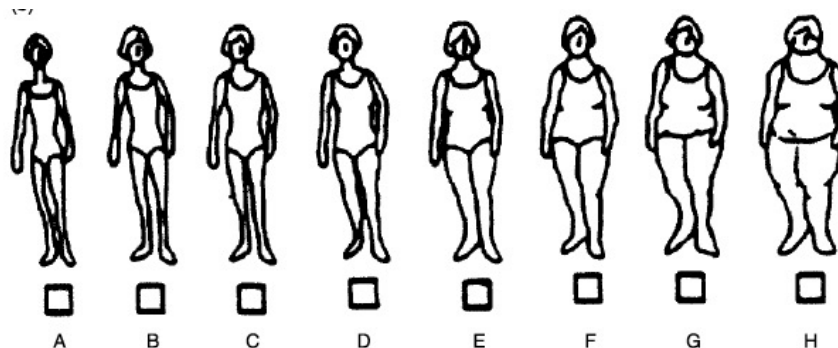
# Antivirala läkemedel kan bidra till ektopisk fettinlagring



# Covid-19 and diabetes in Africa: a lethal combination

- Svårare sjukdomsförlopp
- Samtidiga andra sjukdomar
- Ej kunnat betala mediciner
- Sämre service från vården
- Ej screening av sekundärkomplikationer

# ETHNIC DIFFERENCES IN BODY IMAGE



- Black mothers and daughters had a greater body size tolerance than white and mixed ancestry counterparts.
- Black women were more likely to regard fatness as a sign of **health, beauty, respect, happiness and no HIV**.

# Kenya

*LAST UPDATE: 03/02/2022*

Kenya is one of the 48 countries of the IDF African region. 463 million people have diabetes in the world and 24 million people in the AFR Region; by 2045 it will be around 55 million.

**Total adult population :** 27,783,400

**Prevalence of diabetes in adults :** 3.0%

**Total cases of diabetes in adults :** 821,500

Diabetologia (2022) 65:675–683

<https://doi.org/10.1007/s00125-021-05644-8>

ARTICLE



# Understanding the pathogenesis of lean non-autoimmune diabetes in an African population with newly diagnosed diabetes

Davis Kibirige<sup>1,2</sup> · Isaac Sekitoleko<sup>1</sup> · William Lumu<sup>3</sup> · Angus G. Jones<sup>4,5</sup> · Andrew T. Hattersley<sup>4,5</sup> · Liam Smeeth<sup>2</sup> · Moffat J. Nyirenda<sup>1,2</sup>

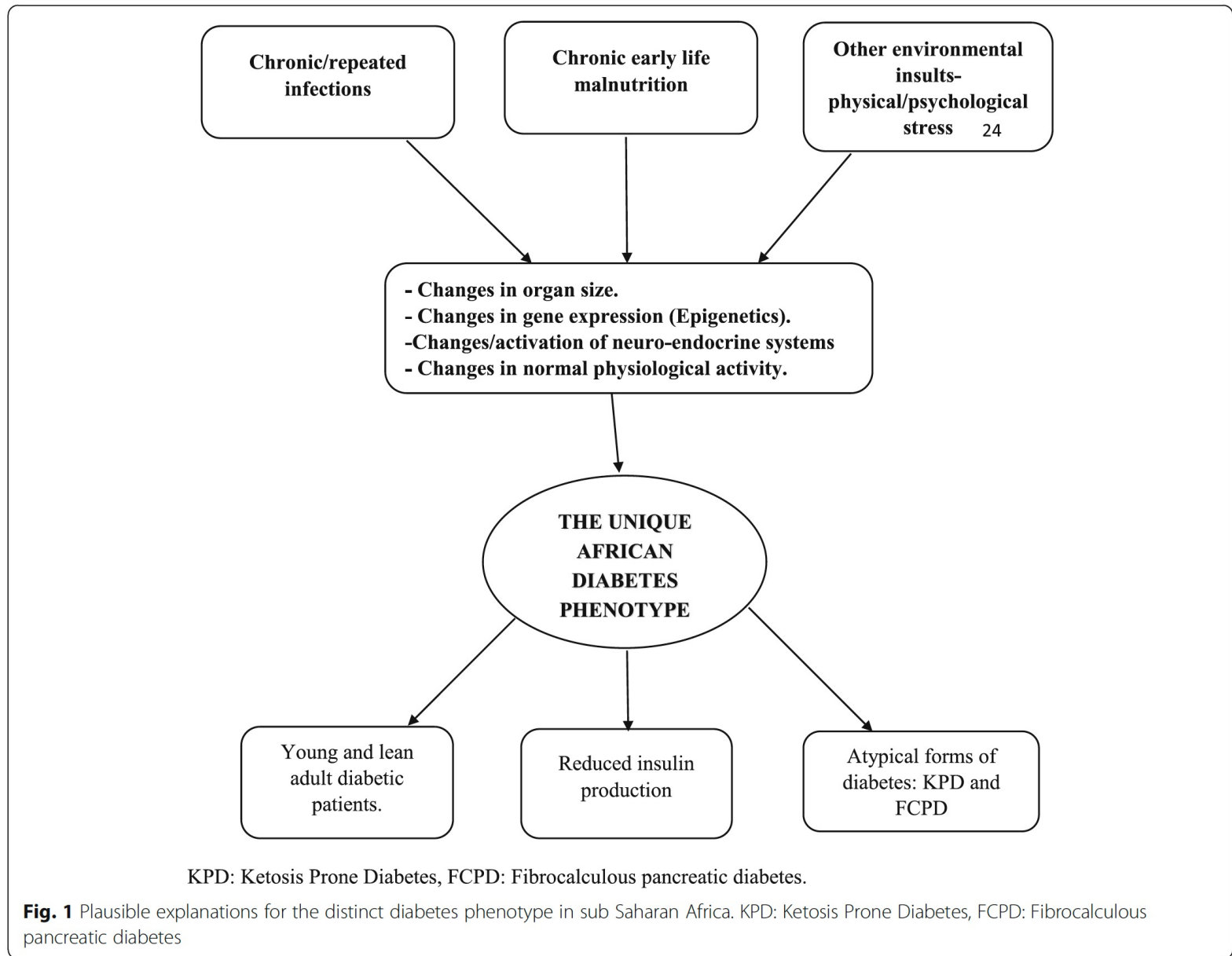
### **What are the new findings?**

- Approximately a third of adult patients presenting with type 2 diabetes in this study were lean (BMI <25 kg/m<sup>2</sup>)
- Type 2 diabetes in these lean adult individuals is not associated with traditional markers of the metabolic syndrome
- Mechanistically, type 2 diabetes in these lean patients was associated predominantly with reduced pancreatic beta cell function



### **How might this impact on clinical practice in the foreseeable future?**

- The presence of type 2 diabetes in lean individuals and the related predominance of pancreatic beta cell dysfunction questions the effectiveness of traditional approaches of management and prevention of diabetes, such as lifestyle modification and pharmacological therapies like metformin, in this population. Alternative therapies, such as those that improve beta cell secretory function and/or mass, may be required



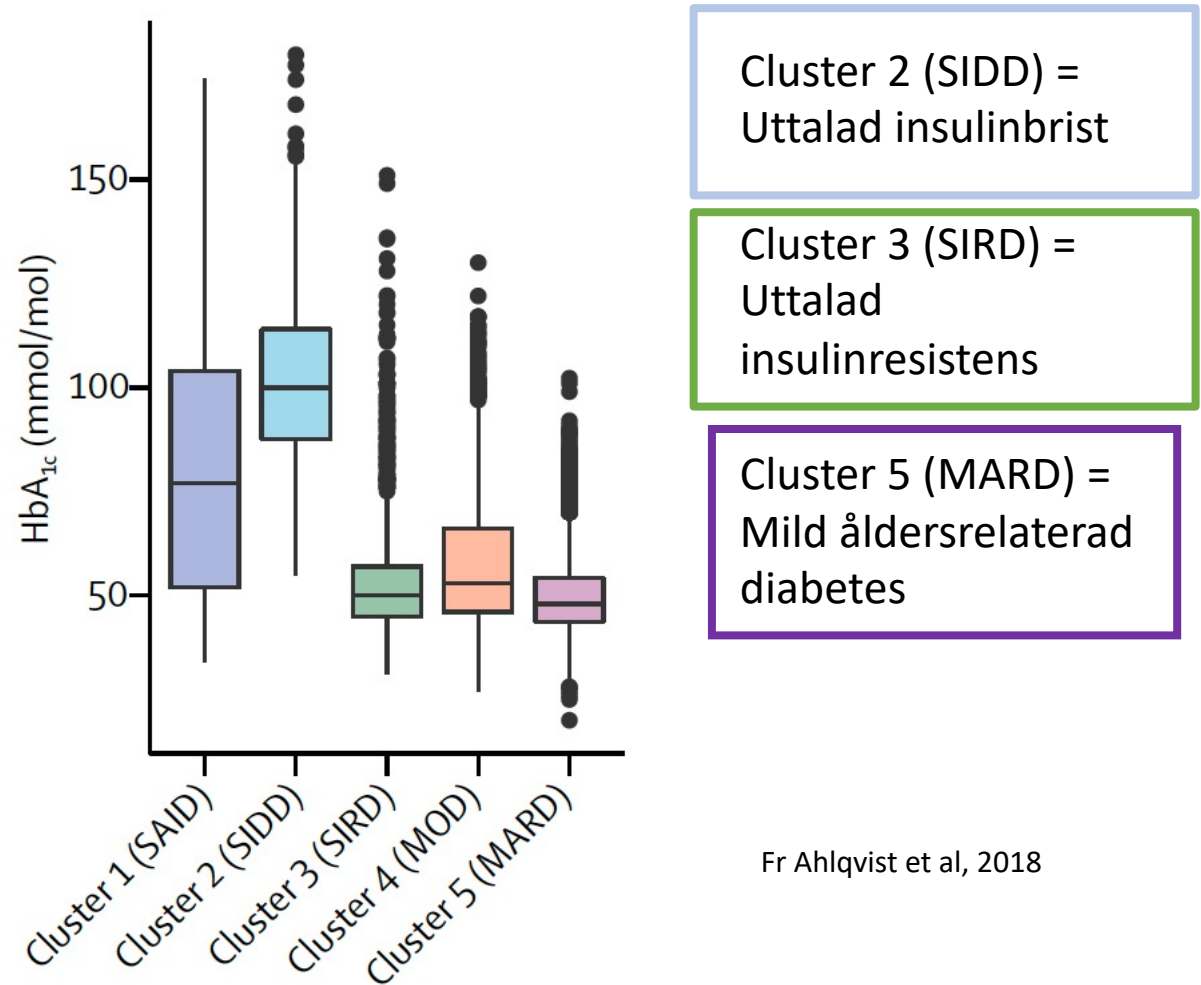
## Skillnader mellan folkgrupper i Kenya

- Maasai: Låg insulinkänslighet lever, hög d:o muskel. Högt intag av mättat fett - > leverförfettning?
- Luo: Högre insulinkänslighet lever. Högt intag av fibrer och fleromättade fettsyror

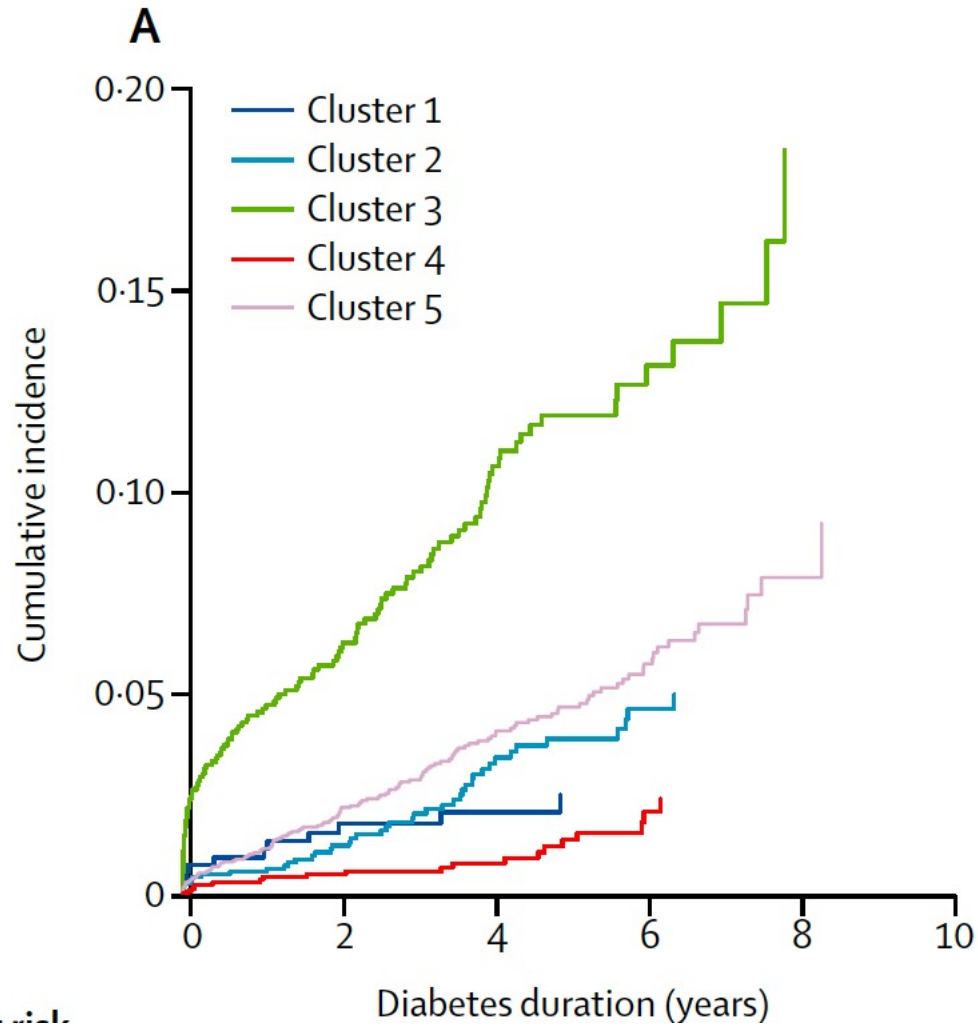
# Novel subgroups of adult-onset diabetes and their association with outcomes: a data-driven cluster analysis of six variables

*Emma Ahlqvist, Petter Storm, Annemari Käräjämäki\*, Mats Martinell\*, Mozhgan Dorkhan, Annelie Carlsson, Petter Vikman, Rashmi B Prasad, Dina Mansour Aly, Peter Almgren, Ylva Wessman, Nael Shaat, Peter Spégel, Hindrik Mulder, Eero Lindholm, Olle Melander, Ola Hansson, Ulf Malmqvist, Åke Lernmark, Kaj Lahti, Tom Forsén, Tiinamaija Tuomi, Anders H Rosengren, Leif Groop*

## Stor variation i glukosnivåer vid diagnos av T2D



...och stor skillnad i risk för njursjukdom



Fr Ahlqvist et al, 2018

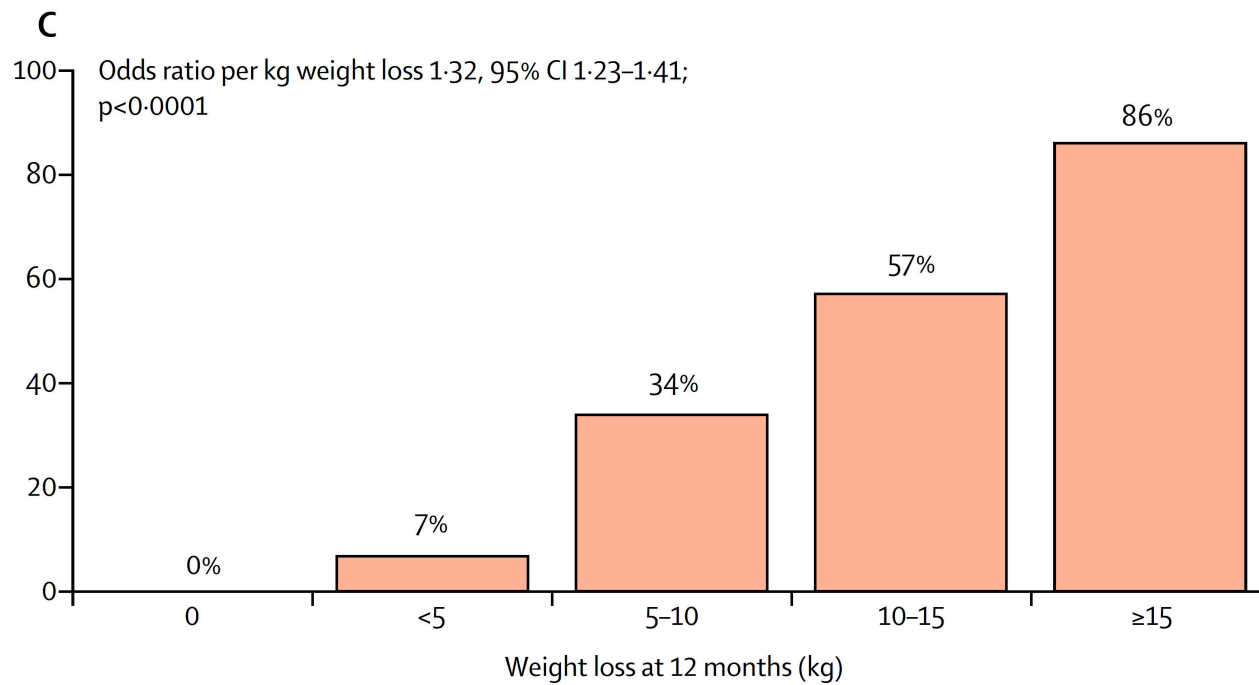
# Durability of a primary care-led weight-management intervention for remission of type 2 diabetes: 2-year results of the DiRECT open-label, cluster-randomised trial

*Michael E J Lean\*, Wilma S Leslie, Alison C Barnes, Naomi Brosnahan, George Thom, Louise McCombie, Carl Peters, Sviatlana Zhyzhneuskaya, Ahmad Al-Mrabeh, Kieren G Hollingsworth, Angela M Rodrigues, Lucia Rehackova, Ashley J Adamson, Falko F Sniehotta, John C Mathers, Hazel M Ross, Yvonne McIlvenna, Paul Welsh, Sharon Kean, Ian Ford, Alex McConnachie, Claudia-Martina Messow, Naveed Sattar, Roy Taylor\**

Lean MEJ et al Lancet Diabetes Endocrinol 2019;7:344



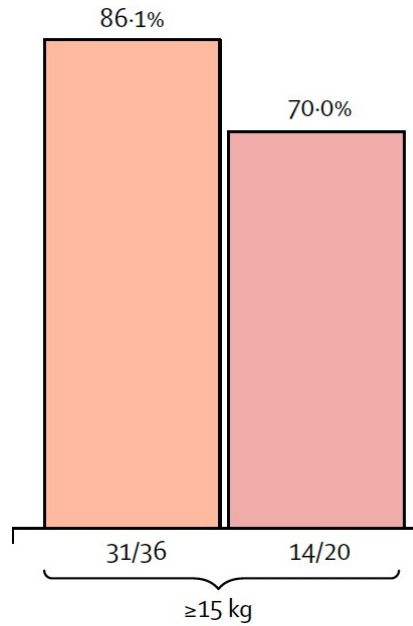
# Viktningedgang minst 15 kg ger diabetesremission hos dom flesta



Lean MEJ et al Lancet, 2019

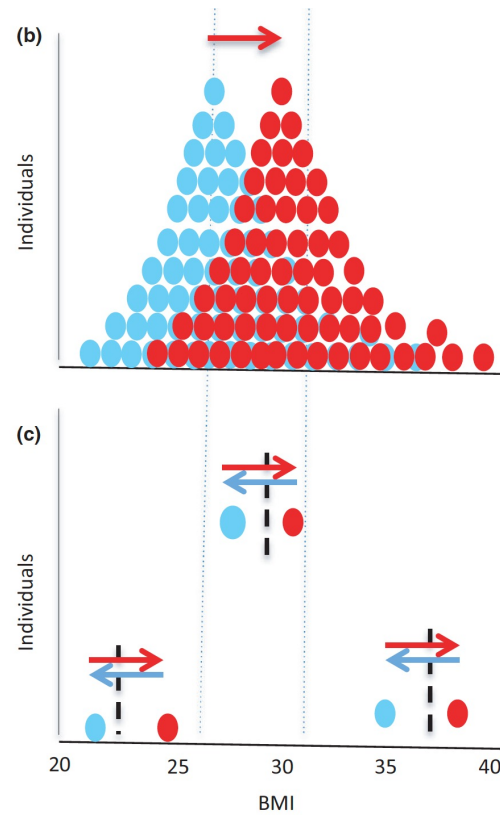


...med god långtidseffekt

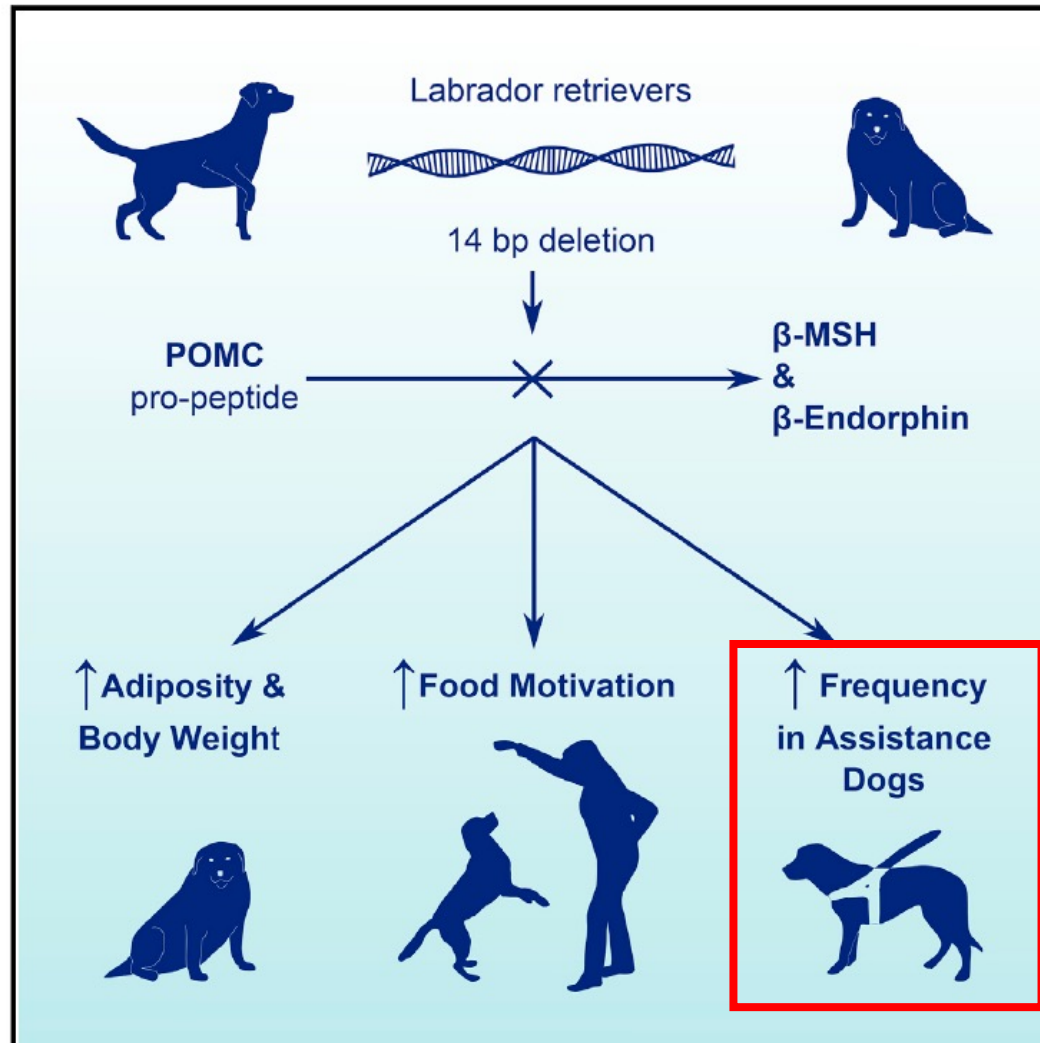


Lean MEJ et al Lancet Diabetes  
Endocrinol 2019;7:344

# Den individuella tröskeln....(Taylor)



# Varför är labradorer så träningsvilliga?

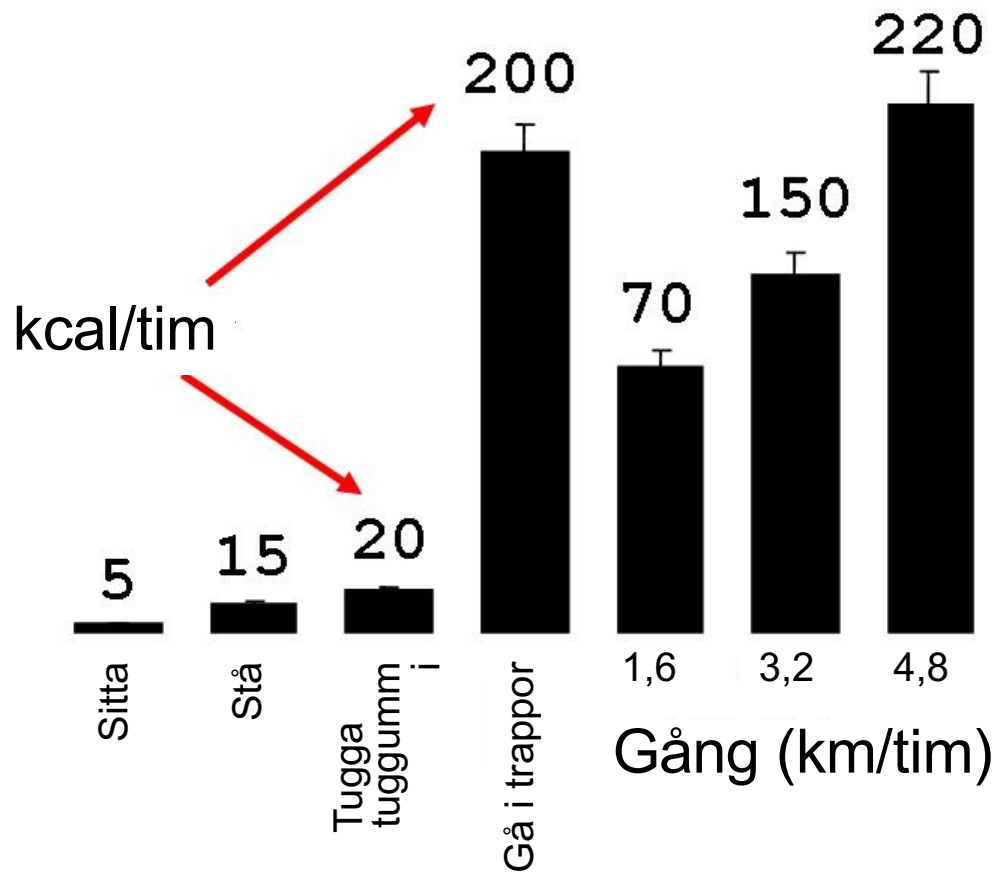


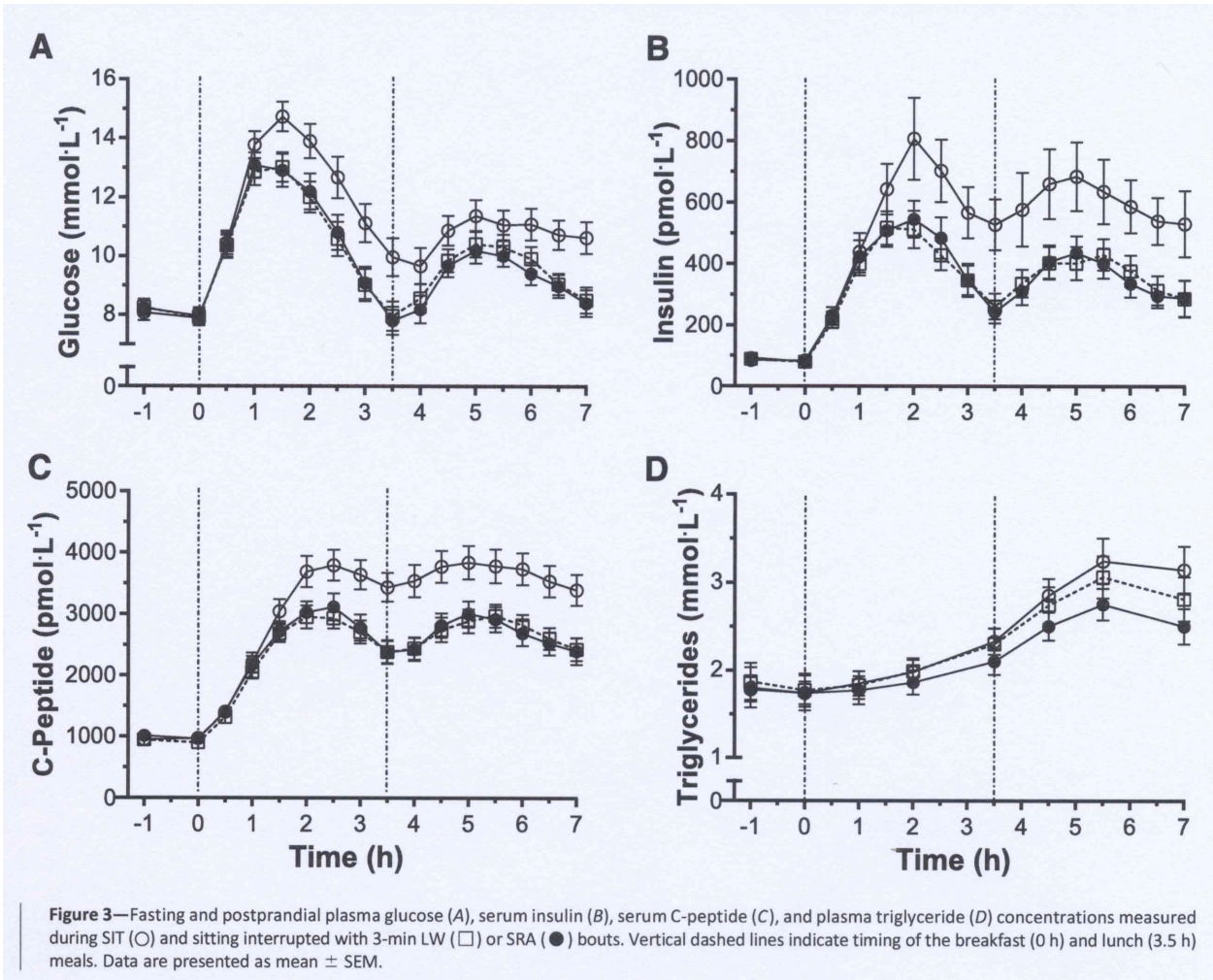
Fr Raffan et al,  
2016

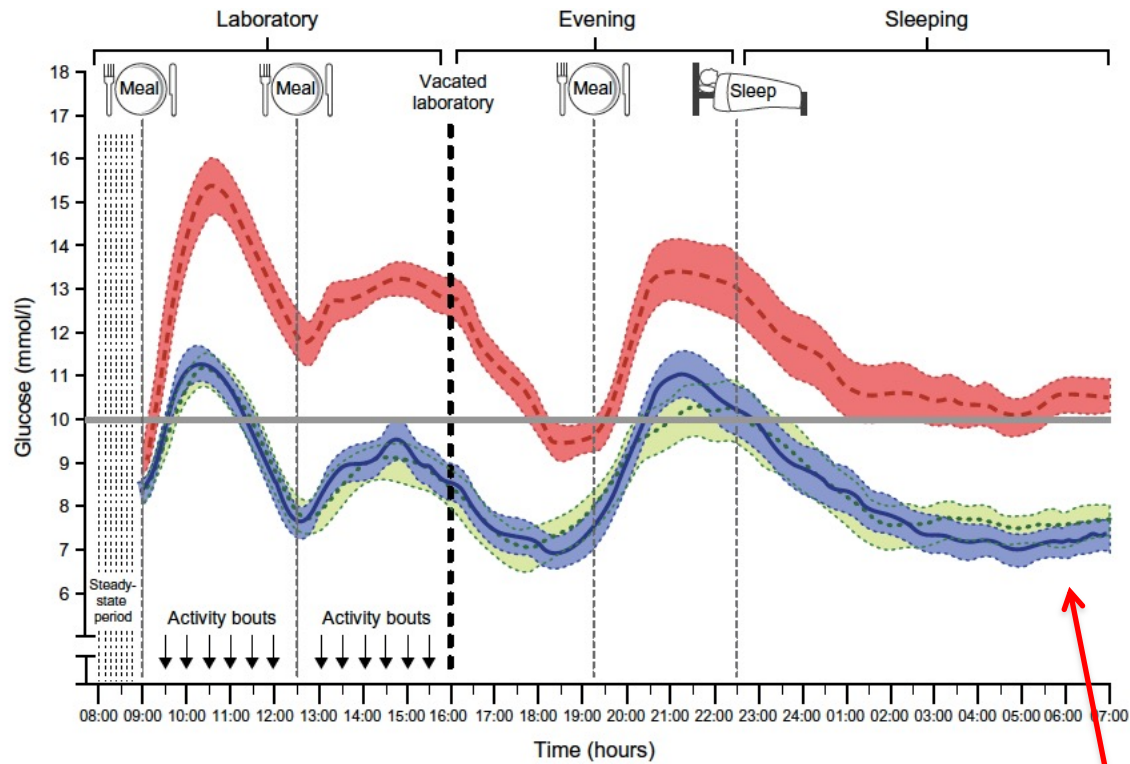
Vardagsmotion

Förlust av 1000-2000 kcal/dygn









2,7 mmol/l  
sänkning!

“The high burden of diabetes and hypertension in Africa is a global emergency of today”

Jaffar S et al. Lancet 2021;398:1111