

# **Challenges of Managing Diabetes as a Chronic Condition in Black and Minority Ethnic Patients**

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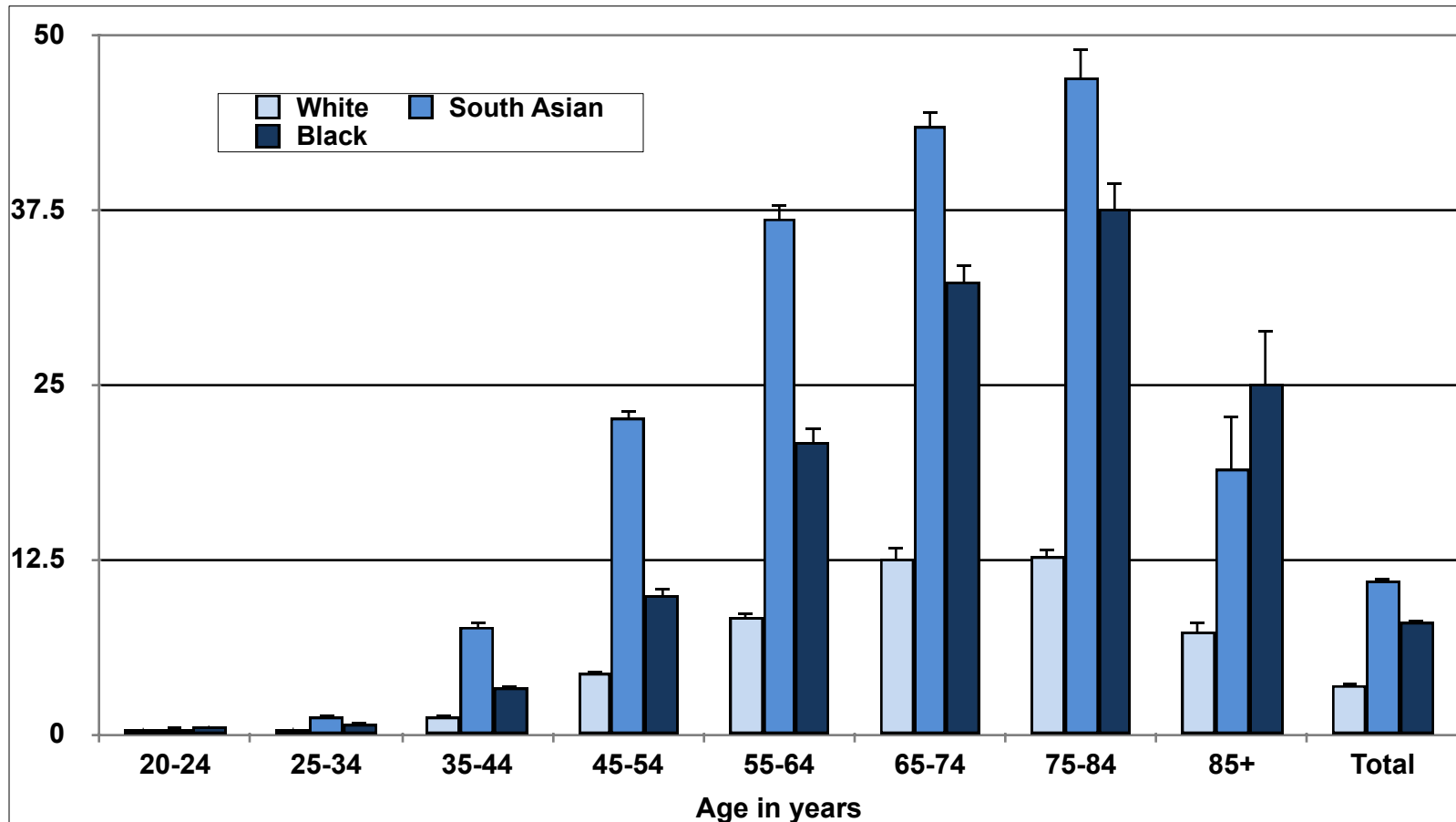
**April 2015**

# **Which ethnic populations are at risk of Type 2 Diabetes and how common ?**

# Prevalence of DM in UK ethnic Population.

Minority ethnic group	Men	Women
Bangladeshi	8.2%	5.2%
Black African	5%	2.1%
Black Caribbean	10%	8.4%
Chinese	3.8%	3.3%
Indian	10.1%	5.9%
Irish	3.6%	2.3%
Pakistani	7.3%	8.6%
General population	4.3%	3.4%

# Prevalence of Diabetes Mellitus by age and ethnicity east London 2006-7



# Ethnicity & Diabetes

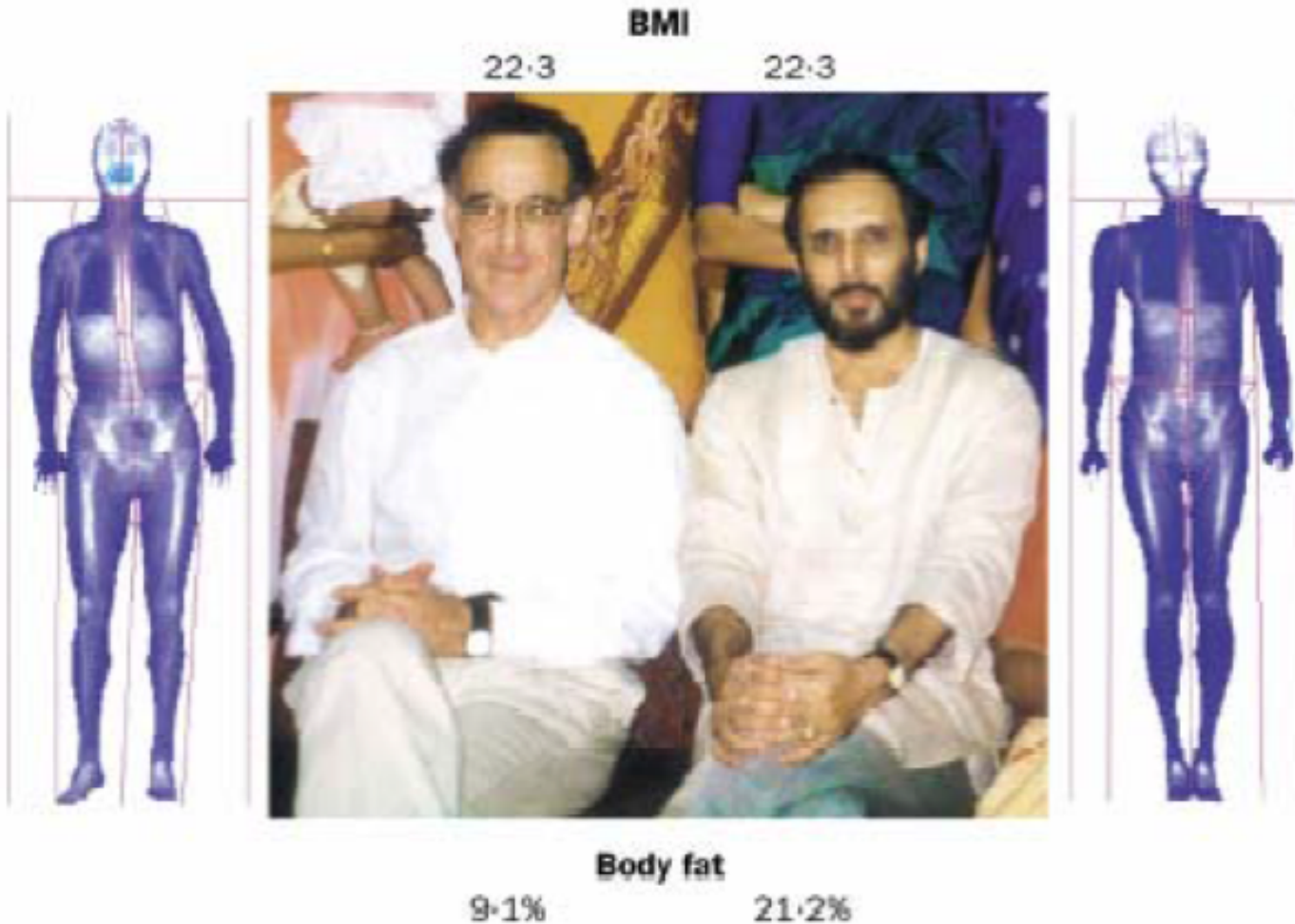
- Type 2 diabetes is up to six times more common in people of South Asian descent and up to three times more common among people of African and African-Caribbean origin
- According to the *Health Survey for England 2004*, doctor-diagnosed diabetes is almost four times as prevalent in Bangladeshi men, and almost three times as prevalent in Pakistani and Indian men compared with men in the general population.
- Among women, diabetes is more than five times as likely among Pakistani women, at least three times as likely in Bangladeshi and Black Caribbean women, and two-and-a-half times as likely in Indian women, compared with women in the general population.

# **Key differences in Diabetes in Ethnic Populations**

# Key differences in Diabetes in Ethnic Populations

- Age of onset:
- Family history:
- BMI and Diabetes Risk:
- Risk of complications:
  - Microvascular
  - Macro vascular
- Risk of Cardiovascular disease:

# Ethnicity and obesity



For a given BMI South Asians have a higher fat percentage than those of European origin

[http://pdf.thelancet.com/pdfdownload?uid=llan.363.9403.clinical\\_picture.28291.1&x=x.pdf](http://pdf.thelancet.com/pdfdownload?uid=llan.363.9403.clinical_picture.28291.1&x=x.pdf)



# Abdominal obesity and waist circumference thresholds

- **New IDF criteria:**

	<b>Men</b>	<b>Women</b>
<b>Europid</b>	<b>≥94 cm (37.0 in)</b>	<b>≥80 cm (31.5 in)</b>
<b>South Asian</b>	<b>≥90 cm (35.4 in)</b>	<b>≥80 cm (31.5 in)</b>
<b>Chinese</b>	<b>≥90 cm (35.4 in)</b>	<b>≥80 cm (31.5 in)</b>
<b>Japanese</b>	<b>≥85 cm (33.5 in)</b>	<b>≥90 cm (35.4 in)</b>

## **Current NCEP ATP-III criteria**

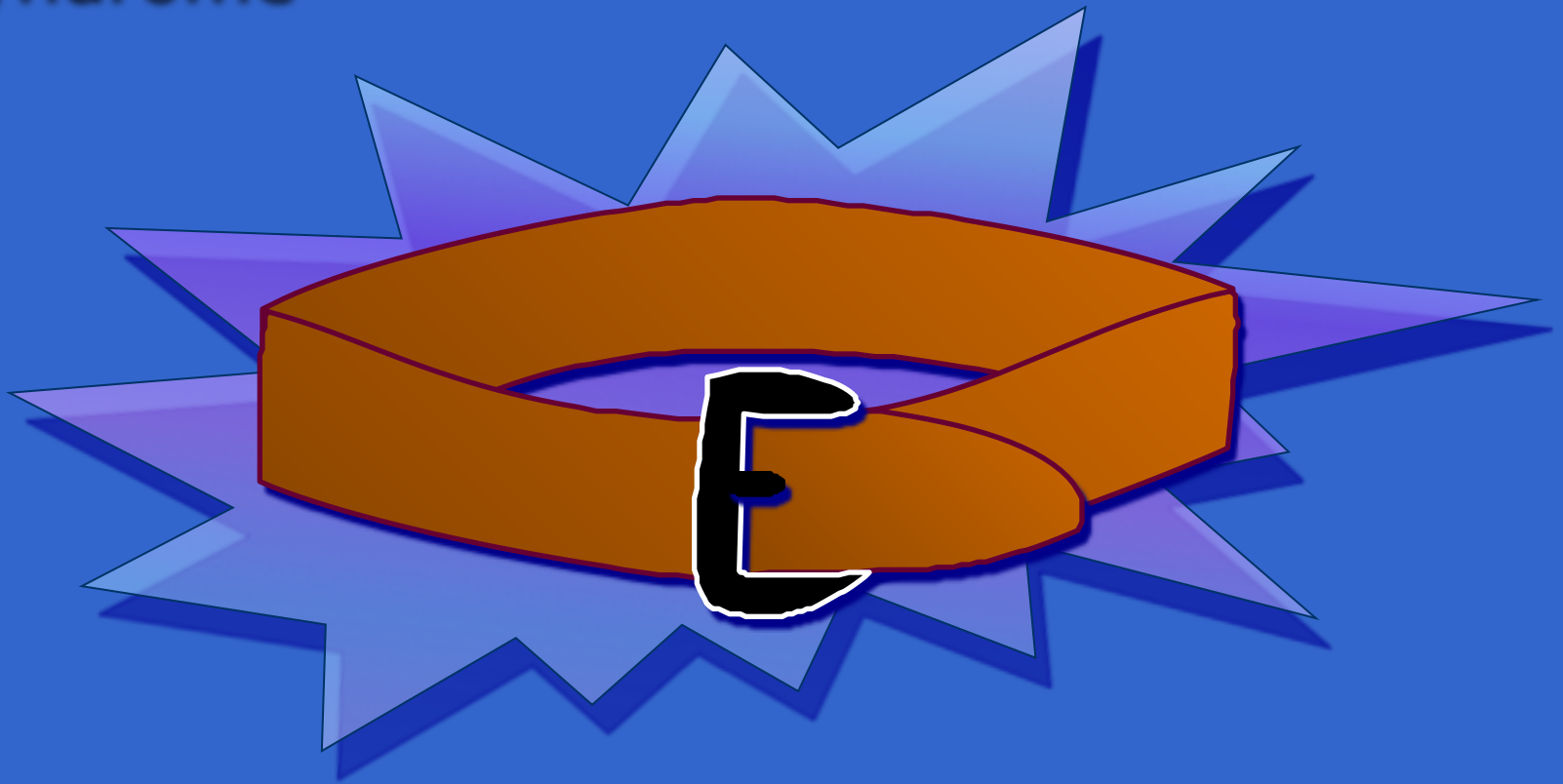
**>102 cm (>40 in) in men, >88 cm (>35 in) in women**

Not all fat is the same !!!!!



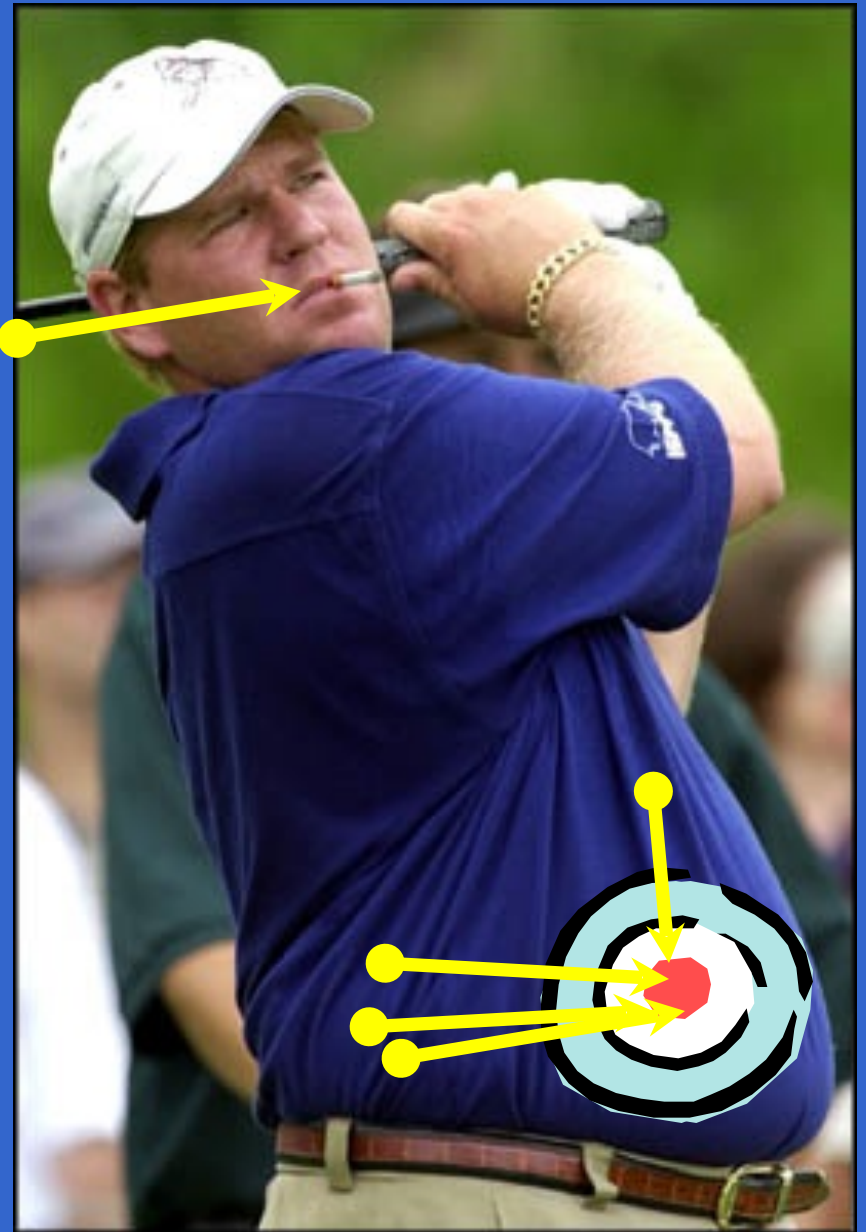
Pear and Apple

# Elevated Waist Circumference: A Key Feature in Patients with the Metabolic Syndrome



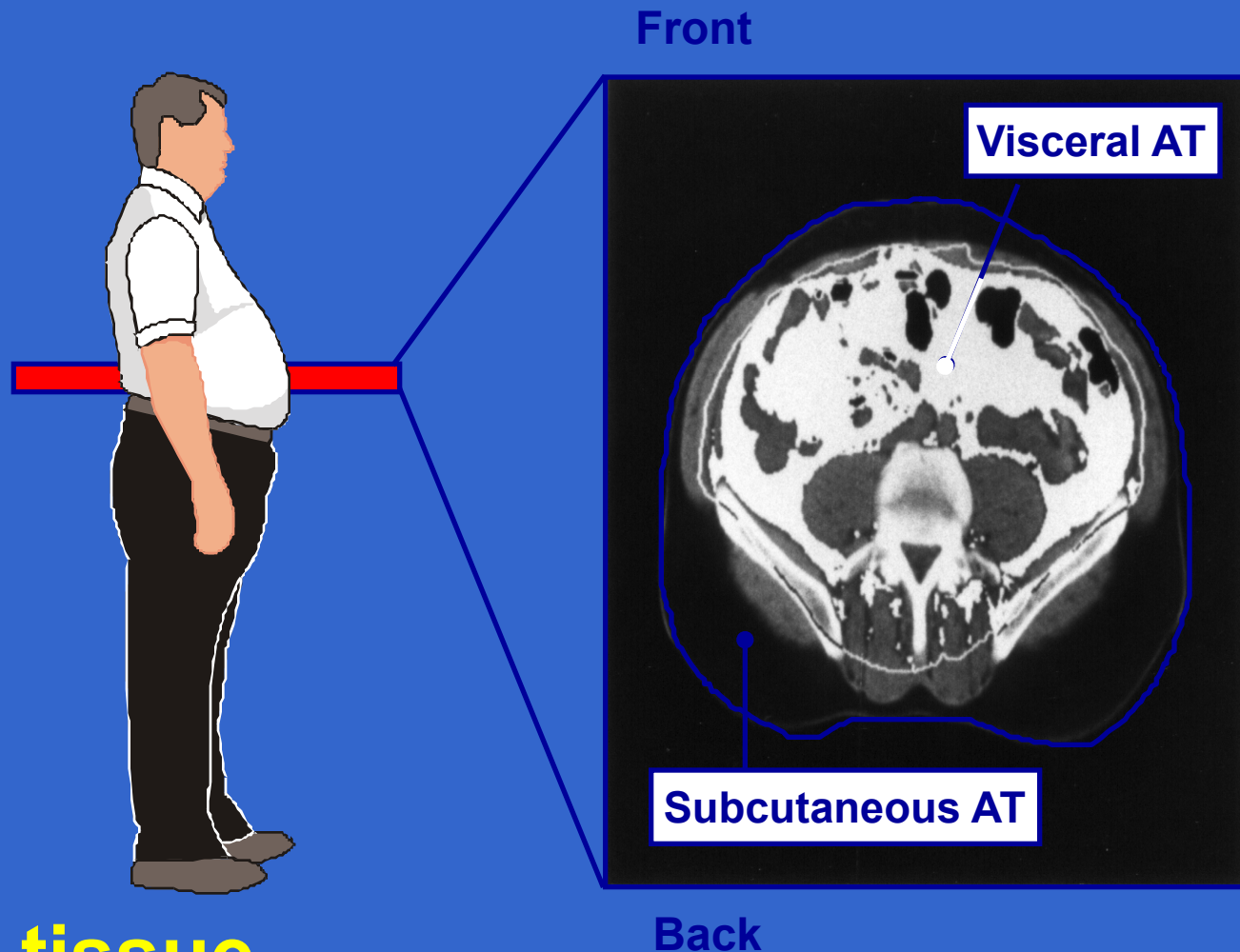
## A Vital Sign!!

This is the “at risk” patient I’m talking about



# Intra-abdominal (visceral) fat: The dangerous inner fat !

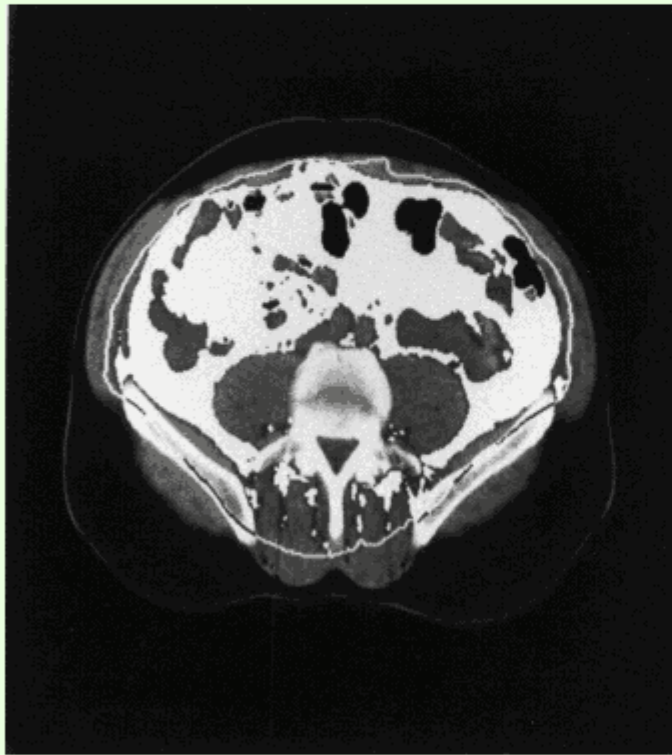
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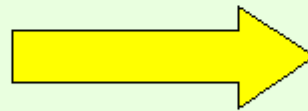
**AT: adipose tissue**

# Central obesity: a driving force for cardiovascular disease & diabetes

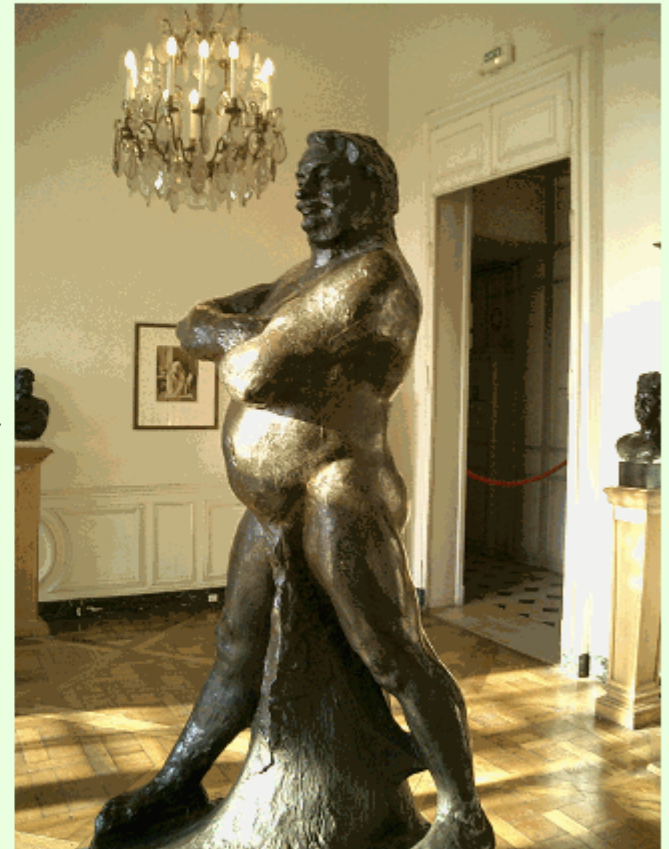
Front



Back

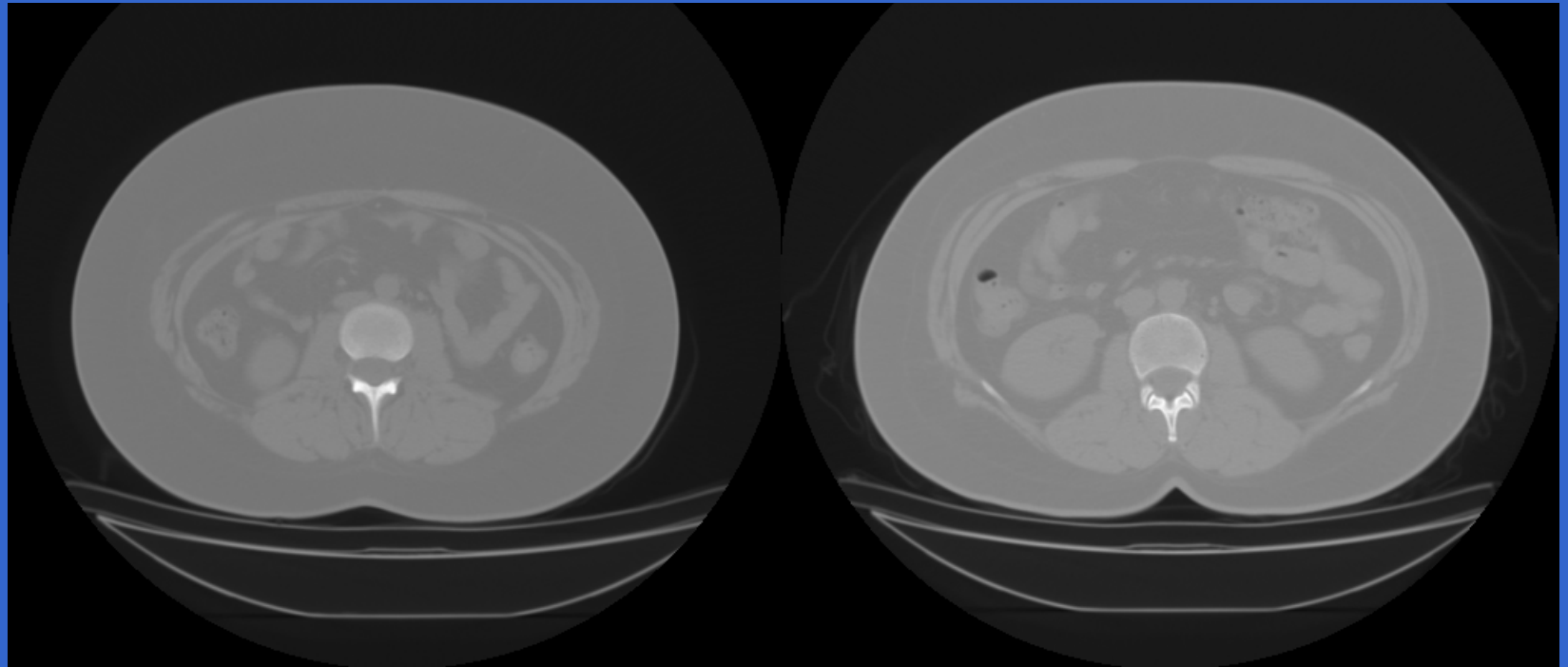


"Balzac" by Rodin



# Visceral adipose tissue is associated with metabolic risk

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Weight	110 kg	110kg
Waist (cm)	92.0	104.5
CT surface (cm <sup>2</sup> )	92.7	149.4
Ultrasound (cm)	6.2	8.4

# Genetic factors and Diabetes

- Genetic factors
  - Increases risk in Ethnic
  - Born with increased risk
- Urbanisation
  - Adopting a western life style/diet
- Obesity
  - Rising frequency in conjunction with genetic risk





# Key differences in Diabetes in Ethnic Populations\*

- Age of onset: **Younger in general**
- Family history: **Strong – genetic predisposition**
- BMI and Diabetes Risk: **lower BMI cut of limits**
- Risk of complications:
  - Microvascular: **Higher risks**
  - Macro vascular: **Higher risks**
- Risk of Cardiovascular disease: **Greater morbidity & mortality**

\*Speakers own personal experience

# BMI & Diabetes in Asian /Black

**Obesity:** rates are lower if using conventional BMI cut of limits

- E.g. Indian Men 14% : women 20%
- Bangladeshi Men 6%: women 17%
- Caucasian Men 23%: women 23%
- BMI cut-off points 25 kg/m<sup>2</sup> (overweight) and 30 kg/m<sup>2</sup> (obesity)

## South Asian groups

- BMI cut-off points 23 kg/m<sup>2</sup> (overweight) and 27.5 kg/m<sup>2</sup> (obesity) (NICE)
- Central obesity/ adiposity/intra-abdominal fat
- Insulin resistance
- Treatments with ethnic specific BMI: GLP-1

The association between body mass index and health-related quality of life: influence of ethnicity on this relationship. McDonough C(1), Dunkley AJ, Aujla N, Morris D, Davies MJ, Khunti K. Diabetes Obes Metab. 2013 15:342-8.

**Table 5 | Adjusted hazard ratios (95% CI) for cardiovascular disease for QRISK2 model in derivation cohort (see figure 1 for effect of age on relevant hazard ratios where there are age interactions)**

	Women	Men
White/not recorded	1	1
Indian	1.43 (1.24 to 1.65)	1.45 (1.29 to 1.63)
Pakistani	1.80 (1.5 to 2.17)	1.97 (1.70 to 2.29)
Bangladeshi	1.35 (1.06 to 1.72)	1.67 (1.40 to 2.01)
Other Asian	1.15 (0.86 to 1.54)	1.37 (1.09 to 1.72)
Black Caribbean	1.08 (0.94 to 1.24)	0.62 (0.53 to 0.73)
Black African	0.58 (0.42 to 0.82)	0.63 (0.47 to 0.85)
Chinese	0.69 (0.44 to 1.10)	0.51 (0.32 to 0.83)
Other	1.04 (0.85 to 1.28)	0.91 (0.75 to 1.10)
Age (10% increase)*	1.66 (1.65 to 1.68)	1.59 (1.58 to 1.60)
BMI (5 unit increase)	1.08 (1.06 to 1.10)	1.09 (1.07 to 1.11)
Townsend score (5 unit increase)	1.37 (1.34 to 1.40)	1.18 (1.16 to 1.20)
Systolic blood pressure (mm Hg) (20 unit increase)	1.20 (1.18 to 1.22)	1.19 (1.17 to 1.20)
Cholesterol/HDL ratio	1.17 (1.16 to 1.18)	1.19 (1.18 to 1.20)
Family history coronary heart disease	1.99 (1.92 to 2.05)	2.14 (2.08 to 2.20)
Current smoker	1.80 (1.75 to 1.86)	1.65 (1.60 to 1.70)
Treated hypertension	1.54 (1.45 to 1.63)	1.68 (1.60 to 1.77)
Type 2 diabetes	2.54 (2.33 to 2.77)	2.20 (2.06 to 2.35)
Rheumatoid arthritis	1.50 (1.39 to 1.61)	1.38 (1.25 to 1.52)
Atrial fibrillation	3.06 (2.39 to 3.93)	2.40 (2.07 to 2.79)
Renal disease		

## Risk Factors Identified in Men in the Health Survey for England, 1999

Standardised risk ratio	Indian	Pakistani	Bangladeshi	General population
Current smoker	0.78	0.90	1.57	1.0
BMI >30 kg/m <sup>2</sup>	0.66	0.74	0.32	1.0
WHR >0.95 (men)	1.48	1.54	1.33	1.0
High blood pressure (≥140/90 mmHg)	1.03	0.89	0.74	1.0
Physical activity*	0.86	0.70	0.55	1.0
HDL-C <1.0 mmol/L	1.11	1.67	2.68	1.0
Triglycerides ≥1.6 mmol/L	2.56	2.29	1.63	1.0
LDL-C ≥ 3.0 mmol/L	1.63	1.34	[0.90]	1.0
Total cholesterol ≥5.0 mmol/L	0.99	0.86	0.90	1.0

1. Boreham, R; Erens, B; Falaschetti, E; Hirani, V and Primatesta, P (1999) [Cardiovascular risk factors](#). In: Primatesta, P and Erens, B, (eds.) **Health Survey for England 1998**. The Stationery Office: London.

# **Barriers to diabetes care in ethnic populations**

# Barriers to diabetes care in ethnic populations

- Cultural barriers
- Language barriers
- Health beliefs / Poor Knowledge & understanding
- 1<sup>st</sup> generation immigrants vs 2<sup>nd</sup> generation
- Socioeconomic barriers
- Dietary habits poorly understood
- Exercise
- Medication belief / self medicate/ fear medication  
e.g. insulin
- Asymptomatic disease and harm

# Barriers to physical activity in East London Bangladeshis

- ***BIPOD study***
  - Physical activity and importance of diet widely acknowledged as important
  - Muslim prayer was frequently cited as sufficient to sustain health
  - Desire to exercise versus fear of social disapproval
  - Social expectation of ‘special foods’
  - Wife’s role as a provider of ‘tasty meals’ versus the guardian of the families health
- ***Knowledge of diabetes:***
  - Poorer knowledge of diabetes related issues amongst SAs

**T Choudhury et al. (Personal communication 2014).**

# How to address these barriers

- Cultural awareness in general by HCP
- Ramadan education
- Cultural appropriate educational resources
- Family /community leaders partnership
- Funding research in ethnic populations



# APNEE SEHAT

- ❑ Community based interventions in places of worship, community centres etc.
- ❑ Develop visuals – Posters, DVD



# EVALUATION

- Appropriate Role Model/Health Champions and Language of Delivery
  - Simple and Visual
  - Practical
  - Whole family/Community approach
  - Community & Religious leaders support
- 
- 5 national awards

# UKADS

- Test the hypothesis that structured, culturally sensitive care for type 2 diabetes in SAs can improve CV risk
- Pilot: 361 patients with T2D
- 6 GP practices in Coventry and B'ham
  
- Enhanced care – Asian linkworker contacted pts to encourage clinic attendance, organise educational sessions, and attended with pts to clinics to facilitate understanding and compliance

# UKADS

- Saw practice nurses, with input from DSNs worked to treatment protocols for BP, lipids and glycaemia
- Conventional – same protocols / targets, but no additional support

	Intervention	Control	P
SBP	-6.69	-2.11	0.035
DBP	-3.14	+0.28	0.003
Chol	-0.51	-0.12	0.005
HbA1c	-0.23	-0.20	0.866

# **Exercise & Physical activity**

What should I be aware of ?

# Exercise & Physical activity

- South Asians oxidise less fat during exercise compared to Caucasians
- More sedentary life styles in general
- Beliefs of exercise in women & men in ethnic populations e.g. mixed sex activity etc.
- SA/Black Children: less physical active compared to Caucasians
- **NEED** for cultural specific advise activity

# Glucose control in Ethnic patients

- Glycaemic control: some reports suggest worse control in ethnic populations
  - Poor concordance
  - Clinical inertia
  - Greater deterioration in insulin sensitivity over time
- Response to Pharmacotherapy
  - no difference in response to therapy
  - Some differences concerns

# Glycaemic control specific issues\*

- Metformin
- Sulphonylurea
- Pioglitazone
- DPP-4 inhibitors
- SGLT-2 inhibitors
- GLP-1 receptor agonists
- Insulins

\*Speakers own personal experience



# Glycaemic control and specific risks\*

- **Metformin**      Vitamin B12 –deficiency Vegans/vegetarian  
                         insulin sensitivity beneficial
- **Sulphonylurea**    fasting & risks, hypoglycaemia, weight gain.
- **Pioglitazone**     improves insulin sensitivity, weight gain, fracture risk
- **DPP-4 inhibitors** low risk of hypos and weight benefit, fasting beneficial
- **SGLT-2**            Weight loss, fasting beneficial, volume depletion(fasting),
- **GLP-1 receptor agonists** Weight loss, low hypo risk, BMI cut off
- **Insulins**            fasting and risks, risks with dietary habits, weight gain  
                         and stigma with insulin greater in black/Asian

\*Speakers own personal experience

# Dietary habits

- Extremely heterogeneous in ethnic populations
  - Typical high carb (bread, rice), Fat (butter, Ghee, oil, Salt (higher intake)
  - Overcook vegetables destroys nutrition
  - Food in fasting rituals, festivals and social role in SA / Black population
- Timing of meals
- Religious rituals: fasting / feasting impact on glycaemic control
- Lower intake of fresh fruits / vegetables
- Low level of vitamin D/ Vitamin C – dietary influence

# Summary\*

- High prevalence of DM in ethnic groups
- Central obesity more prevalent
- High risk of complications, mortality, morbidity
- Medication as effective
- Barriers to treatment adherence can be addressed to help this vulnerable group

**\*Speakers own personal experience**