ROLE OF BARIATRIC SURGERY IN MANAGEMENT OF OBESITY& OBESITY RELATED CO-MORBIDITIES

+

CURRENT STATUS OF BARIATRIC SURGERY IN MALAYSIA

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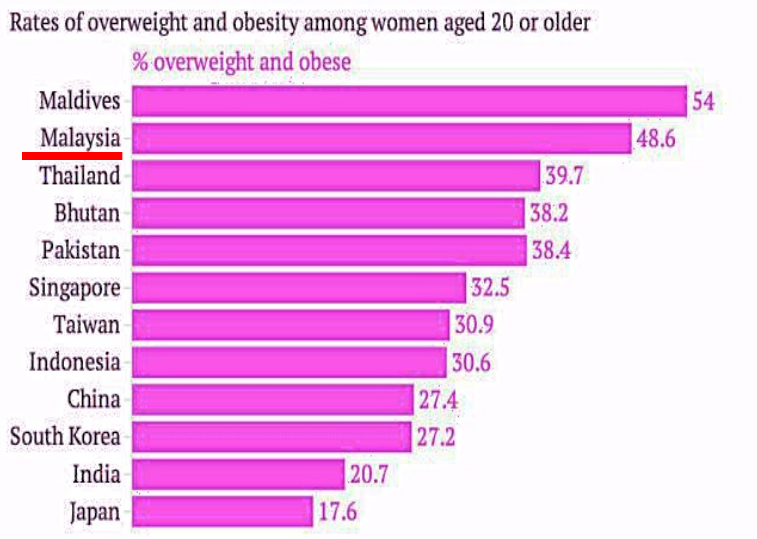
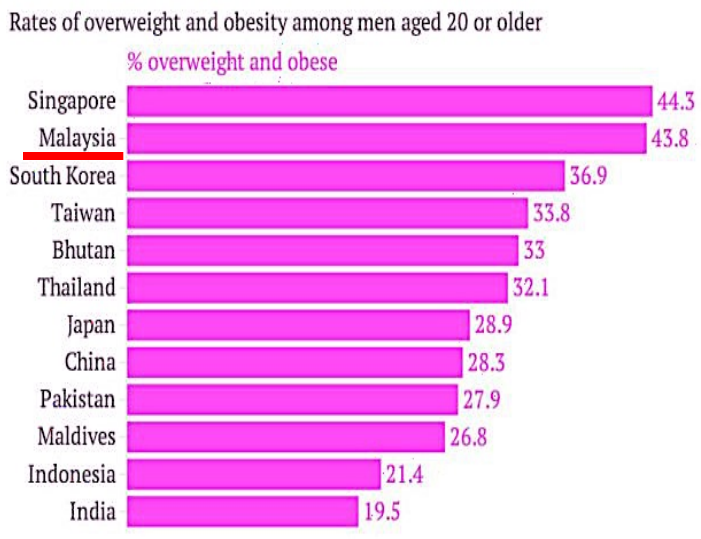
Universiti Kebangsaan Malaysia Medical Centre (UKMMC)
The National University of Malaysia

HOW OBESE ARE MALAYSIANS ?

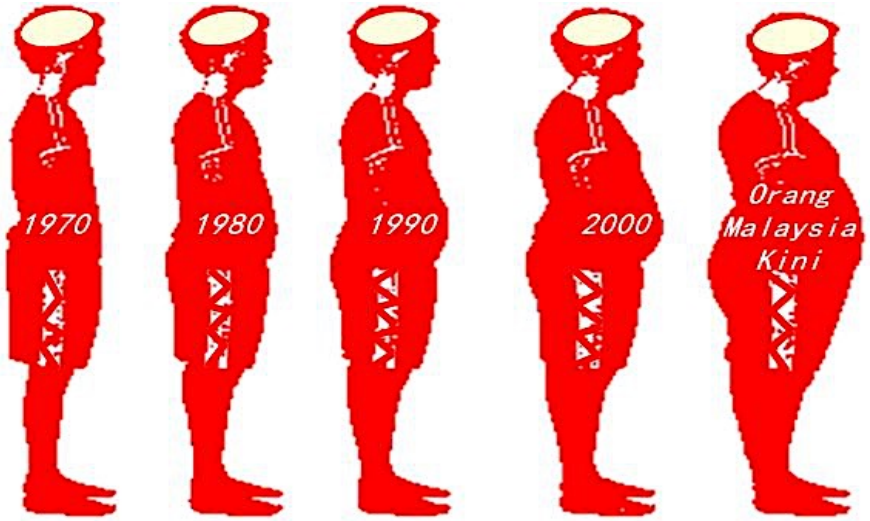
- 30 million population
- Malaysian is the **most obese** nation in **South East Asia**
- **Second most obese** nation in **Asia**
- 45% of our population is overweight and obese





[4] Ng, Marie, et al. "Global, regional, and national prevalence of overweight and obesity in children and adults during 1980–2013: a systematic analysis for the Global Burden of Disease Study 2013." The Lancet 384.9945 (2014): 766-781.

THE MALAYSIAN PHYSIQUE

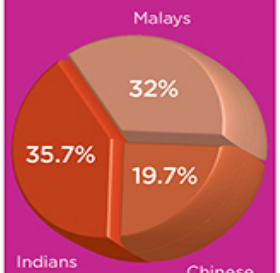


Who is fattest in ASEAN?

8.5 million Malaysian adults are overweight

4.4 million Malaysian adults are obese

Obese Malaysians



Malaysia's Favourite Foods And Their Calorie Content

Type of Food	Calorie (kcal) per serving
Nasi Lemak Rendang	600
Char Kuey Teow	332.4
Roti Canai Telur	357
Mee Bandung	519.1
Cendol	662.7
Ice Kacang	256
Teh Tarik	233
Curry puff	235

An Average Malaysian Adult's Daily Diet

Average Calories Needed For A Sedentary Lifestyle

Ideal Serving On A Plate

Eating Habits Of Malaysian Women

In a study on Malaysian women and their eating habits, this was the relationship between food and stress for half the participants...

levels of stress

consumption of unhealthy food

Many Local Delicacies Contain:

- Coconut milk
- Oil
- Refined carbohydrates
- High salt and sugar content

In 2010, **2004 food samples** were analysed by the Ministry of Health and **5.4%** were found to have **too much sugar**

Combat Obesity

No More Waiting!

I'll change my lifestyle ~~tomorrow~~

Today!

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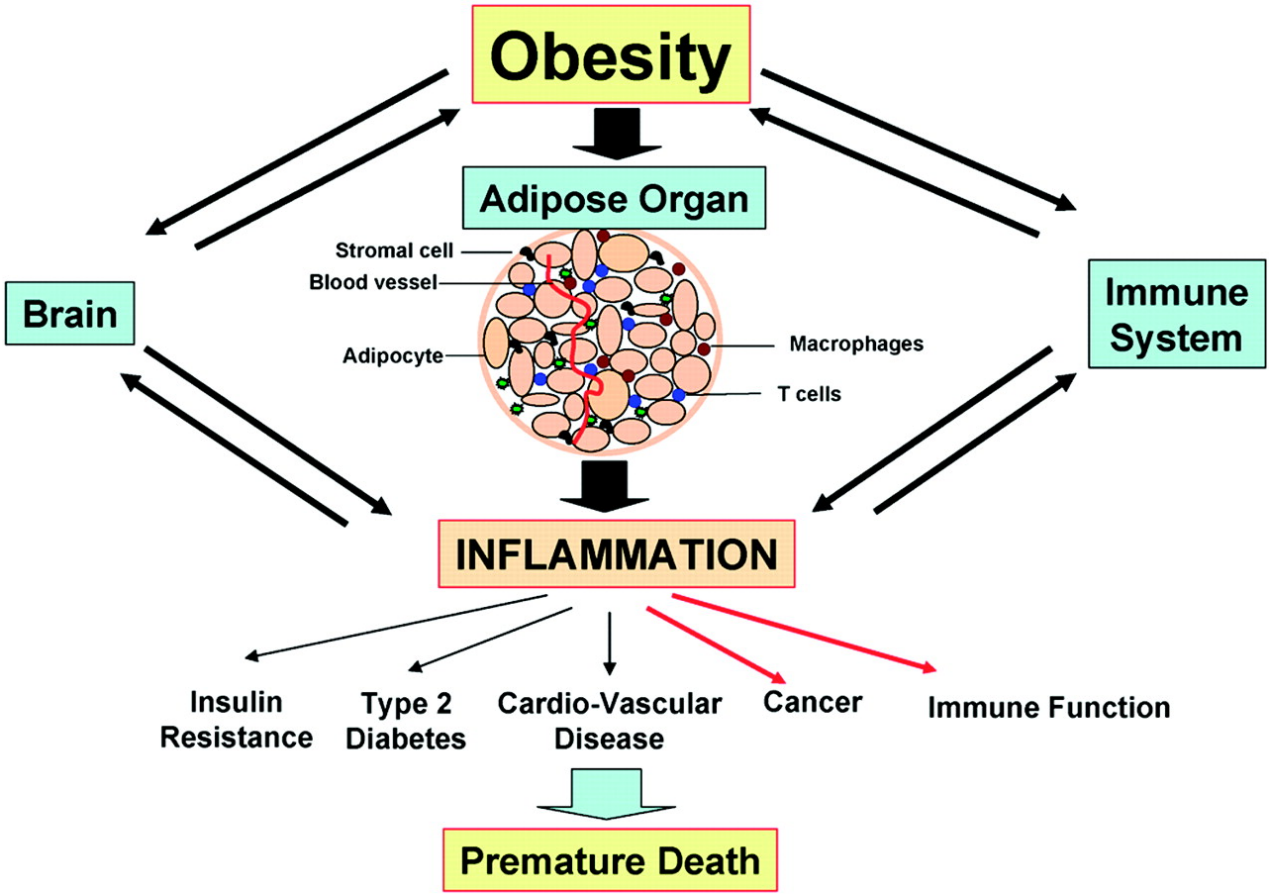
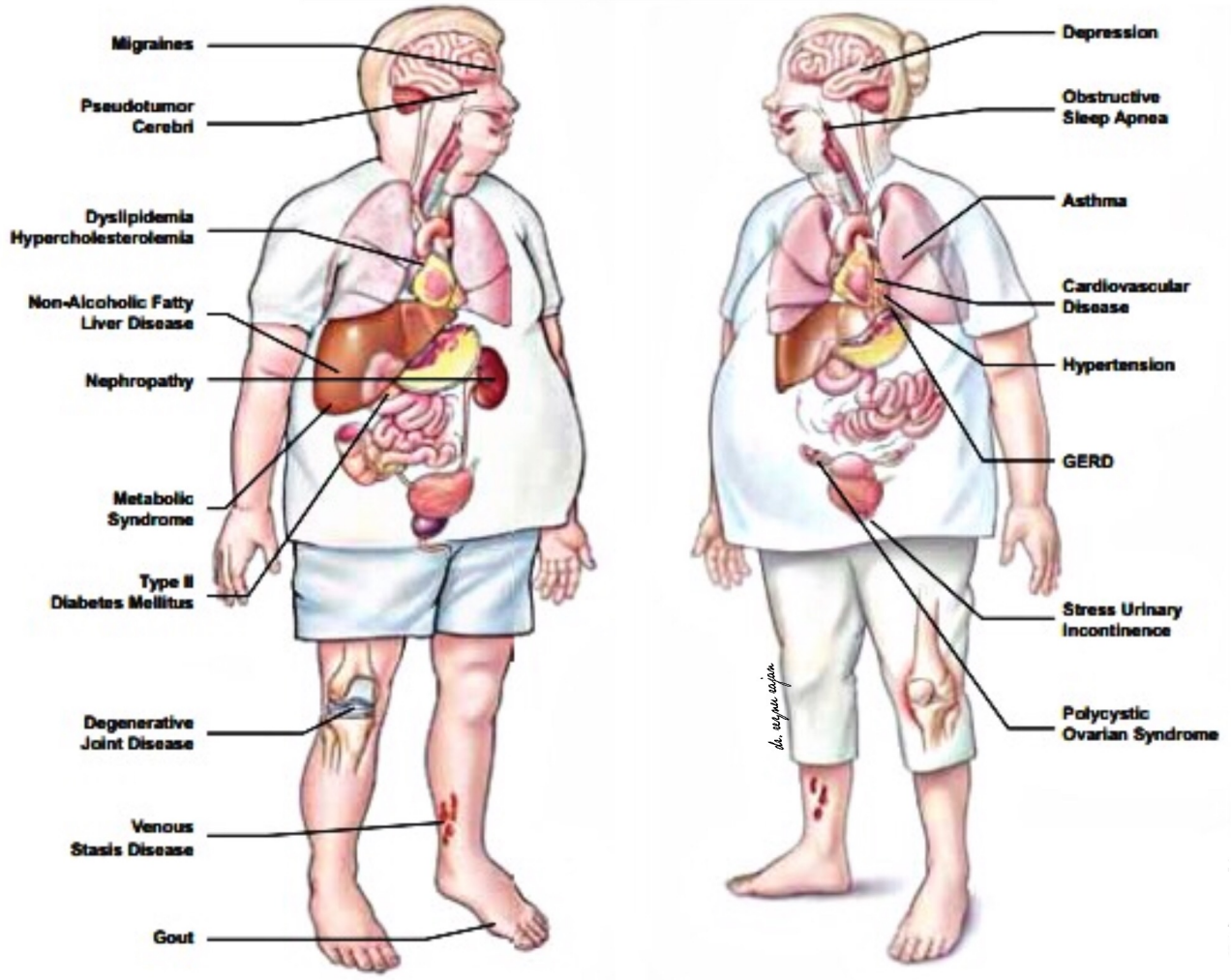
Azizan, Hanum. "Record-breaking Malaysia!" *The Star* 1 Jan. 2012. Web. 21 Oct. 2013.

OBESITY @ THE CULPRIT CAUSING MANY NCD'S



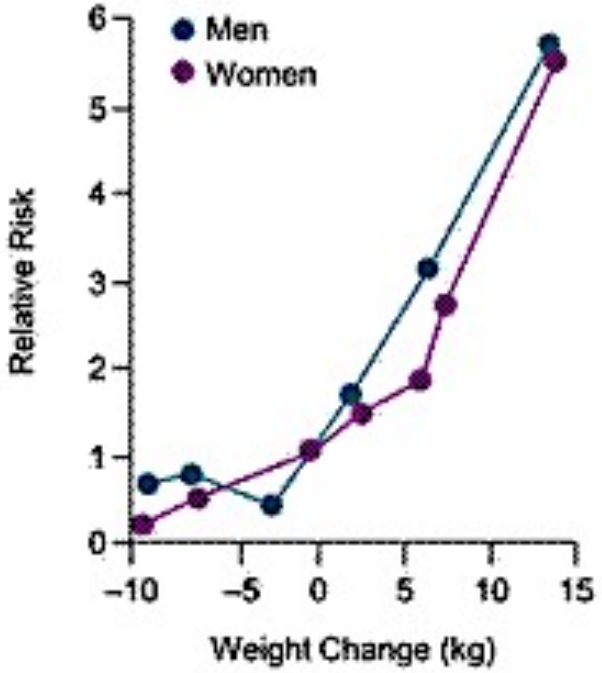
COMPLICATIONS OF OBESITY



DIABESITY : THE TWIN PANDEMIC

Relationship Between Increasing Body Weight and Diabetes Prevalence: 1990–2000

Relationship Between Weight Gain in Adulthood and the Risk of Type 2 Diabetes in Men and Women



Haffner SM. *Obesity (Silver Spring)*. 2006;14(suppl 3):121S–127S.

The Diabetes Epidemic is Out of Control : IDF 2009

International Diabetes Federation

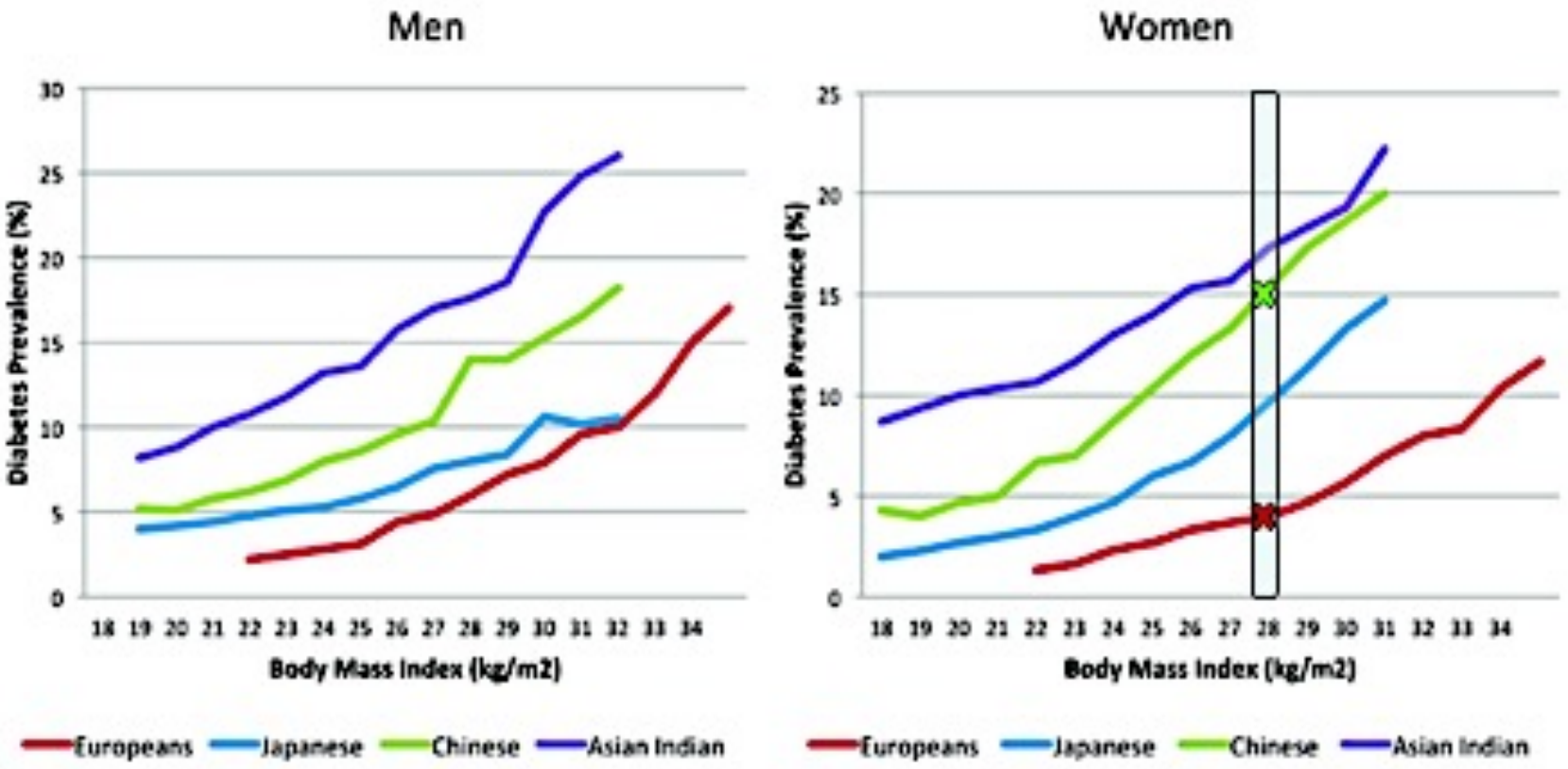
"The diabetes epidemic is out of control. We are losing ground in the struggle to contain diabetes. No country is immune and no country is fully equipped to repel this common enemy."

The epidemic represents nothing short of a global health emergency

Professor Jean Claude Mbanya- Past President IDF

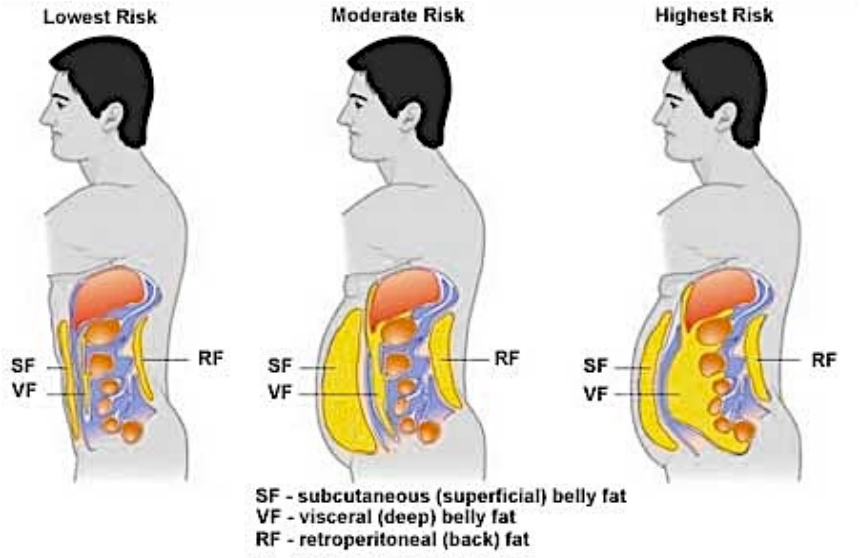
2009

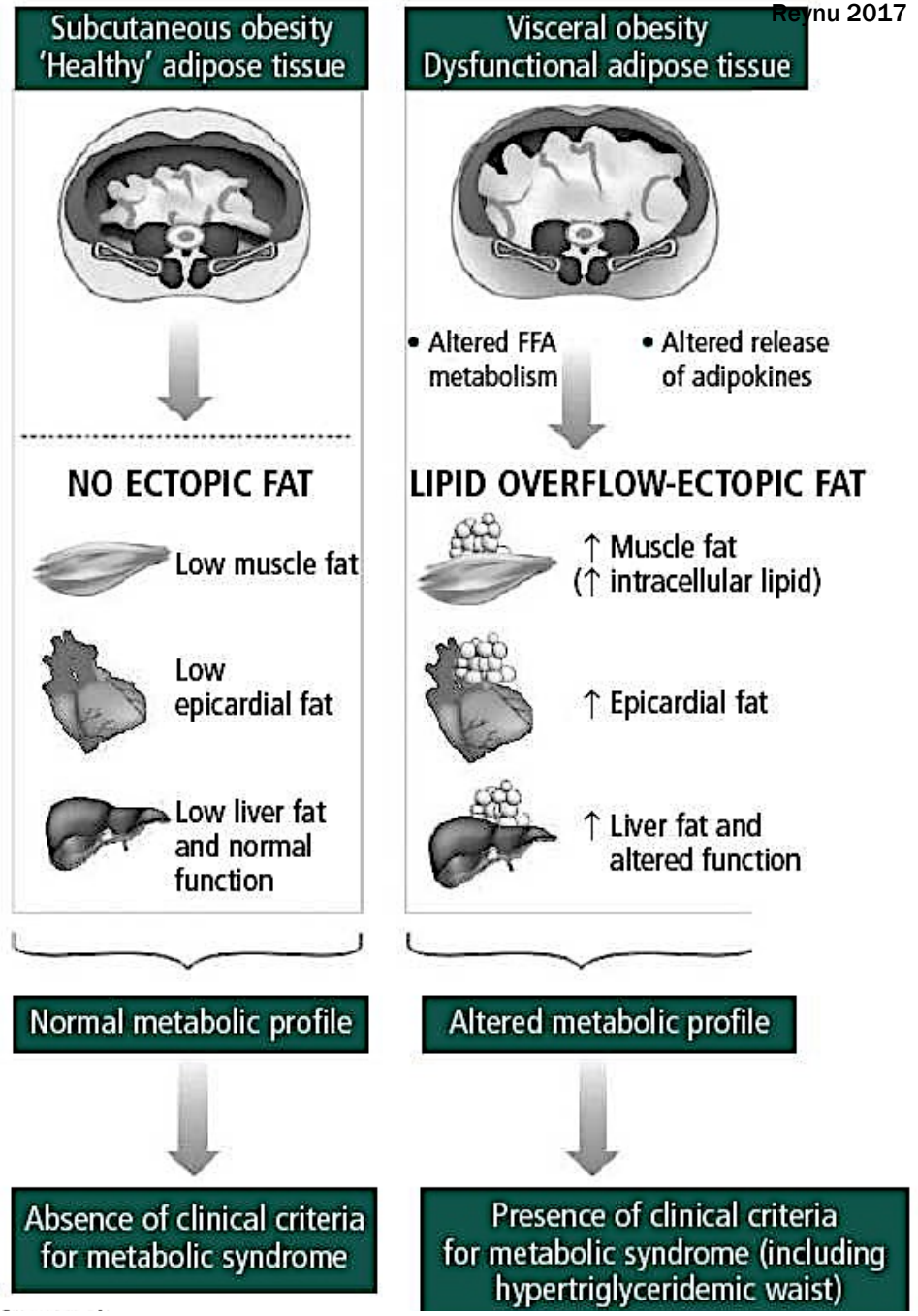
HIGHER PREVALENCE T2DM IN LOWER BMI ASIANS



Annals of the New York Academy of Sciences
Volume 1281, Issue 1, pages 64-91, 1 APR 2013 DOI: 10.1111/nyas.12098
http://onlinelibrary.wiley.com/doi/10.1111/nyas.12098/full#nyas12098-fig-0001

VISCERAL FAT!!!





Reynu 2017

OBESITY, DIABETES & US

- Prevalence of DM in Malaysia **22.9% in 2012**, double the prevalence seen in 2006 which was 11.6%.[2]
- **80% of obesity associated with T2DM**
- At the time of diagnosis, **50%** of newly diagnosed DM will have evidence of **end organ damage**[3]

[5] W. M. Wan Nazaimoon, S.H.MdIsa, W. B. Wan Mohamad, A. S. Khir , et al. Prevalence of diabetes in Malaysia and usefulness of HbA1c as a diagnostic criterion. Diabet Med 2013; DOI:10.1111/dme.12161
[6] Ruigomez, A., and LA García Rodríguez. "Presence of diabetes related complication at the time of NIDDM diagnosis: an important prognostic factor." European journal of epidemiology 14.5 (1998): 439-445.

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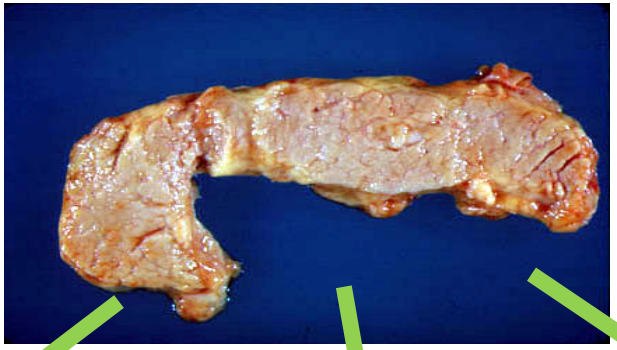
OBESITY + DIABETES

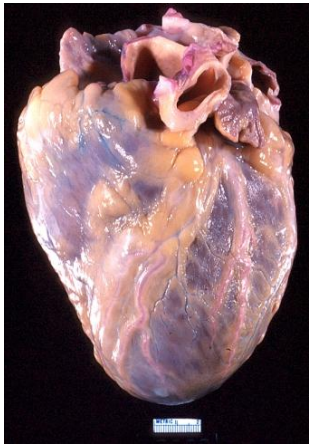
CVA

MICROVASCULAR



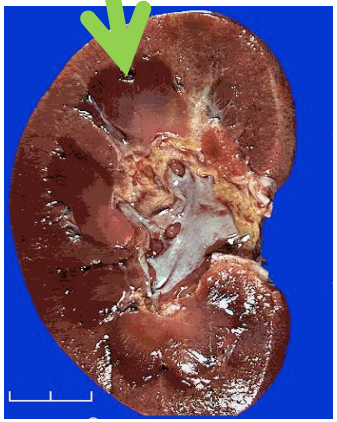
MACROVASCULAR

MI



PVD

Gangrene



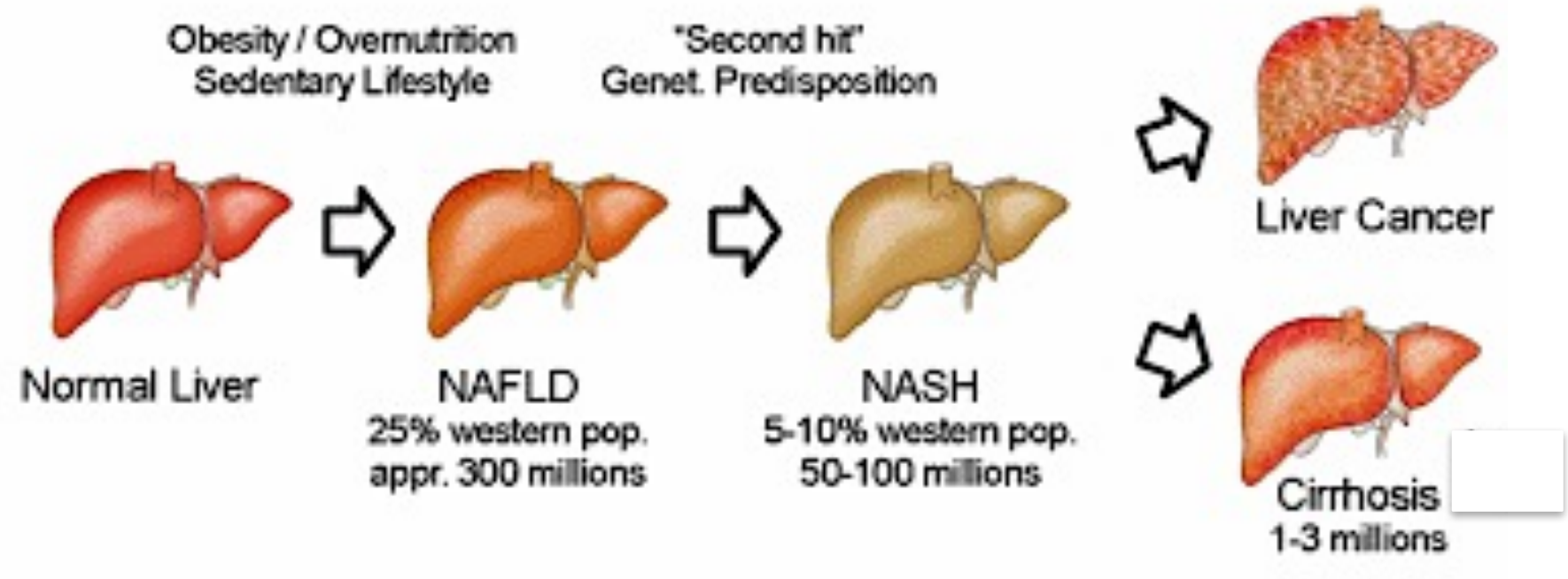
Renal failure

Retinopathy / blindness

1% reduction in HbA1c results in 14% 37% 21% reduction in Macrovascular, Microvascular and Deaths

(MOST SUSTAINABLE THROUGH BARIATRIC SURGERY)

OBESITY + FATTY LIVER



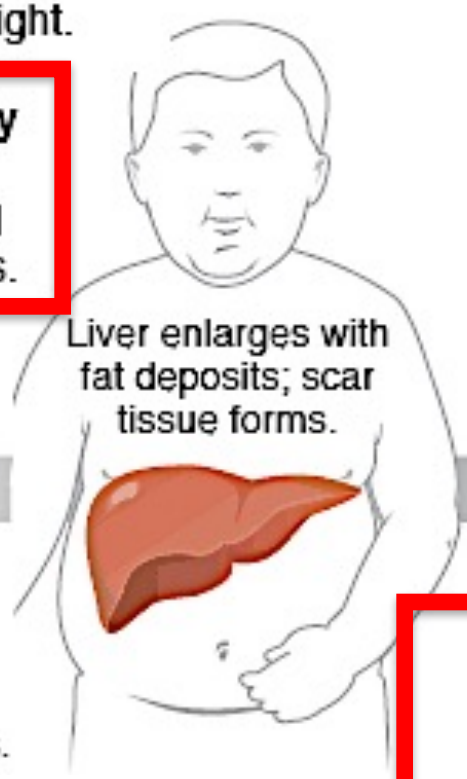
FATTY LIVER IN CHILDREN

Young, obese and at risk of disease

Experts estimate 2 to 5 percent of American children over age 5 have nonalcoholic fatty liver disease — nearly all of them significantly overweight.

Progression of fatty liver disease

Liver can be scarred within 10 to 15 years.



Liver enlarges with fat deposits; scar tissue forms.

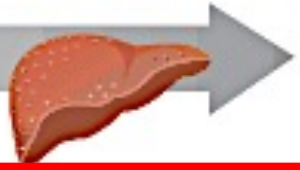
Cells are injured, organ hardens and reduces in size.

Liver failure or liver cancer can follow.

Healthy

Cleans blood of bacteria, toxins and other foreign particles.

Cirrhosis



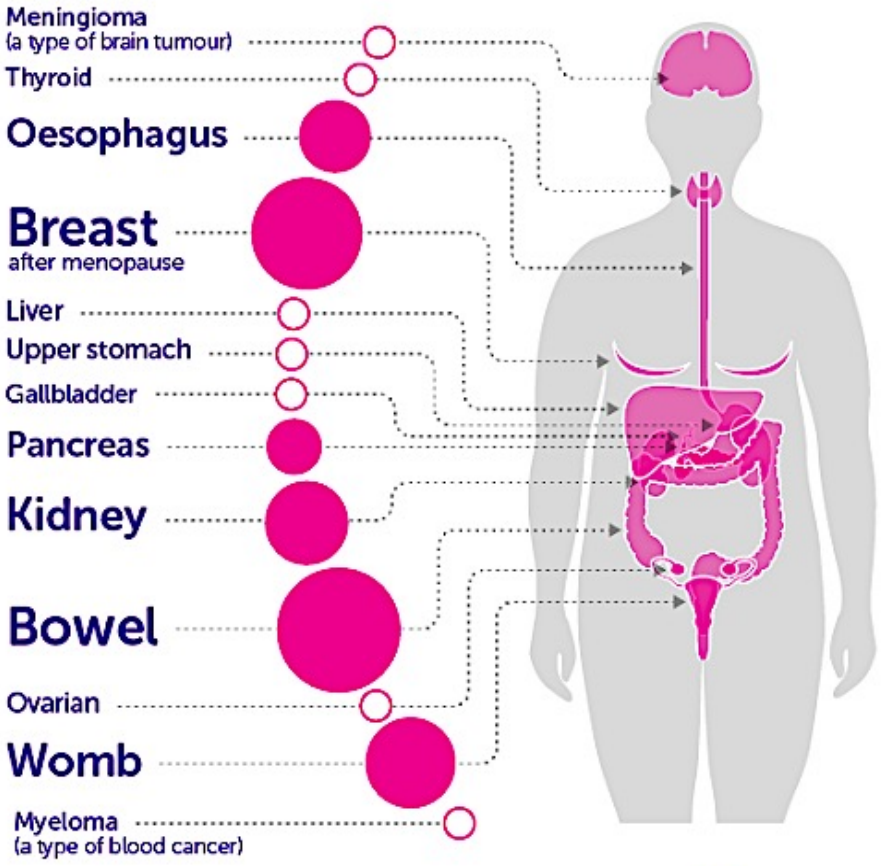
Some may need a new liver by their 30s or 40s.

OBESITY + CANCER

BEING OVERWEIGHT CAN CAUSE 13 TYPES OF CANCER

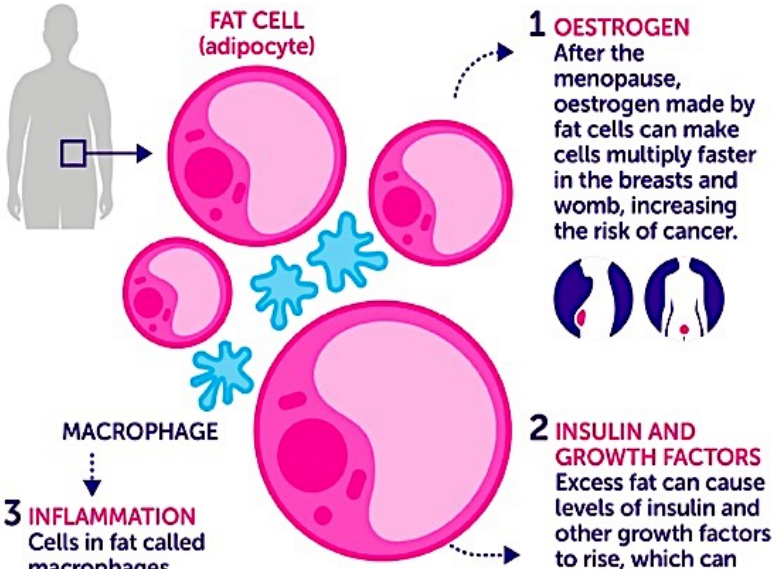
Larger circles indicate cancers with more UK cases linked to being overweight or obese

Number of linked cases are currently being calculated and will be available in 2017



HOW COULD OBESITY LEAD TO CANCER?

Research has identified three main ways



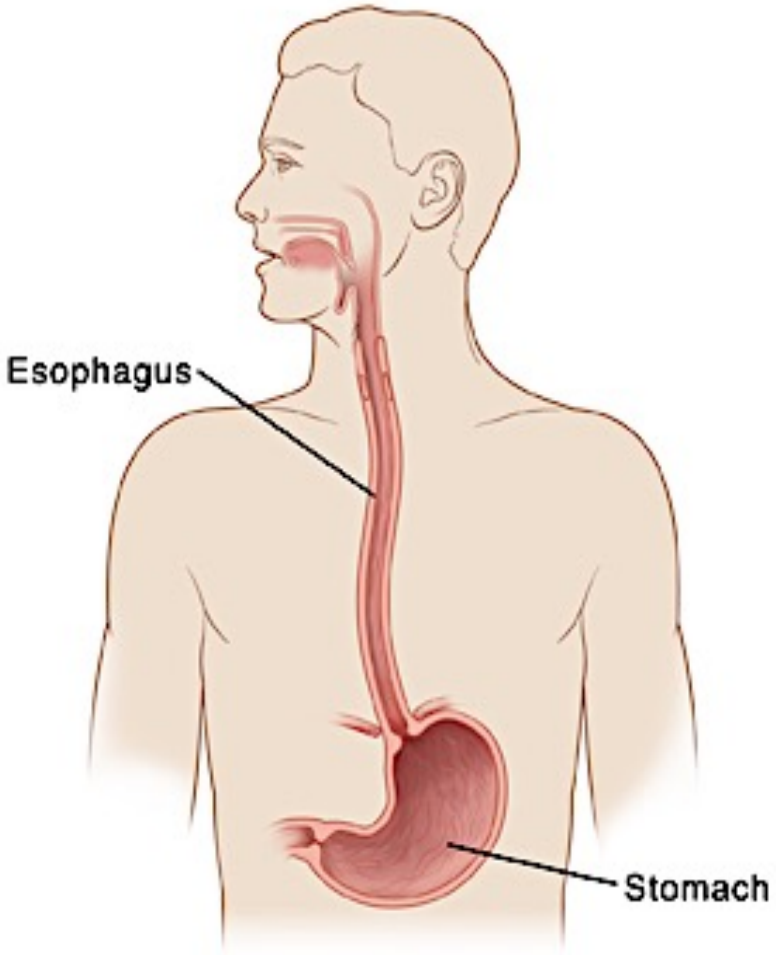
1 OESTROGEN
After the menopause, oestrogen made by fat cells can make cells multiply faster in the breasts and womb, increasing the risk of cancer.

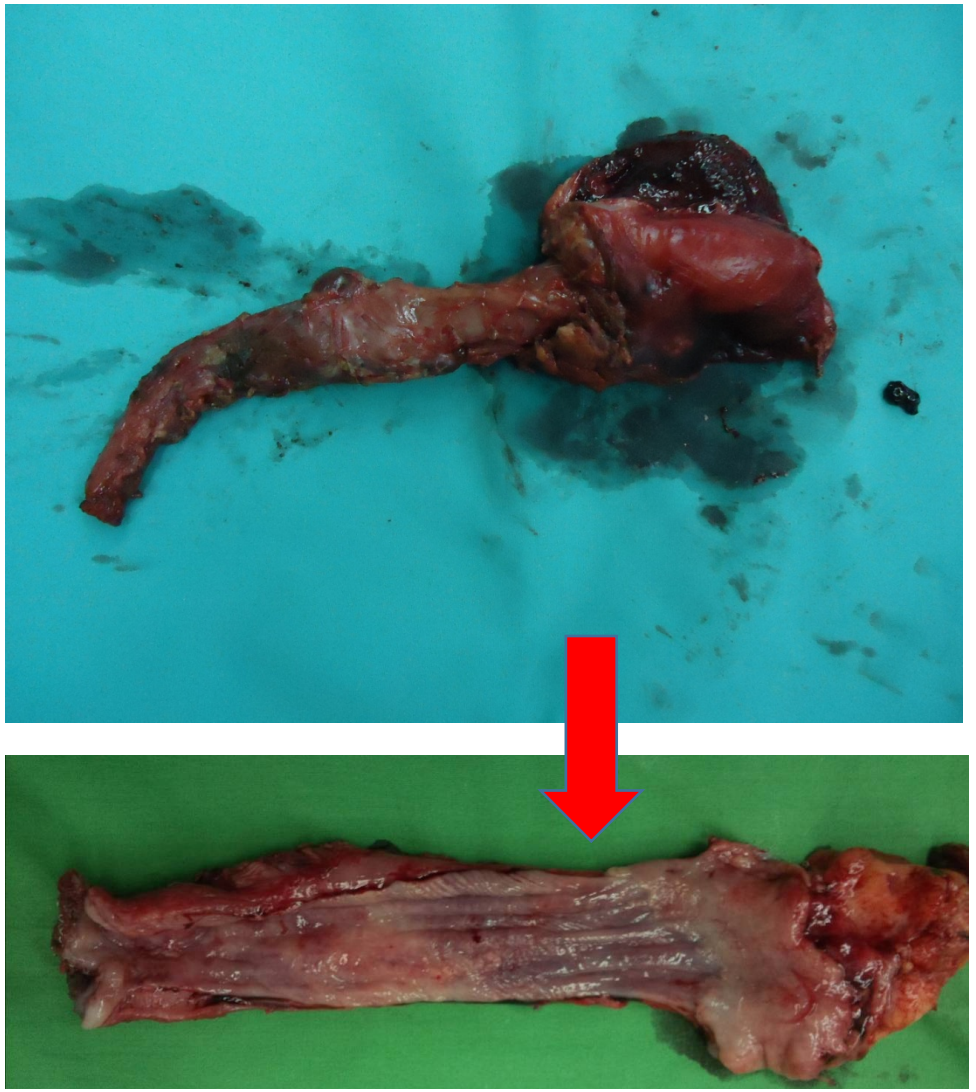
2 INSULIN AND GROWTH FACTORS
Excess fat can cause levels of insulin and other growth factors to rise, which can also tells cells to divide more rapidly.

3 INFLAMMATION
Cells in fat called macrophages release chemicals called cytokines, encouraging cells to divide (including cancer cells).

There are other theories too, but these are the main ideas being studied. More research is needed to understand this in more detail.

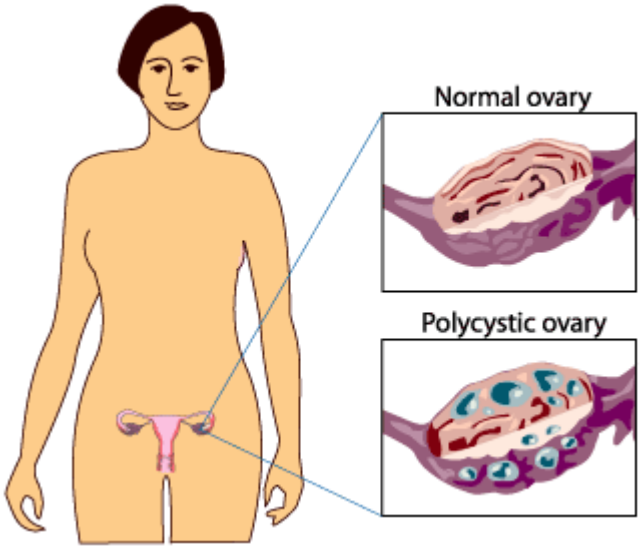
ESOPHAGEAL CANCER





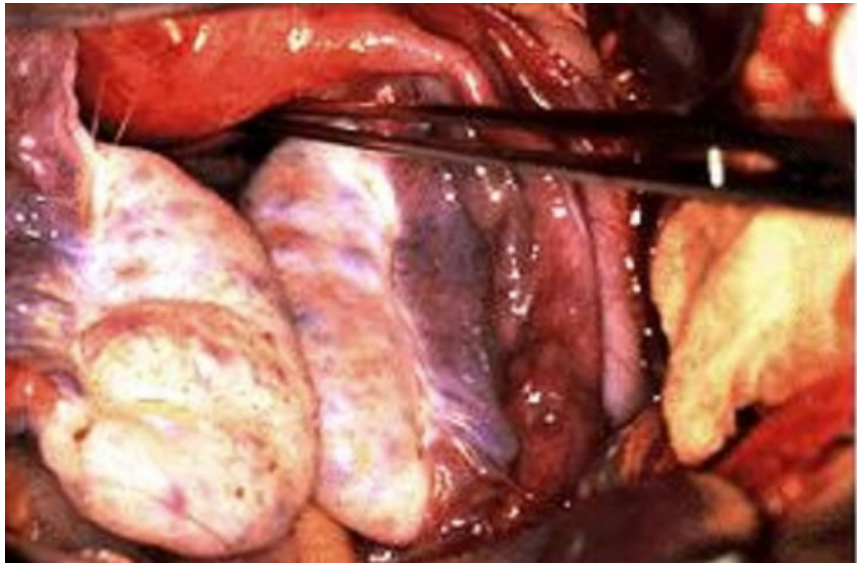
HOW DOES OBESITY IN CHILDHOOD AFFECT CANCER RISK AS AN ADULT?

OBESITY + FEMALE INFERTILITY



- anovulation
- release of oocytes with reduced fertilization potential
- endometrial abnormalities

"Both seed and soil defective"



ANOVULATION RISK in obese women:
1.3x if BMI 24-31
2.7x if BMI >32

MISCARRIAGE RISK in obese women:
1.7 x risk of spontaneous miscarriage
4.5 x risk of recurrent miscarriage

FAILURE TO CONCEIVE DESPITE ASSISTED REPRODUCTIVE TECHNOLOGY:
27% if BMI 30-34.9
50% if BMI >35

Table 1
Pregnancy and childbirth complications associated with increased maternal BMI

	Health Outcomes
Pregnancy complications	Gestational diabetes Hypertension/preeclampsia Iatrogenic preterm birth Induction of labor Cesarean birth Postpartum hemorrhage Thromboembolic disease Infection
Infant outcomes	Large-for-gestational-age infants Neonatal intensive care unit admission Congenital anomaly Perinatal death Treatment of hypoglycemia and jaundice

LJ Moran et al. Obesity and Reproductive Dysfunction in Women. Endocrinol Metab Clin North Am 40 (4), 895-906. **2011 Sep 28.**

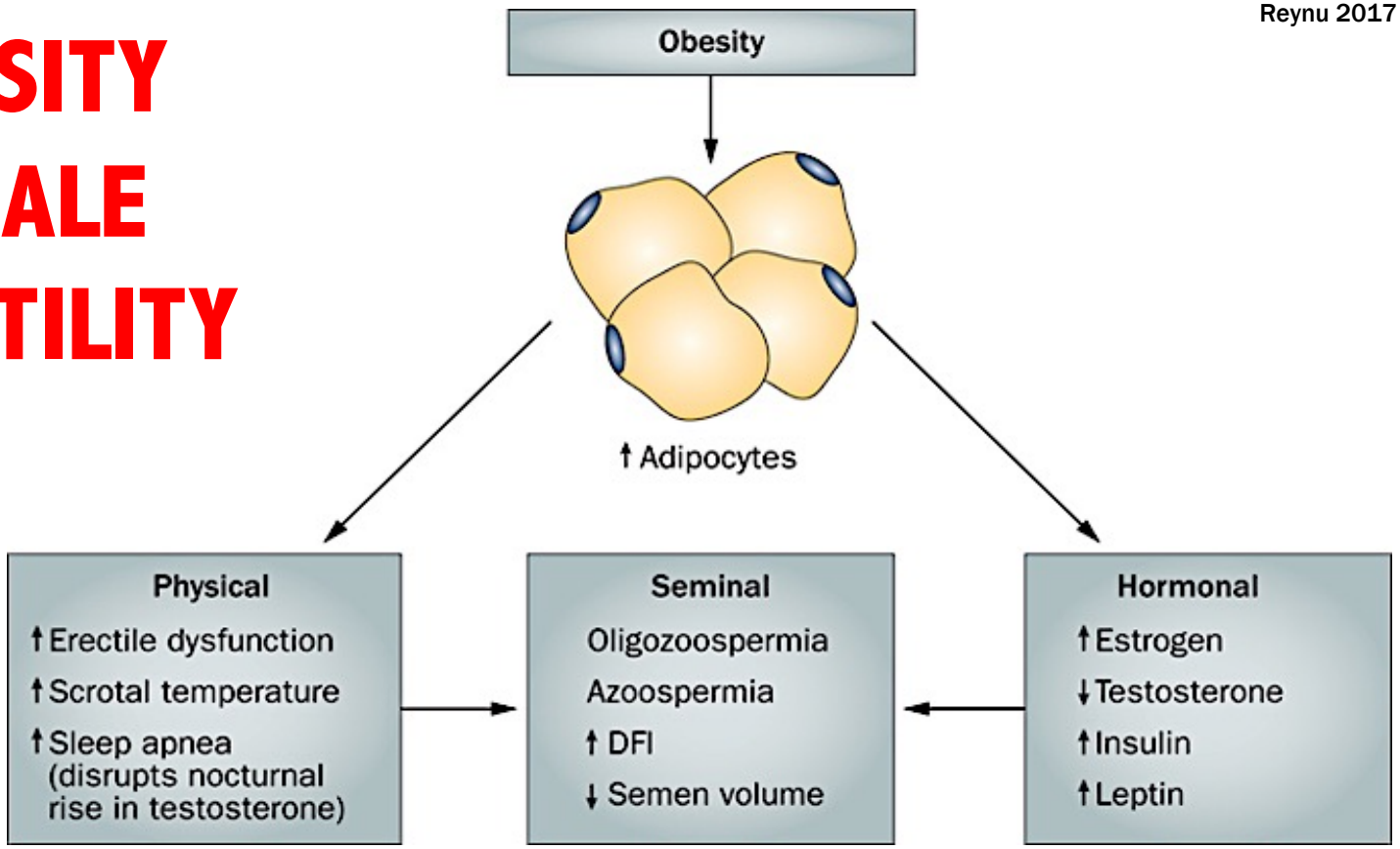
BRITISH FERTILITY SOCIETY GUIDELINES – 2007

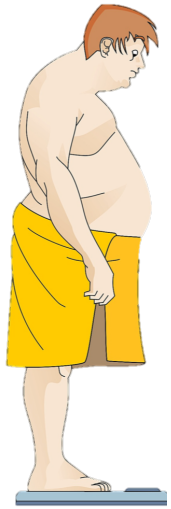
British Fertility Society

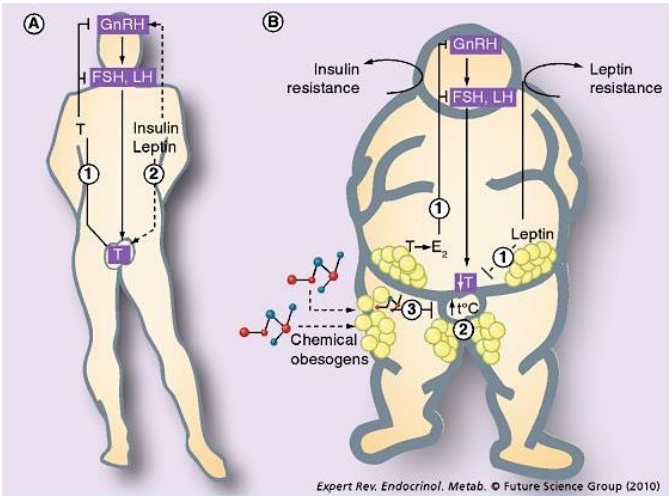
Infertility treatment should be deferred if the BMI is >35 kg/m^2

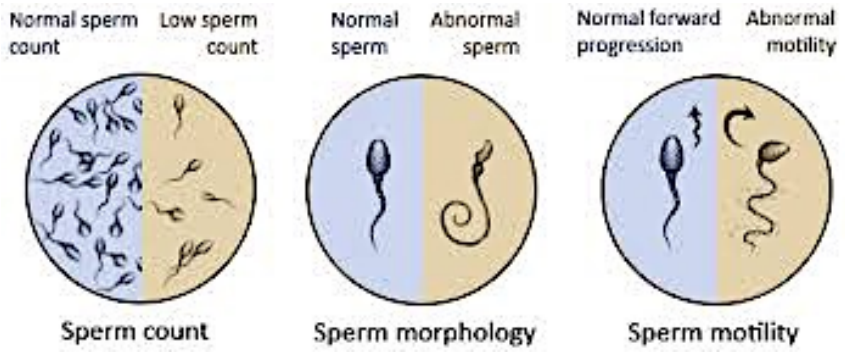
Patients below <37 years of age
should be encouraged to reduce their BMI <30 kg/m^2
to maximize effectiveness and reduce risks of treatment.

OBESITY & MALE INFERTILITY









OBESITY + POOR SPERM QUALITY

Marker	Outcome	Study
Oxidative stress and DNA integrity	2-fold decrease in sperm mitochondrial activity (OS marker) and DNA integrity (Comet)	Fariello *et al.* BJU Int 2012
Oxidative stress	Direct relationship between levels of superoxide anion in seminal plasma and BMI	Tunc *et al.* Andrologia 2011
DNA integrity	Decreased sperm DNA integrity (Comet and SCSA)	Kort *et al.* 2006; Chavarro *et al.* Fertil Steril 2011
Apoptosis	Increased % of sperm with phosphatidylserine externalization	La Vignera *et al.* J Androl 2012
Proteomics	Diabetes and obesity-associated proteomic changes	Kriegel *et al.* RBM online 2009

GALL BLADDER, PANCREAS & OBESITY

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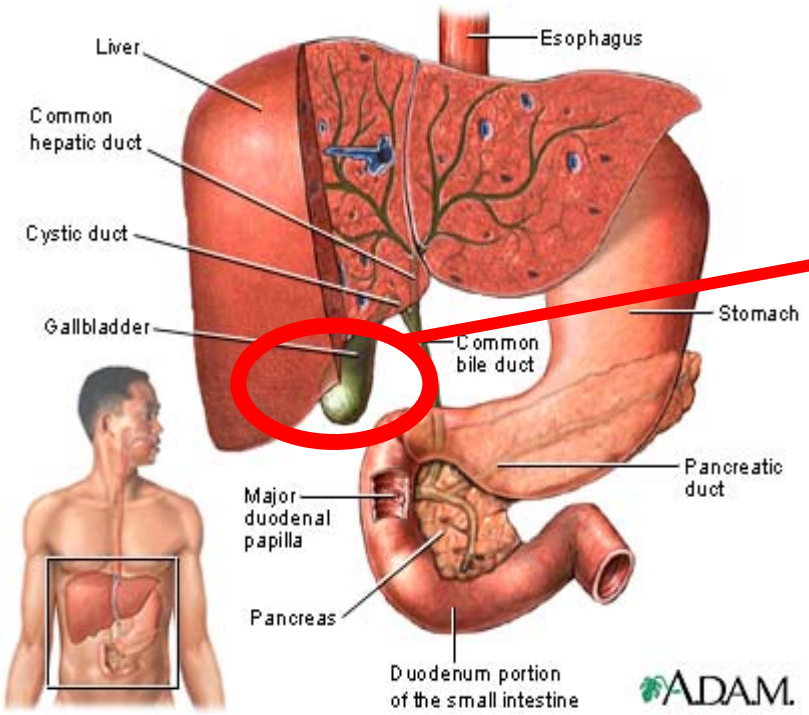
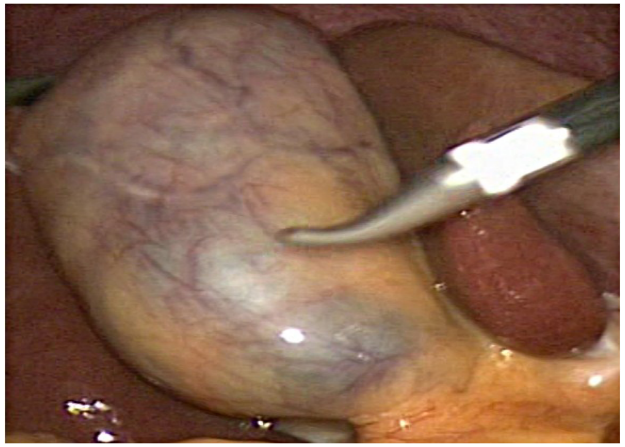
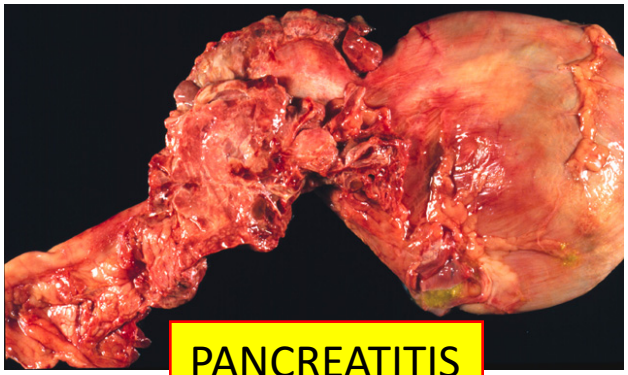
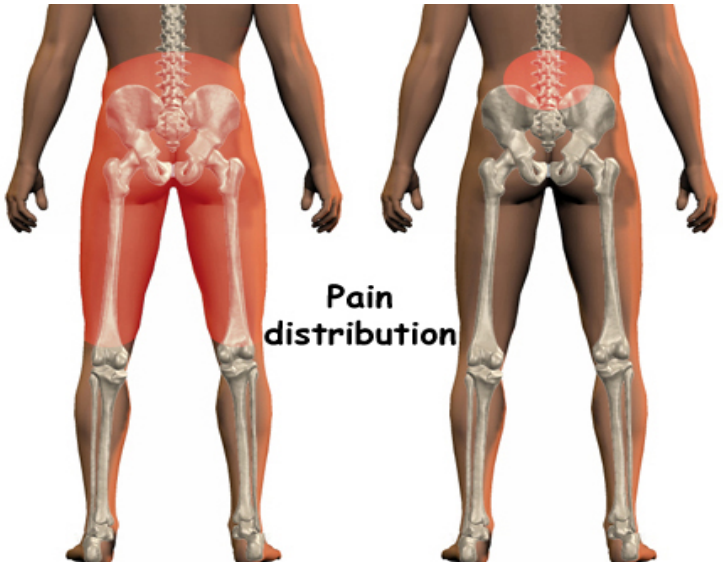
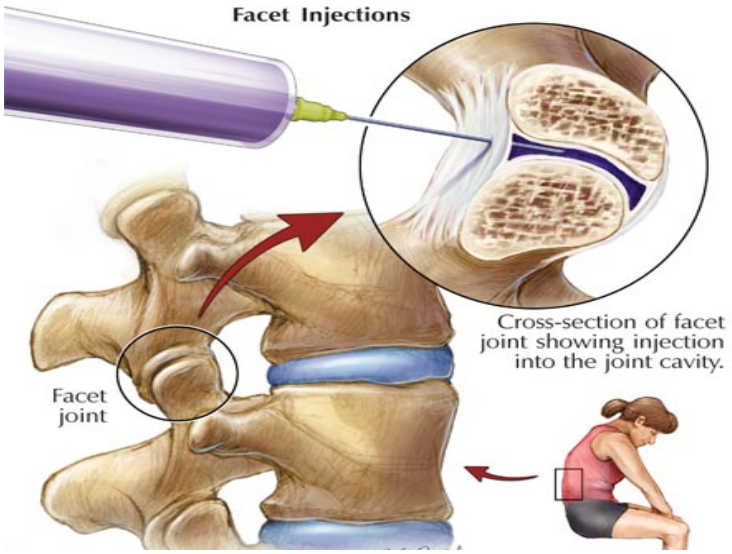






OBESITY + ARTHRITIS/SLIPPED DISC





OBESITY + VARICOSE VEIN

Separuh rakyat negara ini diancam obesiti 20 tahun akan datang

15% kanak-kanak Malaysia gemuk

MUKADIMAH

JIKA tidak dibendung, Malaysia bakal mengikut jejak langkah Amerika Syarikat (AS), dihuni oleh penduduk yang berat badannya berlebihan.

Dianggarkan 50 hingga 60 peratus penduduk negara Uncle Sam itu mengalami masalah tersebut.

Negara ini dikatakan berpotensi dan sedang menuju ke arah yang sama apabila bilangan penduduk dewasa yang memiliki berat badan berlebihan serta obes meningkat lebih 10 peratus dalam tempoh 10 tahun.

Ini bermakna dalam jangka masa antara 10 hingga 20 tahun akan datang, separuh daripada rakyat Malaysia berpotensi mengalami masalah obesiti.

Sekiranya tidak dikawal, Malaysia bakal menghadapi masalah serupa seperti yang berlaku di AS dan yang lebih membimbangkan masyarakat berbilang kaum negara ini turut terdedah kepada risiko pelbagai penyakit seperti kencing manis, darah tinggi dan komplikasi jantung.

Bagi mengupas isu tersebut wartawan **AIZAWATI AHMAD** dan jurugambar **ASMARUDDIN JAMALUDDIN** telah menemubual beberapa orang pakar bagi mendapatkan pandangan mereka.

SHAH ALAM 14 April – Mungkinkah dalam tempoh 10 hingga 20 tahun akan datang majoriti rakyat negara ini akan terdiri daripada mereka yang mempunyai berat badan berlebihan atau obes?

Perkara itu tidak mustahil jika masalah berkaitan obesiti terutama kanak-kanak pada masa ini tidak diatasi segera.

Berdasarkan statistik kira-kira 15 peratus kanak-kanak di seluruh negara mengalami masalah obesiti yang mana mereka akan membesar sebagai orang dewasa yang obes.

Malah di kawasan bandar seperti di Lembah Klang angka itu mencecah 30 hingga 40 peratus.

Perunding Pediatrik Pusat Perubatan Darul Ehsan (DEMC), Dr. Fadzillah Ghazalli berkata, jika merujuk kepada laporan yang dikeluarkan oleh Kementerian Kesihatan, obesiti di kalangan kanak-kanak secara keseluruhannya ialah sebanyak 15 peratus.

"Kebarangkalian negara ini berpotensi memiliki lebih ramai penduduk yang gemuk dalam tempoh 10 hingga 20 tahun akan datang menjadi lebih tinggi sekiranya masalah ini tidak ditangani dengan baik," katanya ketika ditemui *Utusan Malaysia* di sini baru-baru ini.

Menurut Dr. Fadzillah, bagi membendung masalah tersebut, ibu bapa perlu membawa anak-anak mereka untuk mendapatkan rawatan pakar dan mengamalkan gaya hidup sihat.

Bagaimanapun, jelasnya, tidak ramai di kalangan ibu bapa yang melihat obesiti sebagai satu masalah yang perlu ditangani segera.

"Kanak-kanak yang gemuk berpotensi untuk kekal obes apabila dewasa dan risiko itu menjadi lebih tinggi sekiranya ia disebabkan faktor genetik lebih-lebih lagi jika kedua-dua ibu bapa mereka gemuk," ujarnya.

Utusan Malaysia, 15 Apr 09
LAPORAN KHAS

Beliau memberitahu, bagi kanak-kanak yang gemuk disebabkan faktor pemakanan, peluang mereka untuk pulih adalah lebih tinggi.

Mengulas mengenai peringkat usia kanak-kanak yang terdedah kepada obesiti, beliau berkata, kadar peratusan kanak-kanak yang berusia enam tahun ke atas lebih ramai menghadapi masalah tersebut, namun lingkungan umur antara dua hingga lima tahun turut mencatatkan peningkatan.

"Sebenarnya masalah obesiti di semua peringkat usia semakin bertambah, sekarang pun ramai bayi yang dilahirkan besar melebihi empat kilogram.

"Kalau boleh kita hendak bayi berkenaan membesar secara normal mengikut carta tumbesaran agar proses pertumbuhan tidak naik secara mendadak untuk mengelakkan obesiti," tambahnya.

Menurut Dr. Fadzillah, kanak-kanak yang gemuk berpotensi untuk terdedah kepada pelbagai penyakit seperti kencing manis, darah tinggi dan masalah sendi.

Selain itu, beliau memberitahu, mereka turut berhadapan dengan masalah psikologi kerana diejek oleh teman-teman dan faktor itu juga mendorong kanak-kanak berkenaan enggan untuk ke sekolah.

Katanya, bagi mengatasi masalah obesiti, ibu bapa perlu menukar gaya hidup dengan menentukan makanan seimbang untuk seluruh ahli keluarga dan mengehadkan waktu tontonan televisyen anak-anak tidak lebih dua jam agar mereka boleh meluangkan masa untuk aktiviti yang lebih sihat seperti bersukan.

KANAK-KANAK ge... terdedah kepada p... jenis penyakit. – GA...

SPOTLIGHT

Pupils as young as 7 are obese

ALARMING RATE: Excessive food intake and low physical activity to blame

Obese children are susceptible to ***chronic diseases*** in later life and could ***lead to prematur***
Eizairi Shamsudin

ALIZA SHAH
AND THARANYA ARUMUGAM
KUALA LUMPUR
news@nst.com.my

CHILDREN as young as 7 are suffering from obesity, no thanks to a combination of poor diet and an increasingly sedentary lifestyle.

Worse still, the number of obese children shows no sign of abating.

The Survey on the Nutritional Status and Dietary Habits of Primary Schoolchildren in Malaysia revealed that as of 2008, 12.8 per cent of primary school pupils were obese. Experts believe that the figures are now even higher.

Obesity prevalence among schoolchildren is also believed to have increased from the 13.7 per cent recorded in the survey.

Prof Winnie Chee, president of the Malaysian Dietitians' Association, said the problems would be seen in the next genera...

trend that will result in children being exposed to chronic diseases. It requires urgent medical intervention."

Early childhood obesity is linked to many conditions in later life, such as cardiovascular diseases, diabetes and osteoarthritis, and could lead to premature death.

Based on the National Health and Morbidity Survey 2011, about 17 million Malaysians have non-communicable diseases, with 2.6 million suffering from diabetes, 5.8 million from hypertension and 6.2 million from high c...

The survey also sho... million adults were c... while more than 477,000 be... 18 were overweight.

Chee said environme... factors played a majo... life of an obe...

Excessive food intake, low physical activity, family eating habits and lifestyle were contributors, too.

obesity in various age groups.

"Major efforts are taken to create a more supportive environment and to make healthier food available to children."

...thus, allowing them to choose healthy food," said Dr Lokman.

He said for children to adopt a healthy lifestyle and eating habit, parents, teachers and canteen operators must become role ...

...istry's guideline for ... believed that it c... parties on healthy f... tion. She said for sch... be healthy, emphasi...

OBESITY IS AFFECTING OUR CHILDREN

MANAGEMENT OPTIONS FOR OBESITY

WEIGHT REDUCTION – core component.

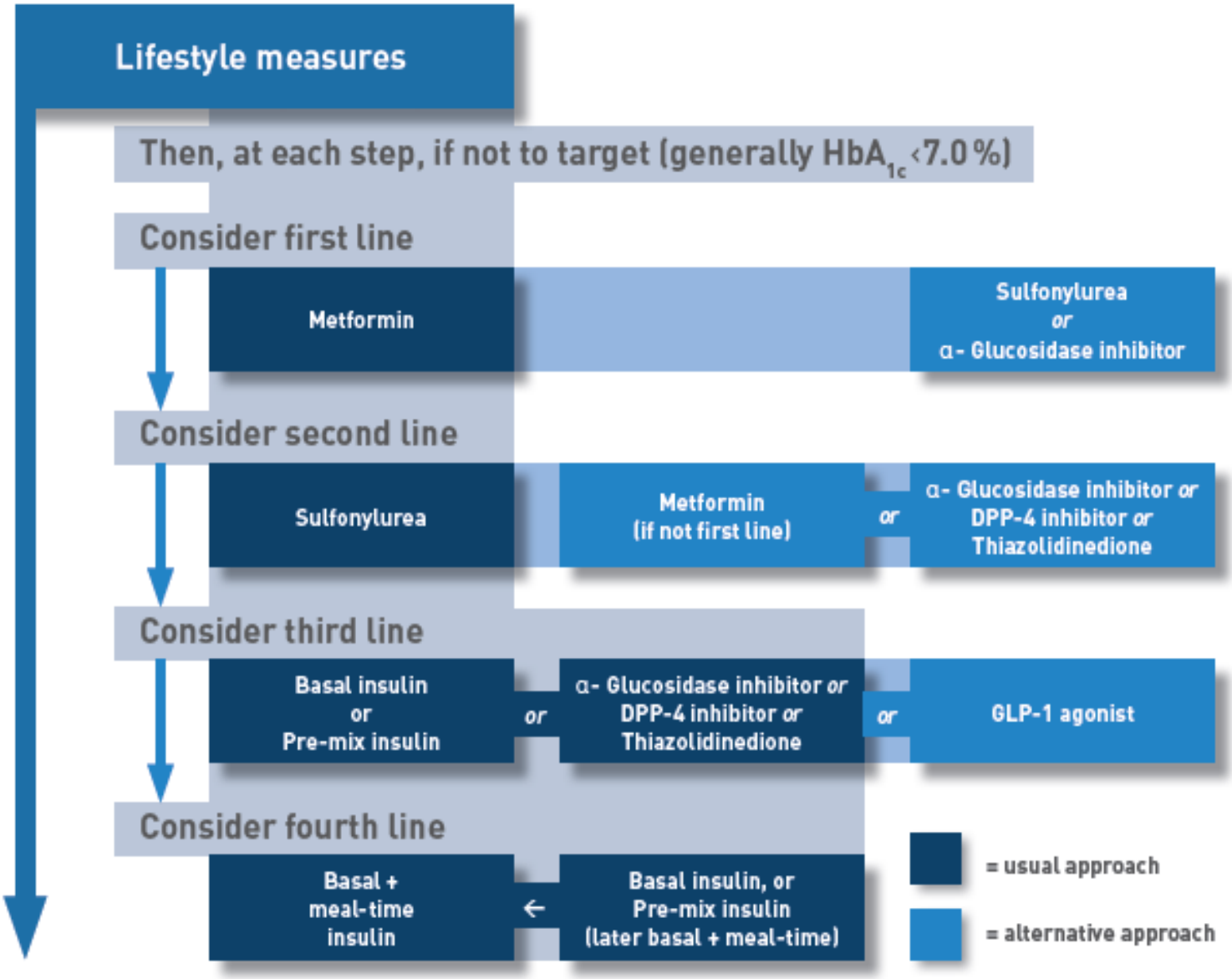
Aims:

- **SUSTAINED LONG TERM** weight loss → Long term control of obesity related diseases.

CURRENT DRUGS FOR OBESITY

Reynu 2017

CURRENT TREATMENT FOR DIABETES



IDF

THE RISE OF BARIATRIC SURGERY
1953

THE AMELIORATION OF DIABETES MELLITUS FOLLOWING SUBTOTAL GASTRECTOMY

MURRY N. FRIEDMAN, M.D., F.A.C.S., ANTONIO J. SANCETTA, M.D., and GEORGE J. MAGOVERN, M.D., Brooklyn, New York

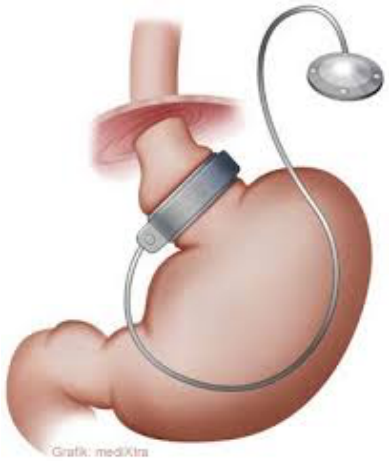
In 1923, Murlin noted the presence of a substance in extracts of the pancreas which could raise the blood sugar. Subsequently, this hyperglycemic factor was demonstrated

and duodenum. Therefore, when subtotal gastrectomy for duodenal ulcer resulted in marked amelioration of the diabetic state in 3 patients at the Brooklyn Veterans Hospi-

TYPES OF BARIATRIC PROCEDURE

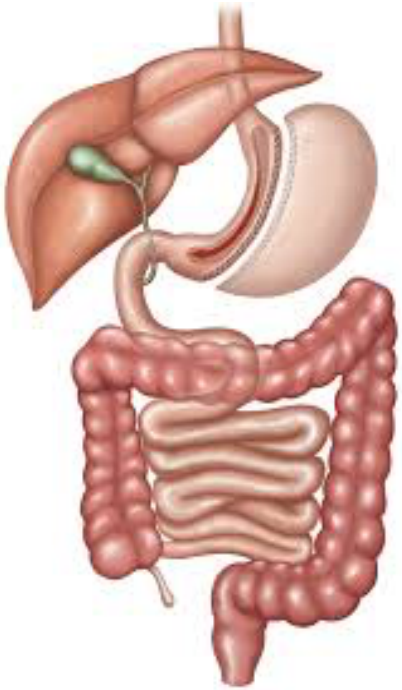
Reynu 2017

GASTRIC BALOON



GASTRIC BANDING

GASTRIC BYPASS



SLEEVE
GASTRECTOMY

J Intern Med. 2013 Mar;273(3):219-34. doi: 10.1111/joim.12012. Epub 2013 Feb 8.

Reynu 2017

Review of the key results from the Swedish Obese Subjects (SOS) trial - a prospective controlled intervention study of bariatric surgery.

Sjöström L[1].

Author information

Abstract

Obesity is a risk factor for diabetes, cardiovascular disease events, cancer and overall mortalit Weight loss may protect against these conditions, but robust evidence for this has been lacking. The Swedi se Subjects (SOS) study is the first long-term, prospective, controlled trial to pro incidence of these objective endpoints. The SOS study invol surgery [gastric bypass (13%), banding (19%) and vertical b matched obese control subjects receiving usual care. The a (BMI) was ≥34 kg m(-2) in men and ≥38 kg m(-2) in women. between 2004 and 2012. Follow-up periods varied from 10 t body weight after 2, 10, 15 and 20 years were -23%, -17%, and -1% in the control group respectively. Compared with us term reduction in overall mortality (primary endpoint) [adjust 0.54-0.92; P = 0.01] and decreased incidences of diabetes ((adjusted HR = 0.71; P = 0.02), stroke (adjusted HR=0.66; F P = 0.0008; men: n.s.]. The diabetes remission rate was incr (OR) = 8.42; P < 0.001] and 10 years (adjusted OR = 3.45; F baseline predicted favourable treatment effects, high baselin bariatric surgery need to be revised.

SOS TRIAL

Prospective **study** 2010 patients

Bariatric surgery vs medical therapy

Bariatric Surgery %EWL 18% in 20 years

Medical Therapy %EWL -1% in 20 years

Conclusion:
Bariatric surgery superior to IMT

Bariatric Surgery versus Intensive Medical Therapy in Obese Patients with Diabetes

Philip R. Schauer, M.D., Sangeeta R. Kashyap, M.D., Kathy Wolski, M.P.H., Stacy A. Brethauer, M.D., John P. Kirwan, Ph.D., Claire E. Pothier, M.P.H., Susan Thomas, R.N., Beth Abood, R.N., Steven E. Nissen, M[illegible] and Deepak L. Bhatt, M.D., M.P.H.

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METHODS

In this randomized, nonblinded, single-center trial, w
alone versus medical therapy plus Roux-en-Y gastric
with uncontrolled type 2 diabetes. The mean (±SD) a
women. The average glycated hemoglobin level was
of patients with a glycated hemoglobin level of 6.0%

RESULTS

Of the 150 patients, 93% completed 12 months of fo
end point was 12% (5 of 41 patients) in the medical-
gastric-bypass group (P = 0.002) and 37% (18 of 49
Glycemic control improved in all three groups, with
medical-therapy group, 6.4 ± 0.9% in the gastric-byp
gastrectomy group (P = 0.003). Weight loss was grea
group (−29.4 ± 9.0 kg and −25.1 ± 8.5 kg, respective
(P<0.001 for both comparisons). The use of drugs to
decreased significantly after both surgical procedure
only. The index for homeostasis model assessment o
significantly after bariatric surgery. Four patients un
threatening complications.

STAMPEDE TRIAL

Prospective study with 150 patients for 1 yr

Bariatric surgery vs medical therapy
Subanalysed RYGB vs LSG for the surgery arm

Bariatric Surgery %EWL :

LSG **21%** in 12 months

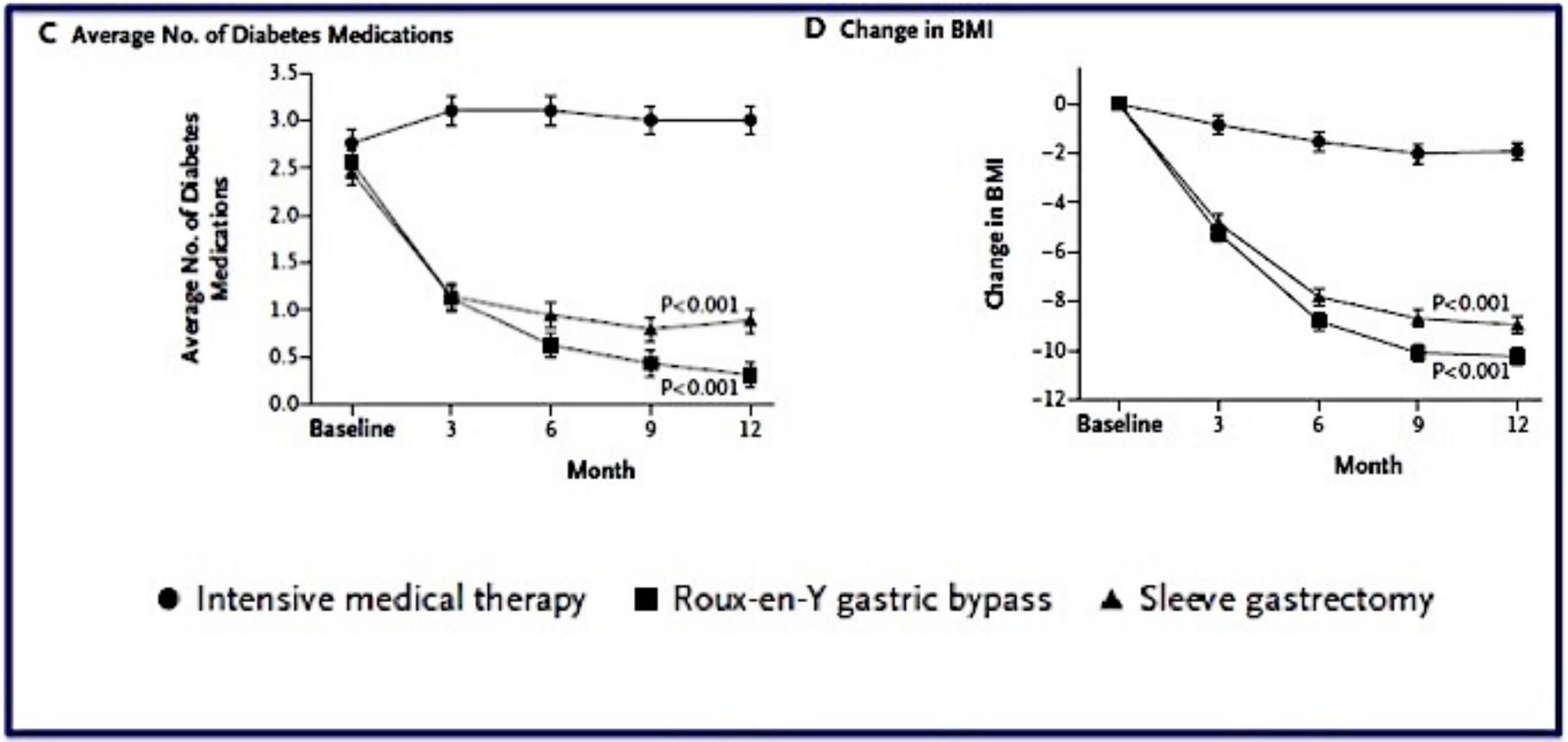
RYGB **24.5%** in 12 months

Medical Therapy %EWL :

4.2% in 12 months

Conclusion:
Bariatric surgery superior to IMT

BARIATRIC SURGERY AS EFFECTIVE TREATMENT OPTION FOR OBESITY & DM



Bariatric Surgery versus Intensive Medical Therapy in Obese Patients with Diabetes
N Engl J Med 2012;366:1567-76 Schauer PR

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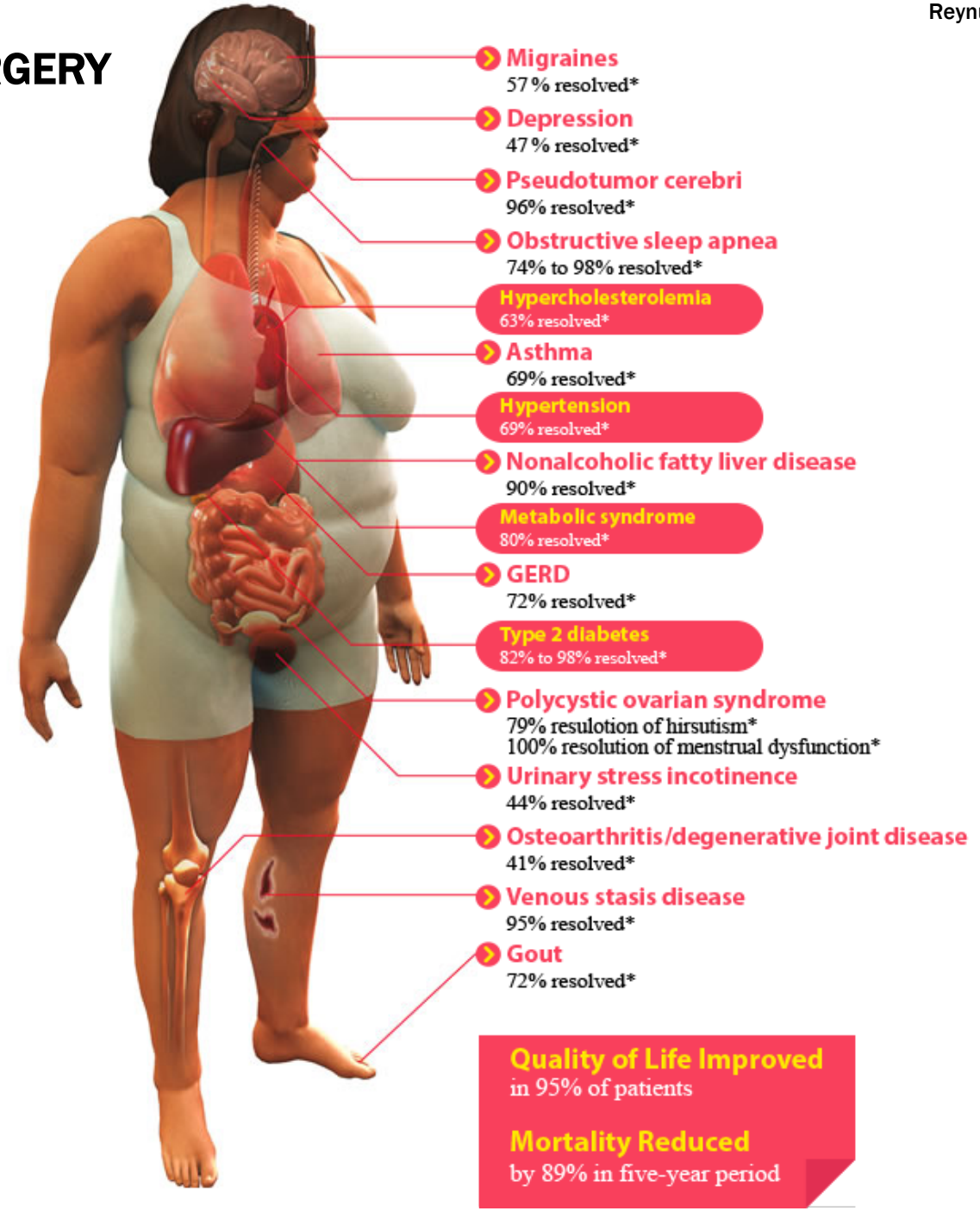
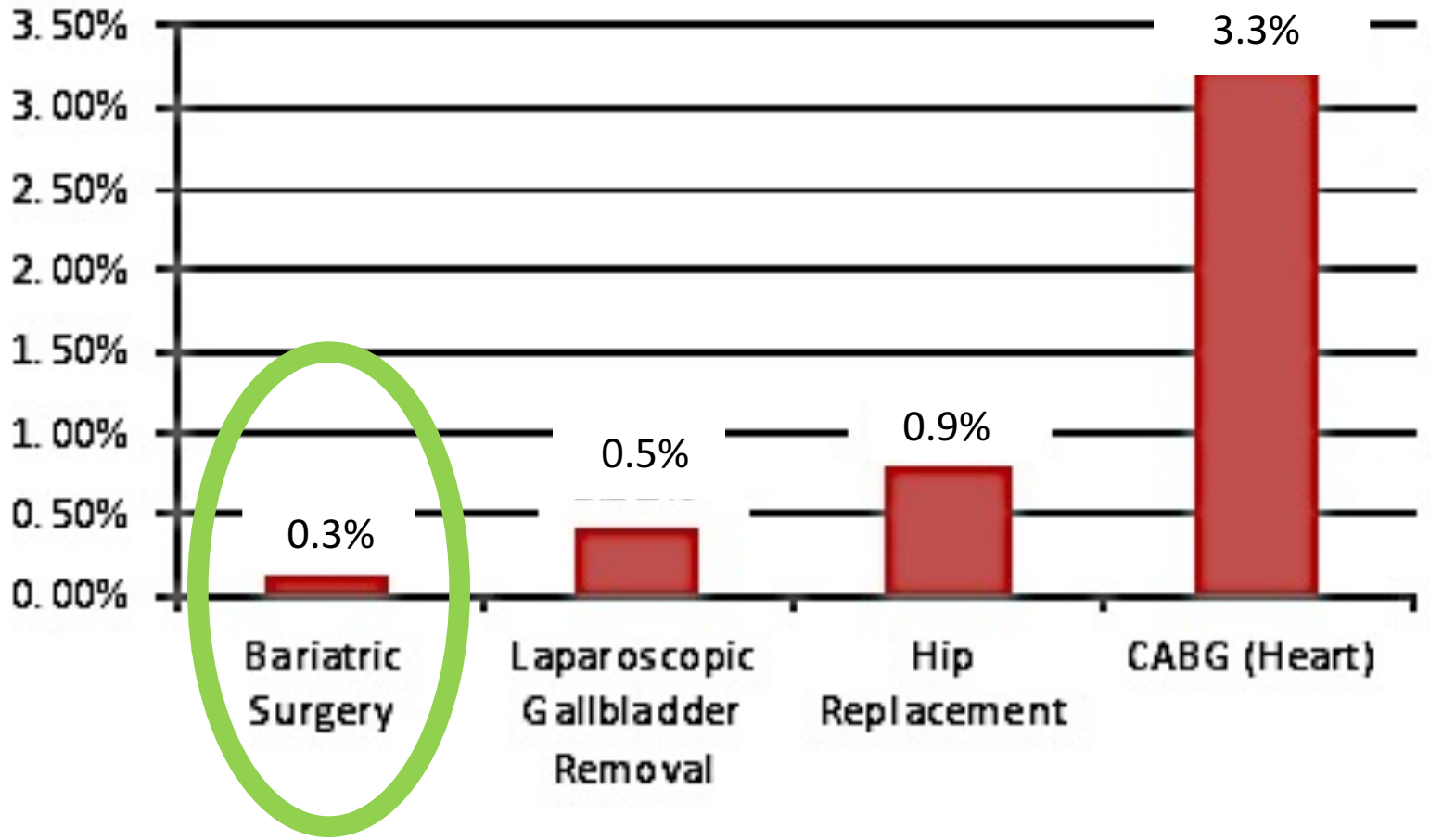
EFECT OF BARIATRIC SURGERY ON NUMEROUS NCDs

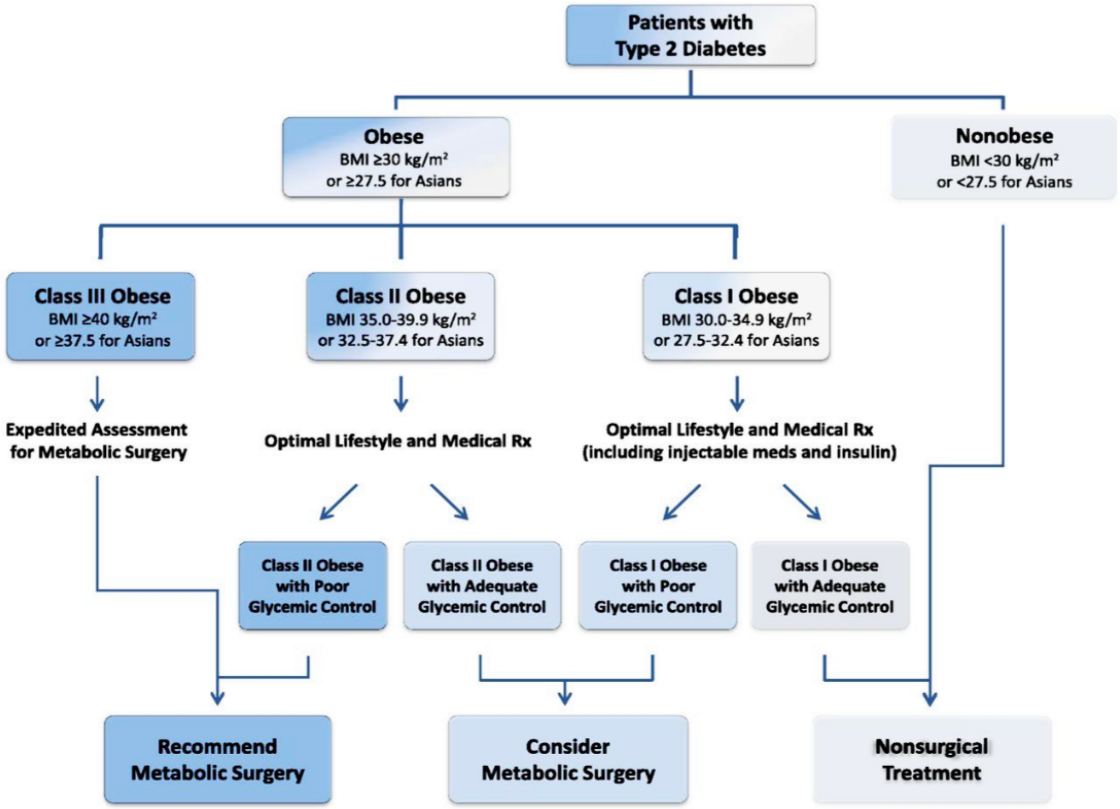


MORTALITY RISK ASSOCIATED WITH BARIATRIC SURGERY



REVISED INTERNATIONAL INDICATION FOR SURGERY FOR ASIANS

Reynu 2017



DIABETIC SURGERY SUMMIT 2016 STATEMENT POSITION

ADA GUIDELINES 2017

Table 7.1—Treatment for overweight and obesity in type 2 diabetes

	BMI category (kg/m^2)				
Treatment	23.0* or 25.0–26.9	27.0–29.9	27.5* or 30.0–34.9	35.0–39.9	≥40
Diet, physical activity, and behavioral therapy	†	†	†	†	†
Pharmacotherapy		†	†	†	†
Metabolic surgery			†	†	†

*Cutoff points for Asian American individuals.
†Treatment may be indicated for selected motivated patients.

Weight loss is imperative for diabetes control in obese patients

The benefit of weight loss is derived early in the disease before insulin deficiency occurs

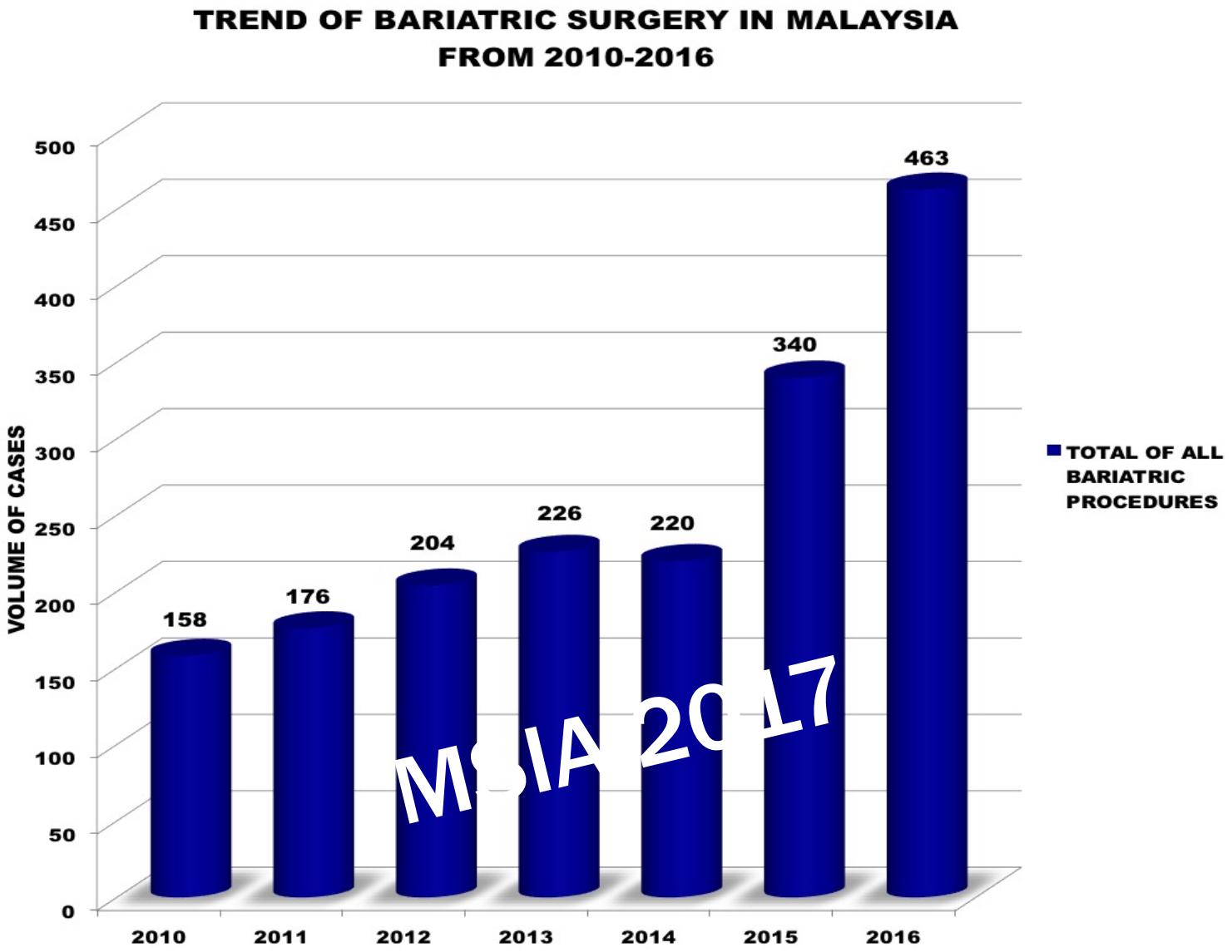
Bariatric surgery is the only proven method for sustained weight loss in morbidly obese patients

Results of T2DM remission are better after bariatric surgery in obese diabetics as compared to medical therapy

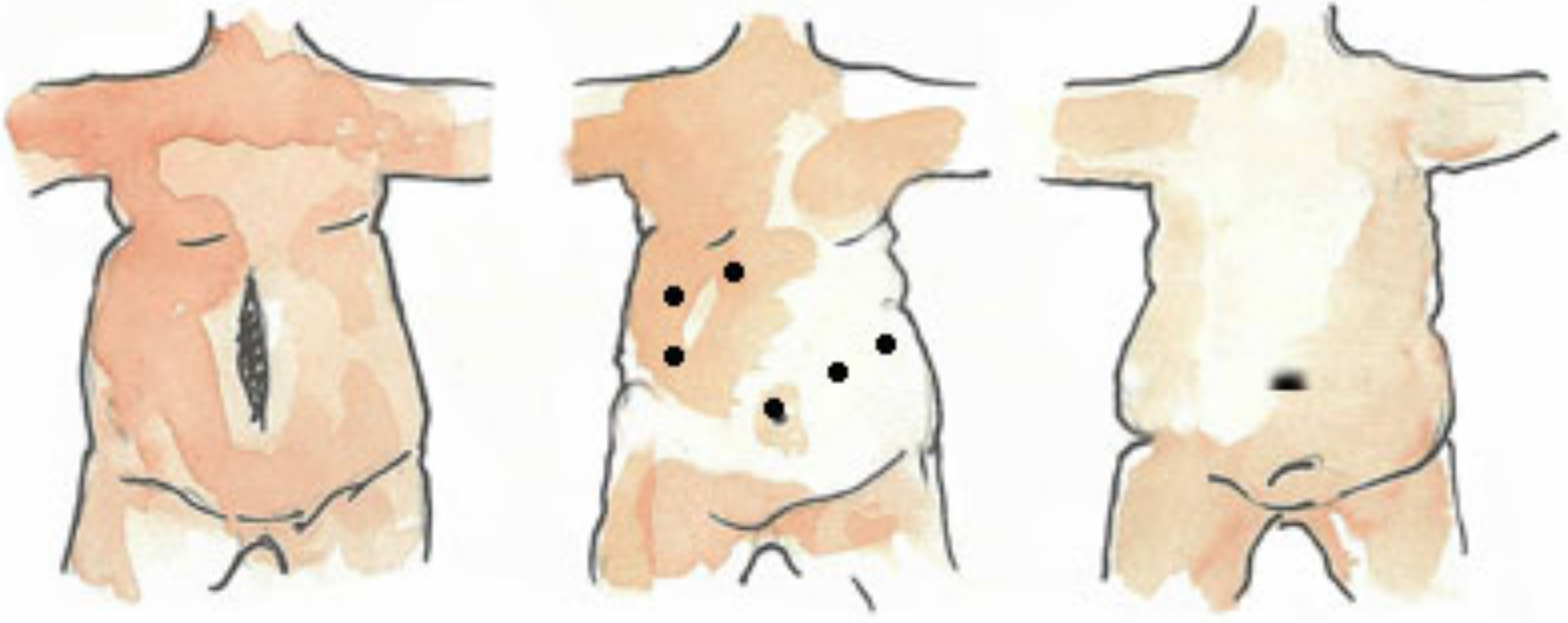
PIONEER BARIATRIC SURGEONS IN MALAYSIA

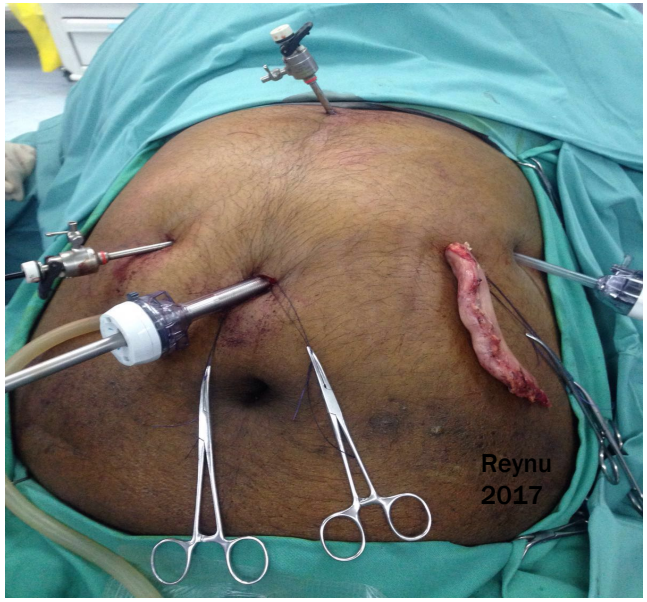
- Professor Dr Freda Meah in **1996** performed the first open vertical gastroplasty
- We are the 4th country in ASIA to start bariatric services
- Professor Dr Jasmi in **2001** performed the first LAGB
- Both served as Senior Consultant Surgeons at University Kebangsaan Malaysia Medical Centre (The National University of Malaysia)
- UKMMC remains Malaysia's leading referral centre with the largest volume of cases performed per annum (125)

BARIATRIC SURGERY IN MALAYSIA 2010 - 2016

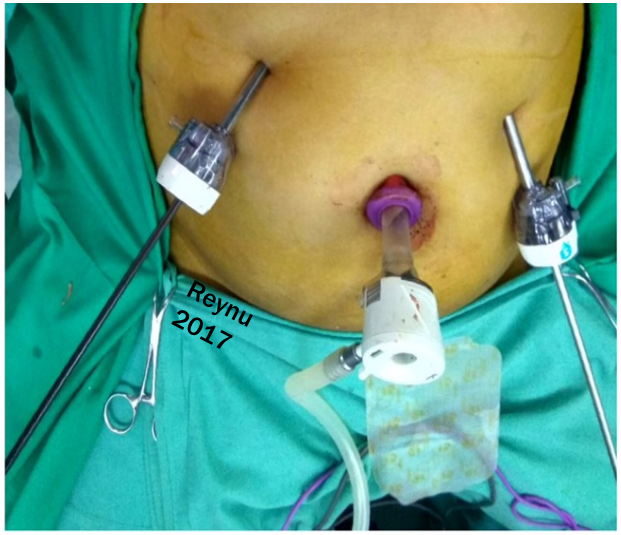


Sleeve Surgery Based on Incision Types





CONVENTIONAL LAPAROSCOPY



REDUCED INCISION LAPAROSCOPY

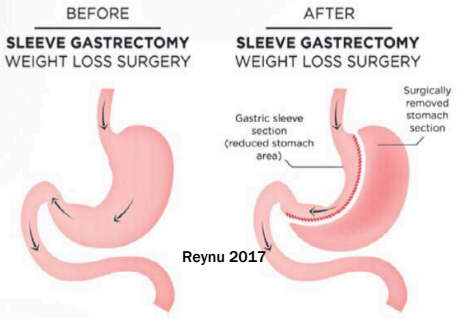
Malaysia's First

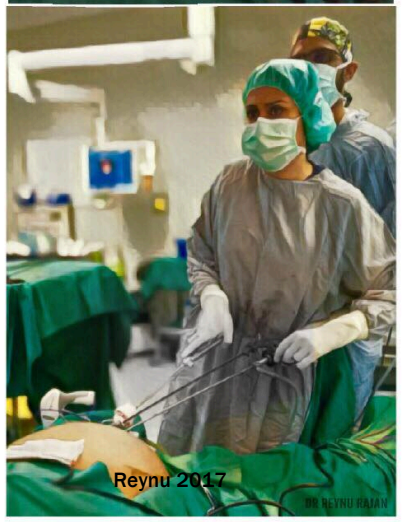
SINGLE INCISION

LAPAROSCOPIC SLEEVE GASTRECTOMY

(SINGLE PORT TECHNIQUE)

WEIGHT LOSS SURGERY
ONE INCISION ONLY
HIDDEN SCAR
ENHANCED RECOVERY





Upper Gastrointestinal & Bariatric Surgery Unit, Department of Surgery, UKM Medical Centre
(The National University of Malaysia)

BARIATRIC SURGERY HAS BEEEN PROVEN TO BE HIGHLY EFFECTIVE

But bariatric surgery is not a MAGIC solution

It's a lifetime commitment…

A second chance at a healthier life.

Thank you