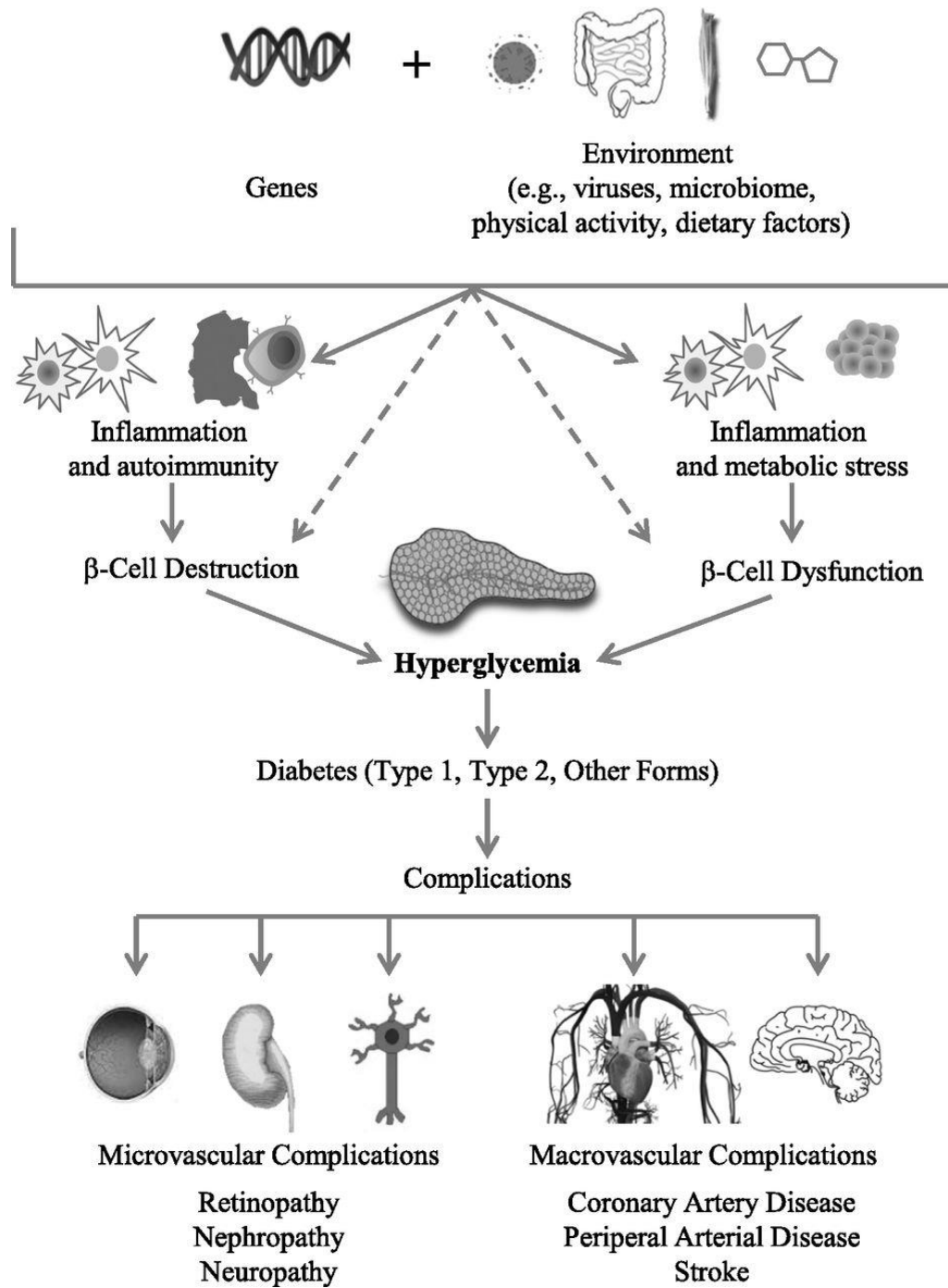
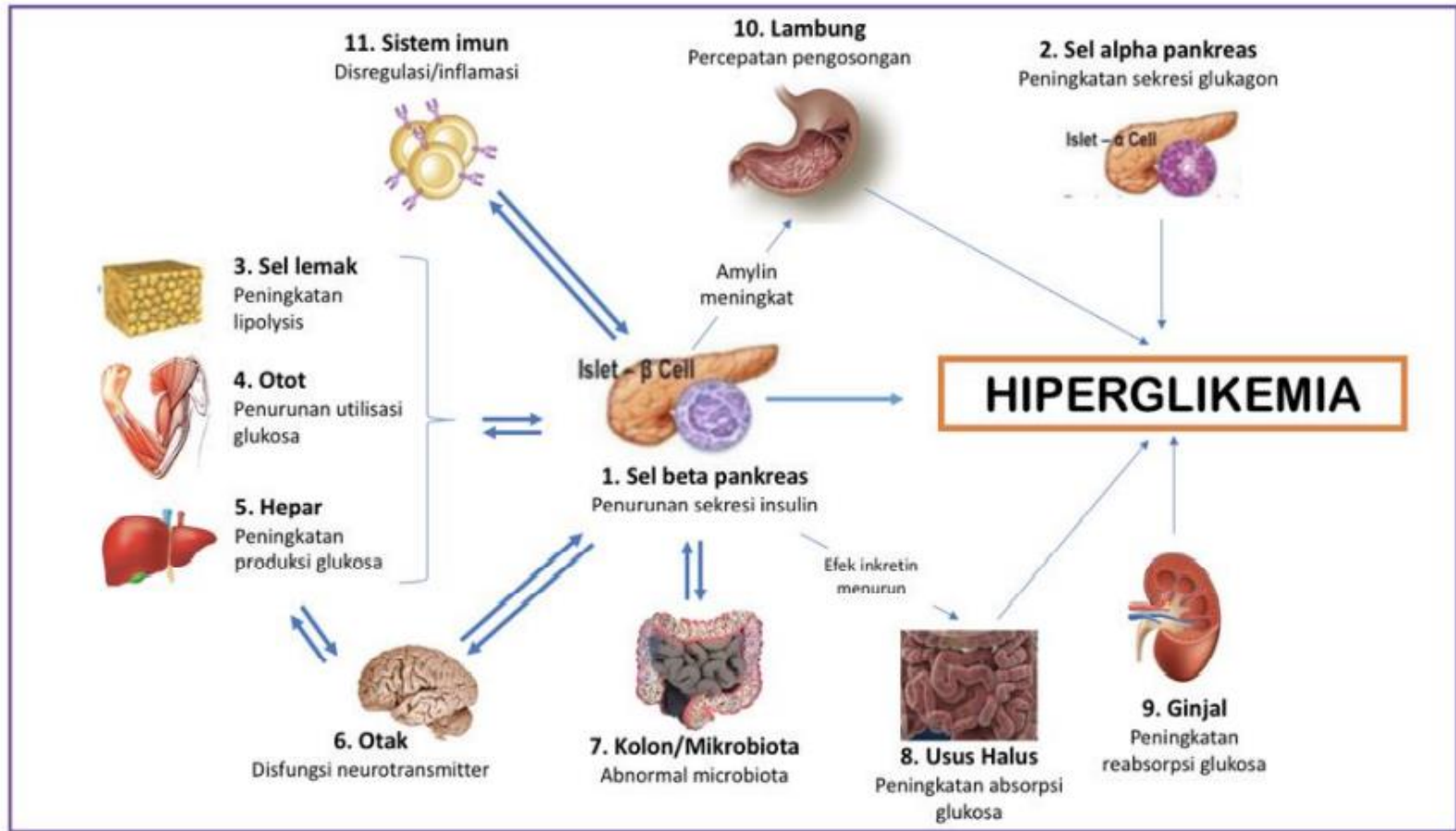


*MEDICAL NUTRITION
THERAPY ON
DIABETES MELLITUS*

dr. TIRTA PRAWITA SARI, MSc., Sp.GK

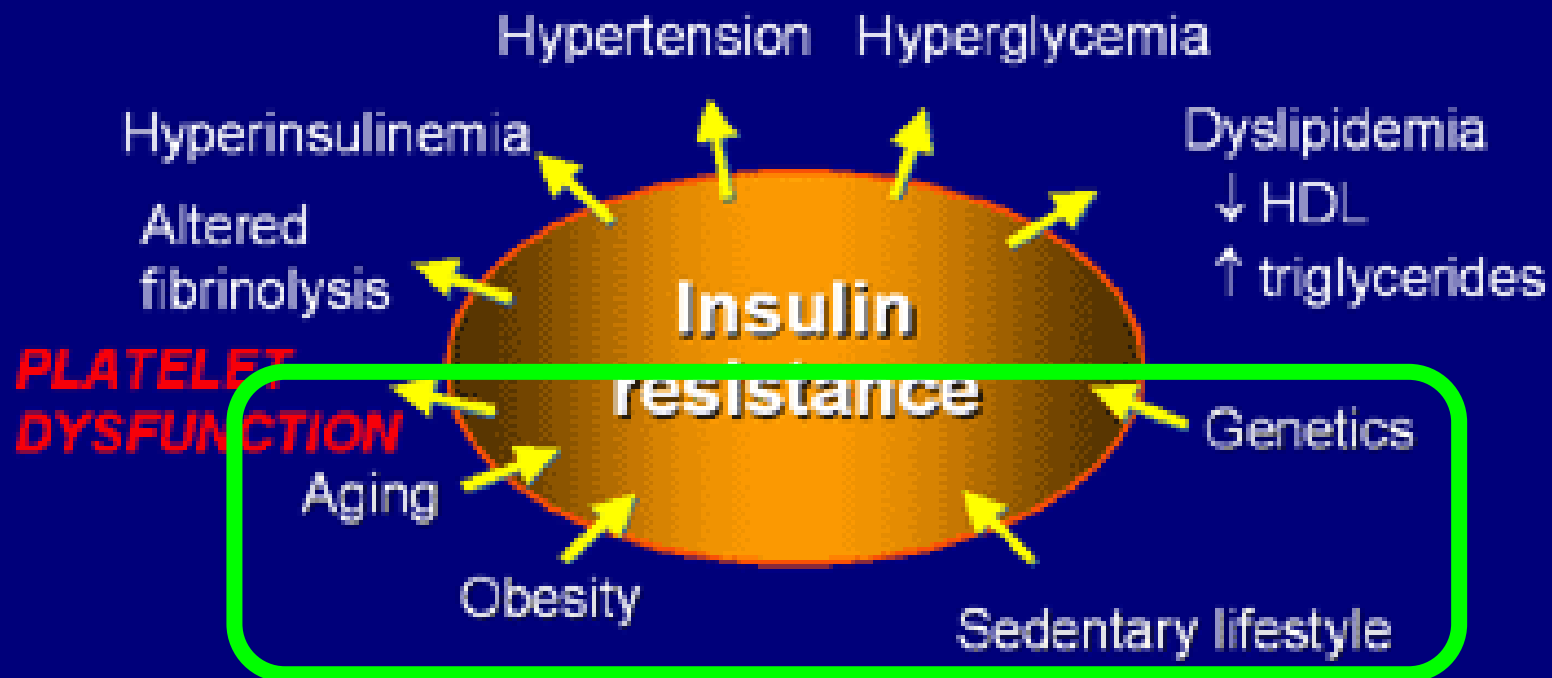




Gambar-1. The Egregious Eleven

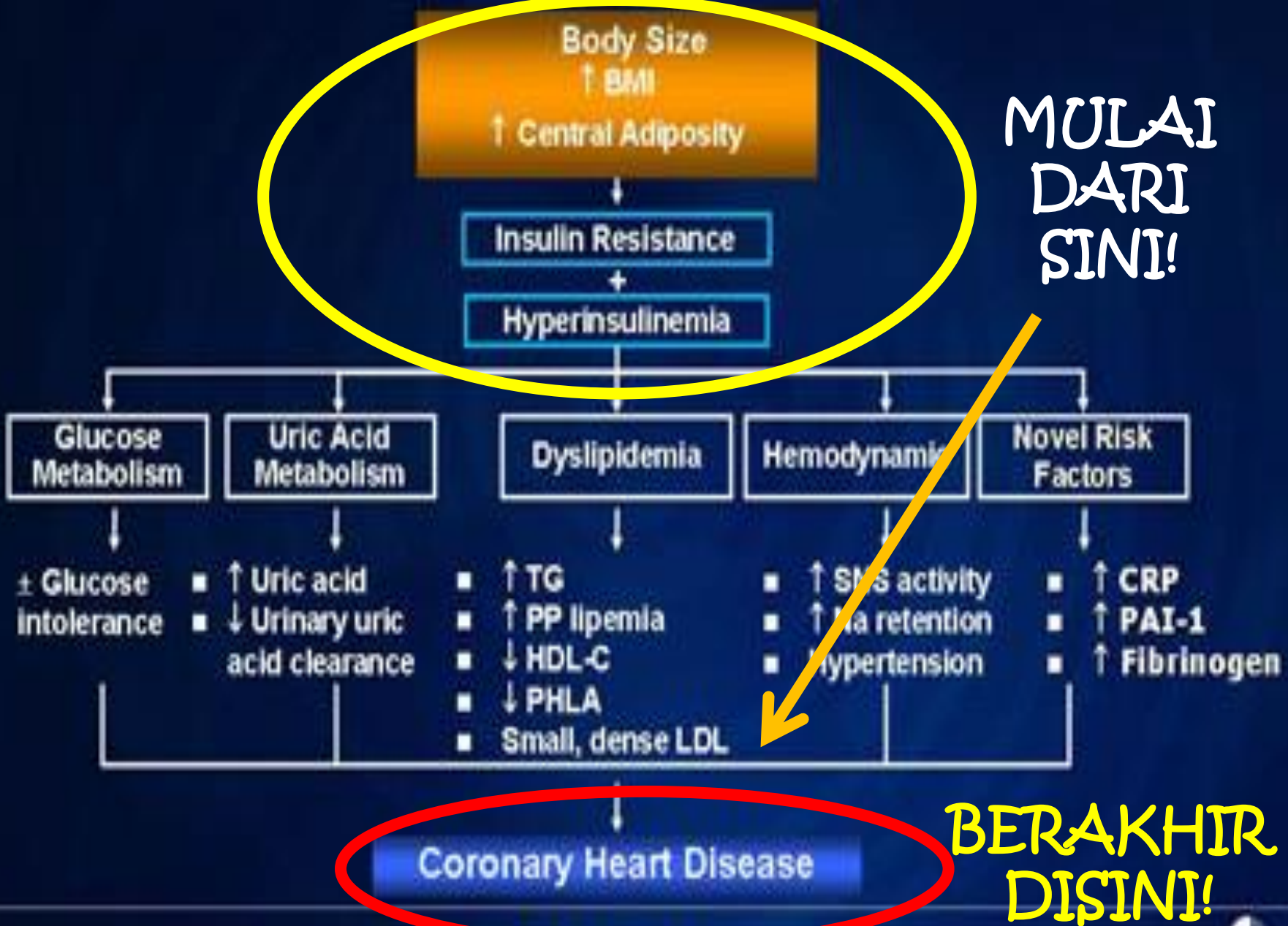
Schwartz SS, et al. The time is right for a new classification system for diabetes rationale and implications of the β -cell-centric classification schema. *Diabetes Care*. 2016; 39: 179 - 86

Insulin Resistance: Underlying Cause of Diabetes



"Apple" vs. "Pear"

**ADIPOSITAS SENTRAL:
ITU AKAR MASALAHNYA!**

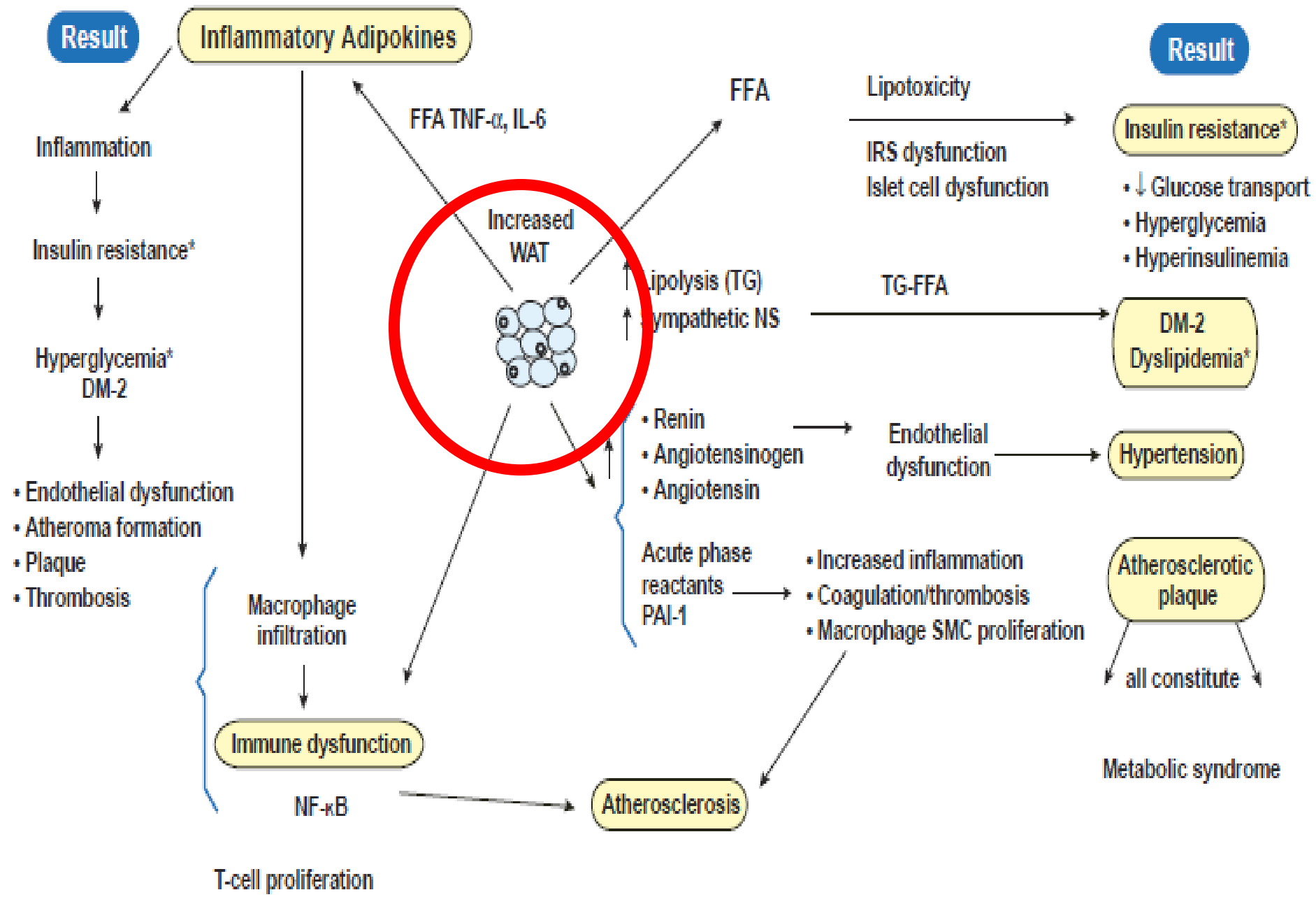


Adapted from Reaven G. *Drugs*. 1999;58(suppl):19-20.

Adipose Tissue



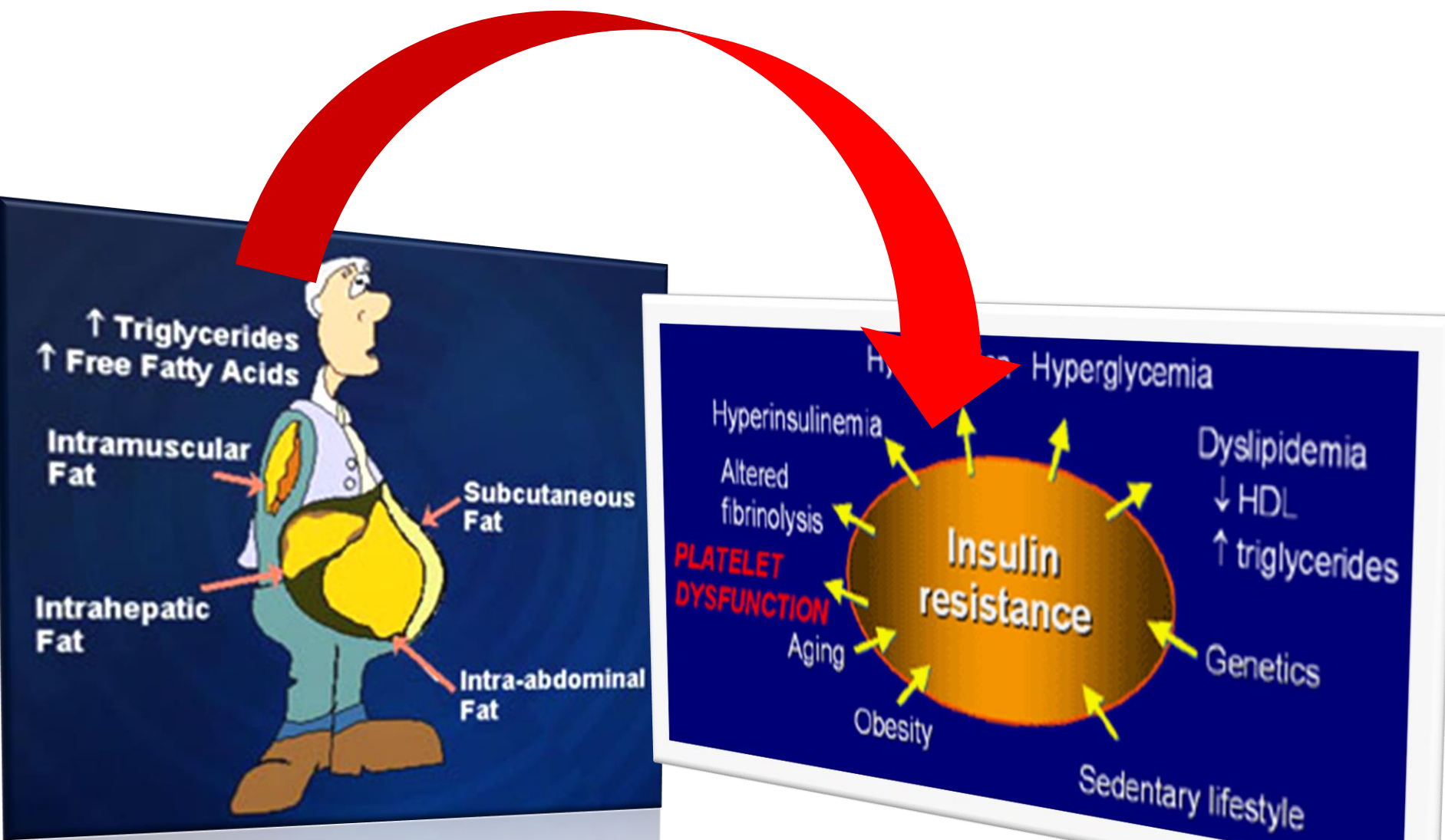
- ▶ FFA
- ▶ Leptin
- ▶ Angiotensinogen
- ▶ Resistin
- ▶ CRP
- ▶ TNF- α
- ▶ PAI-1
- ▶ Serum amyloid-A
- ▶ IL-6, IL-1
- ▶ Estrogens
- ▶ Cortisol
- ▶ Visfatin
- ▶ SAA
- ▶ MCP-1
- ▶ RBP-4



PENINGKATAN KADAR ASAM LEMAK BEBAS: PENYEBAB UTAMA RESISTENSI INSULIN



Adapted from Tan MH. *Exp Clin Endocrinol Diabetes*. 2000;113(suppl):54-62.



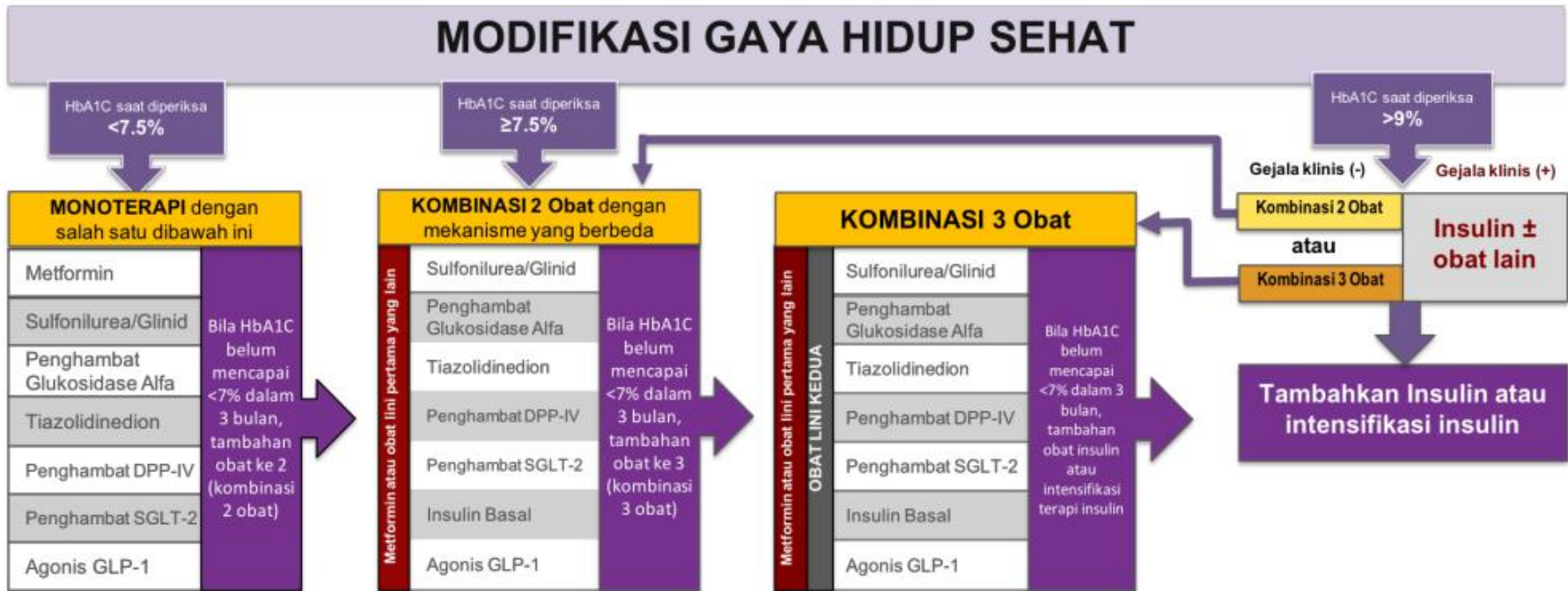
WASPADAI BERAT BADAN BERLEBIH DAN RESISTENSI INSULIN!

**MEMULAI TERAPI GIZI PADA PASIEN
DM: SETTING THE GOALS**



KONSELING!

Sasaran Kendali Glukosa Darah : HbA1C < 7 % (individualisasi)



Gambar 3. Algoritma Pengobatan DM Tipe 2

1. Pemilihan dan penggunaan obat mempertimbangkan faktor pembiayaan, ketersediaan obat, efektivitas, manfaat kardioresenal, efek samping, efek terhadap berat badan, serta pilihan pasien
2. Pengelolaan bukan hanya meliputi gula darah, tetapi juga penanganan faktor-faktor risiko kardioresenal yang lain secara terintegrasi
3. Obat Agonis GLP-1 dan penghambat SGLT-2 tertentu menunjukkan manfaat untuk pasien dengan komorbid penyakit kardiovaskuler aterosklerotik, gagal jantung dan gagal ginjal. Kedua golongan obat ini disarankan menjadi pilihan untuk pasien dengan komorbid/komplikasi penyakit tersebut.
4. Bila HbA1C tidak bisa diperiksa maka sebagai pedoman dipakai glukosa darah rerata yang dikonversikan ke HbA1C (poin 7 penjelasan algoritma)

- a. Materi edukasi pada tingkat awal dilaksanakan di Pelayanan Kesehatan Primer yang meliputi:
- Materi tentang perjalanan penyakit DM.
 - Makna dan perlunya pengendalian dan pemantauan DM secara berkelanjutan.
 - Penyulit DM dan risikonya.
 - Intervensi non-farmakologi dan farmakologis serta target pengobatan.
 - Interaksi antara asupan makanan, aktivitas fisik, dan obat antihiperglikemia oral atau insulin serta obat-obatan lain.
 - Cara pemantauan glukosa darah dan pemahaman hasil glukosa darah atau urin mandiri (hanya jika alat pemantauan glukosa darah mandiri tidak

TUJUAN PERUBAHAN PERILAKU PASIEN DM

(PERKENI, 2015)

- **Mengikuti pola makan sehat**
- **Meningkatkan kegiatan jasmani**
- **Menggunakan obat-obat pada keadaan khusus secara aman dan teratur**
- **Melakukan pemantauan Glukosa Darah mandiri (PGDM) dan memanfaatkan data yang ada**
- **Melakukan perawatan kaki secara berkala**
- **Memiliki kemampuan untuk mengenal dan menghadapi keadaan sakit akut dengan tepat**
- **Mempunyai keterampilan mengatasi masalah yang sederhana, dan mau bergabung dengan kelompok penyandang diabetes serta mengajak keluarga untuk mengerti pengelolaan penyandang diabetes**
- **Mampu memanfaatkan fasilitas pelayanan kesehatan yang ada**

Nutrition therapy for adults with DM – ADA 2019

Table 1—Goals of nutrition therapy

- To promote and support healthful eating patterns, emphasizing a variety of nutrient-dense foods in appropriate portion sizes, in order to improve overall health and specifically to:
 - Improve A1C, blood pressure, and cholesterol levels (goals differ for individuals based on age, duration of diabetes, health history, and other present health conditions. Further recommendations for individualization of goals can be found in the *ADA Standards of Medical Care in Diabetes* [345])
 - Achieve and maintain body weight goals
 - Delay or prevent complications of diabetes
- To address individual nutrition needs based on personal and cultural preferences, health literacy and numeracy, access to healthful food choices, willingness and ability to make behavioral changes, as well as barriers to change
- To maintain the pleasure of eating by providing positive messages about food choices, while limiting food choices only when indicated by scientific evidence
- To provide the individual with diabetes with practical tools for day-to-day meal planning

TUJUAN TERAPI GIZI



PENGATURAN BERAT BADAN



**PENGATURAN PROFIL LIPID+
TEKANAN DARAH**



KENDALIKAN INFLAMASI

**HEALTHY LIFE
STYLE**

**MEMULAI TERAPI GIZI PADA
PASIEN DM: HITUNG KEBUTUHAN
ENERGI**

PERTIMBANGKAN STATUS GIZI -- IMT

PERTIMBANGKAN JENIS KELAMIN

PERTIMBANGKAN USIA

PERTIMBANGKAN AKTIFITAS FISIK HARIAN

**PERTIMBANGKAN ADA/TIDAK FAKTOR
STRESS**

Energy calculation :

Indirect calorimetry, Ireton Jones, Mifflin- St Jeor

Harris benedict equation:

$$\begin{aligned} \text{♀} &= 655 + (9,6 \times Wt) + (1,8 \times H) - (4,7 \times A) \\ \text{♂} &= 66 + (13,8 \times Wt) + (5 \times H) - (8 \times A) \end{aligned}$$

To be multiplied with:
•Physical activity factor (outpatient)
•Activity Factor and stress factor (inpatient)

Based on BMI:

Energy requirements (kcal/kg/day)		
BMI (kg/m ²)	Critically ill (BMR)	Other (RMR+TEF+TEA)
< 15		
15 - 20		
≥ 30	15 - 20	15 - 20

**For practical use:
RULE OF THUMB: 25 – 30 kkal/kgBW**

- Use Harris Benedict if energy estimation < 1200 kcal/day
- For BMI ≥ 30 : do not exceed 2000 kcal/day

RULE OF THUMBS – PERKENI 2015

- **Status gizi:** lebih/obese: - 20 – 30% | kurang: + 20 – 30%
- **Jenis kelamin:** Perempuan: 25 kkal/BBI | laki-laki 30 kkal
- **Usia:** 40 – 59 : - 5% | 60 – 69: - 10% | ≥ 70 : 20%
- **Aktifitas fisik:** sangat ringan/RMR: + 10% | ringan: 20% | sedang: 30% | berat: 40% | sangat berat: 50%
- **Stress metabolic:** + 10 -30% tergantung derajat stress
- **Jumlah energi minimal:** 1000 – 1200 kkal/hari

REFERENSI LAIN

- Normal: 25 – 30 kkal/BB
- Stress:
 - Ringan: 30 – 35 kkal/BB
 - Sedang – berat: 35 – 45/BB

Physical Activity	Sex	
	♂	♀
Very light	1,3	1,3
Light	1,65	1,55
Moderate	1,76	1,70
Active	2,10	2,00

Activity Factor		Stress Factor			
Confined to bed	1,2	Burn	1,5 1,8 1,8 – 2,0	Surgery	1,1 1,2
		≤ 20% BSA		Minor	
		20 – 40% BSA		Major	
Ambulatory	1,3	Infections	1,2 1,4 1,8	Trauma	1,2 1,35 1,4
		Mild		Skeletal	
		Moderate		Blunt	
		Severe		Close Head Injury	
		Starvation	0,85		

FOR OBESE PATIENT

USE

Adjusted body weight: [(actual weight – ideal weight) x 0,25] + ideal weight
INSTEAD OF ACTUAL BODY WEIGHT

FOLLOWED

Gradual reduction 500 kcal/day to achieve ½ - 1 kg weight loss



DO NOT LESS THAN/EQUAL TO 800 Kcal/day

**GUNAKAN APLIKASI
PENGHITUNG KALORI – MULAI
DARI KEBUTUHAN BASAL/RESTING
TAMBAHKAN SESUAI AKTIFITAS DAN ADA
ATAU TIDAKNYA FAKTOR STRESS**

Table 3—Eating patterns reviewed for this report

Type of eating pattern	Description	Potential benefits reported*
USDA Dietary Guidelines For Americans (DGA) (8)	Emphasizes a variety of vegetables from all of the subgroups; fruits, especially whole fruits; grains, at least half of which are whole intact grains; lower-fat dairy; a variety of protein foods; and oils. This eating pattern limits saturated fats and <i>trans</i> fats, added sugars, and sodium.	DGA added to the table for reference; not reviewed as part of this Consensus Report
Mediterranean-style (69,76,85–91)	Emphasizes plant-based food (vegetables, beans, nuts and seeds, fruits, and whole intact grains); fish and other seafood; olive oil as the principal source of dietary fat; dairy products (mainly yogurt and cheese) in low to moderate amounts; typically fewer than 4 eggs/week; red meat in low frequency and amounts; wine in low to moderate amounts; and concentrated sugars or honey rarely.	<ul style="list-style-type: none">• Reduced risk of diabetes• A1C reduction• Lowered triglycerides• Reduced risk of major cardiovascular events
Vegetarian or vegan (77–80,92–99)	The two most common approaches found in the literature emphasize plant-based vegetarian eating devoid of all flesh foods but including egg (ovo) and/or dairy (lacto) products, or vegan eating devoid of all flesh foods and animal-derived products.	<ul style="list-style-type: none">• Reduced risk of diabetes• A1C reduction• Weight loss• Lowered LDL-C and non-HDL-C
Low-fat (26,45,80,83,100–106)	Emphasizes vegetables, fruits, starches (e.g., breads/crackers, pasta, whole intact grains, starchy vegetables), lean protein sources (including beans), and low-fat dairy products. In this review, defined as total fat intake \leq 30% of total calories and saturated fat intake \leq 10%.	<ul style="list-style-type: none">• Reduced risk of diabetes• Weight loss
Very low-fat (107–109)	Emphasizes fiber-rich vegetables, beans, fruits, whole intact grains, nonfat dairy, fish, and egg whites and comprises 70–77% carbohydrate (including 30–60 g fiber), 10% fat, 13–20% protein.	<ul style="list-style-type: none">• Weight loss• Lowered blood pressure

<p>Low-carbohydrate (110–112)</p>	<p>Emphasizes vegetables low in carbohydrate (such as salad greens, broccoli, cauliflower, cucumber, cabbage, and others); fat from animal foods, oils, butter, and avocado; and protein in the form of meat, poultry, fish, shellfish, eggs, cheese, nuts, and seeds. Some plans include fruit (e.g., berries) and a greater array of nonstarchy vegetables. Avoids starchy and sugary foods such as pasta, rice, potatoes, bread, and sweets. There is no consistent definition of “low” carbohydrate. In this review, a low-carbohydrate eating pattern is defined as reducing carbohydrates to 26–45% of total calories.</p>	<ul style="list-style-type: none"> • A1C reduction • Weight loss • Lowered blood pressure • Increased HDL-C and lowered triglycerides
<p>Very low-carbohydrate (VLC) (110–112)</p>	<p>Similar to low-carbohydrate pattern but further limits carbohydrate-containing foods, and meals typically derive more than half of calories from fat. Often has a goal of 20–50 g of nonfiber carbohydrate per day to induce nutritional ketosis. In this review a VLC eating pattern is defined as reducing carbohydrate to <26% of total calories.</p>	<ul style="list-style-type: none"> • A1C reduction • Weight loss • Lowered blood pressure • Increased HDL-C and lowered triglycerides
<p>Dietary Approaches to Stop Hypertension (DASH) (81,118,119)</p>	<p>Emphasizes vegetables, fruits, and low-fat dairy products; includes whole intact grains, poultry, fish, and nuts; reduced in saturated fat, red meat, sweets, and sugar-containing beverages. May also be reduced in sodium.</p>	<ul style="list-style-type: none"> • Reduced risk of diabetes • Weight loss • Lowered blood pressure
<p>Paleo (120–122)</p>	<p>Emphasizes foods theoretically eaten regularly during early human evolution, such as lean meat, fish, shellfish, vegetables, eggs, nuts, and berries. Avoids grains, dairy, salt, refined fats, and sugar.</p>	<ul style="list-style-type: none"> • Mixed results • Inconclusive evidence
<p>*Source: RCTs, meta-analyses, observational studies, nonrandomized single-arm studies, cohort studies. USDA, U.S. Department of Agriculture.</p>		

MEMULAI TERAPI GIZI PADA PASIEN DM: TENTUKAN KOMPOSISI ZAT GIZI

Karbohidrat: 45 – 65% TEE, sukrosa 5%, minimal 130 g/hari

lemak: maksimal 30%, lemak jenuh < 7%

protein: 10 - 20% TEE, hewani 65%

serat: 14 g utk setiap 1000 kkal

CARBOHYDRATE REQUIREMENT

- Fruits, veggies, whole grains, legumes, low fat milk
- Carbs
- Glycemic index → nit over total carbs also
- Substituting → covered excess
- Sugar → are in line
- Total carbs: 60g → other with MUFA
 - Heimburger: 40g carbs, 15% of total energy intake

**The most common
misunderstood
macronutrient in DM
management**

FAT REQUIREMENT

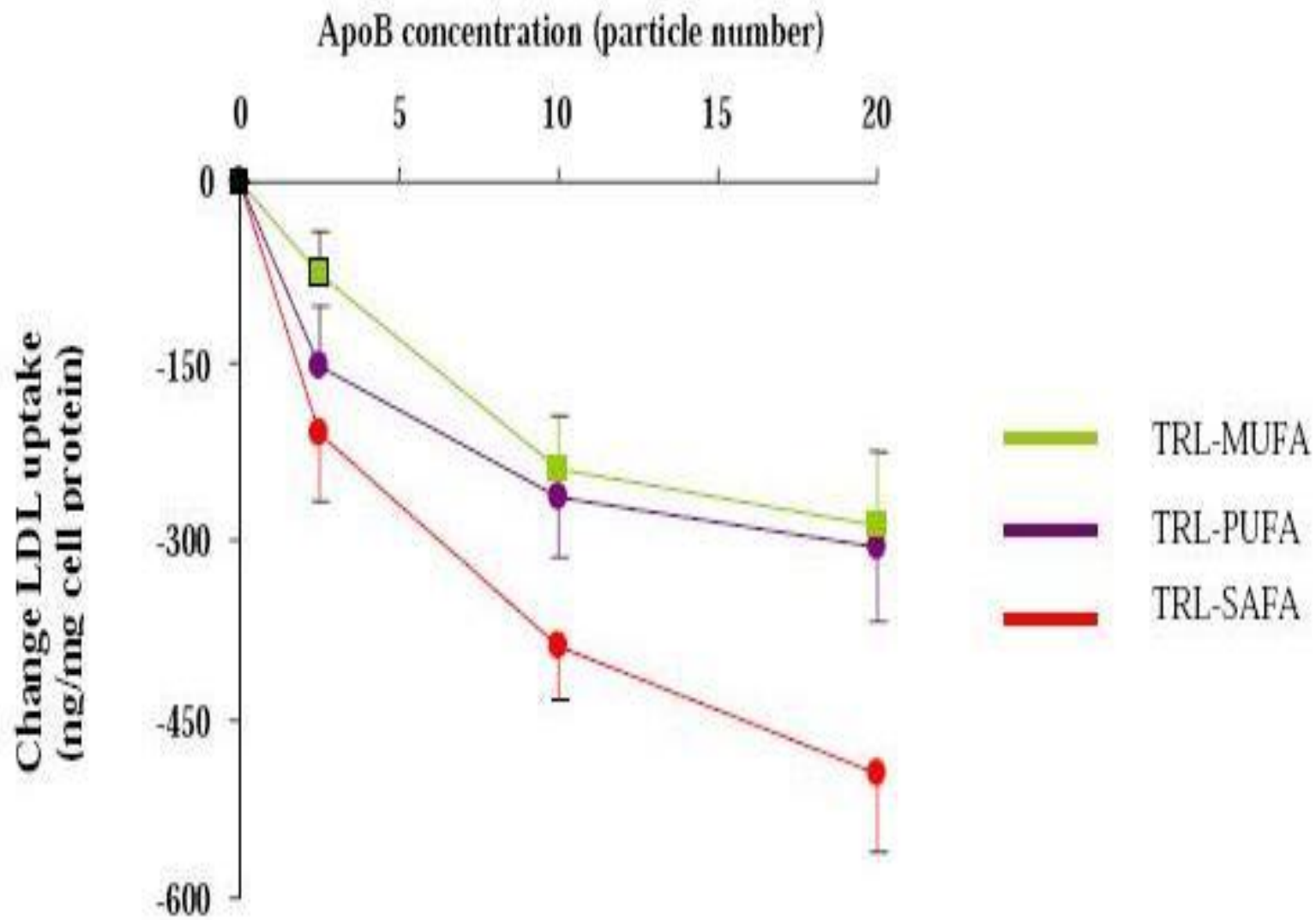
- Limit saturated fat to < 7% of total calories
- Intake of trans fat should be minimized
- Lower dietary cholesterol to < 200 mg/day
- Two or more servings of fish/week → n-3 FA
- PUFA 10%, total fat < 30%
- MUFA 15 – 20% of total energy requirement



Saturated fats

Saturated fats are found in animal products such as butter, cheese, whole milk, ice cream, cream, and fatty meats, and oils such as coconut, palm, and palm kernel oil





PROTEIN REQUIREMENT

- 15 – 20% of total energy intake
- In type 2 DM, ingesting protein increase insulin response not plasma glucose concentration → not for treating acute/prevent nighttime hypoglycemia
- High protein diet > 20% not recommended
- Uncontrolled DM: higher requirement but not exceed general needs



MICRONUTRIENT

- No clear evidence supporting vitamin and mineral supplementation without underlying deficiencies
- Routine supplementation of vitamin/mineral → non advisable
- Chromium supplementation → can not be recommended → lack of clear evidence



TYPE 1 DM

- Insulin therapy integrated with dietary and physical activity pattern
- Rapid acting by injections or pump → adjust meal and snack with insulin doses based on carbs content
- Fixed daily insulin doses: consistent carbs intake on a day to day basis
- Planned exercise → adjusted doses. Unplanned → extra carbs needed



MICROVASCULAR COMPLICATIONS

- DM and early stage CKD: reduced protein intake 0,8 – 1 g/kgBW/d. Later stage in CKD: $\leq 0,8$ g/kgBW/d → improve renal measures

MEAL PLANNING

Carbohydrate counting

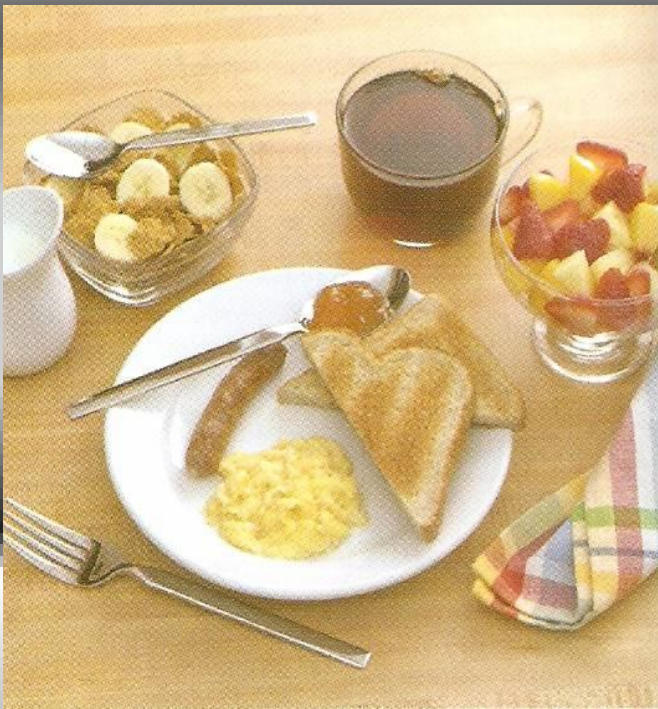
Balancing carbohydrate food choices through out the day, focus on total amount not the type of carbs

- equal amounts of sugar, starch, milk → raise blood sugar about the same amount
- 1 – 2 hrs after eating carbs → blood sugar, protein and fat → less effect to blood sugar
 - calculate carbs to insulin ratio



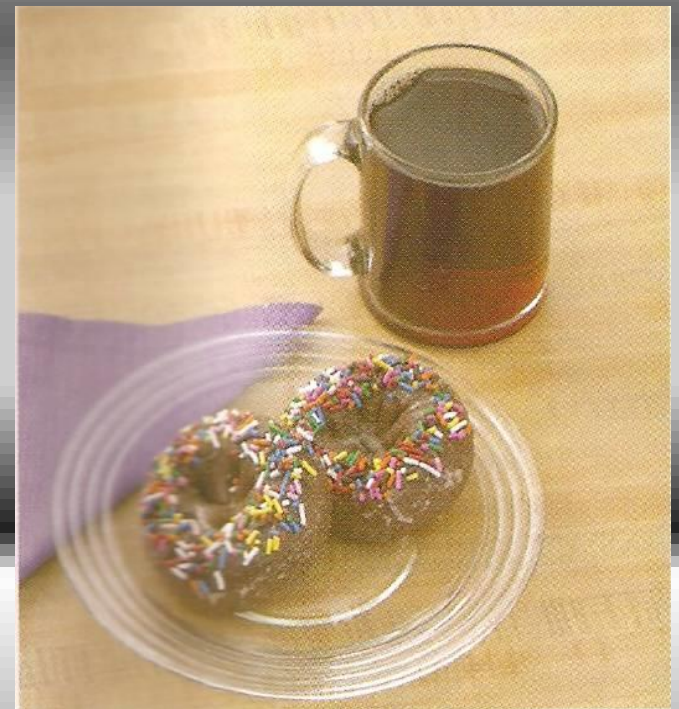
ENERGY DENSITY

Besarnya energi yang dihasilkan oleh makanan relatif terhadap jumlah makanan (kcal/gr)



500 kcal : 450 gr = **1,1 kcal/gr**

=

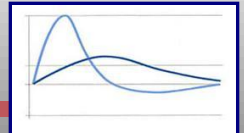
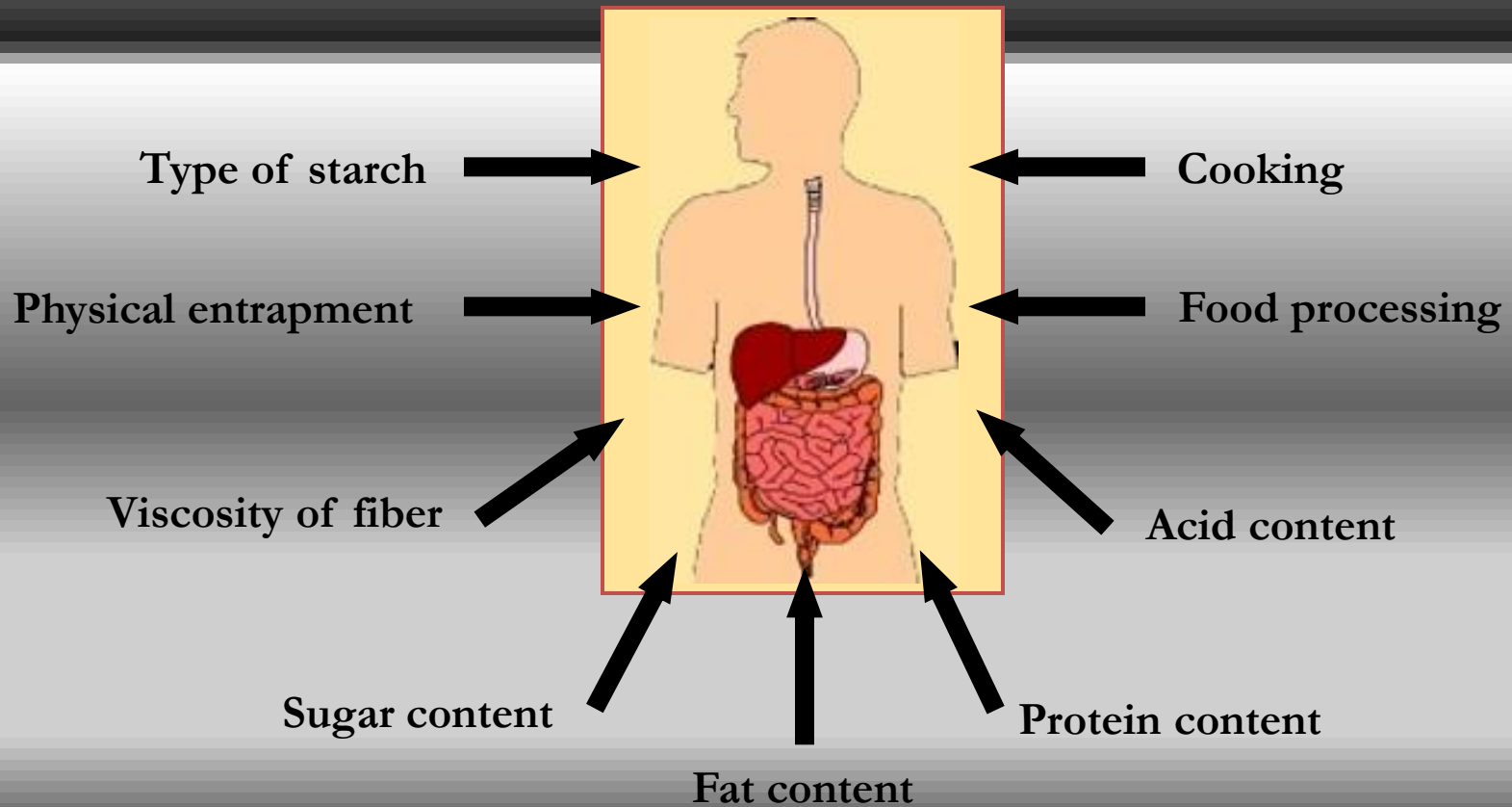


500 kcal : 144 gr = **3,5 kcal/gr**

GLYCEMIC INDEX

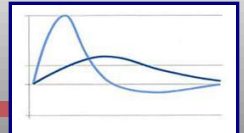
*A SCALE THAT RANKS
CARBOHYDRATES BY HOW
MUCH THEY RAISE BLOOD
GLUCOSE LEVELS COMPARED
TO A REFERENCE FOOD.*

Factors Influencing GI Ranking



Glycemic Index (GI): Ranking

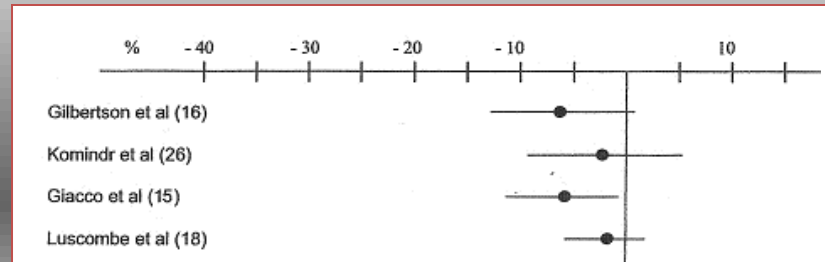
Low	0 – 55
Moderate	56 – 69
High	70 or more



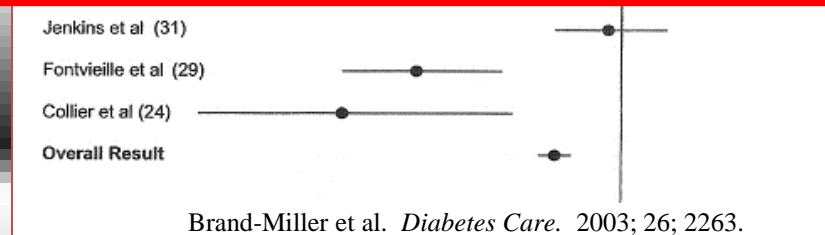
Benefits of Low GI Diet

Low GI diet helps lower blood glucose levels.

Meta-analysis of 14 studies, 356 subjects (types 1 & 2 DM), 2-52 weeks duration

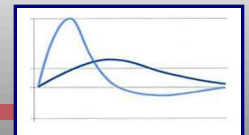


ADA 2008: INCONCLUSIVE



Mean difference

- 7.4% in glycosylated proteins **over & above** reduction from high GI diet.
- 0.43% points in HbA1c **over & above** reduction from high GI diet



EXAMPLE OF FOOD WITH LOW GI: STAPLES

LOW GI		MEDIUM GI		HIGH GI	
New Potatoes	54	Basmati rice	58	Instant white rice	87
Brown Rice	50	Couscous	61	Tapioca	70
White long grain rice	50	Rice vermicelli	58	Fresh Mashed potatoes	73
Sweet Potatoes	48	Corn meal	68	French fries	75
Instant Noodles	47	Baked Potato	60	Instant mashed potatoes	80

EXAMPLE OF FOOD WITH LOW GI: FRUITS

LOW GI		MEDIUM GI		HIGH GI	
Grapes	43	Mango	60	Watermelon	80
Apples	34	Banana	58	Dates	103
Oranges	40	Papaya	60		
Pears	41	Pineapple	66		
Coconut	45	Raisins	64		

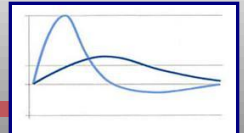
Pictures of Low/High GI Meals & Snacks



GI = 85 GL = 48



GI = 39 GL = 22



Diabetes Menu

What's for
dinner?

**IMPLEMENTING THE
GUIDELINES**

Optimal = jumlah sesuai kebutuhan (usia, jenis kelamin, aktifitas fisik),
jenis adekuat



The infographic shows a plate divided into four sections: 2-3 porsi Lauk-pauk (blue), 2-3 porsi Buah-buahan (pink), Makanan pokok 2-4 porsi (purple), and Sayuran 3-4 porsi (green). A red box highlights the vegetable and fruit sections, and a yellow box highlights the protein section. A red arrow points from the plate to a bowl of fresh fruits and vegetables. A yellow arrow points from the bowl to a text box asking 'Apakah kita membutuhkan suplemen?' (Do we need supplements?).

2100 kkal, 57 gram protein = minimal 4 porsi untuk karbo 60% energi total

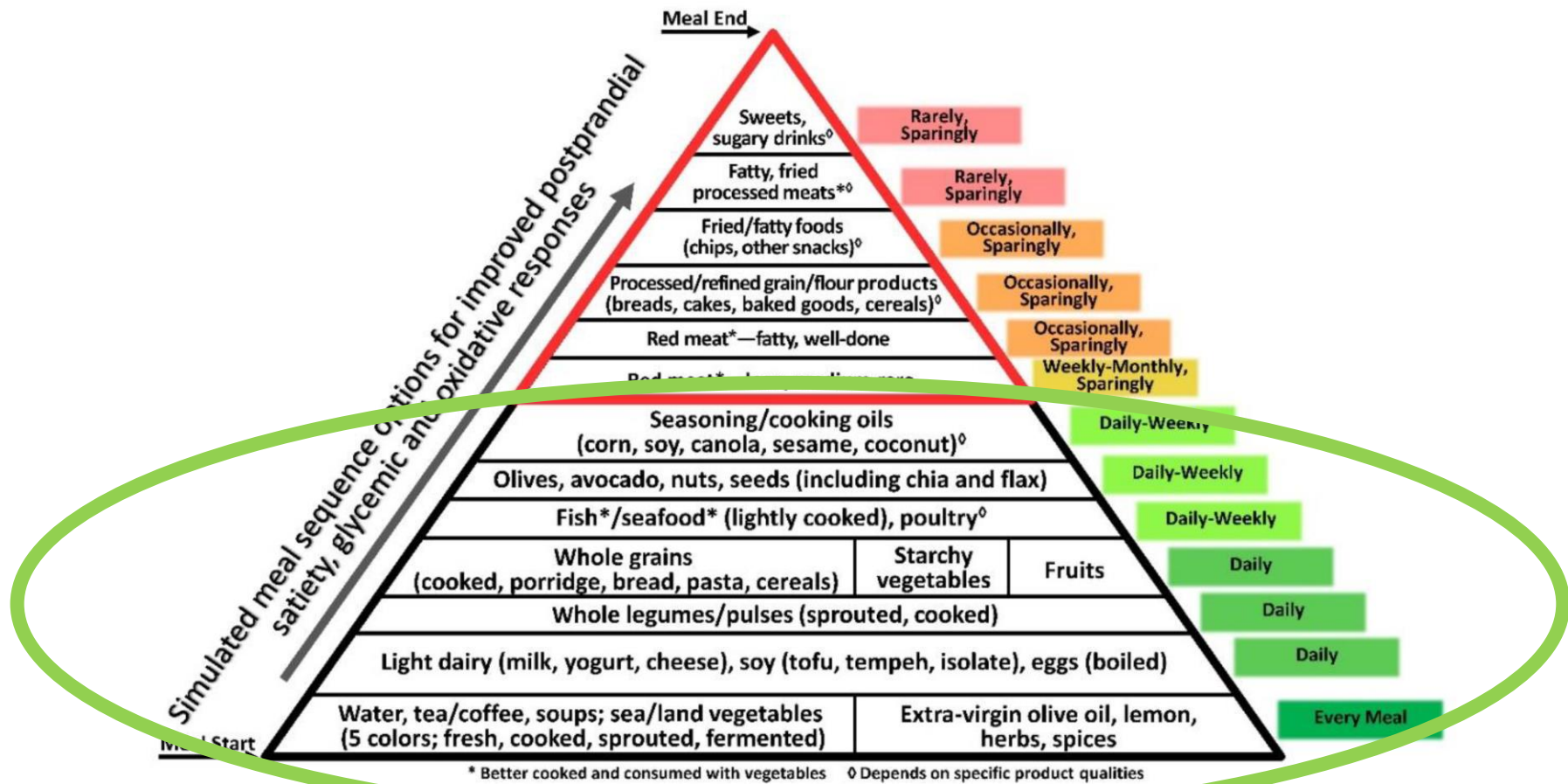
Apakah kita membutuhkan suplemen?

Check your colour and numbers

Air Putih

alamy stock photo

A07A03
www.alamy.com



The advised simulated meal sequence may further suggest decreasing portions and exclusions, especially of foods towards the upper levels (inside the red triangle).

Nutrients 2019, 11(10), 2373

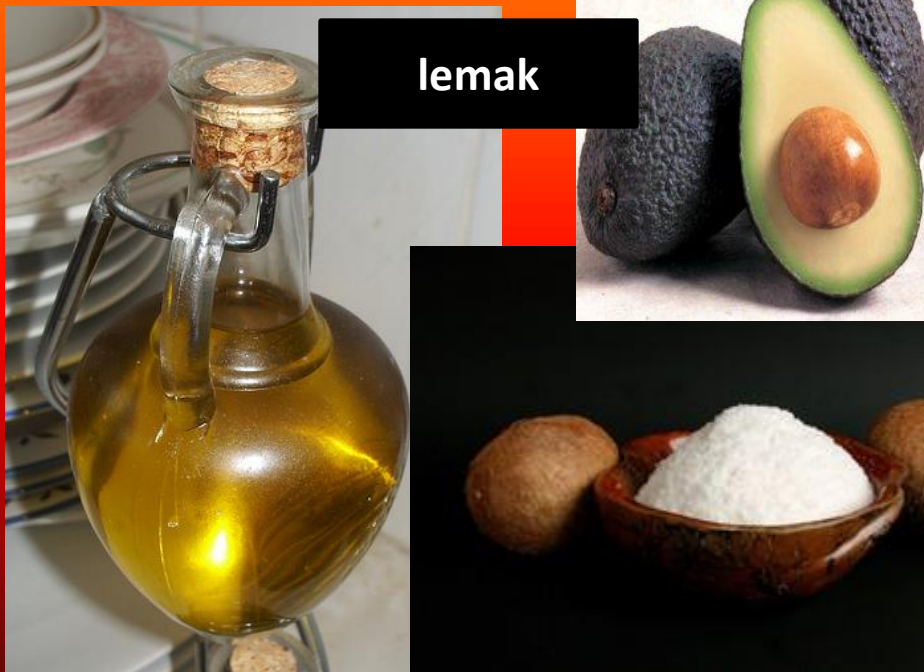
Contoh bahan makanan sumber makronutrien dan mikronutrien



karbohidrat



protein



lemak



Vitamin/mineral

1 gram karbohidrat: 4 kkal
1 gram protein: 4 kkal
1 gram lemak: 9 kkal

Putting the calculation onto the table

- Hitung kebutuhan energi total -- kkal

- **GUNAKAN DAFTAR BAHAN**
- **MAKANAN PENUKAR UNTUK**
- **MENGHITUNG PORSI**

Contoh:

kebutuhan karbohidrat utk 2000 kkal (55% karbo) :

$$2000 \text{ kkal} \times 55\% = 1100 \text{ kkal}$$

$$1100 \text{ kkal} / 4 \text{ gram} = 275 \text{ g karbohidrat}$$

$$275 \text{ g} / 40 = 6,8 \text{ porsi} \approx 7 \text{ porsi}$$

**1 porsi bahan makanan sumber karbohidrat setara dengan
175 kal, 4 gr protein, 40 gr karbohidrat**



$\frac{3}{4}$ gelas



2 gelas



3 potong sedang



2 gelas



2 biji sedang



1 potong sedang

**1 porsi bahan makanan sumber protein hewani setara
dengan 50 kkal, 7 gr protein, 2 gr lemak; 75 kkal, 7 gr prot, 5 gr lemak**



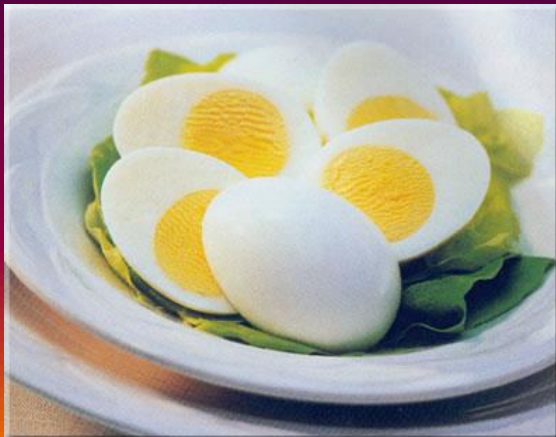
1 potong sedang



1 potong sedang



1 potong sedang



1 butir



5 ekor sedang



10 biji sedang

**1 porsi bahan makanan sumber protein nabati setara
dengan 75 kkal, 5 gr protein, 3 gr lemak, 7 gr karbohidrat**



1 biji besar



2 potong sedang



2 sendok makan

1 porsi bahan makanan sumber vitamin/mineral setara dengan



1 buah sedang



1 potong besar



1 potong besar



1 gelas



1 gelas



1 gelas

Sizing Up Servings

.. Visualizing 1 Serving ..

Grains



Half a bagel



1 cup of rice or
pasta/cereal

Fruits & Veggies



1 Fruit/veggie



1/2 cup of
canned fruit



1 cup of salad

Dairy



1 oz. cheese
(4 dice)



3/4 cup of yogurt



1 cup of milk

Meats & Alternatives



3 oz.
Meat, poultry, fish



2 small eggs or
1 large egg



2 tablespoons of
peanut butter

Oils, Spreads, Dressings



1 teaspoon of dressing, oil,
butter, or cream cheese
(2 stacked nickels or
top joint of thumb)



<http://caldning.berkeley.edu/nutrition.html>

Ringkasan terapi gizi pada pasien DM tipe 2

1. Hitung dan nilai status gizi
2. Hitung berat badan ideal (BBI)
3. Pilih berat badan yang sesuai untuk digunakan dalam perhitungan kebutuhan energi basal (KEB, dalam kkal) menggunakan rumus harris benedict
 - a. Jika overweight dan atau obesitas, gunakan berat badan ideal
 - b. Jika status gizi underweight dan atau normal, gunakan berat badan aktual
4. Selain menggunakan rumus Harris Benedict, dapat menggunakan rule of thumb, yaitu dengan mengalikan berat badan ideal (**utk semua pasien tanpa memperhatikan status gizi**) dengan 25 – 30 kkal (jika underweight disarankan mengalikan dengan batas tertinggi (BBI x 30 kkal; dan jika overweight/obesitas disarankan menggunakan batas terendah BBI x 25 kkal)
5. Hitung energi basal dan kemudian kalikan dengan faktor aktifitas. Hasil perhitungan disebut Kebutuhan energi total (KET = KEB x faktor aktifitas, dalam kkal). **Jika menggunakan rule of thumb maka tidak perlu mengalikan dengan faktor aktifitas.**

Ringkasan terapi gizi pada pasien DM tipe 2

6. Setelah mendapatkan KET, hitunglah komposisi zat gizi makro dengan ketentuan:
 - a. Karbohidrat sederhana: $10\% \times \text{KET}$
 - b. Karbohidrat kompleks: $45\% \times \text{KET}$
 - c. Protein: $15\% \times \text{KET} \rightarrow 65\%$ protein hewani, 35% nabati
 - d. Lemak tak jenuh: $23\% \text{ KET}$
 - e. Lemak jenuh: $7\% \text{ KET}$
7. Konversikan nilai kalori yang didapatkan untuk setiap zat gizi makro menjadi bentuk gram
8. Konversikan jumlah gram zat gizi makro menjadi porsi dengan mengacu pada Bahan Makanan penukar
9. Lakukan edukasi dengan menekankan pentingnya 3 J = Jumlah (jangan melebihi dan jangan kurang), Jenis (pilihlah karbohidrat dengan indeks glikemik rendah. Karbohidrat adalah zat gizi makro yang paling signifikan), Jadwal (atur pola makan, jangan makan terlalu malam)

PORTION SIZE

Karbohidrat: 285 g

1 URT = 40 g KH \rightarrow 7,125 \sim 7 porsi sumber KH

Lemak: 52,77 g

1 URT = 5 g \rightarrow 10,55 = 10 porsi

Protein: 71,25 g

1 URT protein rendah lemak = 7 g \rightarrow 10,17 = 10 porsi

BREAKFAST



LUNCH



DINNER





1360 Kcal



=



FAST FOOD: CALORIES PER DOLLAR

McDonald's

Big Mac  \$3.79 CALORIES 540 CALORIES PER DOLLAR 142	Bacon Cheese Angus Burger  \$4.29 CALORIES 820 CALORIES PER DOLLAR 191	Large Fries  \$2.19 CALORIES 500 CALORIES PER DOLLAR 228
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Burger King

Double Whopper with Cheese  \$4.79 CALORIES 990 CALORIES PER DOLLAR 207	Tendercrisp Chicken Sandwich  \$4.79 CALORIES 790 CALORIES PER DOLLAR 165	Large Fries  \$2.45 CALORIES 500 CALORIES PER DOLLAR 204
--	---	--

KFC

2 Piece Breast + Wing Meal  \$5.69 CALORIES 970 CALORIES PER DOLLAR 170	10 Honey BBQ Wings  \$6.09 CALORIES 800 CALORIES PER DOLLAR 131	Beef Gordita Supreme  \$1.89 CALORIES 310 CALORIES PER DOLLAR 164	Fiesta Chicken Salad  \$4.09 CALORIES 850 CALORIES PER DOLLAR 208
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Pizza Hut

Meat Lover's Personal Pan Pizza  \$4.09 CALORIES 890 CALORIES PER DOLLAR 217

IHOP

Country Fried Steak + Eggs  \$10.99 CALORIES 1535 CALORIES PER DOLLAR 140

Subway

6" Meatball Sub  \$3.79 CALORIES 580 CALORIES PER DOLLAR 153	12" Sweet Onion Chicken Teriyaki  \$6.39 CALORIES 770 CALORIES PER DOLLAR 121
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Current Label

Nutrition Facts	
Serving Size 8 fl oz (240 mL)	
Servings Per Container about 2.5	
Amount Per Serving	% Daily Value*
Calories 110	
Total Fat 0g	0%
Sodium 70mg	3%
Total Carbohydrate 31g	10%
Sugars 30g	
Protein 0g	
*Percent Daily Values are based on a 2,000 calorie diet	

Proposed Label

Nutrition Facts	
Serving Size 1 bottle (600 mL)	
Servings Per Container 1	
Amount Per Serving	% Daily Value*
Calories 275	14%
Total Fat 0g	0%
Sodium 175mg	7%
Total Carbohydrate 78g	26%
Sugars 75g	
Protein 0g	
*Percent Daily Values are based on a 2,000 calorie diet	

Example of one day menu

Breakfast

1 glass rice
omelet (from 1 egg)
Stir fried tempe (2
middle size)
Vegetable soup (consist
of oyong + tomatos)
Morning snack 10.00
am
1 middle cut papaya

Lunch

1,5 glass rice
1 middle cut steam fish
(pepes ikan)
2 middle cut fried
tempe
1 glass boiled veggies
(string bean + kol)
1 tablespoon vegetable
oil
1 middle cut
pineapples
Afternoon snack 04.00
pm
1 banana

Dinner

1,5 glass rice
1 middle cut unskinned
roasted chicken with
soy sauce
1 tofu cooked with
palm sugar (tahu
bacem)
1 glass vegetable
stewed (bean + carrot)
1 middle cut papaya

Nutrition values

- Energy: 1912 kcal
- Protein: 60 gram (12,5%)
- Fat : 48 gram (22,5%)
- Carbs: 299 gram (62,5%)
- Fiber: 37 gram

HATI-HATI DENGAN SNACKING!



Ingredients: Potatoes, Vegetable Oil (Sunflower, Corn, and/or Canola Oil), BLT Seasoning (Maltodextrin [Made From Corn], Salt, Sour Cream [Cultured Cream, Skim Milk], Sugar, Tomato Powder, Natural Flavors [Including Natural Bacon Type Flavor and Natural Lettuce Type Flavor], Spices, Dextrose, Whey, Medium Chain Triglycerides, Brown Sugar, and Paprika Extracts).

CONTAINS MILK INGREDIENTS.

Nutrition Facts

Serving Size 1 oz (28g/About 15 chips)

Amount per Serving

Calories 160 Calories from Fat 90

% Daily Value*

Total Fat 10g **15%**

Saturated Fat 1.5g **7%**

Trans Fat 0g

Cholesterol 0mg **0%**

Sodium 150mg **6%**

Potassium 320mg **9%**

Total Carbohydrate 15g **5%**

Dietary Fiber 1g **5%**

Sugars 1g

Protein 2g

Vitamin A 0% • Vitamin C 10%

Calcium 0% • Iron 2%

Thiamin 4% • Niacin 4%

* Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs:

		Calories:	2,000	2,500
Total Fat	Less than	65g	80g	
Sat Fat	Less than	20g	25g	
Cholesterol	Less than	300mg	300mg	
Sodium	Less than	2,400mg	2,400mg	
Potassium		3,500mg	3,500mg	
Total Carbohydrate		300g	375g	
Dietary Fiber		25g	30g	

Calories per gram:

Fat 9 • Carbohydrate 4 • Protein 4

15 KEPING = 160 Kcal
= sepiring nasi putih

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Sugars 75g	
Protein 0g	

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M&M Candy
40 grams = 200 Calories



Peanut Butter Crackers
39 grams = 200 Calories



Cheetos
38 grams = 200 Calories



Potato Chips
37 grams = 200 Calories



Hershey Kisses
36 grams = 200 Calories



Sliced and Toasted Almonds
35 grams = 200 Calories



Fried Bacon
34 grams = 200 Calories



Peanut Butter
34 grams = 200 Calories



Salted Mixed Nuts
33 grams = 200 Calories

Total lifestyle treatment: moderate weight loss (7%), regular physical activity (150 min/wk), reduce calorie and fat intake

Dietary fiber intake: 14 gr/1000 cal

No convincing evidence (inconsistent result) on GI and GL diet

Insufficient evidence on efficacy of individual herbs and supplements for diabetes

**Food first, than drugs, finally
scalpel (hippocrates)**

*THANK YOU FOR YOUR KIND
ATTENTION*