

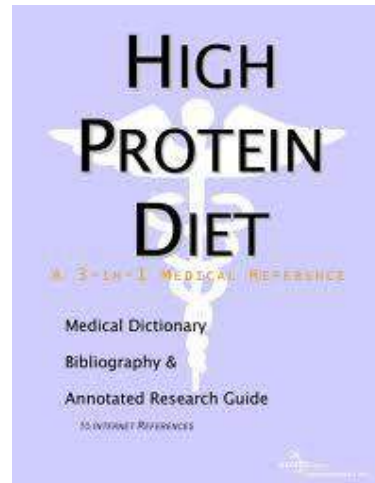
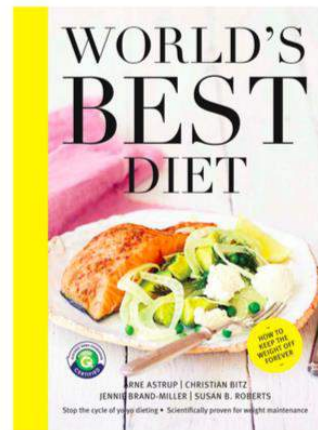
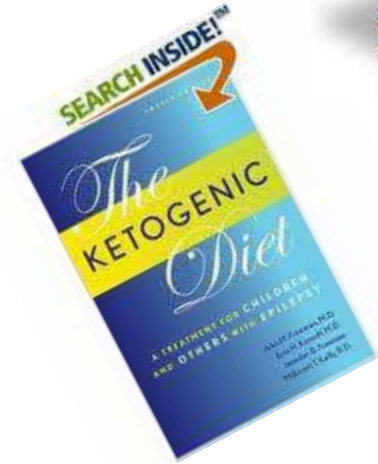
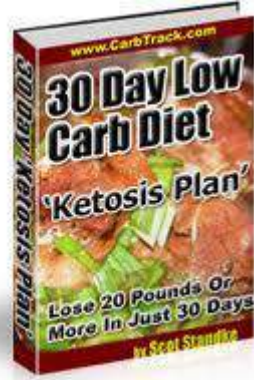
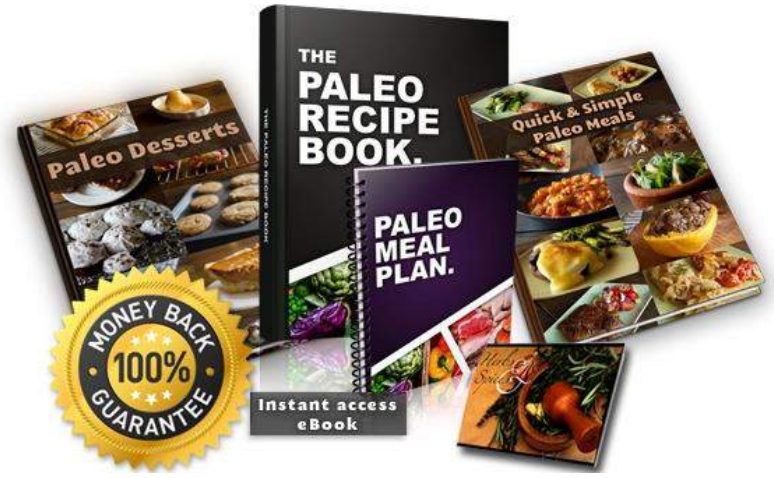
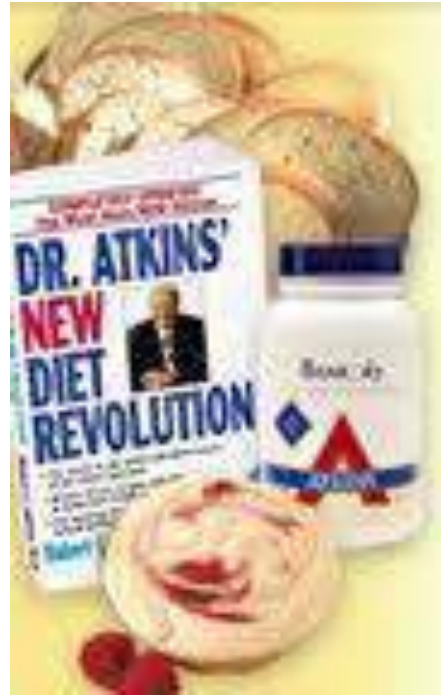
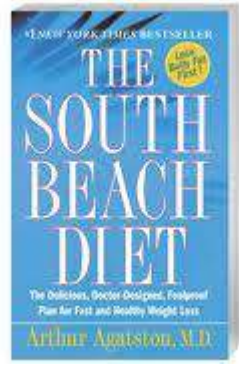
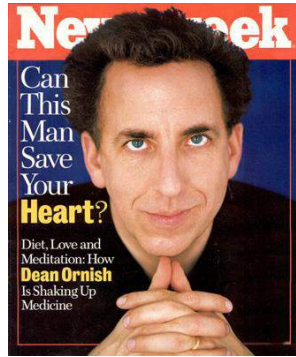


54.  
ULUSAL  
DİYABET KONGRESİ  
18 - 22 Nisan 2018 | Rixos Sungate Hotel - Belek / Antalya



# Erişkin Diyabetlide Beslenme Uygulamadaki Gerçekler: Sağlığı Olumsuz Etkileyen Diyetler

Prof. Dr. Dyt. Emel Özer  
Bilgi Üniversitesi Sağlık Bilimleri Fakültesi  
&  
Diyabet Diyetisyenliği Derneği



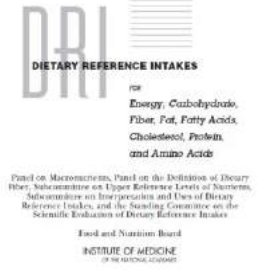
# Diyabette Beslenme Tedavisi

Tarih	Karbonhidrat	Protein	Yağ	Kalori	Özellik
MÖ 1500	Ebers Papirüslerinde tahıl, sebze, bira aşırı idrar nedeni				
MÖ 1152	Yüksek		Düşük	Düşük	Buğday, üzüm, bal
MS 1 yy	Areteus, nişasta, sebze ve şarap				
1675	Yüksek			Düşük	Thomas Willis
1797	Düşük		Yüksek		John Rollo, kireç oranı yüksek su, süt, iç yağı, tereyağ, domuz ve bayatlamış av etleri
1797-19. yy başı	Düşük	Yüksek	Yüksek		Az miktarda buğday unu dışında bitkisel kaynak yok
1860	Düşük	Yüksek	Yüksek		Henry Pile, sadece hayvansal yiyecek
1864	Yüksek		Düşük	Düşük	Sulandırılmış süt, bazen beyaz ekmek, arpa ile kaynatılır
1870				Düşük	Bouchardat, süt yasak, az miktarda sebze, az-sık beslenme, Nauyn, 24 saat açlık
19. yy sonu	%43	%18	%39	800-1000	Pirinç, yulaf, patates, kuru baklagil (Allen)
1900-1920	Düşük		Yüksek	Düşük	Allen' in açlık diyetleri
1921	%20	%10	%40		
1923	Yüksek		Düşük		Geyelin, Rabinowitch

# Diyabette Beslenme Tedavisi

Tarih	Karbonhidrat	Protein	Yağ	Kalori	Özellik
1927	%22	%16	%62	Normal	Joslin'in diyetleri
1940	%38	%17	%45	Normal	1600 kkal/gün=3 dilim tam tahıl ekmeđi, 3 portakal,%5 KH içeren 4 porsiyon sebze, 1 bardak süt,1 yumurta, 2 porsiyon et,30 g yağ
1950	%43	%19	%37	Normal	1700 kkal/gün= 1 bardak süt, A sebze, B sebze, 3 meyve, 8 ekmek, 7 et, 3 yağ, az miktarda bugday unu dışında bitkisel kaynak yok
1971	%45 veya fazla	%20	%35		Amerikan Diyabet Derneđi
1979	%50-60	%12-20	%<30 yağ, %<10 DY		Amerikan Diyabet Derneđi
	%55-60	0.8 g/kg	%<30yağ toplam yağ		Amerikan Diyabet Derneđi. İlimli miktarda şeker içerebilir. Deđişim listelerine sukroz içeren besin eklendi.
1994	Bireyselleştirilmiş	%10-20	%<10 doymuş yağ		Amerikan Diyabet Derneđi

# Diyabette Beslenme Tedavisi



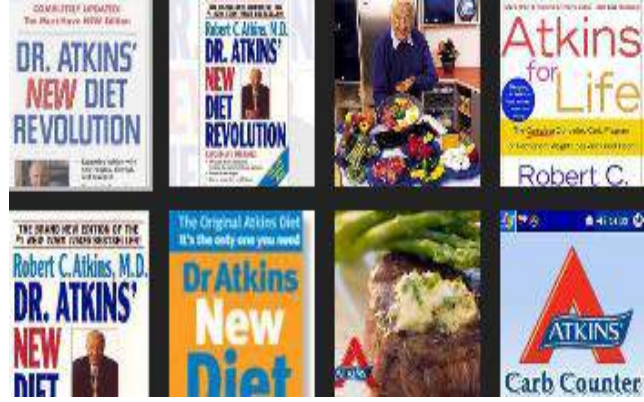
Tarih	Karbonhidrat	Protein	Yağ	Özellik
2007	%45-65, >130 g	%10-35, 0.8g/kg	%20-35, %<7 DY	Amerikan Diyabet Derneği
2007	%45-65	%15-20	%<30 yağ, %<10 DY	Amerikan Klinik Endokrinologlar Derneği
2008	%45-60, <%10 sukroz <60 g fruktoz	%15-20	%<35yağ %<7 DY	Kanada Diyabet Derneği
2009	Bireysel. Makro besin ögesi dağılımı için DRI'dan yararlanılmalı, %<7 DY			Amerikan Diyabet Derneği
2013 2015	<ul style="list-style-type: none"><li>İdeal makro besin ögesi oranı yoktur.(ADA-B kanıt düzeyi). Bireysel olmalıdır.</li><li>Diyabeti olmayanlara önerilen doymuş yağ, kolesterol, trans yağ alımı (ADA-C kanıt düzeyi)</li><li>Eklenmiş şeker, yağ, Na içeren KH'li besinler yerine sebze, meyve, tam tahıl, kuru baklagil ve süt ürünlerinden KH alımı sağlanmalıdır. (B kanıt düzeyi)</li><li>14 g/1000 kkal posa alımı (B kanıt düzeyi)</li><li>Eşdeğer sukroz ve nişasta alımına kıyasla serbest fruktoz (meyve) ile daha iyi glisemik kontrol sağlanabilir. (B kanıt düzeyi) ≤%12 fruktoz alımı (C kanıt düzeyi)</li><li>Beslenme modeli gelenek, kültür, inanç, ekonomik durum, metabolik hedefler değerlendirilerek belirlenmelidir. (ADA-E kanıt düzeyi, AACE-A kanıt düzeyi)</li></ul>			
2017- 2018	Prediyabetli ve diyabetli bireylere, spesifik besin ögesi alımından ziyade sağlıklı beslenme modeli (Akdeniz , DASH, bitki bazlı beslenme) vurgulanmalıdır. (B kanıt düzeyi).			Amerikan Diyabet Derneği Amerikan Klinik Endokrinologlar Derneği Amerikan Kalp Birliği

## Popüler Diyetlerde Makro Besin Ögeleri

Diyet Tipi	Yağ (% kkal)	KH (% kkal)	Protein (% kkal)
Yüksek yağ, yüksek protein, düşük KH (Atkins)	55-65	<%20 (<100g)	25-30
Düşük ve çok düşük yağlı (Ornish)	<10-19	>65	10-20

Diyet Tipi	Enerji (kkal)	Yağ g (%)	KH g (%)	Protein g (%)
Yüksek yağ, Düşük KH (Atkins)	1414	94 (60)	35 (10)	105 (30)
Düşük ve çok düşük yağlı (Ornish)	1450	16-24 (10-15)	235-271 (65-75)	54-72 (15-20)





## Atkins Diyeti

- 4 aşamalı (Başlangıç, süregelen, ön koruma, koruma)
- Başlangıç: 20 g/gün KH

Sınırsız et ve yağ

- Vitamin A, E, tiamin, vitamin B6, folat, kalsiyum, magnezyum, demir, çinko, potasyum, diyet posası

**Dukan diyeti toplam 4 aşamadan oluşmaktadır.** Bu evreler **atak, seyir, güçlendirme** ve **koruma** şeklindedir. Aslında dukan diyeti, bir diyetten öte bir beslenme şeklidir. Bu diyet, aç kalmadan, izin verilen yiyecekleri sınırsız bir şekilde tüketerek kilo vermenizi sağlar.

Atak evresi tamamen protein tüketeyeceğiniz ilk evredir. Ardından protein ve protein+sebze tüketeyeceğiniz seyir evresi gelir. Seyir evresinden sonra ise meyve tüketiminin serbest olduğu güçlendirme evresine geçilir. Son olarakta koruma evresi ile verdiğiniz kiloları bir daha asla geri almamak üzere diyeti sona erdirirsiniz.

### **Peki dukan diyeti'ne nasıl başlamalıyım?**

Yapacağınız ilk iş diyetin size uygun olup olmadığına karar vermek. Eğer uygun olduğunu düşünüyorsanız dukan diyeti kitabını satın alıp okumalısınız. Çoğu insan kitabı satın almadan başladığı için çok büyük yanlışlar yapabiliyor. Kitabı satın alanlar ise okumaya çalışmadığı veya yine okumadan başladığı için aslında kitabı almayanlar ile aynı yanlışlara düşüyor. Kitabı alıp okuduktan sonra diyeti ve evreleri kaç gün yapacağınızı belirlemek için **Dukan Diyeti Testini yapmak zorundasınız.** Bu test olmadan kesinlikle diyete başlayamazsınız. Testte çıkan sonuca göre diyeti yapmanız gerekiyor, aksi takdirde diyeti yanlış bir şekilde yapmış olursunuz.





# My personalized slimming programme

Annekaz

Your 11 answers allow me to give you 3 pieces of personal information.



1

## Is the weight you wish to be your True Weight?

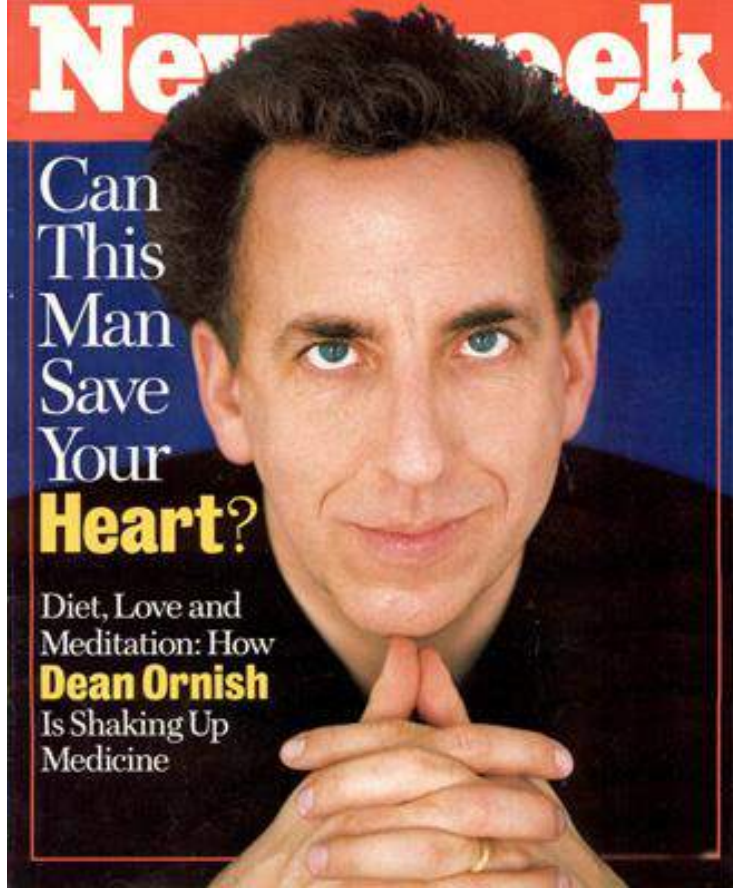
Your True weight is **51 kg**. This is above the weight that you wanted, but it is a good weight, a weight that you can easily achieve and maintain. Have confidence in me about this. If you want to calculate again your True Weight [click here](#)

2

## By starting today you will weigh 51 kg on the 28/01/2012.

You'll have to follow 3 phases of my method, this means a 105 day programme to permanently stabilize your new weight.



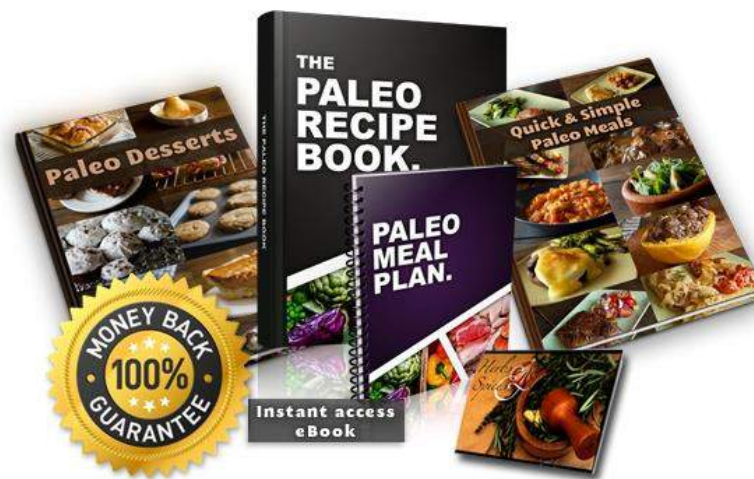


## Ornish Diyeti 'Eat More, Weigh Less'

- Beslenme
- Egzersiz
- Stres yönetimi
- Sevgi
- Dostluk

- %10 yağ
- Sınırsız sebze, meyve, tam tahıl, kuru baklagil, soya
- Yumurta beyazı
- Yağsız süt ürünleri
- Sınırlı şeker ve beyaz un





## The Paleo Diet

Vegetables



Tart Fruits



Nuts



Wild Meats



Eggs



Coconut & Olive Oil



## Not in the Paleo Diet

Refined, Processed Foods



Sugars, Candy Bars



Sweet Fruits, Juices



Grains, bread, beans, GMO foods



Extracted Seed Oils



Dairy



The NEW ENGLAND  
JOURNAL of MEDICINE

ESTABLISHED IN 1812

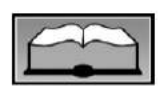
FEBRUARY 26, 2009

VOL. 360 NO. 9

Comparison of Weight-Loss Diets with Different Compositions  
of Fat, Protein, and Carbohydrates

Frank M. Sacks, M.D., George A. Bray, M.D., Vincent J. Carey, Ph.D., Steven R. Smith, M.D., Donna H. Ryan, M.D.,  
Stephen D. Anton, Ph.D., Katherine McManus, M.S., R.D., Catherine M. Champagne, Ph.D., Louise M. Bishop, M.S., R.D.,  
Nancy Laranjo, B.A., Meryl S. Leboff, M.D., Jennifer C. Rood, Ph.D., Lilian de Jonge, Ph.D., Frank L. Greenway, M.D.,  
Catherine M. Loria, Ph.D., Eva Obarzanek, Ph.D., and Donald A. Williamson, Ph.D.

- % 65 KH, %15 protein, %20 yağ: Düşük yağ, yüksek karbonhidrat
- %55 KH, %25 protein, %20 yağ: Düşük yağ, yüksek protein
- %45 KH, %15 protein, %40 yağ: Yüksek yağ, %10 ağırlık kaybı
- %35 KH, %25 protein, %40 yağ: Yüksek yağ, Yüksek protein, düşük karbonhidrat



# Restricted-Carbohydrate Diets in Patients with Type 2 Diabetes: A Meta-Analysis

JULIENNE K. KIRK, PharmD; DARBY E. GRAVES, MPH, RD; TIMOTHY E. CRAVEN, MSPH; EDWARD W. LIPKIN, MD, PhD; MARY AUSTIN, MA, RD; KAREN L. MARGOLIS, MD, MPH

**ABSTRACT**  
Many current popular weight-loss diets advocate restricting carbohydrates, but risks and benefits of these diets for patients with diabetes are unclear. We conducted a meta-analysis of randomized controlled trials of low-carbohydrate diets in patients with type 2 diabetes. The primary outcome was weight loss. Secondary outcomes included HbA1c, triglycerides, and LDL cholesterol. The meta-analysis included 13 randomized controlled trials with 10,111 participants. Low-carbohydrate diets resulted in significantly greater weight loss (WMD: -4.5 kg; 95% CI: -5.5 to -3.5; P < 0.001) and lower HbA1c (WMD: -0.4%; 95% CI: -0.5 to -0.3; P < 0.001) compared with high-carbohydrate diets. There was no significant difference in triglycerides or LDL cholesterol. The meta-analysis was limited by the quality of the included studies and the heterogeneity of the diets. Further research is needed to evaluate the overall sustainability of outcomes and long-term safety.

to be conducted in order to evaluate the overall sustainability of outcomes and long-term safety.  
*J Am Diet Assoc.* 2008;108:91-100.

13 randomize kontrollü çalışma

Diyet CHO'ı enerjinin %4-45

Düşük CHO & Normal CHO

HbA1c  $\searrow$  (9/11) (p<0.05)

CHO alım %65 ---> %35'e düştüğünde

TG düzeyi %23  $\searrow$  (p<0.05)

Vücut ağırlığı değişiminde fark yok.

«Kısa dönemde HbA1c ve TG düzeylerinde etkili olabilir»

**Journal of Human Nutrition and Dietetics**  
The Official Journal of The British Dietetic Association

REVIEW ARTICLE  
**A review of low and reduced carbohydrate diets and weight loss in type 2 diabetes**

P. A. Dyson  
Oxford Centre for Diabetes, Endocrinology & Metabolism, Churchill Hospital, Headington, Oxford, UK

**Abstract**  
Recent evidence from randomized controlled trials of hypocaloric low carbohydrate diets in people without diabetes has shown that they promote significant weight loss over the short term. There is very little evidence for any effects of reduced carbohydrate diets on HbA1c, triglycerides, or LDL cholesterol. The meta-analysis was limited by the quality of the included studies and the heterogeneity of the diets. Further research is needed to evaluate the overall sustainability of outcomes and long-term safety.

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Pamela A. Dyson, Oxford Centre for Diabetes, Endocrinology & Metabolism, Churchill Hospital, Headington, Oxford, UK. Tel: +44 (0)1865 206200. Fax: +44 (0)1865 206200. E-mail: paddyson@ox.ac.uk

**Key words**  
diabetes, low carbohydrate diet, weight loss, HbA1c, triglycerides, LDL cholesterol

doi:10.1111/jhn.12136

6 randomize kontrollü çalışma

Diyet CHO'ı <50 g/gün

«Kısa dönemde vücut ağırlığı ve HbA1c düzeylerinde olumlu etki»

DIABETES RESEARCH AND CLINICAL PRACTICE 131 (2017) 124-131

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International Diabetes Federation

ELSEVIER journal homepage: www.elsevier.com/locate/diabres

**Review**  
**Efficacy of low carbohydrate diet for type 2 diabetes mellitus management: A systematic review and meta-analysis of randomized controlled trials**

Yan Meng<sup>a,c,1</sup>, Hao Bai<sup>b,c,1</sup>

<sup>a</sup>Shandong University of Traditional Chinese Medicine, Jinan, Shandong, China  
<sup>b</sup>Department of Nutrition and Food Hygiene, Shandong University of Traditional Chinese Medicine, Jinan, Shandong, China  
<sup>c</sup>Department of Nutrition, Shandong University of Traditional Chinese Medicine, Jinan, Shandong, China

**ARTICLE INFO**

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Available online 8 July 2017

**Keywords:**  
Low carbohydrate diet, weight loss, HbA1c, triglycerides, LDL cholesterol

**Results:** A total of 9 studies with 734 patients with diabetes were included. Pooled results suggested that LCD had a significantly effect on HbA1c level (WMD: -0.44; 95% CI: -0.61, -0.26; P = 0.00). For cardiovascular risk factors, the LCD intervention significantly reduced triglycerides concentration (WMD: -0.33; 95% CI: -0.45, -0.21; P = 0.00) and increased and blood lipid levels were included.

9 randomize kontrollü çalışma (n=734, 3-24 ay)  
Diyet CHO'ı <130 g/gün veya enerjinin <%26'sı  
«Kısa dönemde TG ve HDL düzeylerinde olumlu etki gösterebilir ancak uzun dönemde ağırlık kaybı üzerine etkili değil»

**BMJ Open Diabetes Research & Care**  
**Systematic review and meta-analysis of dietary carbohydrate restriction in patients with type 2 diabetes**

Ole Snorgaard,<sup>1</sup> Grith M Poulsen,<sup>2</sup> Henning K Andersen,<sup>3</sup> Arne Astrup<sup>2</sup>

**Abstract**  
Objective: Nutrition therapy is an integral part of self-management education in patients with type 2 diabetes. Carbohydrates with a low glycaemic index are recommended, but the ideal amount of carbohydrate in the diet is unclear. We performed a meta-analysis comparing diets containing low to moderate amounts of carbohydrate (LCD) (energy percentage below 45%) to diets containing high amounts of carbohydrate (HCD) in subjects with type 2 diabetes. Research design and methods: We systematically reviewed Cochrane library databases, EMBASE, and MEDLINE in the period 2004–2014 for guidelines, meta-analyses, and randomized trials assessing the outcomes HbA1c, BMI, weight, LDL cholesterol, quality of life, and glycemic control.

**Key messages**

- The ideal amount of carbohydrates in the diet in the management of type 2 diabetes is unclear.
- The current meta-analysis conducted according to the GRADE system of rating quality of evidence shows that low to moderate carbohydrate diets have greater glucose-lowering effect compared with high-carbohydrate diets.
- The greater the carbohydrate restriction, the greater the glucose lowering.
- Apart from improvements in HbA1c over the short term, there is no superiority of low-carbohydrate diets in terms of glycaemic control, weight, or LDL cholesterol.

10 randomize kontrollü çalışma  
Diyet CHO'ı <50 g/gün  
«Kısa dönemde HbA1c düzeyinde düşürücü etkisi dışında, glisemik kontrol, ağırlık değişimi ve LDL düzeyinde olumlu etki gözlenmedi»

lowering of HbA1c over the short term, there is no superiority of low-carbohydrate diets in terms of glycaemic control, weight, or LDL cholesterol.

Citation	Country	Study design	Setting, duration	Participants	Intervention intake (energy %)	Control intake (energy %)	Notes	Outcomes	Dropouts end of study (intervention/control)
Davis <i>et al</i> <sup>14, 34</sup>	USA	RCT, parallel groups	Outpatient, duration: 12 months	105 subjects with type 2 diabetes, overall mean age: 54, 22% males, BMI 36 kg/m <sup>2</sup>	At 6 months: 34% carb, 43% fat At 12 months: 33% carb, 44% fat	At 6 months: 48% carb, 31% fat At 12 months: 50% carb, 31% fat	Assigned to low-carb vs low-fat diet	6 and 12 months HbA1c (%), weight, LDL cholesterol, medications, quality of life (Diabetes-39)	20 (10/10)
Gulbrand <i>et al</i> <sup>15, 25</sup>	Sweden	RCT, parallel groups	Outpatient, duration: 24 months	61 subjects with type 2 diabetes, mean age: 62, BMI: 33 kg/m <sup>2</sup>	At 6 months: 25% carb, 49% fat, 24% protein At 12 months: 27% carb, 47% fat, 23% protein	At 6 months: 49% carb, 29% fat, 21% protein At 12 months: 47% carb, 31% fat, 20% protein	Assigned to 20% vs 59% carb diet	6, 12, and 24 months HbA1c (%), weight, BMI, LDL cholesterol, medications, quality of life (SF-36)	7 (3/4)
Krebs <i>et al</i> <sup>16</sup>	New Zealand	RCT, parallel groups	Outpatient, duration: 12 months	419 subjects with type 2 diabetes, mean age: 58, 40% males, BMI: 37 kg/m <sup>2</sup>	At 6 months: 45% carb, 22% protein At 12 months: 45% carb, 21% protein	At 6 months: 49% carb, 20% protein At 12 months: 48% carb, 21% protein	Assigned to 40% vs 55% carb diet	6 and 12 (24 months follow-up) HbA1c (%), BMI, weight, LDL cholesterol, quality of life (SF-36)	108 (55/53)
Elhayary <i>et al</i> <sup>21</sup>	Israel	RCT, parallel groups	Outpatient, duration: 12 months	259 subjects with type 2 diabetes, mean age: 55, 53% males, BMI: 31.4 kg/m <sup>2</sup>	Randomized to 35% carb, 45% fat, 15-20% protein	Randomized to 50-55% carb, 30% fat, 15-20% protein	ADA diet group (N=85) was not included as control	12 months HbA1c (%), BMI, weight, LDL cholesterol	48 (23/25)
Larsen <i>et al</i> <sup>17</sup>	Australia	RCT, parallel groups	Outpatient, duration: 12 months	108 subjects with type 2 diabetes, mean age: 58, 48% males	At 3 months: 40% carb, 28% protein At 12 months: 42% carb, 27% protein	At 3 months: 49% carb, 21% protein At 12 months: 48% carb, 19% protein	Assigned to 40% vs 55% carb	3 and 12 months HbA1c (%), weight, LDL Cholesterol	5 (4/1)
Ipbal <i>et al</i> <sup>22</sup>	USA	RCT, parallel groups	Outpatient, duration: 24 months	144 subjects with type 2 diabetes, mean age: 60, 90% males	At 6 months: 35% carb, 43% fat At 12 months: 40% carb, 33% fat	At 6 months: 42% carb, 37% fat, 36% fat At 12 months: 43% carb, 36% fat	Assigned to 20 g carb/day vs a diet with <30% fat	6, 12, and 24 months HbA1c (%), weight, LDL cholesterol	76 (42/34)
Saslow <i>et al</i> <sup>18</sup>	USA	RCT, parallel groups	Outpatient, duration: 3 months	34 subjects* with type 2 diabetes, mean age: 60, 26% males, BMI 37 kg/m <sup>2</sup>	14% carb, 58% fat, 24% protein	41% carb, 35% fat, 21% protein	Assigned to ≤50 g carb per day vs a 45-50% carb diet	3 months HbA1c (%), BMI, weight, LDL cholesterol depression scales, physical activity	2 (1/1)
Day <i>et al</i> <sup>19</sup>	Australia	RCT, parallel groups	Outpatient, duration 3 months	115 subjects with type 2 diabetes, mean age: 58, 57% males, BMI 34 kg/m <sup>2</sup>	14% carb, 54% fat, 27% protein	50% carb, 25% fat, 19% protein	Assigned to 14% vs 53% carb diet	3 months HbA1c (%), BMI, weight, LDL cholesterol, medications, physical activity	25 (13/12)
Yamada <i>et al</i> <sup>20</sup>	Japan	RCT, parallel groups	Outpatient, duration 6 months	24 subjects with type 2 diabetes, mean age: 63, 50% males, BMI 26 kg/m <sup>2</sup>	30% carb, 45% fat, 25% protein	51% carb, 32% fat, 17% protein	Assigned to 30% vs 55% carb diet	6 months HbA1c (%), BMI, weight, LDL cholesterol, Problem areas in diabetes scale	0
Wolever <i>et al</i> <sup>23</sup>	Canada	RCT, parallel groups	Outpatient, duration 12 months	110 subjects with type 2 diabetes, mean age: 60, 44% males, BMI 31 kg/m <sup>2</sup>	39% carb, 40% fat, 19% protein	52% carb, 27% fat, 21% protein	52 subjects randomized to high-glycemic index group not included	12 months HbA1c (%), BMI, weight, LDL cholesterol	2 (1/1)

## Systematic review and meta-analysis of dietary carbohydrate restriction in patients with type 2 diabetes

Ole Snorgaard,<sup>1</sup> Grith M Poulsen,<sup>2</sup> Henning K Andersen,<sup>3</sup> Aime Astrup<sup>2</sup>

- 10 RCT, 1376 Tip 2 diyabetli obez birey
- KH <%45 ; %45-60
- Önerilen alım aralığına kıyasla kısa sürede LDL-kol, vücut ağırlığı, yaşam kalitesi üzerinde etkili
- Uzun dönemde etki benzer



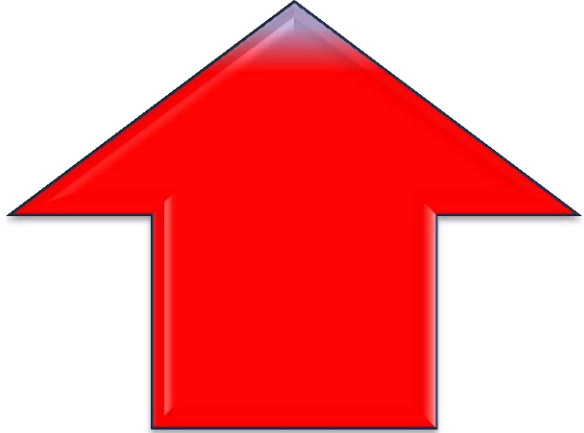
- Uzun dönemde uygulanabilir ve sürdürülebilir değil
- Mikrobiyotaya etki?

**Table 9. Association of Eating Patterns and Macronutrient Composition on Weight-Loss Efficacy**

Eating Pattern or Macronutrient Change	Effect	Reference [EL]
Low glycemic index/load	<ul style="list-style-type: none"> <li>• ↑ Endothelial function</li> <li>• ↓ Glycemic variability</li> <li>• Effects on energy expenditure</li> <li>• Decreased adipocyte diameter</li> <li>• No incremental effect on weight loss<sup>1</sup></li> </ul>	33 [EL 1; RCT], 34 [EL 1; RCT], 35 [EL 1; RCT, small N=13], 36 [EL 1; RCT]
Low carbohydrate	<ul style="list-style-type: none"> <li>• Improved glycemic status and lipids</li> <li>• Improved other cardio-metabolic risk factors</li> <li>• Improved renal function</li> <li>• No incremental effect on weight loss (some studies show more short-term weight loss)<sup>2</sup></li> </ul>	37 [EL 4; NE], 38 [EL 1; RCT], 39 [EL 1; RCT], 40 [EL 1; RCT], 41 [EL 1; RCT], 42 [EL 1; RCT], 43 [EL 2; NRCT], 44 [EL 1; RCT], 45 [EL 1; RCT], 46 [EL 1; RCT], 47 [EL 1; RCT]
High protein	<ul style="list-style-type: none"> <li>• Longer benefit on WC, %fat</li> <li>• Improved cardio-metabolic risk factors</li> <li>• Decreased adipocyte diameter</li> <li>• Animal (not plant) proteins associated with markers of inflammation</li> <li>• Less relative loss of muscle mass</li> <li>• No incremental effect on weight loss</li> </ul>	33 [EL 1; RCT], 38 [EL 1; RCT], 45 [EL 1; RCT], 48 [EL 1; RCT], 49 [EL 1; RCT], 50 [EL 1; RCT], 51 [EL 1; RCT], 52 [EL 1; RCT], 53 [EL 1; RCT]
Moderate carbohydrate – moderate protein	<ul style="list-style-type: none"> <li>• Improved body composition, lipid, ppINS</li> <li>• No incremental effect on weight loss</li> </ul>	37 [EL 4; NE], 54 [EL 1; RCT]
Low fat	<ul style="list-style-type: none"> <li>• Beneficial effects on lipids</li> <li>• Benefits on lipids replacing with unsaturated fat</li> <li>• Improved renal function</li> <li>• No incremental effect on weight loss</li> </ul>	37 [EL 4; NE], 41 [EL 1; RCT], 47 [EL 1; RCT], 55 [EL 1; RCT], 56 [EL 1; RCT]
High fat	<ul style="list-style-type: none"> <li>• With lactation: when hypocaloric, great weight loss compared with hypocaloric low-carbohydrate diet</li> </ul>	57 [EL 2; PCS]
Mediterranean-style	<ul style="list-style-type: none"> <li>• Decreased risk certain cancers</li> <li>• EVOO supplementation – no effect on weight</li> <li>• Reduces cardio-metabolic risk factors and MetS</li> <li>• Reduces markers of inflammation</li> <li>• Improves hepatic steatosis and insulin sensitivity</li> <li>• Improves renal function</li> <li>• No incremental effect on weight loss</li> </ul>	40 [EL 1; RCT], 58 [EL 1; RCT, post-hoc analysis], 59 [EL 2; PCS, post-hoc analysis], 60 [EL 1; RCT, secondary analysis], 61 [EL 2; PCS], 62 [EL 1; RCT], 63 [EL 1; RCT], 64 [EL 2; PCS], 65 [EL 2; PCS], 66 [EL 1; RCT]

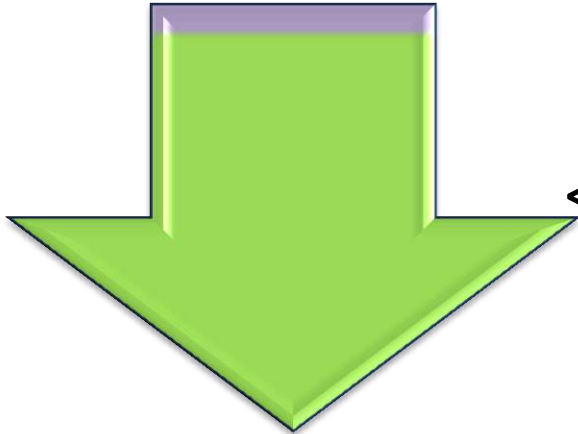
## EURODIAB IDDM

- 16 ülke, 30 merkez
- N: 2696 Tip 1 DM
- Diyetle protein alımı ve AER (alb atım oranı)/24 st



> % 20 protein, ort AER ↗

Hipertansiyon ve/veya metabolik kontrolü kötü olanlarda daha belirgin.

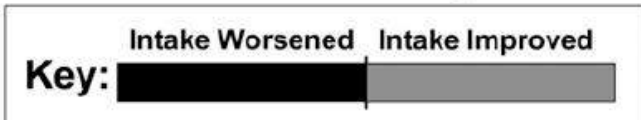
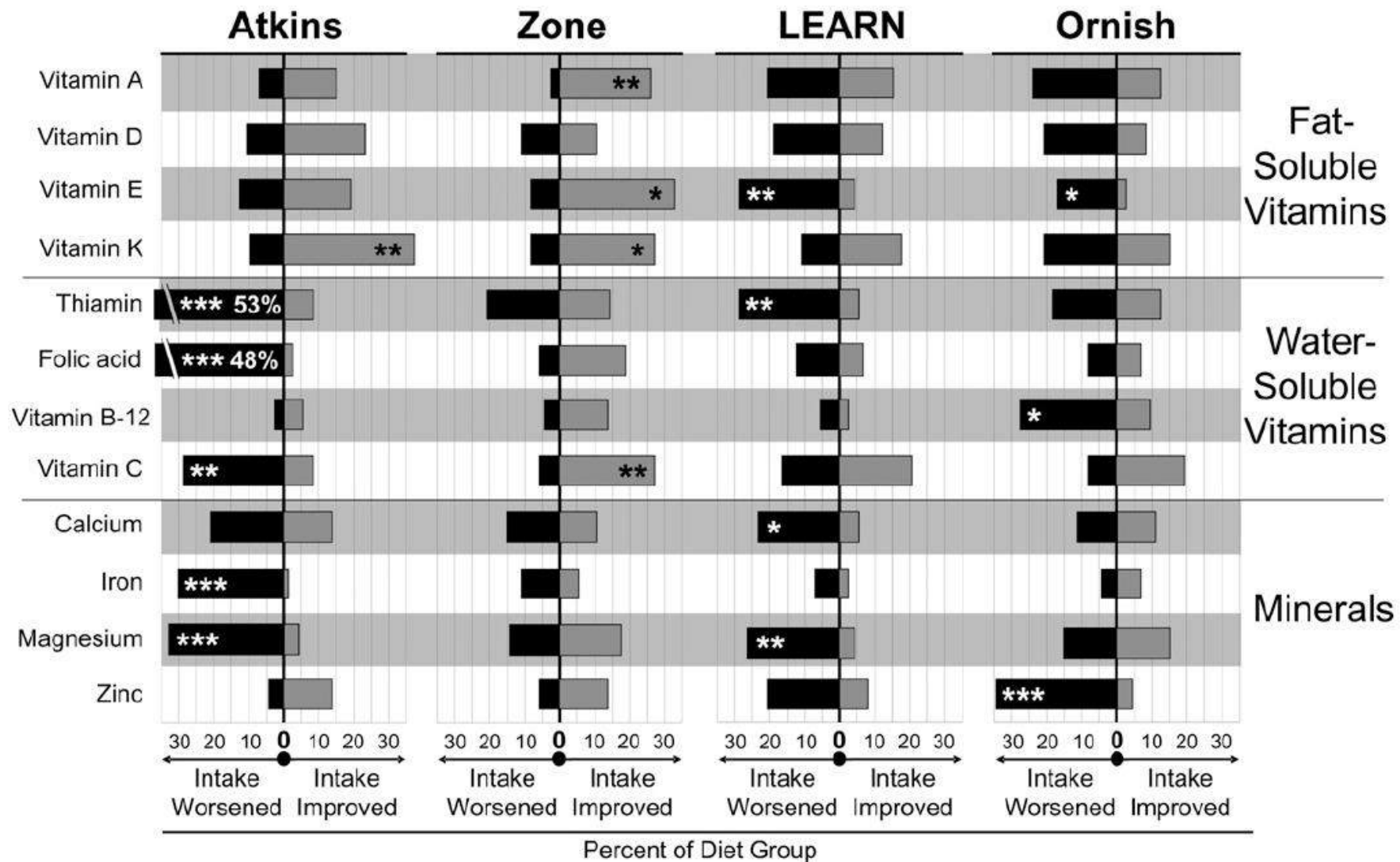


< %20 protein, ort AER < 20 mcg/dk



**Table 2.** Serum and urine biochemistry values for study subjects (younger: aged 25 to 40 years [n=12], and older: aged 55 to 70 years [n=10]) after consumption of 1 week of low-protein (0.5 g/kg/day) and high-protein (2.0 g/kg/day) diets

Biochemistry		Low-protein diet (0.5 g/kg) (mean ± SD <sup>a</sup> )	High-protein diet (2.0 g/kg) (mean ± SD)	P Value <sup>b</sup>		
				Age	Diet	Age-Diet
<b>Serum values</b>						
Estimated GFR <sup>c</sup> (mL/min/1.73 m <sup>2</sup> )	Younger	91.97 ± 9.85	94.99 ± 10.85			
	Older	69.2 ± 9.55	76.64 ± 9.26	0.16	<0.001	0.04
Blood urea nitrogen (mg/dL) <sup>d</sup>	Younger	6.42 ± 1.31	15.08 ± 3.42			
	Older	8.6 ± 1.26	21.20 ± 3.08	<0.01	<0.0001	0.58
Carbon dioxide (mEq/L) <sup>e</sup>	Younger	28.33 ± 3.26	26.58 ± 1.88			
	Older	28.80 ± 2.15	27.90 ± 0.99	0.69	<0.01	0.36
Creatinine (mg/dL) <sup>f</sup>	Younger	0.91 ± 0.11	0.88 ± 0.10			
	Older	0.97 ± 0.12	0.89 ± 0.14	0.89	<0.001	0.04
Calcium (mg/dL) <sup>g</sup>	Younger	9.36 ± 0.24	9.29 ± 0.28			
	Older	9.05 ± 0.42	9.04 ± 0.35	0.04	0.46	0.59
Potassium (mEq/L) <sup>h</sup>	Younger	4.02 ± 0.19	4.10 ± 0.26			
	Older	4.12 ± 0.30	4.18 ± 0.33	0.69	0.23	0.84
Sodium (mEq/L) <sup>i</sup>	Younger	139.75 ± 1.36	138.75 ± 1.86			
	Older	140.50 ± 1.58	139.10 ± 2.18	0.61	0.04	0.72
<b>Urine values</b>						
Urine volume (mL/d)	Younger	1,407.92 ± 715.22	1,515.83 ± 681.21			
	Older	1,862.22 ± 717.76	1,997.78 ± 619.84	0.10	0.21	0.91
Urine pH	Younger	6.68 ± 0.80	5.87 ± 0.48			
	Older	6.52 ± 0.45	6.11 ± 0.48	0.89	<0.001	0.17
Ammonium (mmol/d)	Younger	20.51 ± 16.8	37.38 ± 17.90			
	Older	17.30 ± 11.55	38.09 ± 13.47	0.83	<0.0001	0.56
Osmolality (mOsm)	Younger	403.42 ± 230.29	674.58 ± 240.58			
	Older	321.78 ± 121.51	600.56 ± 203.05	0.66	<0.0001	0.67
Creatinine (mg/d) <sup>j</sup>	Younger	1,001.51 ± 323.18	1,279.23 ± 534.42			
	Older	1,095.46 ± 474.84	1,268.53 ± 502.89	0.93	0.0003	0.40
Calcium (mg/d) <sup>k</sup>	Younger	53.37 ± 37.46	132.78 ± 89.48			
	Older	114.54 ± 36.32	196.00 ± 70.36	<0.01	<0.0001	0.02
Phosphorous (mg/d) <sup>l</sup>	Younger	416.64 ± 142.66	772.33 ± 475.58			
	Older	491.46 ± 170.10	871.17 ± 340.66	0.25	<0.0001	0.82
Potassium (mEq/d) <sup>m</sup>	Younger	45.45 ± 19.42	52.33 ± 20.60			
	Older	57.50 ± 11.12	65.60 ± 16.49	0.05	0.02	0.65
Sodium (mEq/d) <sup>n</sup>	Younger	113.26 ± 47.64	151.38 ± 69.42			
	Older	119.88 ± 31.26	160.72 ± 57.64	0.49	0.0006	0.99



Properties of dietary interventions\*†‡

Properties of dietary interventions (listed in the order they are presented in the text)

Dietary interventions	A1C	CV benefit	Other advantages	Disadvantages
<b>Macronutrient-based approaches</b>				
Low-glycemic-index diets	↓ (32,44,46,47)	↓CVD (52)	↓LDL-C, ↓CRP, ↓hypoglycemia, ↓diabetes Rx	None
High-fibre diets	↓ (viscous fibre) (57)	↓CVD (69)	↓LDL-C, ↓non-HDL-C, ↓apo B (viscous fibre) (54,57,59)	GI side effects (transient)
High-MUFA diets	↔	↓CVD	↓Weight, ↓TG, ↓BP	None
Low-carbohydrate diets	↔	-	↓TG	↓Micronutrients, ↑renal load
High-protein diets	↓	-	↓TG, ↓BP, preserve lean mass	↓Micronutrients, ↑renal load
Mediterranean dietary pattern	↓ (50,139)	↓CVD (143)	↓retinopathy (144), ↓BP, ↓CRP, ↑HDL-C (139,140)	None
<b>Alternate dietary patterns</b>				
Vegetarian	↓ (145,251)	↓CHD (152)	↓Weight (148), ↓LDL-C (149)	↓vitamin B12
DASH	↓ (159)	↓CHD (161)	↓Weight (159), ↓LDL-C (159), ↓BP (159), ↓CRP (160)	None
Portfolio	-	↓CVD (162,163)	↓LDL-C (162,163), ↓CRP (162), ↓BP (163)	None
Nordic	-	-	↓LDL-C+, ↓non-HDL-C (169–171)	None
<b>Popular weight loss diets</b>				
Atkins	↔	-	↓Weight, ↓TG, ↑HDL-C, ↓CRP	↑LDL-C, ↓micronutrients, ↓adherence
Protein Power Plan	↓	-	↓Weight, ↓TG, ↑HDL-C	↓Micronutrients, ↓adherence, ↑renal load
Ornish	-	-	↓Weight, ↓LDL-C, ↓CRP	↔ FPG, ↓adherence
Weight Watchers	-	-	↓Weight, ↓LDL-C, ↑HDL-C, ↓CRP	↔ FPG, ↓adherence
Zone	-	-	↓Weight, ↓LDL-C, ↓TG, ↑HDL-C	↔ FPG, ↓adherence
<b>Dietary patterns of specific foods</b>				
Dietary pulses/legumes	↓ (176)	↓CVD (181)	↓Weight (179), ↓LDL-C (177), ↓BP (178)	GI side effects (transient)
Fruit and vegetables	↓ (183,184)	↓CVD (79)	↓BP (186,187)	None
Nuts	↓ (188)	↓CVD (143,181)	↓LDL-C (190), ↓TG, ↓FPG (189)	Nut allergies (some individuals)
Whole grains	↓ (oats) (194)	↓CHD (99)	↓LDL-C, FPG (oats, barley) (57,193)	GI side effects (transient)
Dairy	↔	↓CVD (199,200)	↓BP, ↓TG (when replacing SSBs) (197)	Lactose intolerance (some individuals)
Meal replacements	↓	-	↓Weight	Temporary intervention

\* ↓ = <1% decrease in A1C.

# Yüksek proteinli diyetlerin yan etkileri

Etki	Neden
Dehidratasyon	Sıvı kaybı ve ketozis
Konstipasyon	Posa eksikliği
Baş ağrısı	Dehidratasyon ?
Saç dökülmesi	Besin ögesi yetersizliği
Malnutrisyon	Enerji yetersizliği
Olası uzun dönem sağlık sorunlar, kanser gibi	Posa ve fitokimyasal yetersizliği
Osteopoz ve fraktürler	Kemik kayıp oranında artış
Renal yetmezlik	GFR ↓

**Table 2.** Lifestyle weight-loss intervention trials in overweight and obese adults with type 2 diabetes comparing differing macronutrient compositions: Recommended and reported macronutrient percentages and daily calorie intake, mean weight loss, and mean change in hemoglobin A1c levels at 12 months

Weight-loss intervention	Author(s), no. of subjects	Recommended macronutrient (carbohydrate, protein, fat), % and daily calorie deficit	Reported macronutrient intake at 12 mo (carbohydrate, protein, fat), %	Reported kcal/day intake at 12 mo (calorie deficit)	Weight loss, kg, mean $\pm$ SD <sup>a</sup> at 12 mo (%)	Change in hemoglobin A1c, % mean $\pm$ SD at 12 mo
High CHO <sup>b</sup>	Brehm and colleagues, <sup>18</sup> n=62	60, 15, 25; -200 to 300 kcal/day	54, 18, 28	1,550 (-330)	-3.8 $\pm$ 4.3 (3.7)	0 $\pm$ 0.8
	Larsen and colleagues, <sup>21</sup> n=46	55, 15, 30; 3-mo -30% kcal (~1,500 kcal/day), 9-mo energy balance	49, 19, 32	1,580 (-610)	-2.2 $\pm$ 4.3 (2.3)	-0.3 $\pm$ 1.0
Low CHO	Krebs and colleagues, <sup>22</sup> n=212	55, 15, 30; -500 kcal/day	48, 21, 31	1,620 (-255)	-2.4 $\pm$ 6.6 (2.3)	-0.2 $\pm$ 1.1
	Davis and colleagues, <sup>19</sup> n=50	20 to 25 g/day CHO for 2 wk; Atkins diet thereafter	33, 23, 44	1,640 $\pm$ 600 (-340)	-3.1 $\pm$ 4.8 (3.3)	0 $\pm$ 0.9
	Gulbrand and colleagues, <sup>23</sup> n=30	20, 30, 50; 1,600 kcal/day for women, 1,800 kcal/day for men	28, 24, 48	1,440 (-250)	-1.9 $\pm$ 12.0 (2.0)	-0.2 $\pm$ 1.4
Low fat	Davis and colleagues, <sup>19</sup> n=50	25 fat; modeled after the Diabetes Prevention Program	50, 19, 31	1,810 $\pm$ 590 (-50)	-3.1 $\pm$ 5.8 (3.0)	+0.2 $\pm$ 1.5
	Gulbrand and colleagues, <sup>23</sup> n=31	50, 20, 30; 1,600 kcal for women, 1,800 kcal for men	48, 20, 32	1,580 (-225)	-3.9 $\pm$ 5.9 (4.3)	+0.1 $\pm$ 0.9
High protein	Larsen and colleagues, <sup>21</sup> n=53	40, 30, 30; 3-mo -30% kcal (~1,500 kcal/day), 9-mo energy balance	42, 27, 31	1,590 (-530)	-2.2 $\pm$ 3.8 (2.3)	-0.2 $\pm$ 1.1
High MUFA <sup>c</sup>	Krebs and colleagues, <sup>22</sup> n=207	40, 30, 30; -500 kcal/day	45, 22, 33	1,730 (-150)	-3.2 $\pm$ 6.6 (3.0)	-0.1 $\pm$ 1.0
	Brehm and colleagues, <sup>18</sup> n=62	45, 15, 40 (20 MUFA); 200 to 300 kcal/day	46, 16, 38 (14 MUFA)	1,550 (-350)	-4.0 $\pm$ 5.2 (3.9)	+0.1 $\pm$ 0.8

Nutrient	Atkins' induction	Atkins' ongoing	Atkins' maintenance	Food guide pyramid	RDAs, DRVs, DRIs <sup>†</sup>
Total energy (calories)	1152	1627	1990	1972	2000–2200
Moisture (H <sub>2</sub> O), g	682	736	1132	1879	none
Total fat, g (% total kcal)	<b>75 (59)</b>	<b>105 (58)</b>	<b>114 (52)</b>	54 (24)	65 (30)
Saturated fat, g	<b>29</b>	<b>49</b>	<b>44</b>	17	20
Monounsaturated fat, g	<b>31</b>	<b>36</b>	<b>41</b>	19	20
Polyunsaturated fat, g	<b>6</b>	<b>11</b>	<b>19</b>	15	20
Cholesterol (mg)	<b>753</b>	<b>1115</b>	<b>955</b>	154	300
Total protein, g (% total kcal)	102 (35)	134 (33)	125 (25)	90 (18)	75 (15)
Total CHO, g (% total kcal)	<b>13 (5)</b>	<b>35 (8.6)</b>	<b>95 (19)</b>	292 (59)	55%–60%
Alcohol, g	0	0	14	0	moderation
Dietary fiber (g)	3	8	13	22	20–35
Vitamin E (mg)	3	7	10	40	15
Vitamin A (RE)	<b>669</b>	2183	2231	4140	700
Thiamin (mg)	<b>.5</b>	1.4	<b>.7</b>	3.8	1.1
Riboflavin (mg)	1.3	2.5	2.0	4.3	1.1
Niacin (mg)	18	20	25	51	14
Vitamin B <sub>6</sub> (mg)	<b>1.2</b>	1.8	2.2	5.5	1.3
Folate (μg)	<b>135</b>	391	<b>282</b>	1010	400
Vitamin B <sub>12</sub> (μg)	8	8	4.3	17	2.4
Vitamin C (mg)	<b>67</b>	95	226	288	75
Calcium (mg)	<b>294</b>	1701	<b>889</b>	1749	1000
Phosphorus (mg)	1096	1993	1418	1800	700
Magnesium (mg)	<b>126</b>	<b>294</b>	<b>233</b>	425	320
Iron (mg)	10.4	<b>12.6</b>	<b>8.7</b>	39	18
Zinc (mg)	15	14	11.7	31	8
Sodium (mg)	2934	4046	3604	2757	2400
Potassium (mg)	<b>1734</b>	<b>2562</b>	3339	4718	3500

Nutrient	Carbohydrate Addict's diet	Sugar Busters!	Weight Watchers diet	Ornish diet	RDAs, DRVs, DRIs*
Total calories	1476	1521	1462	1273	2000–2200
Moisture (H <sub>2</sub> O), g	746	1696	1200	1993	none
Total fat, g (% total kcal)	89 (54)	44 (26)	42 (25)	13 (9)	65 (30)
Saturated fat, g	35	11	9	2	20
Monounsaturated fat, g	31	20	18	3	20
Polyunsaturated fat, g	15	9	9	5	20
Cholesterol (mg)	853	128	116	4	300
Total protein, g (% total kcal)	84 (23)	89 (23)	73 (20)	48 (15)	75 (15)
Total CHO, g (% total kcal)	87 (24)	176 (46)	207 (56)	258 (81)	55–60%
Alcohol, g	0	14	0	2	moderation
Dietary fiber (g)	8	25	26	38	20–35
Vitamin E (mg)	7	7	29	7	15
Vitamin A (RE)	3039	948	5638	2318	700
Thiamin (mg)	.8	2.4	3.0	1.8	1.1
Riboflavin (mg)	1.8	1.7	3.6	1.5	1.1
Niacin (mg)	16.4	32	37	17	14
Vitamin B <sub>6</sub> (mg)	1.8	2.6	4.0	2.5	1.3
Folate (μg)	176	377	636	615	400
Vitamin B <sub>12</sub> (μg)	6.5	3.4	11.6	1.0	2.4
Vitamin C (mg)	53	109	207	380	75
Calcium (mg)	640	712	1147	1053	1000
Phosphorus (mg)	1150	1510	1432	1181	700
Magnesium (mg)	173	400	325	477	320
Iron (mg)	8.2	20	28	24	18
Zinc (mg)	11	11	23	8	8
Sodium (mg)	3192	4012	2243	3358	2400
Potassium (mg)	2479	3020	3773	4026	3500

Toplu analiz:	
Enerji	1394.4 kcal
Su	635.9 g
Prot. (23%)	79.4 g
Yağ (63%)	97.9 g
Karb.h. (14%)	46.5 g
Lif	14.0 g
Alkol (0%)	0.0 g
Çoklu doymam.y	17.6 g
Kolesterol	614.3 mg
Vit. A	1705.0 µg
Karoten	6.4 mg
Vit.E (eşd.)	10.0 mg
Vit. B1	0.5 mg
Vit. B2	1.3 mg
Vit. B6	1.3 mg
Topl.fol.as.	185.8 µg
Vit. C	47.5 mg
Sodyum	3272.9 mg
Potasyum	2345.7 mg
Kalsiyum	605.8 mg
Magnezyum	196.1 mg
Fosfor	1077.5 mg
Demir	9.0 mg
Çinko	9.4 mg

Enerji	2070.6 kcal
Su	1214.3 g
Prot. (19%)	95.9 g
Yağ (54%)	126.8 g
Karb.h. (27%)	140.9 g
Lif	23.4 g
Alkol (0%)	0.0 g
Çoklu doymam.y	27.4 g
Kolesterol	635.2 mg
Vit. A	1807.4 µg
Karoten	1.8 mg
Vit.E (eşd.)	24.7 mg
Vit. B1	1.1 mg
Vit. B2	2.0 mg
Vit. B6	1.5 mg
Topl.fol.as.	452.1 µg
Vit. C	82.2 mg
Sodyum	4418.3 mg
Potasyum	3212.5 mg
Kalsiyum	1227.6 mg
Magnezyum	391.2 mg
Fosfor	1805.1 mg
Demir	13.8 mg
Çinko	12.0 mg

Enerji	1839.2 kcal
Su	967.7 g
Prot. (24%)	109.3 g
Yağ (60%)	124.9 g
Karb.h. (15%)	68.9 g
Lif	20.9 g
Alkol (0%)	0.0 g
Çoklu doymam.y	14.0 g
Kolesterol	635.7 mg
Vit. A	889.8 µg
Karoten	1.1 mg
Vit.E (eşd.)	13.5 mg
Vit. B1	1.5 mg
Vit. B2	2.1 mg
Vit. B6	1.4 mg
Topl.fol.as.	338.5 µg
Vit. C	81.6 mg
Sodyum	2315.8 mg
Potasyum	2876.4 mg
Kalsiyum	975.7 mg
Magnezyum	324.0 mg
Fosfor	1627.8 mg
Demir	15.6 mg
Çinko	16.3 mg

Enerji	1489.3 kcal
Su	644.1 g
Prot. (20%)	72.7 g
Yağ (67%)	111.9 g
Karb.h. (13%)	46.8 g
Lif	18.1 g
Alkol (0%)	0.0 g
Çoklu doymam.y	20.9 g
Kolesterol	618.0 mg
Vit. A	1398.3 µg
Karoten	1.9 mg
Vit.E (eşd.)	13.9 mg
Vit. B1	1.1 mg
Vit. B2	1.3 mg
Vit. B6	1.2 mg
Topl.fol.as.	350.6 µg
Vit. C	97.2 mg
Sodyum	2809.9 mg
Potasyum	1892.9 mg
Kalsiyum	738.8 mg
Magnezyum	250.1 mg
Fosfor	1163.8 mg
Demir	9.4 mg
Çinko	10.6 mg

Enerji	1970.4 kcal
Su	778.3 g
Prot. (18%)	86.7 g
Yağ (70%)	155.0 g
Karb.h. (12%)	59.0 g
Lif	28.0 g
Alkol (0%)	0.0 g
Çoklu doymam.y	21.3 g
Kolesterol	469.2 mg
Vit. A	699.9 µg
Karoten	1.0 mg
Vit.E (eşd.)	12.4 mg
Vit. B1	1.1 mg
Vit. B2	1.4 mg
Vit. B6	1.1 mg
Topl.fol.as.	287.9 µg
Vit. C	58.4 mg
Sodyum	3151.7 mg
Potasyum	2486.4 mg
Kalsiyum	708.2 mg
Magnezyum	299.8 mg
Fosfor	1443.6 mg
Demir	12.7 mg
Çinko	15.5 mg

Enerji	1935.3 kcal
Su	605.1 g
Prot. (24%)	113.7 g
Yağ (62%)	135.6 g
Karb.h. (14%)	67.7 g
Lif	13.1 g
Alkol (0%)	0.0 g
Çoklu doymam.y	31.1 g
Kolesterol	672.1 mg
Vit. A	864.7 µg
Karoten	1.4 mg
Vit.E (eşd.)	18.7 mg
Vit. B1	1.0 mg
Vit. B2	1.6 mg
Vit. B6	1.1 mg
Topl.fol.as.	245.2 µg
Vit. C	89.2 mg
Sodyum	2852.1 mg
Potasyum	2247.6 mg
Kalsiyum	740.9 mg
Magnezyum	315.9 mg
Fosfor	1477.3 mg
Demir	19.1 mg
Çinko	12.7 mg

Enerji	1526.5 kcal
Su	496.0 g
Prot. (27%)	101.0 g
Yağ (63%)	108.6 g
Karb.h. (10%)	36.4 g
Lif	18.4 g
Alkol (0%)	0.0 g
Çoklu doymam.y	34.1 g
Kolesterol	625.2 mg
Vit. A	881.3 µg
Karoten	1.9 mg
Vit.E (eşd.)	22.3 mg
Vit. B1	0.9 mg
Vit. B2	1.1 mg
Vit. B6	1.4 mg
Topl.fol.as.	322.0 µg
Vit. C	65.6 mg
Sodyum	2555.4 mg
Potasyum	2405.8 mg
Kalsiyum	446.8 mg
Magnezyum	279.0 mg
Fosfor	1251.7 mg
Demir	17.2 mg
Çinko	10.1 mg



# Primary care-led weight management for remission of type 2 diabetes (DiRECT): an open-label, cluster-randomised trial



Michael EJ Lean\*, Wilma S Leslie, Alison C Barnes, Naomi Brosnahan, George Thom, Louise McCombie, Carl Peters, Sviatlana Zhyzhneuskaya, Ahmad Al-Mrabeh, Kieren G Hollinasworth, Anaela M Rodriaues, Lucia Rehackova, Ashley Adamson, Falko F Sniehotta, John C Mathers, Ian Ford, Alex McConnachie, Naveed Sattar, Roy Taylor\*

- Son 6 yıl içinde tip 2 diyabet tanısı alan,
- BKİ 27-45 kg / m<sup>2</sup> olan,
- İnsülin tedavisi almayan,
- 20-65 yaş arası bireyler dahil edilmiştir.
- Müdahale grubu n=149, kontrol grubu n=149

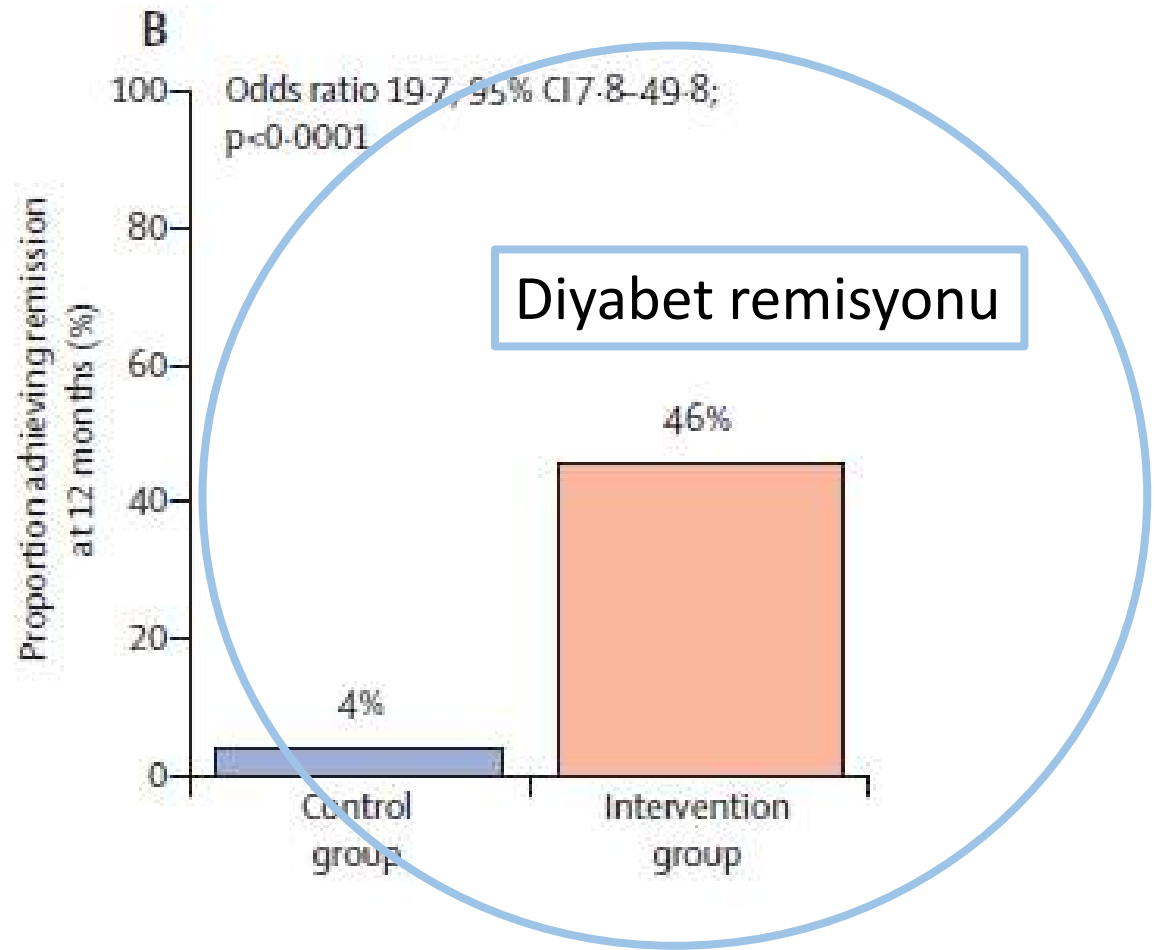
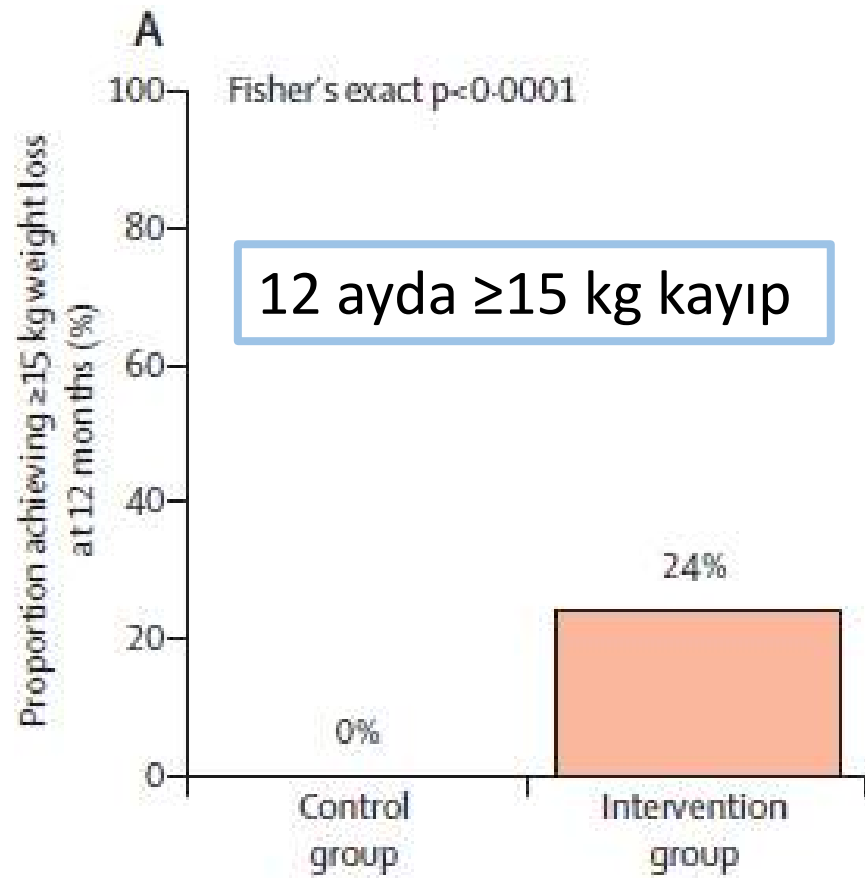
**Methods** We did this open-label, cluster-randomised trial (DiRECT) at 49 primary care practices in Scotland and the

Tyneside region of England. Practices were randomised to a weight management programme (intervention) or usual care (control) study site (Tyneside or Scotland) and practices who collected outcome data were aware of their allocation to a study site. A clinical research statistician. We recruited individuals aged 18-65 years, had a body-mass index of 27-45 kg/m<sup>2</sup> and were not taking any oral antidiabetic and antihypertensive drugs.

- Müdahale grubunda
- Tüm OAD ve antihipertansifler çalışmanın ilk günü kesilmiştir
- 3-5 ay boyunca 825-853 kkal / gün formüla diyet (% 59 karbonhidrat, % 13 yağ, % 26 protein, % 2 lif)
- Kademeli olarak yeniden beslenmeye geçiş (2-8 hafta) (% 50 karbonhidrat, % 35 toplam yağ ve % 15 protein)

long treatment. We aimed to assess whether we could achieve remission of type 2 diabetes.

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[http://dx.doi.org/10.1016/S0140-6736\(17\)33102-1](http://dx.doi.org/10.1016/S0140-6736(17)33102-1)



### Ortalama ağırlık kaybı

Müdahale grubunda  $10.0 \text{ kg} \pm 8.0$

Kontrol grubunda  $1.0 \text{ kg} \pm 3.7$   $p < 0.0001$

### Yaşam kalitesi

Müdahale grubunda  $+7.2 \pm 21.3$  puan

Kontrol grubunda  $-2.9 \pm 15.5$  puan  $p = 0.0012$

Çalışmaya bağlı ciddi advers olay bir kişide saptanmıştır (biliyer kolik ve karın ağrısı)

## Effects of an energy-restricted low-carbohydrate, high unsaturated fat/low saturated fat diet versus a high-carbohydrate, low-fat diet in type 2 diabetes: A 2-year randomized clinical trial.

[Tay J](#), [Thompson CH](#), [Luscombe-Marsh ND](#), [Wycherley TP](#), [Noakes M](#), [Buckley JD](#), [Wittert GA](#), [Yancy WS Jr](#), [Brinkworth GD](#).

2 yıl hipokalorik diyet (<%10 doymuş yağ) +180 dk/hafta egzersiz

Düşük KH (n=33)

KH %14, protein %28, yağ %58

Yüksek KH (n=28)

KH %53, protein %17, yağ %30

Ağırlık kaybı (kg)	-6,8	-6,6	p>0.05
Yağ kaybı (kg)	-4,3	-4,6	p>0.05
Kan basıncı (mmHg)	-2	-3,2	p>0.05
HbA1c (%)	-0,6	-0,9	p>0.05
Açlık glukozu (mmol/L)	0,3	-0,4	p>0.05
LDL kolesterol (mmol/L)	0,2	0,1	p>0.05

\*Düşük KH grubunda diyabetik ilaç kullanımı, glisemik variabilite ve TG düzeylerinde anlamlı azalma; HDL seviyesinde anlamlı artış saptanmıştır.

## Associations of fats and carbohydrate intake with cardiovascular disease and mortality in 18 countries from five continents (PURE): a prospective cohort study

**Findings** During follow-up, we documented 5796 deaths and 4784 major cardiovascular disease events. Higher carbohydrate intake was associated with an increased risk of total mortality (highest [quintile 5] vs lowest quintile [quintile 1] category, HR 1.28 [95% CI 1.12–1.46],  $p_{trend}=0.0001$ ) but not with the risk of cardiovascular disease or cardiovascular disease mortality. Intake of total fat and each type of fat was associated with lower risk of total mortality (quintile 5 vs quintile 1, total fat: HR 0.77 [95% CI 0.67–0.87],  $p_{trend}<0.0001$ ; saturated fat, HR 0.86 [0.76–0.99],  $p_{trend}=0.0088$ ; monounsaturated fat: HR 0.81 [0.71–0.92],  $p_{trend}<0.0001$ ; and polyunsaturated fat: HR 0.80 [0.71–0.89],  $p_{trend}<0.0001$ ). Higher saturated fat intake was associated with lower risk of stroke (quintile 5 vs quintile 1, HR 0.79 [95% CI 0.64–0.98],  $p_{trend}=0.0498$ ). Total fat and saturated and unsaturated fats were not significantly associated with risk of myocardial infarction or cardiovascular disease mortality.

**Interpretation** High carbohydrate intake was associated with higher risk of total mortality, whereas total fat and individual types of fat were related to lower total mortality. Total fat and types of fat were not associated with cardiovascular disease, myocardial infarction, or cardiovascular disease mortality, whereas saturated fat had an inverse association with stroke. Global dietary guidelines should be reconsidered in light of these findings.

	Incidence (per 1000 person-years; 95% CI)					Hazard ratio (95% CI)				P <sub>test</sub>
	Quintile 1	Quintile 2	Quintile 3	Quintile 4	Quintile 5	Quintile 2 vs quintile 1	Quintile 3 vs quintile 1	Quintile 4 vs quintile 1	Quintile 5 vs quintile 1	
<b>Percentage energy from carbohydrate</b>										
Median (IQR)	46.4% (42.6-49.0)	54.6% (52.9-56.2)	60.8% (59.3-62.3)	67.7% (65.7-69.7)	77.3% (74.4-80.7)	-	-	-	-	-
Total mortality	4.1 (3.8-4.3)	4.2 (3.9-4.5)	4.5 (4.2-4.8)	4.9 (4.6-5.2)	7.2 (6.9-7.5)	1.07 (0.96-1.20)	1.06 (0.94-1.19)	1.17 (1.03-1.32)	1.28 (1.12-1.46)	0.0001
Major cardiovascular disease	3.9 (3.6-4.2)	4.2 (3.9-4.5)	4.2 (3.9-4.5)	4.6 (4.3-4.8)	5.1 (4.8-5.4)	1.00 (0.90-1.12)	1.02 (0.91-1.14)	1.08 (0.96-1.22)	1.01 (0.88-1.15)	0.62
Myocardial infarction	2.0 (1.8-2.2)	2.2 (2.0-2.4)	2.0 (1.8-2.2)	1.8 (1.6-2.0)	2.1 (1.9-2.3)	0.93 (0.80-1.09)	0.92 (0.78-1.09)	0.99 (0.83-1.18)	0.90 (0.73-1.10)	0.40
Stroke	1.4 (1.3-1.6)	1.6 (1.4-1.7)	1.8 (1.6-2.0)	2.4 (2.2-2.6)	2.7 (2.5-2.9)	1.03 (0.86-1.22)	1.09 (0.91-1.31)	1.21 (1.01-1.45)	1.11 (0.92-1.35)	0.10
Cardiovascular disease mortality	1.3 (1.1-1.4)	1.6 (1.4-1.7)	1.4 (1.3-1.6)	1.3 (1.2-1.5)	1.7 (1.5-1.9)	1.18 (0.97-1.43)	1.02 (0.83-1.26)	1.11 (0.88-1.38)	1.13 (0.89-1.44)	0.50
Non-cardiovascular disease mortality	2.5 (2.3-2.7)	2.3 (2.1-2.5)	2.7 (2.5-2.9)	3.2 (3.0-3.5)	5.1 (4.8-5.4)	1.00 (0.87-1.15)	1.09 (0.94-1.27)	1.22 (1.05-1.42)	1.36 (1.16-1.60)	<0.0001
<b>Percentage energy from total fat</b>										
Median (IQR)	10.6% (8.1-12.6)	18.0% (16.3-19.7)	24.2% (22.8-25.5)	29.1% (27.9-30.3)	35.3% (33.3-38.3)	-	-	-	-	-
Total mortality	6.7 (6.4-7.0)	5.1 (4.7-5.4)	4.6 (4.3-5.0)	4.3 (4.0-4.6)	4.1 (3.9-4.4)	0.90 (0.82-0.98)	0.81 (0.73-0.90)	0.80 (0.71-0.90)	0.77 (0.67-0.87)	<0.0001
Major cardiovascular disease	5.3 (5.0-5.6)	4.3 (4.0-4.6)	4.2 (3.9-4.5)	4.0 (3.8-4.3)	4.1 (3.8-4.4)	1.01 (0.92-1.11)	1.01 (0.90-1.13)	0.95 (0.84-1.07)	0.95 (0.83-1.08)	0.33
Myocardial infarction	2.1 (1.9-2.3)	1.6 (1.4-1.8)	2.0 (1.8-2.2)	2.0 (1.8-2.2)	2.3 (2.1-2.6)	1.02 (0.87-1.20)	1.08 (0.90-1.29)	0.97 (0.80-1.18)	1.12 (0.92-1.37)	0.40
Stroke	3.0 (2.7-3.2)	2.3 (2.1-2.6)	1.6 (1.5-1.8)	1.6 (1.4-1.8)	1.3 (1.2-1.5)	1.05 (0.93-1.19)	0.91 (0.78-1.06)	0.95 (0.79-1.13)	0.82 (0.68-1.00)	0.05
Cardiovascular disease mortality	1.6 (1.4-1.8)	1.3 (1.2-1.5)	1.5 (1.3-1.6)	1.4 (1.3-1.6)	1.5 (1.3-1.7)	0.89 (0.74-1.06)	0.92 (0.75-1.12)	0.88 (0.70-1.10)	0.92 (0.72-1.16)	0.50
Non-cardiovascular disease mortality	4.7 (4.4-5.0)	3.4 (3.1-3.6)	2.9 (2.6-3.1)	2.6 (2.3-2.8)	2.3 (2.1-2.5)	0.91 (0.82-1.01)	0.78 (0.69-0.89)	0.78 (0.67-0.90)	0.70 (0.60-0.82)	<0.0001

# Glutensiz Diyet Faydalıdır

- Tam taneli tahıl (Buğday, arpa, çavdar, yulaf) tüketimi ile KVH riski ilişkili.
- Glutensiz beslenmede tahıl tüketimini yetersiz.
- Gluten içeren tam tahıllar BKİ ile ters ilişkili.
- 4 g gluten tüketenlere kıyasla 20 g gluten tüketenlerde tip 2 diabet riski % 13 azalıyor.  
*BMJ 2017;357:j2135*
- Glutensiz ürünler, yüksek yağ ve enerji içerebilirler. Glutensiz diyetin uzun süreli kullanımı; karbonhidrat, demir, folat, niasin, çinko ve posadan yetersiz bir beslenme oluşturabilir.  
*British Journal of Nutrition (2009), 102, 1154–1160*
- Barsakta yaralı bakteri sayısını azaltma etkisi saptanmış

**Glutensiz Diyet Sağlıklı Bireyler İçin Uygun Değil.**

# Long term gluten consumption in adults without celiac disease and risk of coronary heart disease: prospective cohort study

Benjamin Lebwohl,<sup>1,2</sup> Yin Cao,<sup>3,4,5</sup> Geng Zong,<sup>5</sup> Frank B Hu,<sup>5,6</sup> Peter H R Green,<sup>1</sup> Alfred I Neugut,<sup>1,2</sup> Eric B Rimm,<sup>5,6,7</sup> Laura Sampson,<sup>5</sup> Lauren W Dougherty,<sup>5</sup> Edward Giovannucci,<sup>5,6,7</sup> Walter C Willett,<sup>5,6,7</sup> Qi Sun,<sup>5,6</sup> Andrew T Chan<sup>3,4,6</sup>

BMJ 2017;357:j1892 | doi: 10.1136/bmj.j1892

## ABSTRACT

### OBJECTIVE

To examine the association of long term intake of gluten with the development of incident coronary heart disease.

### DESIGN

Prospective cohort study.

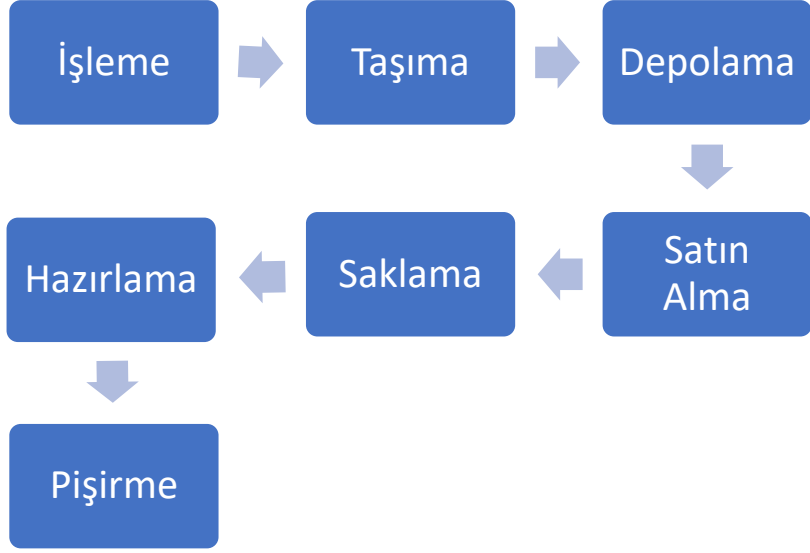
### SETTING AND PARTICIPANTS

64 714 women in the Nurses' Health Study and 45 303 men in the Health Professionals Follow-up Study without a history of coronary heart disease who completed a 131 item semiquantitative food frequency questionnaire in 1986 that was updated every four years through 2010.

hazard ratio was 1.00 (0.92 to 1.09; P for trend=0.77). In contrast, after additional adjustment for intake of refined grains (leaving the variance of gluten intake correlating with whole grain intake), estimated gluten consumption was associated with a lower risk of coronary heart disease (multivariate hazard ratio 0.85, 0.77 to 0.93; P for trend=0.002).

### CONCLUSION

Long term dietary intake of gluten was not associated with risk of coronary heart disease. However, the avoidance of gluten may result in reduced consumption of beneficial whole grains, which may affect cardiovascular risk. The promotion of gluten-free diets among people without celiac disease should not be encouraged.



Hijyen ve Sanitasyon

ÜRETİM

Gıda Kaynaklı Sağlık Riskleri

TÜKETİM



# Gıda Kaynaklı Sağlık Riskleri

## Fiziksel

- Cam Parçası
- Metal parçası
- Kemik, Kılçık
- Toz, Böcek, Sinek
- Saç, Kıl, Tüy

## Mikrobiyolojik

- Bakteriler
- Virüsler
- Küfler
- Parazitler
- Algler

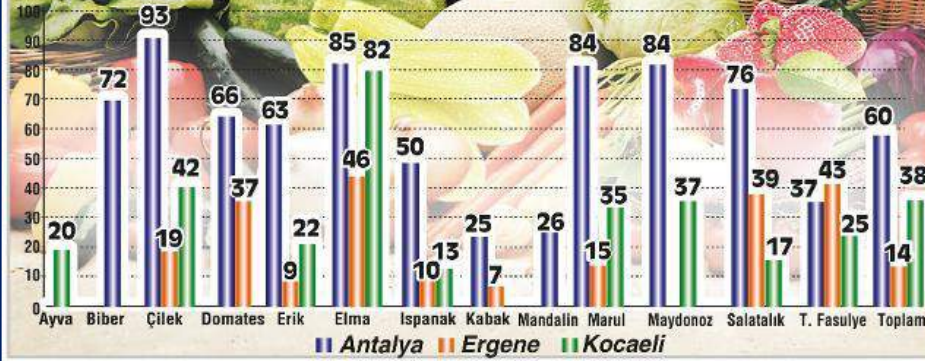
## Kimyasal

- Pestisit Bulaşması
- Temizlik Mad. Ve Dezenfektanla
- Ambalaj Kimyasalları
- Ürüne Yağ Bulaşması
- Ağır Metal Bulaşması
- Veteriner İlaç Kalıntısı
- Nitrit, Nitrat, Üre

- Katkı Maddeleri: Sodyum Nitrit, renklendiriciler, koruyucular, pestisidler, fungusidler

- Gıdanın yapısında olanlar: Barbunyada Hemaglutinler, zehirli mantarlar gibi

## Her 100 örnekten kaçında pestisit var



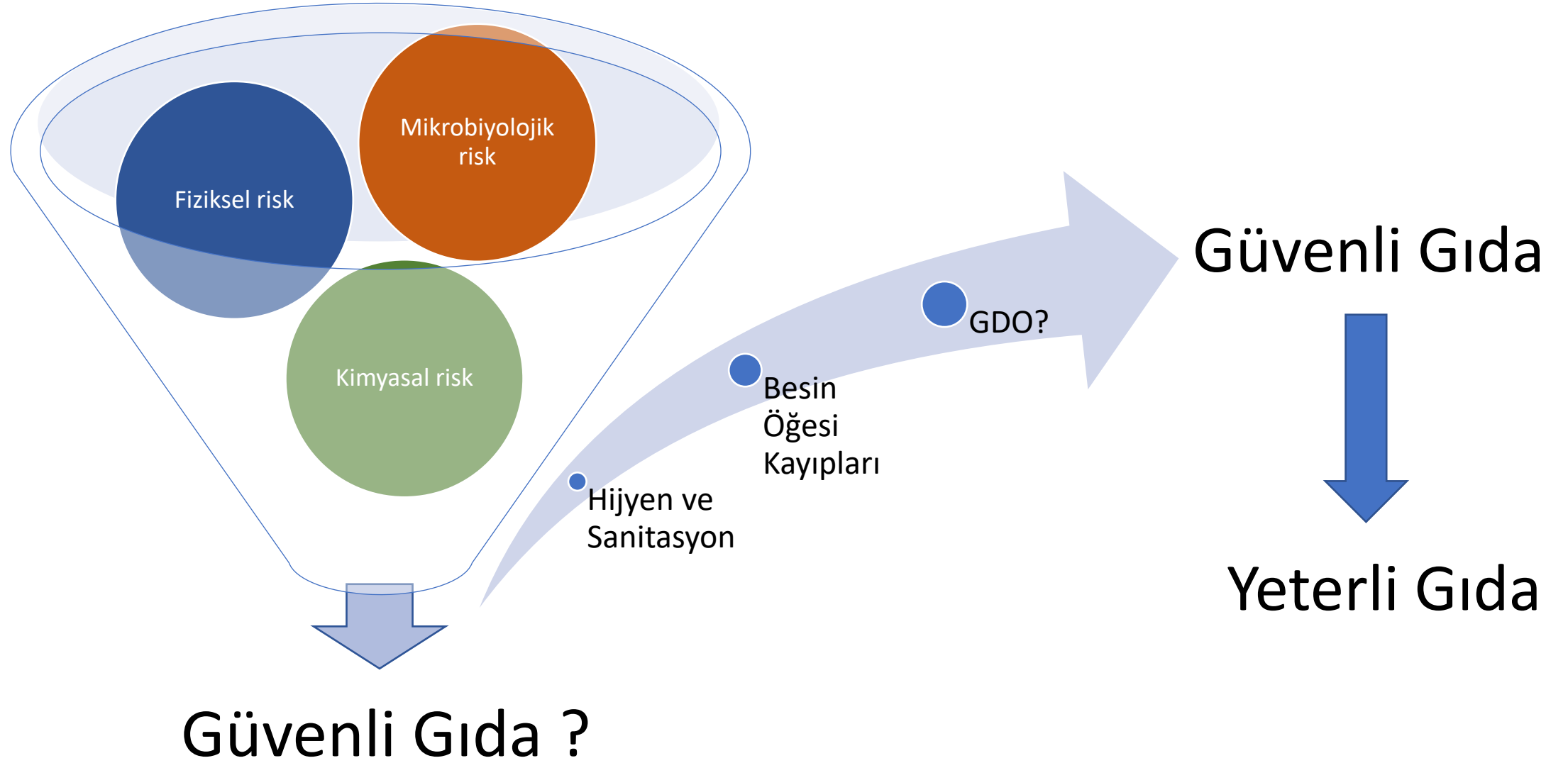
### GIDA ÖRNEKLERİNDE MEVZUATA UYGUN VE UYGUN OLMAYAN PESTİSİTLERİN DAĞILIMI (%)



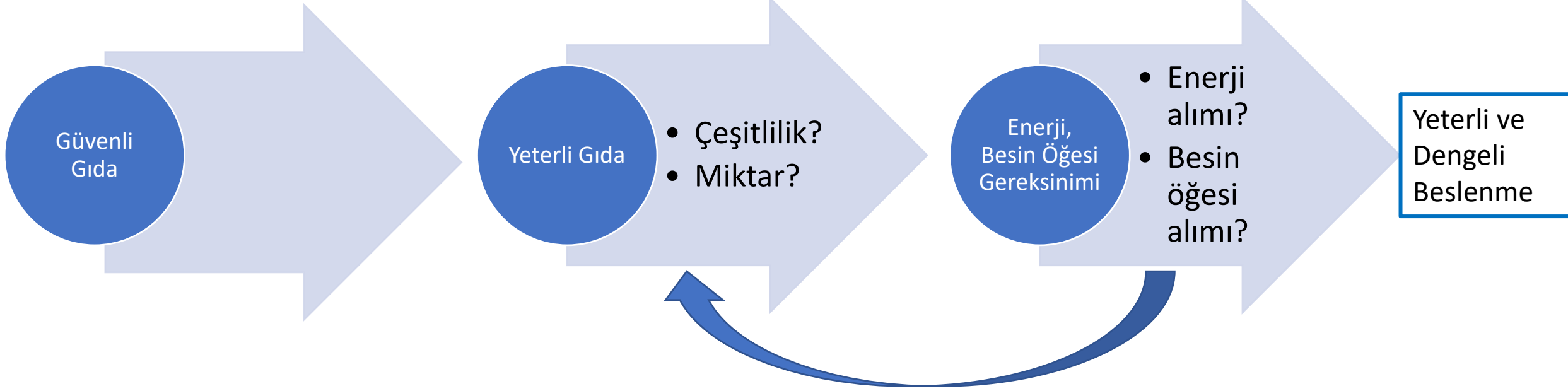
Taze fasulye, biber, hıyar, marul ve maydanoz sebzeleriyle çilek, erik ve elma meyveleri maksimum kalıntı limitlerini en çok aşan ürünlerdi. Şeftali, kayısı ve balkabağında pestisit kalıntısı tespit edilemedi.

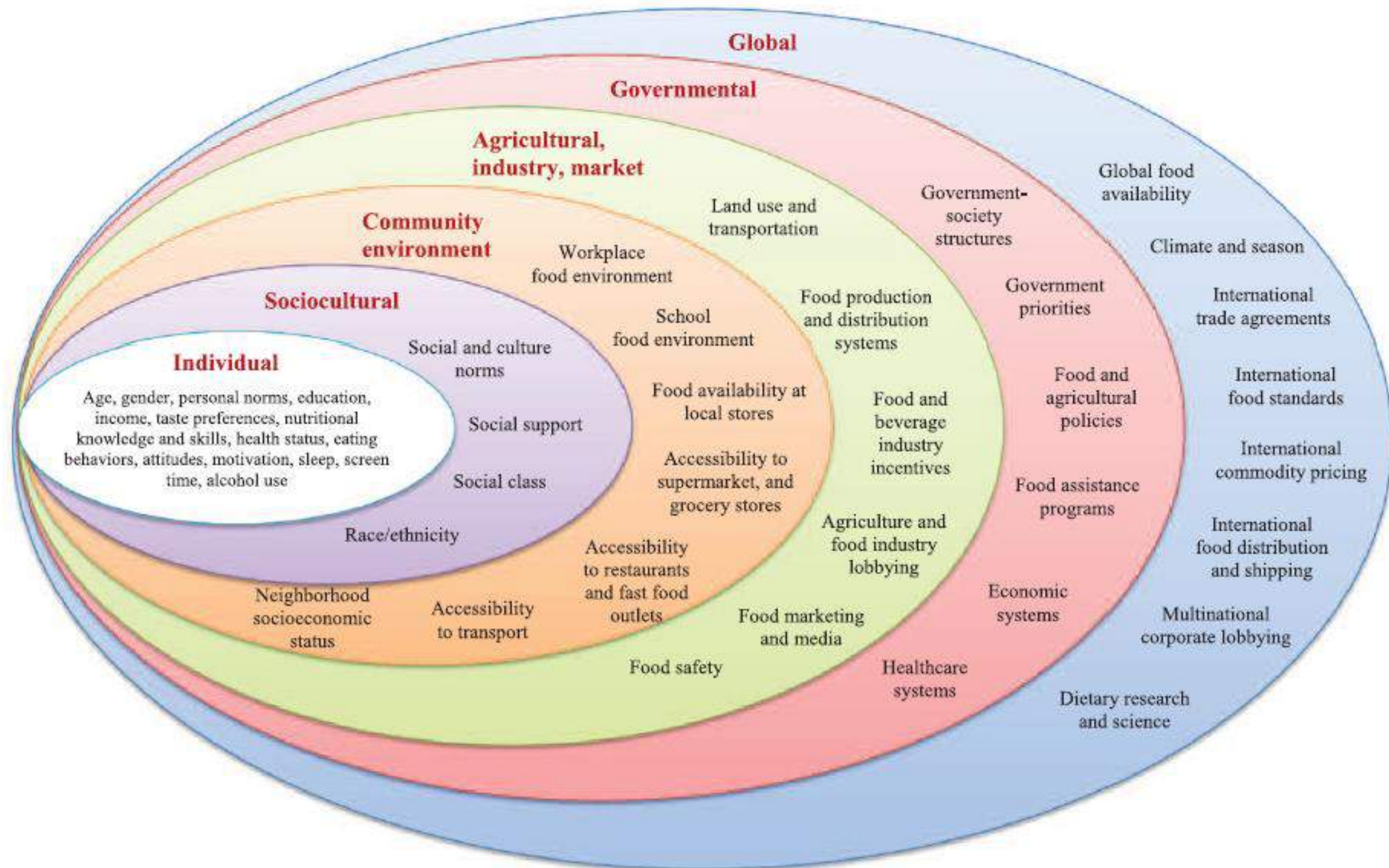
### Mevzuatta belirtilen sınır değerleri aşan gıdaların sayısı ve oranı (%)

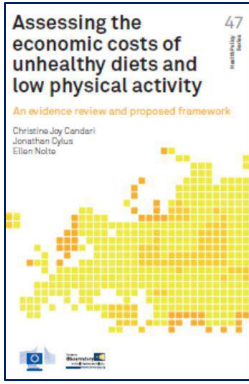
	Ayva	Balkabağı	Biber	Çilek	Domates	Erik	Elma	Ispanak	Kabak	Kayısı	Mandalin	Marul	Maydanoz	Portakal	Salatalık	Şeftali	Taze fasulye	Toplam
Alınan örnek sayısı	65	48	96	109	96	148	135	89	76	33	50	98	87	30	89	10	59	1318
Pestisit saptanan örnek sayısı	4	0	62	54	58	35	100	22	14	0	13	44	44	0	52	0	22	524
Mevzuatta izin verilen sınırı aşan örnek sayısı	4	0	21	38	12	27	18	13	5	0	2	26	31	0	14	0	17	228
Sınırı aşan örneklerin oranı (%)	6.2	6.2	21.9	34.9	12.5	18.2	13.3	14.6	6.6	0	4	26.5	35.6	0	15.7	0	28.8	17.3



# Beslenme ve Saęlık







# Etiologic effects and optimal intakes of foods and nutrients for risk of cardiovascular diseases and diabetes: Systematic reviews and meta-analyses from the Nutrition and Chronic Diseases Expert Group (NutriCoDE)

Renata Micha<sup>1</sup>, Masha L. Shulkin<sup>1,2</sup>, Jose L. Peñalvo<sup>1</sup>, Shahab Khatibzadeh<sup>3</sup>, Gitanjali M. Singh<sup>1</sup>, Mayuree Rao<sup>4</sup>, Saman Fahimi<sup>5</sup>, John Powles<sup>6</sup>, Dariush Mozaffarian<sup>1\*</sup>

## Düşük Hastalık Riski ile İlişkili Besin Gruplarının Optimal Tüketim Düzeyi

Besin Grubu	Optimal Tüketim
Meyve	300±30 g/gün
Sebze	400±40 g/gün
Yağlı Tohumlar/Kabuklu Yemişler	113.4±11.3 g/hafta
Tam Tahıllar	100±12.5 g/gün
Deniz Ürünleri	350±35 g/hafta
İşlenmemiş Kırmızı Et	100±10 g/gün
İşlenmiş Et	0

Component	Criteria for minimum score (0)	Criteria for maximum score (10)	Serving size for food components
Vegetables <sup>1</sup> (servings per day)	0	≥5	0.5 cup or 1 cup of green leafy vegetables
Fruit <sup>2</sup> (servings per day)	0	≥4	1 medium piece or 0.5 cup of berries
<b>Whole grains (grams per day)</b>			
Women	0	75	
Men	0	90	
Sugar-sweetened beverages and fruit juice (servings per day)	≥1	0	8oz.
Nuts and legumes (servings per day)	0	≥1	1 oz. of nuts or 1 tablespoon (15 ml) of peanut butter
Red and processed meat (servings per day)	≥1.5	0	4oz. of (red) unprocessed meat or 1.5oz. of processed meat
Trans-fats (% of energy)	≥4	≥0.5	
Omega-3 fatty acids (EPA + DHA) (mg per day)	0	250	Equivalent to two 4oz servings per week
Polyunsaturated fatty acids (% of energy)	≤2	≥10	
<b>Sodium (mg per day)</b>			
Women	≥3 337	≤1 112	
Men	≥5 271	≤1 612	
<b>Alcohol (drinks per day)</b>			
Women	≥2.5	0.5–1.5	One drink equivalent to 4oz. wine, 12oz. beer or 1.5oz. liquor
Men	≥3.5	0.5–2.0	
<b>TOTAL</b>	<b>0</b>	<b>110</b>	

AHEI puanı 67-110=Sağlıklı Beslenmeye Uyum

Tüm nedenlere bağlı mortalite riski %22

KVH riski %22

Tip 2 DM riski %22

Kanser riski %15

[J Acad Nutr Diet.](#) 2015;115:780-800.



AHEI, HEI, DASH puanı & sağlık çıktıları

Tüm nedenlere bağlı mortalite riski %22

KVH riski %22

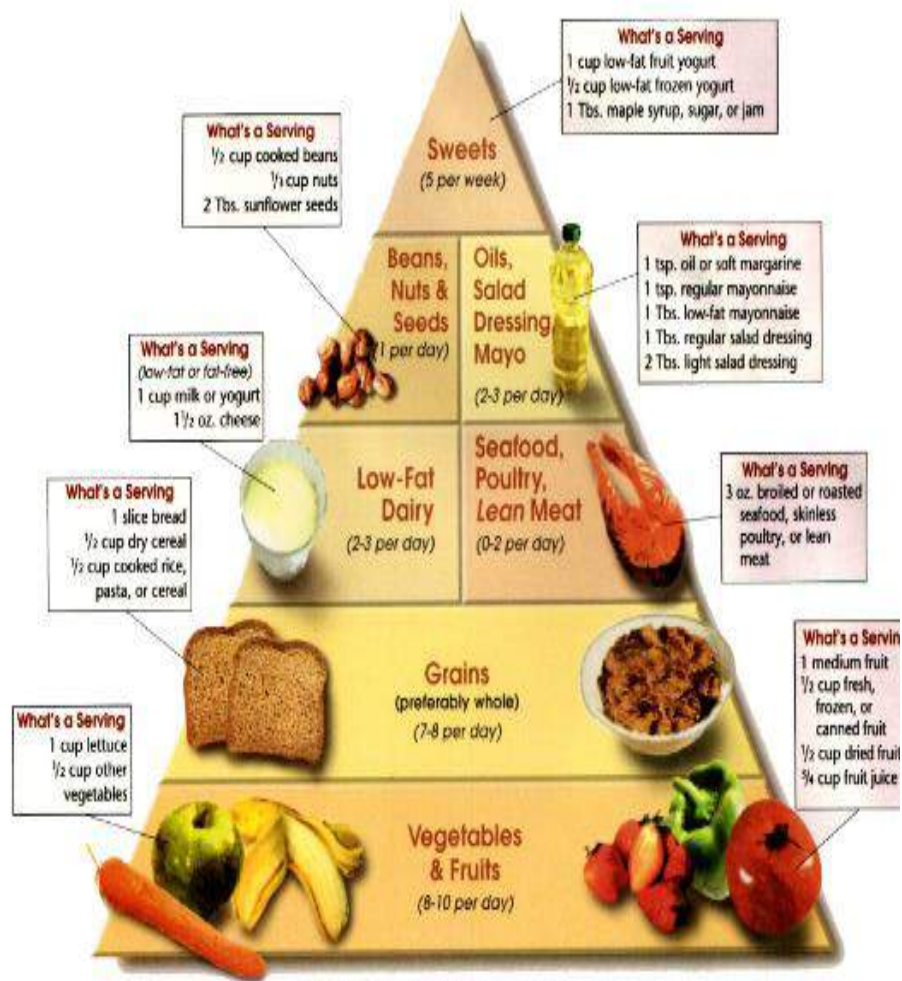
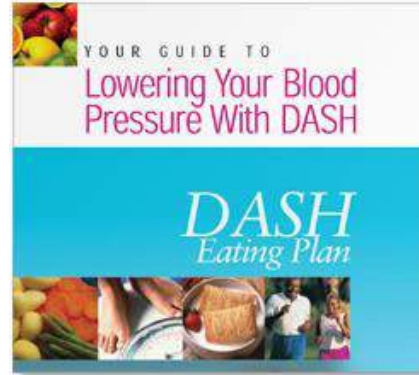
Tip 2 DM riski %18

Kanser riski %16

Nörodejeneratif hastalık riski %15

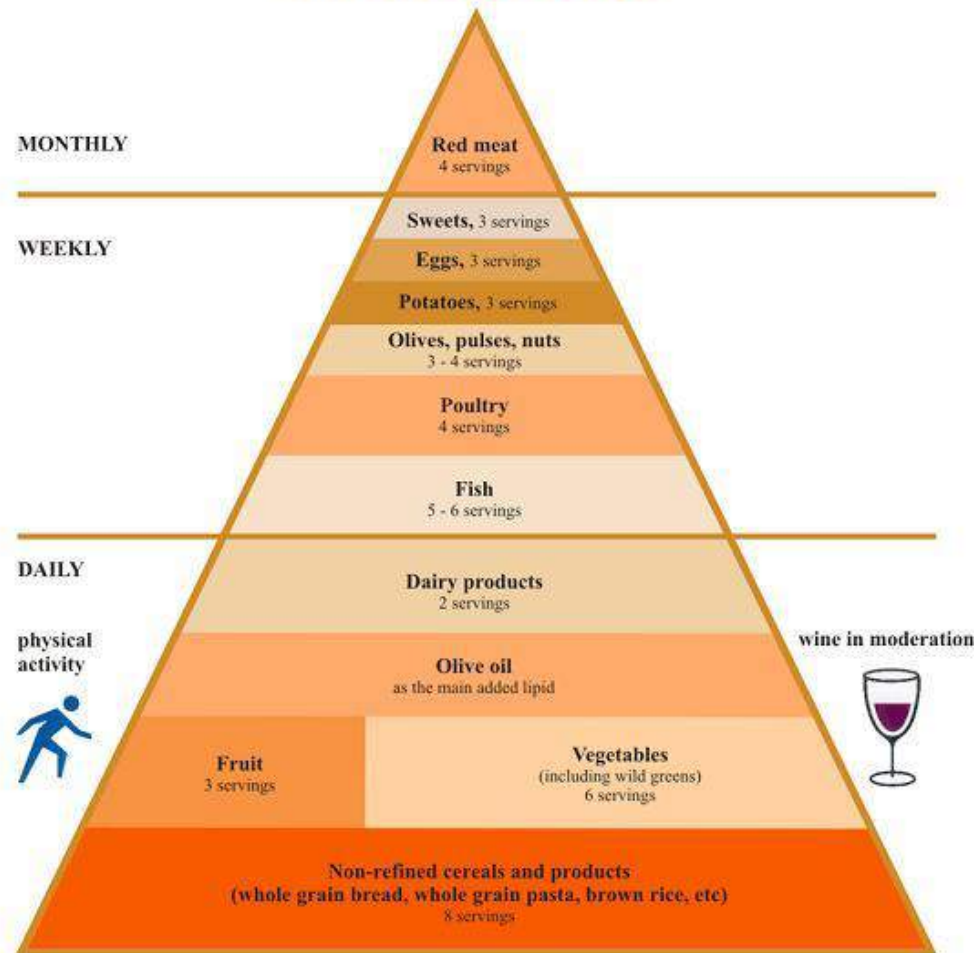
[J Acad Nutr Diet.](#) 2015;118:74-100.





Note: Choose lower-salt foods from all categories.

## MEDITERRANEAN DIET



Also remember to:

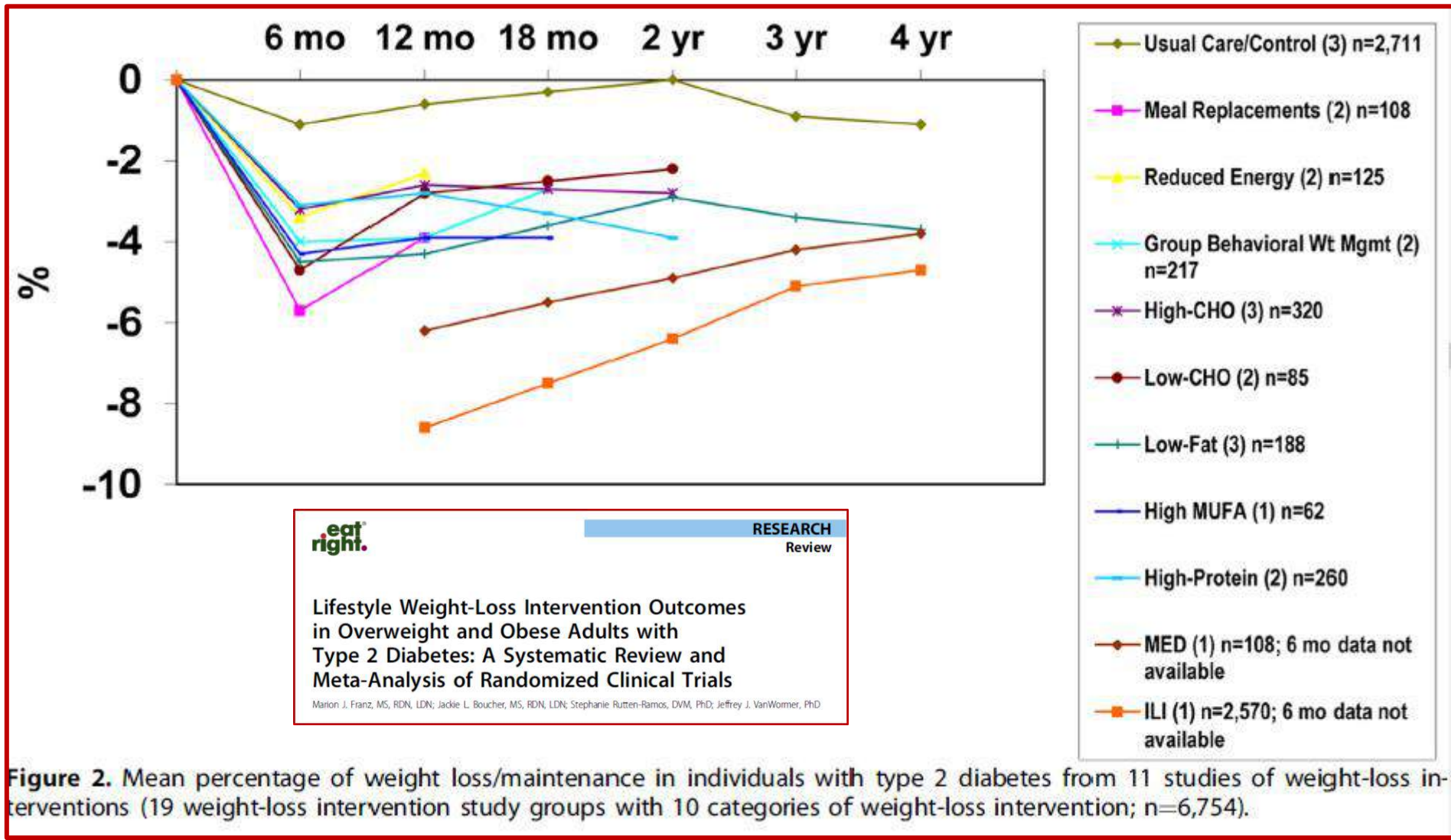
- drink plenty of water
- avoid salt and replace it by herbs (e.g oreganon, basil, thyme, etc)

Source: Supreme Scientific Health Council, Hellenic Ministry of Health

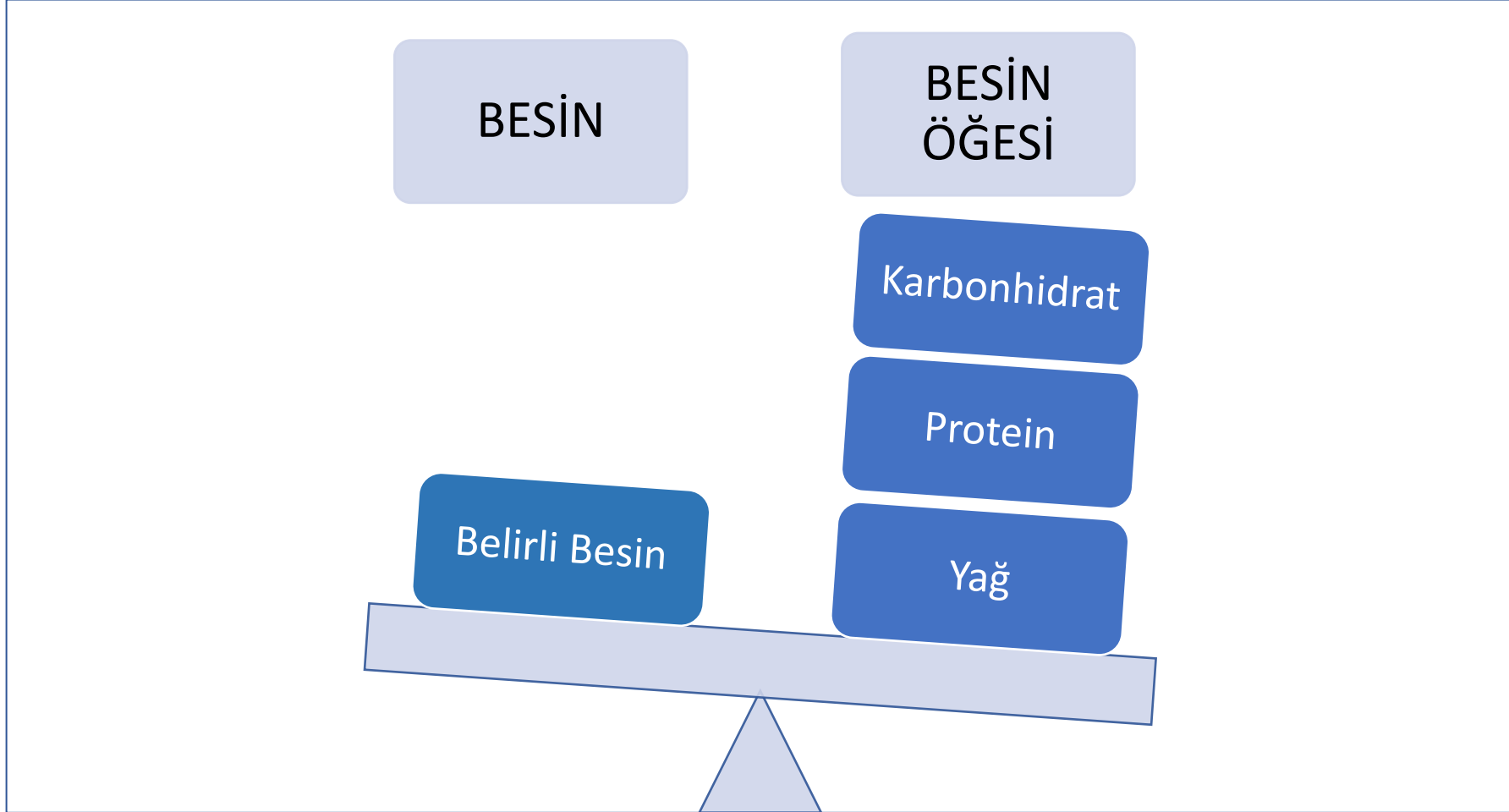


# Akdeniz Tipi Beslenmenin Açlık Kan Glukozu ve HbA1c Üzerine Etkileri

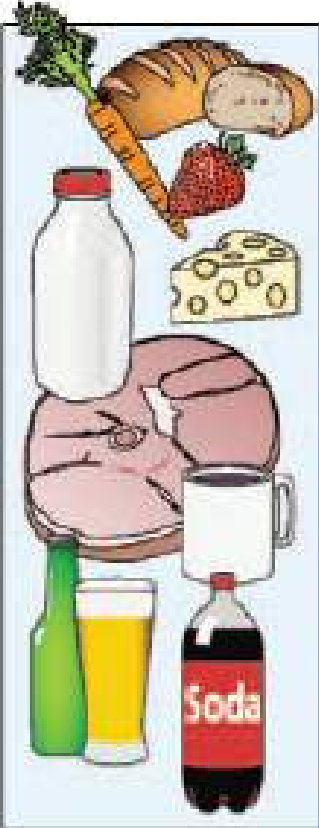
Toobert et al. (9)	279 diabetic postmenopausal women	Control diet (low fat) vs. MLP*	6-month randomized controlled clinical trial	HbA1c decreased in Mediterranean arm (-0.4% from baseline); P value <0.01	HbA1c ↓
Estruch et al. (13)	772 High risk individuals (421 diabetics)	Mediterranean diet (either virgin olive oil or mixed nuts rich) vs. low-fat diet	3-month randomized controlled clinical trial	Fasting glucose decreased in Mediterranean arm (mean difference -7 mg/dl in olive oil group compared to low-fat diet)	AKG ↓
Shai et al. (14)	322 Moderately obese patients (36 diabetics)	Low-fat restricted calorie diet vs. Mediterranean calorie-restricted diet vs. low carbohydrate non-restricted calorie diet	2-year randomized controlled clinical trial	<ul style="list-style-type: none"> <li>• <b>Diabetic patients:</b> Fasting glucose decreased in Mediterranean arm (by -32.8 mg/dl in the low-fat arm compared to baseline and increased by 10.8 mg/dl in the low-carb arm; P value 0.001;</li> <li>• <b>HbA1c:</b> No change between groups</li> <li>• <b>Non-diabetic patients</b></li> <li><b>Fasting glucose:</b> No change between the three groups;</li> </ul>	AKG ↓
<div style="border: 2px solid black; padding: 10px; display: inline-block;"> <p>Tip 2 diyabet riskinde %19-62</p> </div>					
Esposito et al. (16)	215 patients with newly diagnosed diabetes	Mediterranean diet vs. low-fat diet	4-year randomized controlled clinical trial	Fasting glucose decreased in Mediterranean arm (-21 mg/dl difference in the Mediterranean diet arm compared to low-fat diet); P <0.001	AKG ↓
Elhayany et al. (11)	259 overweight diabetic patients.	Low carbohydrate Mediterranean diet vs. traditional Mediterranean diet vs. ADA diet	12-month randomized controlled clinical trial	Fasting glucose decreased in Mediterranean arm (mean difference -10.8 mg/dl); P <0.001	HbA1c ↓
Itsiopoulous et al. (12)	27 diabetic patients	Mediterranean diet vs. usual diet over 12 weeks then cross over to alternate diet	12 weeks Randomized cross-over interventional study	HbA1c: decreased (-0.3% Change between groups); P value 0.012	HbA1c ↓



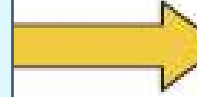
# Saęlıksız Diyet



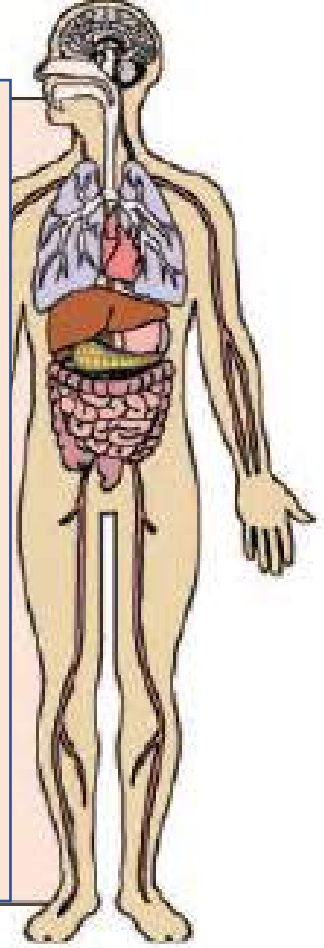
# Besin & Kardiyometabolik Risk



Rafine tahıl, nişasta, şeker,  
Meyve, sebze, yağlı tohum  
Tam tahıl, kurubaklagil  
Yoğurt, peynir, süt  
Balık, deniz ürünleri  
İşlenmiş et, kırmızı et  
Bitkisel yağlar, spesifik yağ asitleri  
Kahve, çay, alkol  
Şekerli içecekler, meyve suyu  
Mineraller, antioksidantlar, fitokimyasallar  
Gıda bazlı beslenme modelleri  
Gıda işleme, hazırlama yöntemleri



Kan basıncı  
Glukoz-insülin homeostazı  
Kırç yağ sentezi  
Kan lipidleri,apolipoproteinler  
Endotel fonksiyon  
Sistemik inflamasyon  
Bilişsel fonksiyon  
Bağırsak mikrobiyomu  
Tokluk, açlık, obezite  
Adiposit fonksiyonu  
Kardiak fonksiyon  
Trombozis, koagülasyon  
Vasküler adezyon



# Fayda

Meyve, Yađlı Tohumlar,  
Balık, Sebze, Bitkisel Yađlar,  
Tam Tahıllar, Kuru  
Baklagiller, Yođurt,  
Peynir

Yumurta,  
Kümes Hayvanları, Süt

Tereyađ

İşlenmemiş Kırmızı Et,  
Nişasta, Şeker, İşlenmiş Et,  
Yüksek Sodyumlu Besinler,  
Trans Yađ

# Zarar

	Broad Concordance and Less Controversy or Uncertainty†	General Concordance but Some Remaining Controversy and Uncertainty	Substantial Controversy and Uncertainty	Insufficient Evidence for Meaningful Conclusions
Benefits of:	<p>Fruits, nonstarchy vegetables, nuts/seeds, legumes, yogurt</p> <p>Dietary fiber, potassium</p> <p>Moderate alcohol use</p> <p>Mediterranean-style or higher fat DASH-style diet patterns</p>	<p>Seafood, whole grains</p> <p>Certain vegetable oils (eg, soybean, canola, extra virgin olive)</p> <p>n-3 and n-6 polyunsaturated fats, plant-derived monounsaturated fats</p> <p>Phenolic compounds</p>	<p>Cheese, low-fat milk</p> <p>Certain vegetable oils (eg, corn, sunflower, safflower)</p> <p>Total or animal-derived monounsaturated fats</p> <p>Coffee, tea, cocoa</p> <p>Vitamin D, magnesium, fish oil</p>	<p>Whole-fat milk</p> <p>Starchy vegetables other than potatoes</p> <p>Coconut oil</p>
Harms of:	<p>Partially hydrogenated vegetable oils, processed meats</p> <p>High sodium</p> <p>Sugar-sweetened beverages, foods rich in refined grains, starches, added sugars</p> <p>Greater than moderate alcohol use</p>	<p>Moderate sodium</p> <p>White/russet potatoes</p> <p>High glycemic index/load</p>	<p>Saturated fats, dietary cholesterol</p> <p>Unprocessed red meats, eggs</p> <p>Butter</p>	<p>Whole-fat milk</p> <p>Palm oil</p>
Little effect of:	Total fat	<p>Total carbohydrate</p> <p>Isolated antioxidant vitamins, calcium</p>	<p>Poultry</p> <p>100% fruit juice</p> <p>Total protein, specific amino acids</p> <p>Noncaloric sweeteners</p>	<p>Concepts of local, organic, farmed/wild, grass fed, genetic modification</p>

# Tanımlamada Kargaşa

## Very low-carbohydrate ketogenic diet (VLCKD)

- Carbohydrate, 20–50 g/d or <10% of the 2000 kcal/d diet, whether or not ketosis occurs. Derived from levels of carbohydrate required to induce ketosis in most people.
- Recommended early phase (“induction”) of popular diets such as Atkins Diet or Protein Power.

## Low-carbohydrate diet: <130 g/d or <26% total energy

- The ADA definition of 130 g/d as its recommended minimum.

## Moderate-Carbohydrate Diet: 26%–45%

- Upper limit, approximate carbohydrate intake before the obesity epidemic (43%).

## High-Carbohydrate Diet: >45%

- Recommended target on ADA websites.
- The 2010 Dietary Guidelines for Americans recommends 45%–65% carbohydrate. The average American diet is estimated to be ~49% carbohydrate.
- Carbohydrate Consumption (NHANES)<sup>†</sup>:
  - Men
    - 1971–1974: 42% (~250 g for 2450 kcal/d)
    - 1999–2000: 49% (~330 g for 2600 kcal/d)
  - Women
    - 1971–1974: 45% (~150 g for 1550 kcal/d)
    - 1999–2000: 52% (~230 g for 1900 kcal/d)

ADA, American Diabetes Association; NHANES, National Health and Nutrition Examination Survey

• Derived from Accurso et al. [3] and references therein.

<sup>†</sup> NHANES is a series of studies conducted since 1960 that monitors >5000 people.

Type of diet	Fat (% kcals)	CHO (% kcals)	Protein (% kcals)
High-fat, low-CHO	55–65	<20% (<100 g)	25–30
Moderate-fat, balanced nutrient reduction	20–30	55–60	15–20
Low- and very- low-fat	<10–19	>65	10–20

# Nutrition Therapy Recommendations for the Management of Adults With Diabetes

Diabetes Care Volume 37, Supplement 1, January 2014

Type of eating pattern	Description
Mediterranean style (96)	Includes abundant plant food (fruits, vegetables, breads, other forms of cereals, beans, nuts and seeds); minimally processed, seasonally fresh, and locally grown foods; fresh fruits as the typical daily dessert and concentrated sugars or honey consumed only for special occasions; olive oil as the principal source of dietary lipids; dairy products (mainly cheese and yogurt) consumed in low to moderate amounts; fewer than 4 eggs/week; red meat consumed in low frequency and amounts; and wine consumption in low to moderate amounts generally with meals.
Vegetarian and vegan (97)	The two most common ways of defining vegetarian diets in the research are vegan diets (diets devoid of all flesh foods and animal-derived products) and vegetarian diets (diets devoid of all flesh foods but including egg [ovo] and/or dairy [lacto] products). Features of a vegetarian-eating pattern that may reduce risk of chronic disease include lower intakes of saturated fat and cholesterol and higher intakes of fruits, vegetables, whole grains, nuts, soy products, fiber, and phytochemicals.
Low fat (98)	Emphasizes vegetables, fruits, starches (e.g., breads/crackers, pasta, whole grains, starchy vegetables), lean protein, and low-fat dairy products. Defined as total fat intake <30% of total energy intake and saturated fat intake <10%.
Low carbohydrate (88)	Focuses on eating foods higher in protein (meat, poultry, fish, shellfish, eggs, cheese, nuts and seeds), fats (oils, butter, olives, avocado), and vegetables low in carbohydrate (salad greens, cucumbers, broccoli, summer squash). The amount of carbohydrate allowed varies with most plans allowing fruit (e.g., berries) and higher carbohydrate vegetables; however, sugar-containing foods and grain products such as pasta, rice, and bread are generally avoided. There is no consistent definition of "low" carbohydrate. In research studies, definitions have ranged from very low-carbohydrate diet (21–70 g/day of carbohydrates) to moderately low-carbohydrate diet (30 to <40% of calories from carbohydrates).
DASH (99)	Emphasizes fruits, vegetables, and low-fat dairy products, including whole grains, poultry, fish, and nuts and is reduced in saturated fat, red meat, sweets, and sugar-containing beverages. The most effective DASH diet was also reduced in sodium.



Dietary Reference Intakes (DRIs): Acceptable Macronutrient Distribution Ranges  
Food and Nutrition Board, Institute of Medicine, National Academies

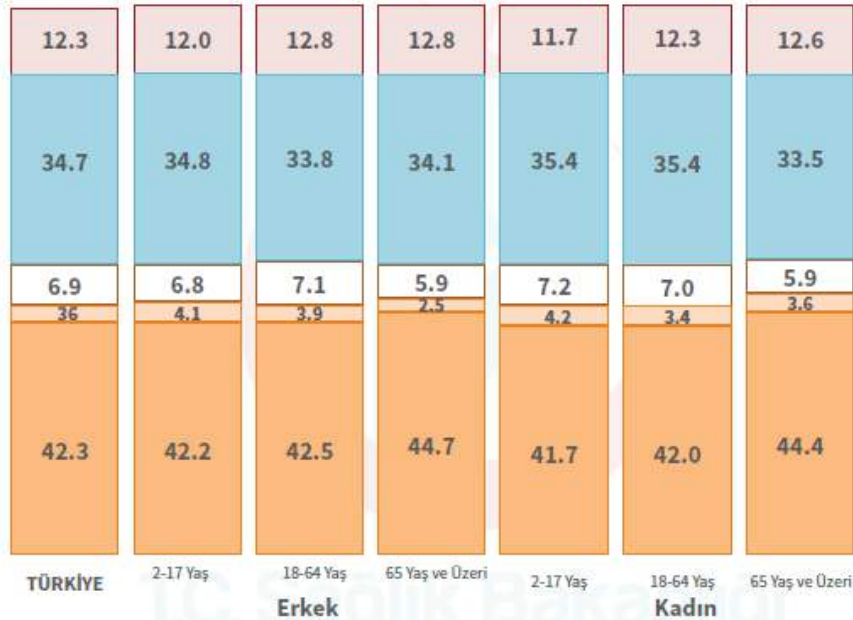
Macronutrient	Range (percent of energy)		
	Children, 1-3 y	Children, 4-18 y	Adults
Fat	30-40	25-35	20-35
n-6 Polyunsaturated fatty acids <sup>a</sup> (linoleic acid)	5-10	5-10	5-10
n-3 Polyunsaturated fatty acids <sup>a</sup> (α-linolenic acid)	0.6-1.2	0.6-1.2	0.6-1.2
Carbohydrate	45-65	45-65	45-65
Protein	5-20	10-30	10-35

<sup>a</sup> Approximately 10 percent of the total can come from longer-chain n-3 or n-6 fatty acids.

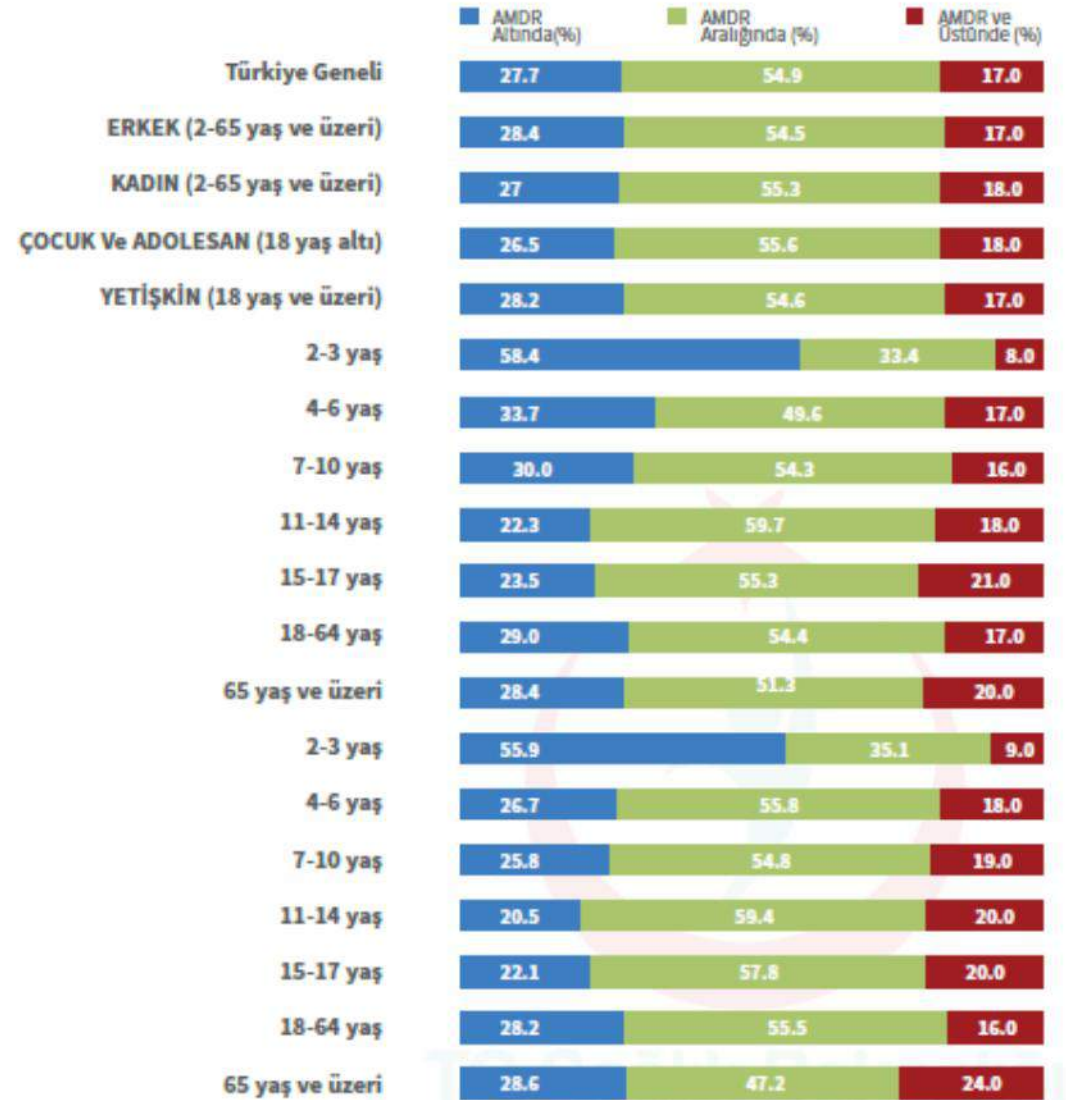
SOURCE: Dietary Reference Intakes for Energy, Carbohydrate, Fiber, Fat, Fatty Acids, Cholesterol, Protein, and Amino Acids (2002/2005).

## MAKRO BESİN ÖGELERİNİN ENERJİ ALIMINA KATKISI (%)

Diğer Glisemik Karbonhidratlar %  
Sakkaroz %  
Protein %  
Posa Grubu Karbonhidratlar %  
Yağ %



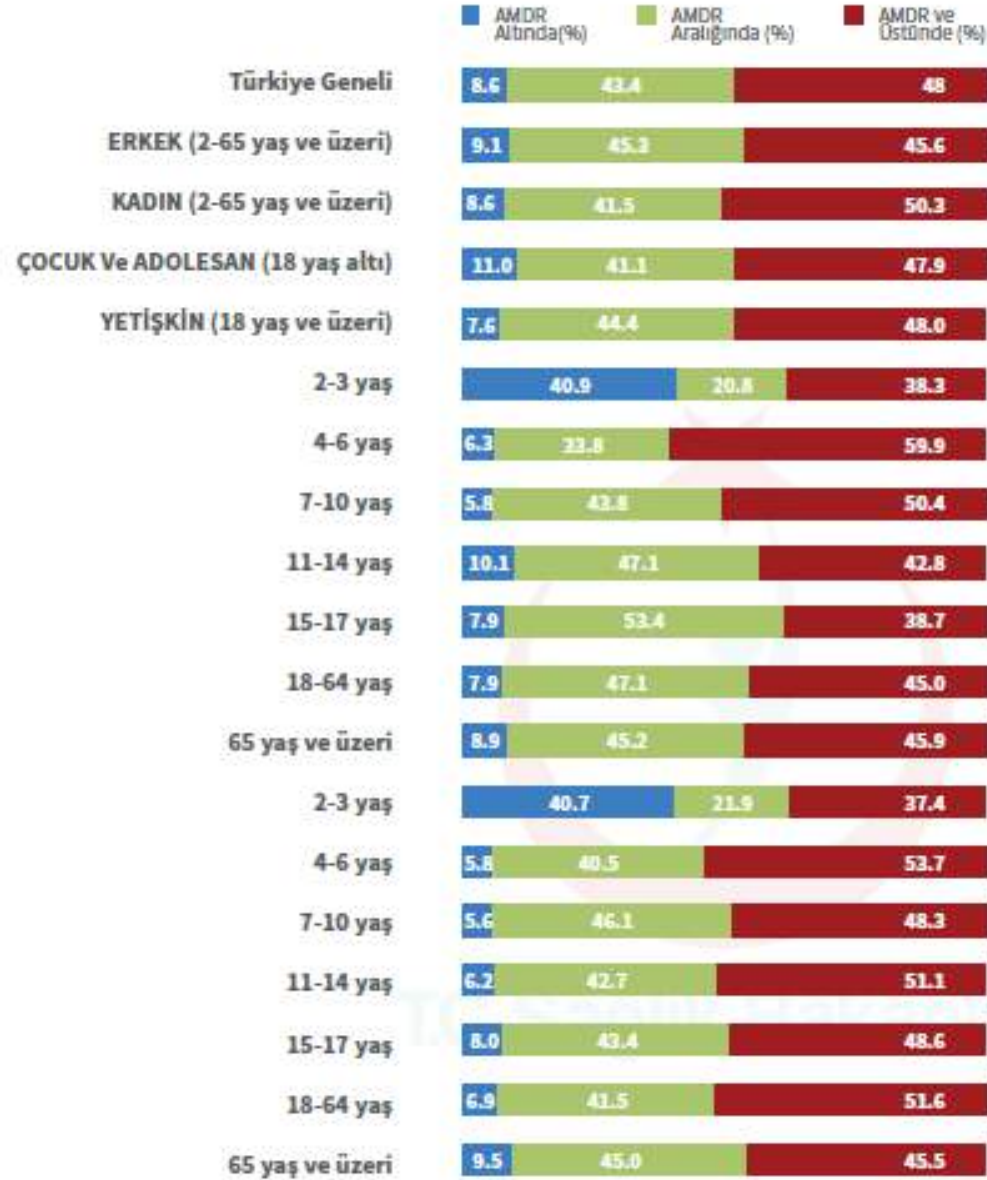
Kaynak: Türkiye Beslenme ve Sağlık Araştırması 2010  
T.C. Sağlık Bakanlığı / Hacettepe Üniversitesi Şubat 2014



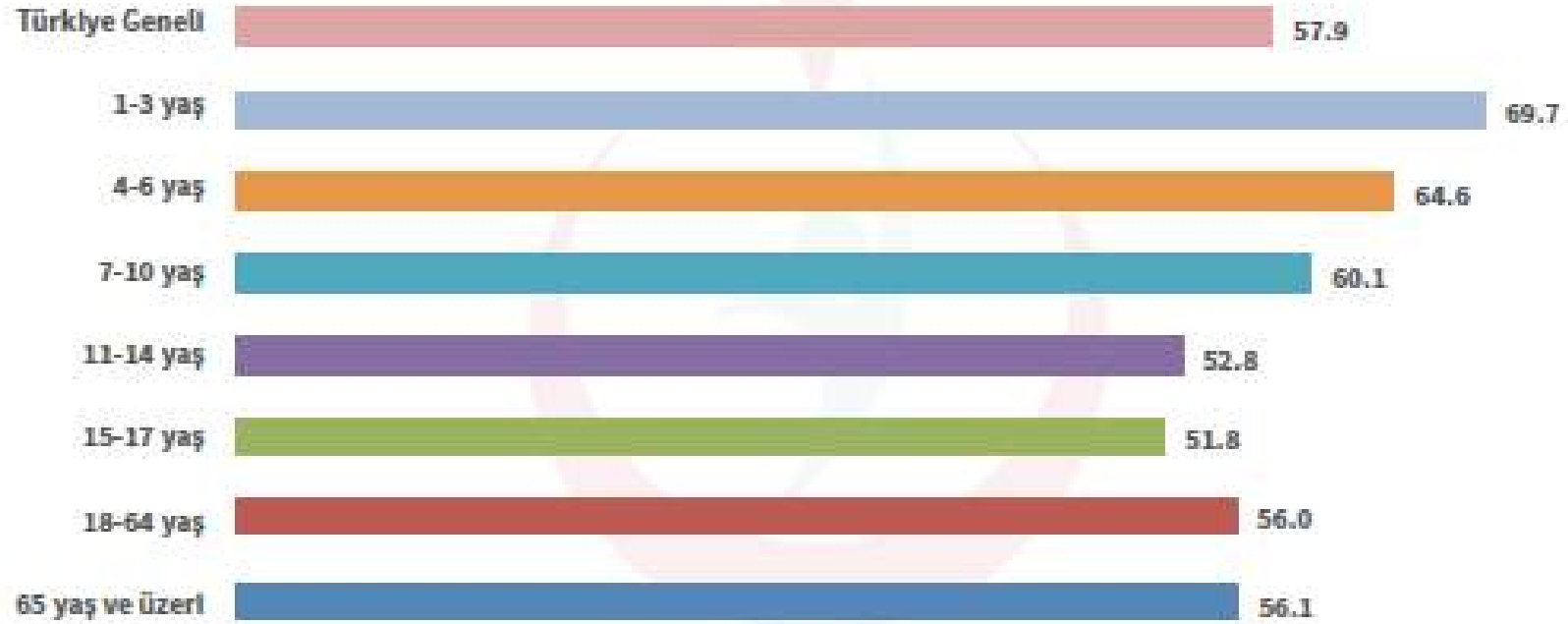
Kaynak: Türkiye Beslenme ve Sağlık Araştırması 2010  
T.C. Sağlık Bakanlığı / Hacettepe Üniversitesi Şubat 2014

Ek 4. 3. 2. Toplumda karbonhidratı AMDR aralığının altında, AMDR düzeyinde ve üstünde alanların durumu (%)

# TOPLAM YAĞ ALIMI



## DOYMUŞ YAĞ



Kaynak: Türkiye Beslenme ve Sağlık Anketi 2010  
T.C. Sağlık Bakanlığı / Hacettepe Üniversitesi Şubat 2014

Ek 4. 3. 6. Doymuş yağın enerjiye katkısı %10 ve üzerinde olanların durumu (%)

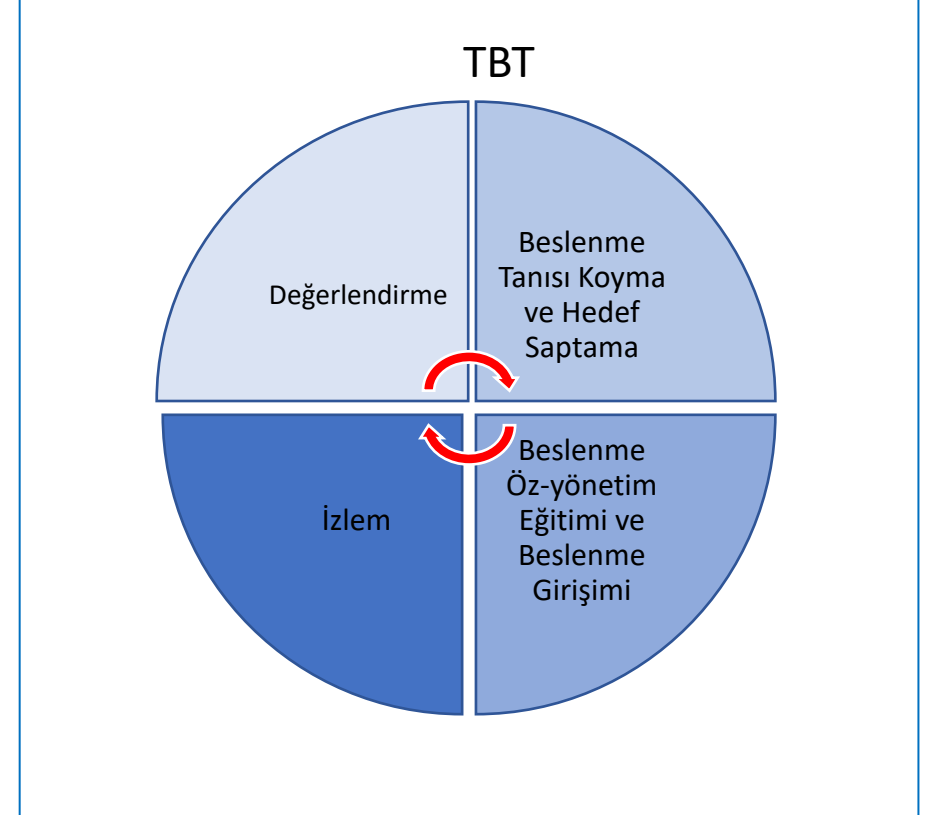
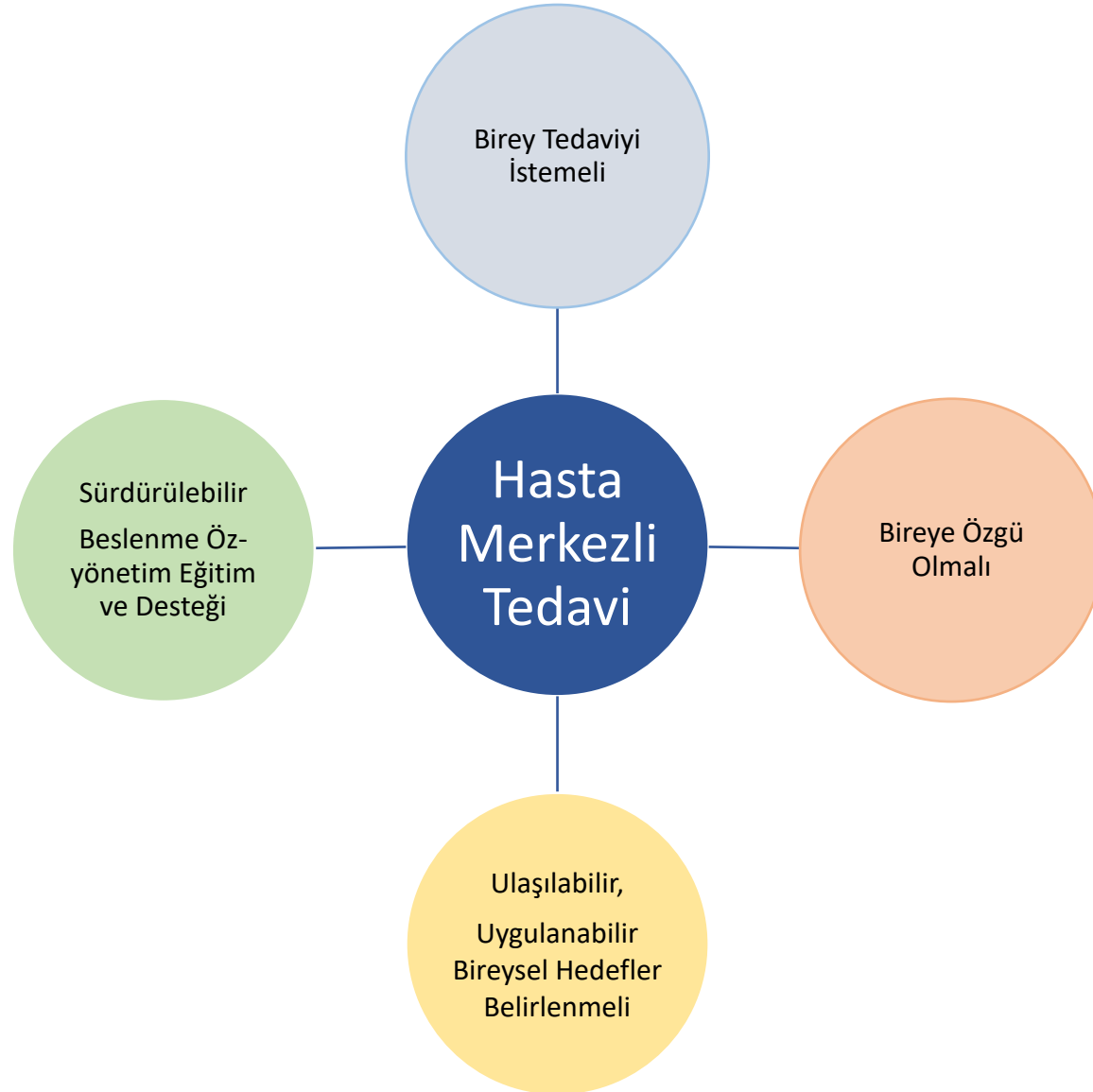
## Hangi Hedeflere Ulaşmak Etkili Oldu?

Finlandiya Diyabeti Önleme Çalışması	Diyabeti Önleme Programı
% 5 ve daha fazla oranda <u>ağırlık kaybı</u> sağlamak	% $\geq 7$ oranında <u>ağırlık kaybı</u> sağlamak
Enerjinin %30' undan az miktarda yağ tüketmek	
Enerjinin %10'undan az miktarda doymuş yağ tüketmek	
Posa tüketimini $\geq 15$ g/1000 kkal olarak sağlamak	
Fiziksel aktivite düzeyinin >4 st./hafta olması	Fiziksel aktivite düzeyinin >150 dak./hafta olması

## Beslenme Tedavisi

- Yaşam tarzını, genel besin alımını metabolik durumu değerlendiren
- Diyabetli bireyin yapmaya müktedir ve istekli olduğu yaşam tarzı değişikliklerini saptayan
- Ulaşılabilir, gerçekçi hedefleri sağlamayı ve korumayı hedefleyen
- Hedeflere ulaşması için bireyi eğitim ile destekleyen
- Besin seçimi ve tüketim davranışını değiştiren
- Kendi kendine kan şekeri takibi ve glisemik dalgalanmalar üzerinde besin alımı ve egzersizin oluşturduğu etkinin diyabetli birey tarafından da değerlendirmesine olanak sağlayan bir tedavi modelidir.

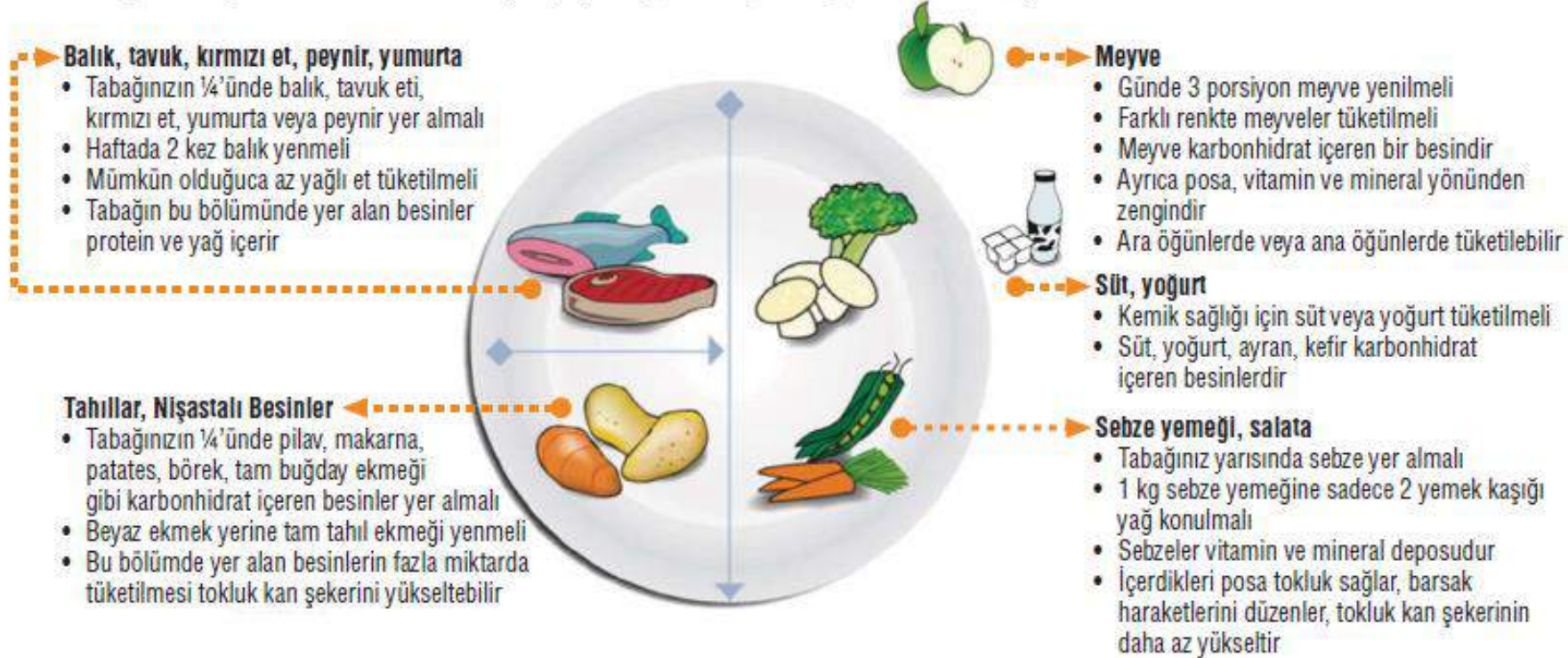
# Beslenme Tedavisinde Hedeflere Ulaşmak için....





## Diyabet Diyetisyenliği Derneği

Tabağınızda yer alacak besinler için yapacağınız doğru seçimler ile kan şekerinizi kontrol altına alabilirsiniz.



**Kahvaltı, öğle yemeği ve akşam yemeğinde tabağınızda yer vermeniz gereken besinler**

