VIII. İSTANBUL
DAHİLİYE KLİNİKLERİ
BULUŞMASI

2-4 Kasım 2018
Marriott Hotel Asia, İstanbul

PROBİYOTİKLERİN RASYONEL KULLANIMI

Uzm. Dyt. Kübra Yıldız

İstanbul Medeniyet Üniversitesi
Beslenme ve Diyetetik Bölümü
Araştırma Görevlisi

PROBİYOTİK ÜRÜN KULLANIM SIKLIĞI

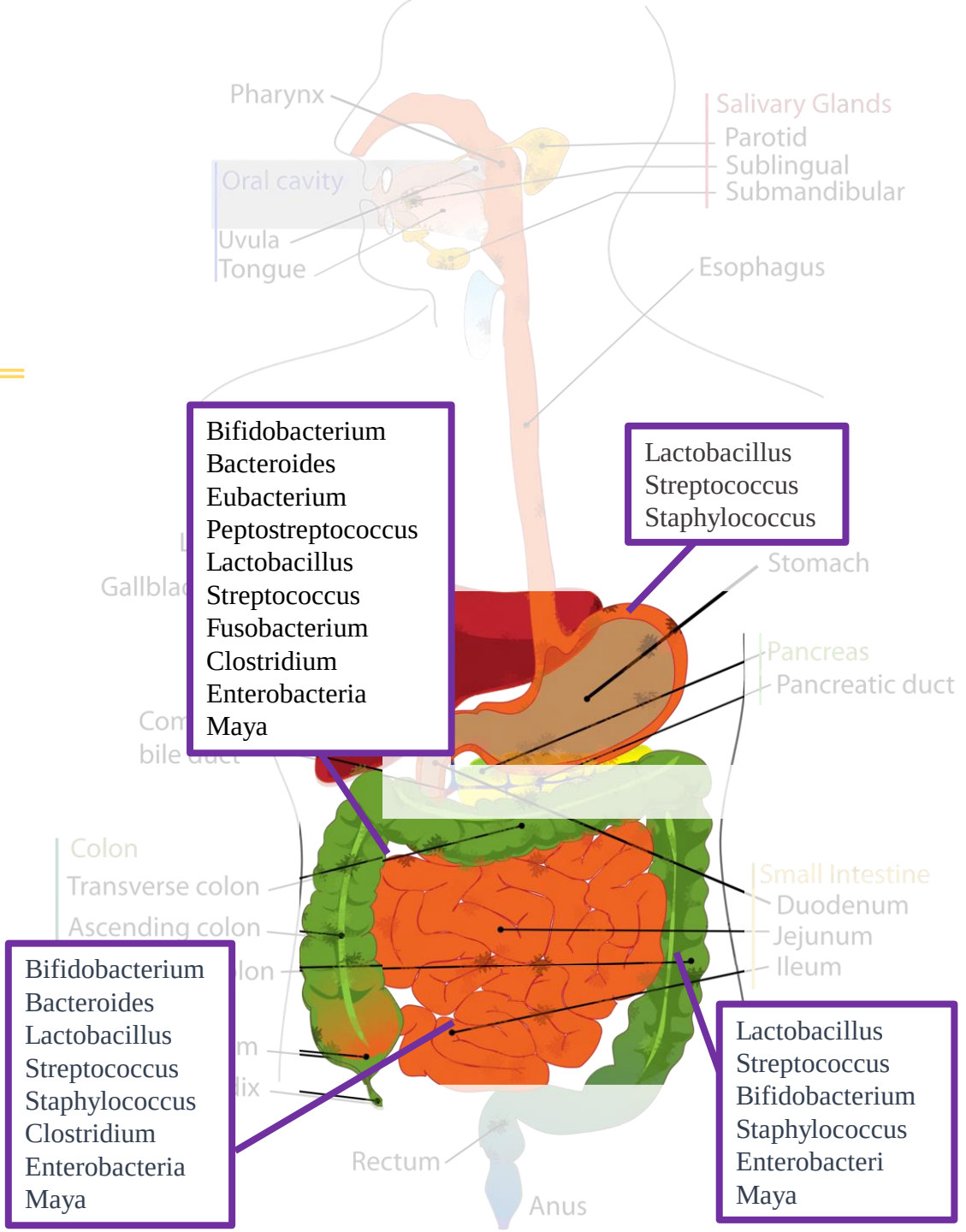
Lactobacillus, Bifidobacterium, Saccharomyces türleri

Kligler B, Cohrssen A. Probiotics. *Am Fam Physician*. 2008;78(9):1073–1078.

The scoop on probiotics. *Consum Rep Health*. 2015;27(8):9.

Probiyotik bir organizma:

- ✓ İnsan orijinli olmalı
- ✓ Patojen özellik içermemeli
- ✓ Gastrik asit ve safra tuzuna direnç göstermeli
- ✓ Bağırsak epitel dokularına tutunmalı
- ✓ Gastrointestinal sistemde kısa süreli de olsa sürekliliğini devam ettirebilmeli
- ✓ Antimikrobiyal bileşikler üretebilmeli
- ✓ İmmun cevabı stimule edebilmeli
- ✓ Teknolojik süreçlere dirençli olmalı



İNSAN ORİJİNLİ OLMA

Niçin önemli?

Konakçı ve mikroorganizma arasındaki spesifik interaksiyonları etkiler.

Lactobasillus, Bifidobacterium, Enterobacterium

Saccharomyces boulardi

- ✓ **İnsan orijinli olmalı**
- ✓ Patojen özellik içermemeli
- ✓ Gastrik asit ve safra tuzuna direnç göstermeli
- ✓ Bağırsak epitel dokularına tutunmalı
- ✓ Gastrointestinal sistemde kısa süreli de olsa sürekliliğini devam ettirebilmeli
- ✓ Antimikrobiyal bileşikler üretebilmeli
- ✓ İmmun cevabı stimule edebilmeli
- ✓ Teknolojik süreçlere dirençli olmalı

Dunne, C. 2001. Adaptation of bacteria to the intestinal niche: probiotics and gut disorder. Inflamm. Bowel Dis. (7), 136-145.

GASTRİK ASİT VE SAFRA TUZUNA DİRENÇ GÖSTERME

Bakteriyi ısı, nem, sıcaklık ve basınç gibi fiziksel faktörlere karşı korur, stabiliteyi artırır ve raf ömrünü uzatır.

Probiyotikleri sindirimden korur (tükürük ve mide asidinden etkilenmemesini sağlar, yok olmasını engeller), pH bağımlı salınım sistemin avantajı ile probiyotiklerin bağırsaklara canlı olarak ulaşıp kolonize olmalarını sağlar.

- ✓ İnsan orijinli olmalı
- ✓ Patojen özellik içermemeli
- ✓ **Gastrik asit ve safra tuzuna direnç göstermeli**
- ✓ **Bağırsak epitel dokularına tutunmalı**
- ✓ **Gastrointestinal sistemde kısa süreli de olsa sürekliliğini devam ettirebilmeli**
- ✓ **Antimikrobiyal bileşikler üretebilmeli**
- ✓ **İmmun cevabı stimule edebilmeli**

HASTALIKLARA KARŞI TEDAVİ EDİCİ/ KORUYUCU OLMA

HANGİ DURUMDA PROBİYOTİK?

Akut Enfeksiyöz Ishal

Allen SJ, et al. Probiotics for treating acute infectious diarrhoea. *Cochrane Database Syst Rev*. 2010;(11):CD003048.
McFarland LV. Meta-analysis of probiotics for the prevention of traveler's diarrhea. *Travel Med Infect Dis*. 2007;5(2):97–105.
Feizizadeh S, Salehi-Abargouei A, Akbari V. Efficacy and safety of *Saccharomyces boulardii* for acute diarrhea. *Pediatrics*. 2014;134(1):e176–e191.
Urbańska M, Gieruszczak-Białek D, Szajewska H. Systematic review with meta-analysis: *Lactobacillus reuteri* DSM 17938 for diarrhoeal diseases in children. *Aliment Pharmacol Ther*. 2016;43(10):1025–1034.
Basu S, Chatterjee M, Ganguly S, Chandra PK. Efficacy of *Lactobacillus rhamnosus* GG in acute watery diarrhoea of Indian children: a randomised controlled trial. *J Paediatr Child Health*. 2007;43(12):837–842.
Szajewska H, et al. Meta-analysis: *Lactobacillus* GG for treating acute gastroenteritis in children—updated analysis of randomised controlled trials. *Aliment Pharmacol Ther*. 2013;38(5):467–476.

Antibiyotik Nedenli Diyare

Shan LS, Hou P, Wang ZJ, et al. Prevention and treatment of diarrhoea with *Saccharomyces boulardii* in children with acute lower respiratory tract infections. *Benef Microbes*. 2013;4(4):329–334.
Hempel S, Newberry SJ, Maher AR, et al. Probiotics for the prevention and treatment of antibiotic-associated diarrhea: a systematic review and meta-analysis. *JAMA*. 2012;307(18):1959–1969.
Pattani R, et al. Probiotics for the prevention of antibiotic-associated diarrhea and *Clostridium difficile* infection among hospitalized patients: systematic review and meta-analysis. *Open Med*. 2013;7(2):e56–e67.
Patro-Golab B, et al. Yogurt for treating antibiotic-associated diarrhea: systematic review and meta-analysis [published correction appears in *Nutrition*. 2015;31(7–8):1060]. *Nutrition*. 2015;31(6):796–800.
Goldenberg JZ, Ma SS, Saxton JD, et al. Probiotics for the prevention of *Clostridium difficile*-associated diarrhea in adults and children. *Cochrane Database Syst Rev*. 2013;5(5):CD006095.
Goldenberg JZ, et al. Probiotics for the prevention of pediatric antibiotic-associated diarrhea. *Cochrane Database Syst Rev*. 2015;(12):CD004827.

H. pylori Enfeksiyonu

Zheng X, Lyu L, Mei Z. *Lactobacillus*-containing probiotic supplementation increases *Helicobacter pylori* eradication rate: evidence from a meta-analysis. *Rev Esp Enferm Dig*. 2013;105(8):445–453.
Lu C, Sang J, He H, et al. Probiotic supplementation does not improve eradication rate of *Helicobacter pylori* infection compared to placebo based on standard therapy: a meta-analysis. *Sci Rep*. 2016;6:23522.

Hepatik Ensefalopati, NAFLD

Xu J, et al. Effects of probiotic therapy on hepatic encephalopathy in patients with liver cirrhosis: an updated meta-analysis of six randomized controlled trials. *Hepatobiliary Pancreat Dis Int*. 2014;13(4):354–360.
Dalal R, et al. Probiotics for people with hepatic encephalopathy. *Cochrane Database Syst Rev*. 2017;(2):CD008716.
Buss C, Valle-Tovo C, Miozzo S, Alves de Mattos A. Probiotics and synbiotics may improve liver aminotransferases levels in non-alcoholic fatty liver disease patients. *Ann Hepatol*. 2014;13(5): 482–488.

Ülseratif Kolit

Shen J, Zuo ZX, Mao AP. Effect of probiotics on inducing remission and maintaining therapy in ulcerative colitis, Crohn's disease, and pouchitis: meta-analysis of randomized controlled trials [published correction appears in *Inflamm Bowel Dis*. 2014;20(12):2526–2528]. *Inflamm Bowel Dis*. 2014;20(1):21–35.
Naidoo K, et al. Probiotics for maintenance of remission in ulcerative colitis. *Cochrane Database Syst Rev*. 2011;(12):CD007433.

İBS, Fonksiyonel Karın Ağrısı

Ford AC, Moayyedi P, Lacy BE, et al.; Task Force on the Management of Functional Bowel Disorders. American College of Gastroenterology monograph on the management of irritable bowel syndrome and chronic idiopathic constipation. *Am J Gastroenterol*. 2014;109(suppl 1):S2–S26.
Zhang Y, Li L, Guo C, et al. Effects of probiotic type, dose and treatment duration on irritable bowel syndrome diagnosed by Rome III criteria: a meta-analysis. *BMC Gastroenterol*. 2016;16(1):62.
Korterink JJ, et al. Probiotics for childhood functional gastrointestinal disorders: a systematic review and meta-analysis. *Acta Paediatr*. 2014;103(4):365–372.

Konsitpasyon

Ford AC, Quigley EM, Lacy BE, et al. Efficacy of prebiotics, probiotics, and synbiotics in irritable bowel syndrome and chronic idiopathic constipation: systematic review and meta-analysis. *Am J Gastroenterol*. 2014;109(10):1547–1561.
Guerra PV, Lima LN, Souza TC, et al. Pediatric functional constipation treatment with *Bifidobacterium*-containing yogurt: a crossover, double-blind, controlled trial. *World J Gastroenterol*. 2011;17(34):3916–3921.

Kolik

Sung V, Collett S, de Gooyer T, Hiscock H, Tang M, Wake M. Probiotics to prevent or treat excessive infant crying: systematic review and meta-analysis. *JAMA Pediatr*. 2013;167(12):1150–1157.Anabrees J, Indrio F, Paes B, AlFaleh K. Probiotics for infantile colic: a systematic review. *BMC Pediatr*. 2013;13:186.

Nekrotizan Enterokolit

AlFaleh K, Anabrees J. Probiotics for prevention of necrotizing enterocolitis in preterm infants. *Cochrane Database Syst Rev*. 2014;(4):CD005496.
Olsen R, Greisen G, Schrøder M, Brok J. Prophylactic probiotics for pre-term infants: a systematic review and meta-analysis of observational studies. *Neonatology*. 2016;109(2):105–112.

HANGİ DURUMDA ~~PROBİYOTİK~~?

Crohn hastalığı

- ***Enfeksiyon sıklığı, sayısı***
- ***Hastande kalış süresi***
- ***Remisyon***
- ***Mortalite***

Shen J, Zuo ZX, Mao AP. Effect of probiotics on inducing remission and maintaining therapy in ulcerative colitis, Crohn's disease, and pouchitis: meta-analysis of randomized controlled trials [published correction appears in *Inflamm Bowel Dis*. 2014;20(12):2526–2528]. *Inflamm Bowel Dis*. 2014;20(1):21–35.

Butterworth AD, et al. Probiotics for induction of remission in Crohn's disease. *Cochrane Database Syst Rev*. 2008;(3):CD006634

Rolfe VE, et al. Probiotics for maintenance of remission in Crohn's disease. *Cochrane Database Syst Rev*. 2006;(4):CD004826.

Doherty G, Bennett G, Patil S, Cheifetz A, Moss AC. Interventions for prevention of post-operative recurrence of Crohn's disease. *Cochrane Database Syst Rev*. 2009;(4):CD006873.

PROBİYOTİK MEVZUATI

Probiyotik

- Gıda formu → U.S. Food and Drug Administration's Center for Food Safety and Applied Nutrition

U.S. Food and Drug Administration. Dietary supplement products & ingredients. 2016. http://www.fda.gov/food/dietarysupplements/productsingredients/default.htm. Accessed June 19, 2016.

- Gıda, Tarım ve Hayvancılık Bakanlığı

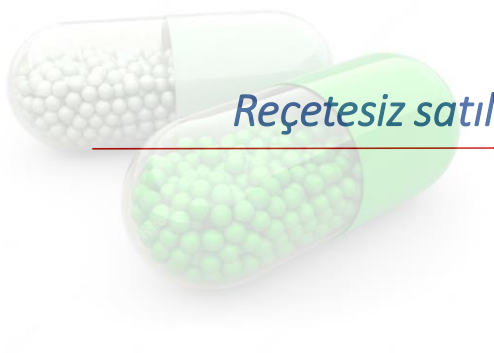
21 Aralık 2011, Resmi Gazete

- Supplement formu → U.S. Food and Drug Administration using Current Good Manufacturing Practices and Investigational New Drug

U.S. Food and Drug Administration. Development & approval process (drugs). 2016. http://www.fda.gov/Drugs/DevelopmentApprovalProcess/default.htm. Accessed June 19, 2016.
U.S. Department of Health and Human Services; U.S. Food and Drug Administration; Center for Drug Evaluation and Research; Center for Biologics Evaluation and Research; Office of Regulatory Affairs. Guidance for industry: CGMP for phase 1 investigational drugs. July 2008. http://www.fda.gov/downloads/Drugs/GuidanceComplianceRegulatoryInformation/Guidances/UCM070273.htm. Accessed June 19, 2016.

- Gıda, Tarım ve Hayvancılık Bakanlığı

7 Temmuz 2006, Resmi Gazete



Reçetesiz satılan probiyotiklerde bağımsız laboratuvarlar sonuçları ile standardizasyon eksikliği!

Labdoor. Probiotics rankings. 2016. https://labdoor.com/rankings/probiotics. Accessed June 29, 2016.ConsumerLab.com. Probiotics for adults, children and pets [login required]. 2014. https://www.consumerlab.com/results/print.asp?reviewid=probiotics. Accessed June 29, 2016.

PROBİYOTİĞİN DOĞRU KULLANIMI

- Uygun doz
- Uygun hastalık
- Uygun tür
- Uygun maliyet

❋ 5.10^9 cof/gün organizma tüketiminin düşük doz tüketime göre daha faydalı.

Goldenberg JZ, et al. Probiotics for the prevention of pediatric antibiotic-associated diarrhea. *Cochrane Database Syst Rev*. 2015;(12):CD004827.

Thomas LV, Suzuki K, Zhao J. Probiotics: a proactive approach to health. A symposium report. Br J Nutr. 2015;114(suppl 1):S1–S15.

PROBİYOTİĞİN DOĞRU KULLANIMI

Uygun doz | Uygun hastalık | Uygun tür | Uygun maliyet

Wilkins, T., & Sequoia, J. (2017). Probiotics for Gastrointestinal Conditions: A Summary of the Evidence. American family physician, 96(3), 170-178.

Clinical condition	*Studied probiotic species*	*Studied products**	*Third-party tested products*	*Comments*
Antibiotic-associated diarrhea[10]	***Bacillus*** *clausii, coagulans* ***Bifidobacterium*** *animalis* subsp *lactis, bifidum, breve, longum, longum* subsp *infantis* ***Clostridium*** *butyricum* ***Enterococcus*** *faecium* ***Lactobacillus*** *acidophilus, casei, casei* subsp *immunitas, delbrueckii* subsp *bulgaricus, paracasei, plantarum, reuteri, rhamnosus, rhamnosus GG, sporogenes* ***Lactococcus*** *lactis* subsp *diacetylactis* ***Leuconostoc*** *cremoris* ***Saccharomyces*** *boulardii, florentinus* ***Streptococcus*** *thermophilus*	Align Bio-K+ Culturelle DanActive Florastor HOWARU Restore MIYAIRI 588† VSL#3	Garden of Life Raw Probiotics Ultimate Care Now Foods Probiotic-10 Renew Life Ultimate Flora Sedona Labs iFlora Multi-Probiotics	Broad-spectrum combination products are likely to have the most benefit; consider 10 billion CFUs per day of each organism
Clostridium difficile–associated diarrhea[13,14]	***Bifidobacterium*** *animalis* subsp *lactis, breve, longum, longum* subsp *infantis* ***Clostridium*** *butyricum* ***Lactobacillus*** *acidophilus, casei, delbrueckii* subsp *bulgaricus, paracasei, plantarum, rhamnosus GG* ***Saccharomyces*** *boulardii* ***Streptococcus*** *thermophilus*	Align Culturelle DanActive Florastor MIYAIRI 588† VSL#3	Garden of Life Raw Probiotics Ultimate Care Now Foods Probiotic-10 Renew Life Ultimate Flora Sedona Labs iFlora Multi-Probiotics	—
Helicobacter pylori[15,16]	***Bifidobacterium*** *animalis, breve* ***Lactobacillus*** *acidophilus, casei, delbrueckii* subsp *bulgaricus, gasseri, johnsonii, reuteri, rhamnosus, rhamnosus GG* ***Propionibacterium*** *freudenreichii* subsp *shermanii (JS)* ***Streptococcus*** *thermophilus*	Bacid Culturelle Lactinex	Garden of Life Raw Probiotics Ultimate Care Now Foods Probiotic-10 Renew Life Ultimate Flora Sedona Labs iFlora Multi-Probiotics	Adjunct to antibiotics
Hepatic encephalopathy[17,18]	***Bifidobacterium*** *breve, longum, longum* subsp *infantis* ***Escherichia*** *coli (Nissle)* ***Lactobacillus*** *acidophilus, casei, delbrueckii* subsp *bulgaricus, paracasei, plantarum* ***Leuconostoc*** *mesenteroides* ***Pediococcus*** *pentosaceus*	Align Mutaflor VSL#3	Garden of Life Raw Probiotics Ultimate Care Now Foods Probiotic-10 Renew Life Ultimate Flora Sedona Labs iFlora Multi-Probiotics	—
Ulcerative colitis[19,20]	***Bifidobacterium*** *animalis* subsp *lactis, breve, longum, longum* subsp *infantis* ***Escherichia*** *coli (Nissle)* ***Lactobacillus*** *acidophilus, delbrueckii* subsp *bulgaricus, johnsonii, paracasei, plantarum, rhamnosus, rhamnosus GG* ***Streptococcus*** *thermophilus*	Activia Align Bacid Culturelle Mutaflor VSL#3	Garden of Life Raw Probiotics Ultimate Care Now Foods Probiotic-10 Renew Life Ultimate Flora Sedona Labs iFlora Multi-Probiotics	VSL#3 and similar high-dose multispecies products with several *Bifidobacterium* species are preferred
Irritable bowel syndrome[21-23]	***Bifidobacterium*** *animalis* subsp *lactis, bifidum, breve, longum* ***Enterococcus*** *faecalis* ***Escherichia*** *coli (Nissle)* ***Lactobacillus*** *acidophilus, delbrueckii* subsp *bulgaricus, lactis, paracasei, plantarum, rhamnosus, rhamnosus GG* ***Propionibacterium*** *freudenreichii* subsp *shermanii* ***Streptococcus*** *thermophilus*	Activia Align Bacid Culturelle USANA VSL#3 YoPlus	Garden of Life Raw Probiotics Ultimate Care Now Foods Probiotic-10 Renew Life Ultimate Flora Sedona Labs iFlora Multi-Probiotics	—
Colic[24,25]	***Lactobacillus*** *reuteri ATCC 55730/DSM 17938*	—	Jarrow Formulas Baby's Jarro-Dophilus plus FOS Nature's Way Primadophilus Reuteri	—
Necrotizing enterocolitis[26,27]	***Bacillus*** *cereus, subtilis* ***Bifidobacterium*** *adolescentis, animalis* subsp *lactis, bifidum, breve, longum, longum* subsp *infantis* ***Enterococcus*** *faecalis, faecium* ***Lactobacillus*** *acidophilus, casei, delbrueckii* subsp *bulgaricus, plantarum, reuteri, rhamnosus, rhamnosus GG, sporogenes* ***Saccharomyces*** *boulardii* ***Streptococcus*** *thermophilus*	Bacid Culturelle Florajen Florastor	Florastor Kids Nature's Answer Probiotics for Kids	Products containing a variety of *Bifidobacterium* species are most beneficial Dose approximately 3 billion CFUs per day of each organism for the first seven days of life; adult powdered products may be given at one-fourth dose in breast milk or formula[12]

CFU = colony-forming unit.

**—List is not comprehensive.*

†*—Not available by this name in the United States.*

Information from references 8 through 10, and 12 through 27.

UYGUN HASTALIĞA UYGUN PROBİYOTİK

Wilkins, T., & Sequoia, J. (2017). Probiotics for Gastrointestinal Conditions: A Summary of the Evidence. American family physician, 96(3), 170-178.

Table 2. Probiotic Species Shown to Be Effective for Gastrointestinal Conditions

	Acute infectious diarrhea	*Acute pancreatitis*	*Antibiotic-associated diarrhea*	*C. difficile–associated diarrhea*	*C. difficile infection*	*Chemotherapy-associated diarrhea*	*Colic*	*Crohn disease*	*Functional abdominal pain*	*Functional constipation*	Helicobacter pylori *infection*	*Hepatic encephalopathy*	*Irritable bowel syndrome*	*NAFLD/NASH*	*Necrotizing enterocolitis*	*Radiation-associated diarrhea*	*Traveler's diarrhea*	*Ulcerative colitis*
Bacillus cereus															•			
Bacillus coagulans			•															
Bacillus subtilis															•	•		
Bifidobacterium adolescentis															•			
Bifidobacterium animalis subsp *lactis*		•	•	•	•			•	•	•	•		•	•	•			•
Bifidobacterium bifidum		•	•		•			•					•		•			
Bifidobacterium breve			•	•	•	•		•	•		•	•	•	•	•	•	•	•
Bifidobacterium longum		•	•	•	•			•	•	•		•	•	•	•	•		•
Bifidobacterium longum subsp *infantis*		•	•	•	•			•	•			•			•	•		•
Clostridium butyricum (MIYAIRI 588)			•	•	•													
Enterococcus faecalis		•											•		•			
Enterococcus faecium (SF68)			•		•										•			
Escherichia coli (Nissle)								•				•	•					•
Lactobacillus acidophilus		•	•	•	•			•	•		•	•	•	•	•	•	•	•
Lactobacillus casei		•	•	•	•				•	•	•	•		•	•	•		
Lactobacillus casei subsp *immunitas*			•															
Lactobacillus delbrueckii subsp *bulgaricus*		•	•	•	•			•	•	•	•	•	•		•	•	•	
Lactobacillus fermentum																	•	
Lactobacillus gasseri											•							
Lactobacillus johnsonii								•			•							•
Lactobacillus paracasei		•	•	•	•			•	•			•	•			•		•
Lactobacillus plantarum		•	•	•	•			•	•			•	•	•	•	•		•
Lactobacillus reuteri			•		•		•		•		•				•			
Lactobacillus rhamnosus			•		•						•		•	•	•	•		•
Lactobacillus rhamnosus GG	•		•	•	•	•		•	•		•		•	•	•		•	•
Lactobacillus sporogenes		•	•												•			
Lactococcus cremoris																•		
Lactococcus lactis													•					
Lactococcus lactis subsp *diacetylactis*		•	•													•		
Leuconostoc cremoris			•													•		
Leuconostoc mesenteroides		•										•						
Pediococcus pentosaceus		•										•						
Propionibacterium freudenreichii subsp *shermanii*											•		•					
Saccharomyces boulardii	•		•	•	•			•							•		•	
Saccharomyces florentinus			•															
Streptococcus salivarius		•																
Streptococcus thermophilus		•	•	•	•			•	•	•	•	•	•	•		•	•	•
VSL#3			•	•	•			•	•			•		•		•		•

C. difficile = Clostridium difficile; *NAFLD = nonalcoholic fatty liver disease; NASH = nonalcoholic steatohepatitis.*

UYGUN MALİYET

	Mikroorganizma içeriği /servis	Maliyet
Probiyotik yoğurt	10^{11}/100gr	2 TL
Kefir	7-10 x 10^{9} /100 gr	1,4 TL
Yeni nesil bir probiyotik suş	2,5 x 10^{9}	2,5 TL

Thomas LV, Suzuki K, Zhao J. Probiotics: a proactive approach to health. A symposium report. Br J Nutr. 2015;114(suppl 1):S1–S15.

Table 3. Select Probiotic Products*

Product	Contents	Dose	Package size/count	Average retail price†
Activia yogurt	***Bifidobacterium*** *animalis* subsp *lactis DN-173 010*	100 million CFUs per g	4 oz, 12 count	$6
Align	***Bifidobacterium*** *longum* subsp *infantis 35624*	1 billion CFUs per capsule	56	$50
Bacid	***Lactobacillus*** *acidophilus*	1 billion CFUs per capsule	50	$20
Bio-K Plus	***Lactobacillus*** *acidophilus CL1285, casei LBC80R*	12.5 billion CFUs per capsule 50 billion CFUs per 3.5-oz bottled beverage	15 12	$17 $27
Culturelle	***Lactobacillus*** *rhamnosus GG*	10 billion CFUs + 200 mg inulin per capsule	50	$40
DanActive	***Lactobacillus*** *casei* subsp *immunitas, delbrueckii* subsp *bulgaricus* ***Streptococcus*** *thermophilus*	1 billion CFUs per 3.1-oz bottle	8	$5
Florastor	***Saccharomyces*** *boulardii*	1 billion CFUs per capsule	50	$50
Garden of Life Raw Probiotics Ultimate Care	***Bifidobacterium*** *lactis, longum* ***Brettanomyces*** *anomalus* ***Debaryomyces*** *hansenii* ***Kluyveromyces*** *marxianus* ***Lactobacillus*** *acidophilus, brevis, bulgaricus, casei, fermentum, helveticus, kefir, kefiranofaciens, kefirgranum, parakefir, plantarum, rhamnosus* ***Lactococcus*** *cremoris, lactis, lactis biovar diacetylactis* ***Leuconostoc*** *cremoris, dextranicum, lactis, mesenteroides* ***Saccharomyces*** *cerevisiae, exiguus, turicensis, unisporus* ***Streptococcus*** *thermophilus* ***Torulaspora*** *delbrueckii*	100 billion CFUs per capsule	30	$35
iFlora Multi-Probiotic	***Bifidobacterium*** *bifidum, breve, lactis (infantis), lactis HN019, longum* ***Lactobacillus*** *acidophilus, brevis, bulgaricus, casei, gasseri, lactis, paracasei, plantarum, rhamnosus, salivarius* ***Streptococcus*** *thermophilus* NutraFlora scFOS (fructooligosaccharide)	32 billion CFUs per 2-capsule serving	60	$25
Jamieson Probiotic Sticks	***Bifidobacterium*** *longum* ***Lactobacillus*** *helveticus*	3 billion CFUs per powder stick	30	$25
Kefir	***Bifidobacterium*** *brevis, lactis, longum* ***Lactobacillus*** *acidophilus, casei, plantarum, reuteri, rhamnosus* ***Leuconostoc*** *cremoris, lactis* subsp *diacetylactis* ***Saccharomyces*** *florentinus*	7 to 10 billion CFUs per 8 oz	12	$40
Lactinex	***Lactobacillus*** *acidophilus (gasseri), helveticus (bulgaricus)*	1 million CFUs per tablet 100 million CFUs per packet	50 12	$20 $20
Probiotic-10	***Bifidobacterium*** *bifidum, breve, longum* ***Lactobacillus*** *acidophilus, casei, paracasei, plantarum, rhamnosus, salivarius* ***Streptococcus*** *thermophilus*	25 billion CFUs per capsule	50	$15
Ultimate Flora	***Bifidobacterium*** *breve, lactis, longum* ***Lactobacillus*** *acidophilus, bulgaricus, casei, paracasei, plantarum, rhamnosus, salivarius*	30 billion CFUs per capsule	30	$25
USANA Probiotic	***Bifidobacterium*** *BB-12* ***Lactobacillus*** *rhamnosus LGG*	12 billion CFUs per 1-g packet	14	$30
VSL#3	***Bifidobacterium*** *breve, infantis, longum* ***Lactobacillus*** *acidophilus, delbruekii* subsp *bulgaricus, paracasei, plantarum* ***Streptococcus*** *thermophilus*	450 billion CFUs per packet 225 billion CFUs per 2-capsule serving	30 60	$90 $50

CFU = colony-forming unit.
**—Limited to species and dosage studied.*
†—Pricing from various online retailers, excluding shipping.

PROBİYOTİĞİN DOĞRU KULLANIMI

- Uygun doz
- Uygun hastalık
- Uygun tür
- Uygun maliyet

TEŞEKKÜRLER!

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