

Sağlık Bilimleri İçin Biyokimya

Editör
Gülüzar ÖZBOLAT

© Copyright 2020

Bu kitabın, basım, yayın ve satış hakları Akademisyen Kitabevi A.Ş.'ne aittir. Anılan kuruluşun izni alınmadan kitabın tümü ya da bölümleri mekanik, elektronik, fotokopi, manyetik kağıt ve/veya başka yöntemlerle çoğaltılamaz, basılamaz, dağıtılmaz. Tablo, şekil ve grafikler izin alınmadan, ticari amaçlı kullanılamaz. Bu kitap T.C. Kültür Bakanlığı bandrolü ile satılmaktadır.

ISBN Sayfa ve Kapak Tasarımı

978-625-779-530-2 Akademisyen Dizgi Ünitesi

Kitap Adı Yayıncı Sertifika No

Sağlık Bilimleri İçin Biyokimya 47518

Editör Baskı ve Cilt

Gülizar ÖZBOLAT Göktuğ Ofset

Yayın Koordinatörü Bisac Code

Yasin Dilmen MED008000

DOI

10.37609/akya.258

UYARI

Bu ürünlerde yer alan bilgiler sadece lisanslı tıbbi çalışanlar için kaynak olarak sunulmuştur. Herhangi bir konuda profesyonel tıbbi danışmanlık veya tıbbi tamlı amaciyla kullanılmamalıdır. *Akademisyen Kitabevi* ve alıcı arasında herhangi bir şekilde doktor-hasta, terapist-hasta ve/veya başka bir sağlık sunum hizmeti ilişkisi oluşturmaz. Bu ürün profesyonel tıbbi kararların eşleniği veya yedeği değildir. *Akademisyen Kitabevi* ve bağlı şirketleri, yazarları, katılımcıları, partnerleri ve sponsorları ürün bilgilerine dayalı olarak yapılan bütün uygulamalardan doğan, insanlarda ve cihazlarda yarananma ve/veya hasarlardan sorumlu değildir.

İlaçların veya başka kimyasalların reçete edildiği durumlarda, tavsiye edilen dozunu, ilacı uygulanacak süresi, yöntemi ve kontraendikasyonlarını belirlemek için, okuyucuya üretici tarafından her ilaca dair sunulan güncel ürün bilgisini kontrol etmesi tavsiye edilmektedir. Dozun ve hasta için en uygun tedavinin belirlenmesi, tedavi eden hekimin hastaya dair bilgi ve tecrübelere dayanak oluşturması, hekimin kendi sorumluluğundadır.

Akademisyen Kitabevi, üçüncü bir taraf tarafından yapılan ürünü dair değişiklikler, tekrar paketlemeler ve özelleştirmelerden sorumlu değildir.

GENEL DAĞITIM

Akademisyen Kitabevi A.Ş.

Halk Sokak 5 / A

Yenişehir / Ankara

Tel: 0312 431 16 33

siparis@akademisyen.com

www.akademisyen.com

İÇİNDEKİLER

1. BÖLÜM	Asitler, Bazlar ve Tamponlar	1
	<i>Rıza BAYRAK</i>	
2. BÖLÜM	Metabolizmaya Genel Bakış Anabolizma ve Katabolizma	13
	<i>Ayşe ARSLAN</i>	
3. BÖLÜM	Amino Asitler	23
	<i>Ayşe OGAN</i>	
	<i>Özkan DANIŞ</i>	
4. BÖLÜM	Proteinler	41
	<i>Eda GANIYUSUFOĞLU</i>	
5. BÖLÜM	Protein Katabolizması	59
	<i>Ayşe OGAN</i>	
	<i>Özkan DANIŞ</i>	
6. BÖLÜM	Plazma Proteinleri.....	65
	<i>Gülizar ÖZBOLAT</i>	
7. BÖLÜM	Oksijen Bağlayıcı Proteinler Hemoglobin ve Miyoglobin	75
	<i>Gülizar ÖZBOLAT</i>	
8. BÖLÜM	Enzimler	89
	<i>Figen GÜZELGÜL</i>	
9. BÖLÜM	Karbohidrat Metabolizması.....	109
	<i>Yusuf DÖĞÜŞ</i>	
10. BÖLÜM	Glikoliz.....	121
	<i>Yusuf DÖĞÜŞ</i>	
11. BÖLÜM	Glukoneogenez	131
	<i>Yusuf DÖĞÜŞ</i>	
12. BÖLÜM	Pentoz Fosfat Yolu	145
	<i>Yusuf DÖĞÜŞ</i>	
13. BÖLÜM	Glikojen Metabolizması.....	151
	<i>Yusuf DÖĞÜŞ</i>	

14. BÖLÜM	Oksidatif Fosforilasyon	161
	<i>Yusuf DÖĞÜŞ</i>	
15. BÖLÜM	Lipid Metabolizması	173
	<i>Enver ÇIRACI</i>	
16. BÖLÜM	Yağ Asitlerinin Yıkımı, Sentezi ve Keton Cisimleri	191
	<i>Gülizar ÖZBOLAT</i>	
17. BÖLÜM	Nükleik Asitler	201
	<i>Muhammet Sait TOPRAK</i>	
	<i>S. Büşra AKSOYER SEZGİN</i>	
18. BÖLÜM	Purin ve Pirimidin Nükleotid Metabolizması	213
	<i>Gönül Şeyda SEYDEL</i>	
	<i>İnayet GÜNTÜRK</i>	
19. BÖLÜM	Mineraller	229
	<i>Gönül Şeyda SEYDEL</i>	
20. BÖLÜM	Suda Çözünen Vitaminler	253
	<i>Hüseyin Fatih GÜL</i>	
21. BÖLÜM	Yağda Çözünen Vitaminler	277
	<i>Hüseyin Fatih GÜL</i>	
	<i>Yusuf Öztürk</i>	
22. BÖLÜM	Hormonların Genel ve Temel Etkileri	291
	<i>Rabia TURAL</i>	
23. BÖLÜM	Klinik Biyokimya, Vücut Sıvılarının Biyokimyası, Temel Hematolojik Testler	323
	<i>Hasan Basri SAVAŞ</i>	

KAYNAKLAR

- Abumrad NA, Davidson NO. Role of the gut in lipid homeostasis. *Physiol Rev.* 2012;92(3):1061-85.
- Adachi S, Nagano S, Ishimori K, Watanabe Y, Morishima I, Egawa T, Kitagawa T, Makino R. Roles of proximal ligand in heme proteins: replacement of proximal histidine of human myoglobin with cysteine and tyrosine by site-directed mutagenesis as models for P-450, chloroperoxidase, and catalase. *Biochemistry.* 1993; 32:241-252
- Adugna S, Alemu LAM, Kelemu T, et al. (2004) Students Medical Biochemistry. https://www.dphu.org/uploads/attachements/books/books_5494_0.pdf. (01.05.2020 tarihinde ulaşılmıştır.)
- Ahima RS, Saper CB, Flier JS et al. Leptin regulation of neuroendocrine systems. *Front Neuroendocrinol* 2000;21:263-307.
- Ainsworth S. (1977) Enzymes as Biological Catalysts. In: *Steady-State Enzyme Kinetics*. (1-25). Palgrave, London
- Albahrani, A. A., & Greaves, R. F. Fat-soluble vitamins: clinical indications and current challenges for chromatographic measurement. *The Clinical Biochemist Reviews.* (2016); 37(1), 27.
- Albayrak C, Albayrak D. Red Cell Glucose 6-Phosphate Dehydrogenase Deficiency in the Northern Region of Turkey: Is G6PD Deficiency Exclusively a Male Disease? *Pediatr Hematol Oncol*, 2015; 32:2, 85-91.
- Allen, M. J. and Sharma, S. (Last Update: March 3, 2019). Physiology, Adrenocorticotrophic Hormone (ACTH). *StatPearls [Internet]*. Treasure Island (FL): StatPearls Publishing.
- Al-Missri, M. Z. and Jialal, I. (Last Update: August 3, 2019). Physiology, Motilin. *StatPearls [Internet]*. Treasure Island (FL): StatPearls Publishing.
- Alpay F, Sarılık, Yurdakök M, Erdem G (editörler). Türk Neonatoloji Derneği Neonatoloji Dergisi, Birinci baskı, Ankara, Nobel Tıp Kitapevi, 2004;559-578.
- Arceci RJ, Hann IM, Smith OP. (2006). *Pediatric Hematology*. Wiley-Blackwell Illustrated. 3rd Edition.
- Arınsoy T, Güngör Ö, Koçyiğit İ. (2017). Böbrek Fizyopatolojisi. Reaktif yayınevi. Association for Clinical Biochemistry and Laboratory Medicine. Analyte monographs alongside the National Laboratory Medicine catalogue (AMALC): albumin.
- Atilla G, Çürük M A, Arpacı A, Özgünen F T, Kılınç Y, Aksoy K and Yüreğir G T. Prenatal diagnosis of hemoglobinopathies in Southern Turkey. *Ann Med Sci*, 1999;8: 93-97.
- Avery RA, Alpert E, Weigand K, Dugaiczyk A (1983) Structural integrity of the human albumin gene in congenital analbuminemia. (submitted)
- Aydin S, Aydin S. Irisin concentrations as a myocardial biomarker. In: Patel VB, Preedy VR, editors. *Biomarkers in Cardiovascular Disease*. Dordrecht: Springer; 2016;489–504
- Aygencel G. Potasyum metabolizması bozuklukları. *Yoğun Bakım Dergisi*. 2018;12(1):31-42.
- Ayling, R. M. (2014). Nutritional disorders and their management. William J. Marshall, Marta-Lapsley, Andrew P. Day and Ruth M. Ayling (Editors). *Clinical Biochemistry: Metabolic and Clinical Aspects* (Third Edition) (Pages 200-213). Churchill Livingstone.
- Azhar, A., Booker, G. W., & Polyak, S. W. Mechanisms of Biotin Transport. *Biochemistry & Analytical Biochemistry*. (2015); 4(4), 1-8.
- Azzi, A. Many tocopherols, one vitamin E. *Molecular aspects of medicine*. (2018); 61, 92-103.
- Bahadır A, Köseler A, Atalay A, Koyuncu H, Akar E, Akar N, Atalay EÖ. (2009). HbD Los Angeles [beta121(GH4)Glu>Gln] and HbBeograd [beta121(GH4)Glu>Val]: implications for their laboratory diagnosis and genetic origins, *Turk J Hematol.*, 26(1):17-20.

- Bankir, L., Bichet, D. G. & Morgenthaler, N. G. Vasopressin: physiology, assessment and osmosensation. *The Association for the Publication of the Journal of Internal Medicine*. (2017). doi: 10.1111/joim.12645.
- Bartter FC, Steinfield JL, Waldmann T, Delea CS (1961) Metabolism of infused serum albumin in the hypoproteinemia of gastrointestinal protein loss and in analbuminemia. *Tr Ass Am Phys* 74:180–194.
- Baumann R. and S. Dragon. Erythropoiesis and red cell function in vertebrate embryos. *Eur. J. Clin. Invest.*, 2005; 35: 2-12.
- Baysal A. (2011). Beslenme. Ankara: Hatiboğlu Yayınevi.
- Bazan, N. G. (1999). Eicosanoids. Siegel G.J., Agranoff B.W., Albers R.W., et al. (Editors). *Basic Neurochemistry: Molecular, Cellular and Medical Aspects* (6th edition). Philadelphia: Lippincott-Raven.
- Bender DA. (2004). Introduction to Nutrition and Metabolism. Third Edition. Taylor & Francis e-Library, ISBN 0-203-36154-7.
- Berend K, Van Hulsteijn LH, Gans RO. Chloride: the queen of electrolytes? *Eur. J. Intern. Med.* 2012;23(3):203-11.
- Berenjian, A., Mahanama, R., Kavanagh, J. Vitamin K series: current status and future prospects. *Critical reviews in biotechnology*. (2015); 35(2), 199-208.
- Berg JM, Tymoczko JL, Stryer L. (2002). Biochemistry. 5th edition, New York: W H Freeman. ISBN-10: 0-7167-3051-0
- Berg, J. M., Tymoczko, J. L., Stryer, L. (2007). Protein Composition and Structure. S. Moran, G. L. Hadler (Eds.), *Biochemistry* (6th ed., pp. 25-65). New York: W. H. Freeman and Company.
- Berga, S. L., Nitsche, J. F. and Braunstein, G. D. (2016). Endocrine Changes in Pregnancy. Shlomo Melmed, Kenneth S. Polonsky, P. Reed Larsen, Henry M. Kronenberg (Editors). *Williams Textbook of Endocrinology* (Thirteenth Edition) (Pages 831-848). Elsevier.
- Bethesda. (2018). Gonadotropins. *LiverTox: Clinical and Research Information on Drug-Induced Liver Injury [Internet]*. Bookshelf Copyright Notice.
- Bhagavan, N.V. (2002). Hemoglobin. *Medical Biochemistry* (Fourth Edition) (Pages 645-674). Academic Press.
- Bhagavan, N.V. and Ha, C.-E. (2015). Gastrointestinal Digestion and Absorption. *Essentials of Medical Biochemistry* (Second Edition) (Pages 137-164) . Academic Press.
- Bhagavan, N.V., Ha, C-E (2015) Essentials of Medical Biochemistry (Second Edition). Academic Press.
- Biga, L. M., Dawson, S., Harwell A., et al. The Pancreas. *Anatomy & Physiology*.
- Bilici M: 10-18 Yaş Arası D Vitamini Eksikliği Olan Obez Adolesanlarda 2000 IU/Gün D Vitamini Tedavisinin İnsülin Direnci ve Kardiyovasküler Risk Parametreleri Üzerine Etkisi. Türkiye Kamu Hastaneleri Kurumu, Dr. Sami Ulus Kadın-Doğum, Çocuk Sağlığı ve Hastalıkları Eğitim Ve Araştırma Hastanesi, Tıpta Uzmanlık Tezi, Ankara, 2016.
- Billing BH, Cole PG, Lathe GH. The excretion of bilirubin as a diglucuronide giving the direct van den Bergh reaction. *Biochem J* 1957; 65: 774–84
- Blaine J, Chonchol M, Levi M. Renal control of calcium, phosphate, and magnesium homeostasis. *Clin J Am Soc Nephrol*. 2015;10(7):1257-1272.
- Bloor JH. (1974) Enzymes. (Bhagavan NV Ed.) *Biochemistry A comprehensive review*. Philadelphia: JB Lippincott Company.
- Bodor GS. Biochemical markers of myocardial damage. *EJIFCC*. 2016;27(2):95–111
- Bohn AA, de Morais HA. A quick reference on chloride. *Vet. Clin. North Am. Small Anim. Pract.* 2017;47(2):219-222.

- Braamkamp MJ, Dolman KM, Tabbers MM. Clinical practice. Protein-losing enteropathy in children. *Eur. J. Pediatr.* 2010 Oct;169(10):1179-85. [
- Brass, B. J., Abelev, Z., Liao E. P., et al. (2010). Endocrine Pancreas. L. Poretsky (ed.). *Principles of Diabetes Mellitus*, DOI 10.1007/978-0-387-09841-8_3. Springer Science+Business Media, LLC.
- Brescoll, J., & Daveluy, S. A Review of Vitamin B12 in Dermatology. *American journal of clinical dermatology.* (2015);16(1), 27-33.
- Brittain, T. Molecular aspects of embryonic hemoglobin function. *Mol. Aspects Med.* 2002; 23: 293-342.
- Brock F, Bettinelli LA, Dobner T, Stobbe JC, Pomatti G, Telles CT. Prevalence of hypoalbuminemia and nutritional issues in hospitalized elders. *Rev Lat Am Enfermagem.* 2016 Aug 08;24:e2736. [PMC free article] [PubMed]
- Brown, M. J., & Beier, K.. Vitamin B6 Deficiency (Pyridoxine). *StatPearls [Internet]* .(2018)Brunner, H. R. (2007). Angiotensin II Receptor Blockers. Gregory Y.H. Lip and John E. Hall (Editors). *Comprehensive Hypertension* (Pages 1003-1017). Mosby.
- Burkitt, Creedon, J. M. (2015). Critical Illness-Related Corticosteroid Insufficiency. Deborah C. Silverstein and Kate Hopper (Editors). *Small Animal Critical Care Medicine* (Second Edition) (Pages 376-379). Elsevier, Saunders.
- Burnouf T. Modern plasma fractionation. *Transfus Med Rev.* 2007 Apr;21(2):101-17.
- Cabrerizo S, Cuadras D, Gomez-Busto F, Artaza-Artabe I, Marín-Ciancas F, Malafarina V. Serum albumin and health in older people: Review and meta analysis. *Maturitas.* 2015 May;81(1):17-27. [PubMed]
- Calder PC, Waitzberg DL, Koletzko B. Intravenous Lipid Emulsions. *World Rev Nutr Diet.* 2015;112:1-16.
- Calvo MS, Lamberg-Allardt CJ. Phosphorus. *Adv Nutr.* 2015;6(6):860-862.
- Campbell, I. Thyroid and parathyroid hormones and calcium homeostasis. *Anaesthesia And Intensive Care Medicine,* (2008); 9:10.
- Campbell, M. and Jialal, I. (Last Update: February 23, 2019). Physiology, Endocrine Hormones. *StatPearls [Internet].* Treasure Island (FL): StatPearls Publishing.
- Campbell, M. K., Farrell, S. O. (2006). The Three Dimensional Structure of Proteins. J. Campell, E. Bitter (Eds.), *BIOCHEMISTRY* (5th ed., pp. 80-113). United States of America: Thomson Brooks/Cole.
- Cao A, Galanello R. Beta-thalassemia. *Genetics in Medicine,* 2010;12(2):61-76.
- Caprio, M., Infante, M., Calanchini, M. Vitamin D: not just the bone. Evidence for beneficial pleiotropic extraskeletal effects. *Eating and Weight Disorders-Studies on Anorexia, Bulimia and Obesity.* (2017); 22(1), 27-41.
- Carl A. Burtis and Edward R. Ashwood. Tietz, *Textbook of Clinical Chemistry* 3rd edition, Philadelphia, Pa, WB Saunders Co, 1999.
- Carrell R.W, Travis J. α -1-Antitrypsin and Serpins: Variation and CounterVariation. *TrendsBiochem. Sci* (1985);10:20-24.
- Carroll, R. G. (2007). Endocrine System. *Elsevier's Integrated Physiology* (Pages 157-176). Elsevier, Mosby.
- Cashman, K. D., Dowling, K. G., Škrabáková, Z. Vitamin D deficiency in Europe: pandemic?. *The American journal of clinical nutrition.*(2016); 103(4), 1033-1044.
- Castellanos-Sinco, H., Ramos-Penafliel, C., Santoyo-Sánchez, A. Megaloblastic anaemia: Folic acid and vitamin B12. *Médica Del Hospital General De México.*(2015);78(3), 135-143.
- Castro D, Sharma S. (2020). Hypokalemia. In:*StatPearls.* Treasure Island (FL): StatPearls Publishing.
- Champe, P. C., Harvey, R. A. (1997). *Lippincott's Illustrated reviews serisinden: Biyokimya.* (A. Tokullugil, M. Dirican, E. Ulukaya, Çev.Ed.). İstanbul: Nobel Tip Kitabevleri.

- Chea, E. P. & Milstein, H. Vitamin A. In StatPearls [Internet]. *StatPearls Publishing*. (2019).
- Chiasera, J. M. Back to the Basics: Thyroid Gland Structure, Function and Pathology. Spring, *Clinical Laboratory Science*. 2013;26(2).
- Choe SS, Huh JY, Hwang IJ, Kim Ji, Kim JB. Adipose Tissue Remodeling: Its Role in Energy Metabolism and Metabolic Disorders". *Frontiers in Endocrinology*. 2016;7:30
- Christakos S., Ajibade D.V., Dhawan P. Vitamin D: metabolism. *Endocrinol Metab Clin North Am.*(2010);39(2):243–53.
- Chung J.Y., Hong S.H. Vitamin D status and its association with cardiometabolic risk factors in Korean adults based on a 2008-2010 Korean National Health and Nutrition Examination Survey. *Nutrition research and practice*. (2013);7(6):495- 502
- Cindemir Ö: Açıklanamayan İnfertilite Olgularında Serum ve Gonadal Sıvı D Vitamini ile Gonadal Sıvı D Vitamini Reseptör Düzeyinin Rolünün Araştırılması. Bursa Uludağ Üniversitesi, Tıp Fakültesi, Tıpta Uzmanlık Tezi, Bursa, 2019.
- Clarke GM, Higgins TN. Laboratory investigation of hemoglobinopathies and thalassemias: Review and update. *Clin Chem*, 2000; 46(8B): 1284-1290.
- Claudio R. Santos Almut Schulze. Lipid metabolism in cancer. *FEBS Journal*. 2012;2610–2623.
- Coleman R.A., Lee D.P. Enzymes of triglyceride synthesis and their regulation. *Progress in Lipid Research* 2004;43(2): 134–76
- Combs G. F. Considering the Individual Vitamins; Vitamin K. In: (Ed.), *The Vitamins*. Elsevier Inc. (2012); 213-232.
- Constantin M. Alexandru I. The role of sodium in the body. *Balneo-Research Journal*.2011;2:2.
- Copeland RA. (2000)Enzymes A Practical Introduction To Structure, Mechanism, And Data Analysis (2nd Edit). Wiley-VCH:New York, USA.
- Costello R, Wallace TC, Rosanoff A. Magnesium. *Adv Nutr*. 2016;7(1):199-201.
- Creasy, D.M. and Chapin, R. E. (2013). Male Reproductive System. Haschek W.M., Rousseaux C. G. and Wallig M. A. (Editors). *Haschek and Rousseaux's Handbook of Toxicologic Pathology* (Third Edition) (Pages 2493-2598). AcademicPress.
- Cuzzo, B. and Lappin, S. L. (Last Update: October 27, 2018). Physiology, Leukotrienes. *StatPearls [Internet]*. Treasure Island (FL): StatPearls Publishing.
- Dağoğlu T, Ovalı F. İndirekt Hiperbilirubinemi. İç: Dağoğlu T, editör. Neonatoloji, İstanbul, Nobel Tip;2007; 58: 403-60.
- Darbret, P. D. (2015). Disrupters of Estrogen Action and Synthesis. Darbre P. D. (Editor). *Endocrine Disruption and Human Health* (Pages 49-73). Academic Press.
- Das, U. N. Essential fatty acids: biochemistry, physiology and pathology. *Biotechnology Journal*. 2006;1(4):420–439
- Dasgupta A , (2014). A comprehensive review for Board Preparation, Certification and Clinical Practice. Cardiac Markers Clinical Chemistry, Dasgupta A, Wahed A(Eds). *Immunology and Laboratory Quality Control*(1st Edit). Elsevier.USA.
- Dash RK, Korman B, Bassingthwaighe JB.Simple accurate mathematical models of blood HbO₂ and HbCO₂ dissociation curves at varied physiological conditions: evaluation and comparison with other models. *Eur J Appl Physiol*. 2016;116(1):97-113.
- Day, R. (2009). Proopiomelanocortin. *Encyclopedia of Neuroscience* (Pages 1139-1141). Academic Press. <https://doi.org/10.1016/B978-008045046-9.01197-9>.
- De Baaij JH, Hoenderop JG, Bindels RJ. Magnesium in man: implications for health and disease. *Physiol Rev*. 2015; 95(1):1-46.
- De Medeiros, P.H.Q., Pinto, D.V., De Almeida, J.Z. Modulation of intestinal immune and barrier functions by vitamin a: implications for current understanding of malnutrition and enteric infections in children. *Nutrients*.(2018);10 (9), 1128.

- Delgado, B. J. and Lopez-Ojeda, W. (Last Update: October 3, 2019). Estrogen. *StatPearls [Internet]*. Treasure Island (FL): StatPearls Publishing.
- Dhar V, Bhatnagar M. Physiology and toxicity of fluoride. *Indian J Dent Res.* 2009;20(3):350-355.
- Dickerson RE, Geis I. Hemoglobin, structure, function, evolution, and pathology. Menlo Park, CA: Benjamin/Cummings Publishing Company; 1983.
- Diepstraten ST, Hart AH. Modelling human haemoglobin switching. *Blood Reviews*, 2019; 33, 11–23.
- DiGregorio, N. and Sharma, S. (Last Update: December 30, 2018). Physiology, Secretin. *StatPearls [Internet]*. Treasure Island (FL): StatPearls Publishing.
- Dijk W, Kersten S. Regulation of lipid metabolism by angiopoietin-like proteins. *Current opinion in lipidology*. 2016 ;27(3):249-56.
- Doğan Ö. Hipokalsemi olan hastalarda serum kalsiyum düzeylerinin ionize ve düzeltilmiş kalsiyum ile ilişkisi. *J DU Health Sci Inst.* 2019; 9(2):67-70.
- Du, W., Wang, H., Wang, Z. Dietary vitamin a intake among Chinese adults: findings from CNT-CS2015. *Nutrition journal.* (2018);17(1), 60.
- Dunbar, R. L., Goel, H., Tuteja, S. Measuring niacin-associated skin toxicity (NASTy) stigmata along with symptoms to aid development of niacin mimetics. *Journal of lipid research.* (2017); 58(4), 783-797.
- Dutt, M. and Jialal, I. (Last Update: January 2, 2019). Physiology, Adrenal Gland. *StatPearls [Internet]*. Treasure Island (FL): StatPearls Publishing.
- Dworken, H. J. (1982). A Survey of Gastrointestinal Hormonology. *Gastroenterology. Pathophysiology and Clinical Applications* (Pages 23-35). Butterworth Heinemann.Edmundson AB. Hirs CHW. Nature, 1961, 190, 663-665.
- Ekemen C: Okul Çağındaki Çocuklarda Demir, Çinko ve A vitamini Eksikliği Prevelansının Değerlendirilmesi. Bülent Ecevit Üniversitesi, Tıp Fakültesi, Tıpta Uzmanlık Tezi, Zonguldak, 2017.
- El Sayed, S. A., Fahmy, M. W. and Schwartz, J. (Last Update: July 7, 2019). Physiology, Pituitary Gland. *StatPearls [Internet]*. Treasure Island (FL): StatPearls Publishing.
- El-Hattab, A. W., & Scaglia, F. Disorders of carnitine biosynthesis and transport. *Molecular genetics and metabolism.* (2015); 116(3), 107-112.
- Eliacik E, Yıldırım T, Sahin U, et al. Potassium abnormalities in current clinical practice:frequency,- causes, severity and management. *Med Princ Pract.* 2015;24(3):271-275.
- Englander, E. W. and GreeleyJr, G. H. (2006). Postpyloric Gastrointestinal Peptides. Leonard R. Johnson (Editor). *Physiology of the Gastrointestinal Tract* (Fourth Edition) (Pages 121-159). Academic Press.
- Enzyme Database. (2019).The Enzyme List.(12.05.2020 tarihinde
- Ertaş Y: Sağlıklı Yetişkinlerde Plazma K Vitamini ve Osteokalsin Düzeylerinin İnsülin Direnci Üzerine Etkisinin İncelenmesi. Gazi Üniversitesi, Sağlık Bilimleri Enstitüsü, Beslenme ve Diyetetik Anabilim Dalı, Yüksek Lisans Tezi, Ankara, 2015.
- Eun HM. (1996) Enzymology Primer for Recombinant DNA Technology. Enzymes and Nucleic Acids. , Elsevier.USA.
- Evalde N, James PO, Onurah O et al. Clinical Diagnosis of Disease States Using Enzymes and Proteins. AJBGMB. 2018;1(3): 1-6.
- Evans RD, Heather LC. Human metabolism:pathways and clinical aspects. Basic Science. 2019;37(6):302-309.
- Fahy E, Subramaniam S, Murphy RC, Raetz CRH, Nishijima M, Shimizu T, Spener F, van Meer G, Wakelam MJ, Dennis EA. Update of the LIPID MAPS comprehensive classification system for lipids. *J Lipid Res.* 2009;50:9–14

- Fairweather-Tait SJ, Cashman K. Minerals and trace elements. *World Rev Nutr Diet.* 2015;111:45-52.
- FAO/WHO. (2002). In: Human vitamin and mineral requirements. Report of a Joint FAO/WHO Expert Consultation. FAO, Rome.
- Farooqi IS, Matarese G, Lord GM, et al. Beneficial effects of leptin on obesity, T cell hyporesponsiveness, and neuroendocrine/metabolic dysfunction of human congenital leptin deficiency. *J. Clin. Invest.* 2002; 110: 1093– 1103.
- Fathallah H, Atweh GF. DNA hypomethylation therapy for hemoglobin disorders: Molecular mechanisms and clinical applications. *Blood Reviews,* 2006; 20: 227-234.
- Feher J. (2017). Quantitative Human Physiology (Second Edition) Oxygen and Carbon Dioxide Transport. Academic Press.
- Ferrier DR.(2014) Enzymes. *Lippincott's Illustrated Reviews: Biochemistry.* (6th edition 53-67). Lippincott Williams & Wilkins:Philadelphia, Pensnsylvania, America.Fevery J. Bilirubin in clinical practice: a review. *Liver Int.* 2008; 28(5):592-605.
- Filiz F. 2011. A vitamini ve E Vitamininin Genotoksik ve Antigenotoksik Etkileri. Gazi Üniversitesi. Yüksek Lisans Tezi. Fen Bilimleri Enstitüsü. Biyoloji Anabilim Dalı. Ankara.
- Fischer, K. and Müller, T. D. (2019). Endocrine Mechanisms in Obesity. *Eating Disorders and Obesity in Children and Adolescents* (Pages 79-85). Elsevier.
- Fong LG, Young SG, Beigneux AP, Bensadoun A, Oberer M, Jiang H, et al. GPIHBP1 and Plasma Triglyceride Metabolism. *Trends in endocrinology and metabolism: TEM.* 2016;27(7):455-69.
- Fountain, J. H. and Lappin, S. L. (Last Update: May 5, 2019). Physiology, Renin Angiotensin System. *StatPearls [Internet].* Treasure Island (FL): StatPearls Publishing.
- Frauenfelder H, McMahon BH, Austin RH, Chu K, Groves, JT. (2001). The role of structure, energy landscape, dynamics, and allostery in the enzymatic function of myoglobin. *Proc. Natl. Acad. Sci. USA* 98, 2370-2374
- Frauenfelder, H., McMahon, B. H., Austin, R. H., Chu, K. and Groves, JT. The role of structure, energy landscape, dynamics, and allostery in the enzymatic function of myoglo-bin. *Proc. Natl. Acad. Sci. USA* 2001; 98, 2370-2374
- Frenette PS, Atweh GF. Sickle cell disease: old discoveries, new concepts, and future promise. *The Journal of clinical investigation,* 2007;117(4), 850-858.
- Fucharoen S, Winichagoon P. (2002) Thalassemia and Abnormal Hemoglobin. *Int. J. Hematol.,* 72(2): 83-89.
- Fuentes, N. and Silveyra, P. (2019). Estrogen receptor signaling mechanisms. *Advances in Protein Chemistry and Structural Biology.* (Pages 135-170). Elsevier.
- Galanello R, Origa R. Beta-thalassemia. *Orphanet Journal of Rare Diseases,* 2010;5(11):1-15.
- Galli, F., Azzi, A., Birringer, M. Vitamin E: Emerging aspects and new directions. *Free Radical Biology and Medicine.* (2017); 102, 16-36.
- Garret, R. H., Grisham, C. M. (2005). Proteins: Their Primary Structure and Biological Functions. Proteins: Secondary, Tertiary and Quaternary Structure. S. Kiselica, P. Williams (Eds.), *Biochemistry* (3rd ed., pp. 103-203). United States of America: Thomson Brooks/Cole.
- Gault CR, Obeid LM, Hannun YA (2010). "An overview of sphingolipid metabolism: from synthesis to breakdown". *Advances in Experimental Medicine and Biology.* 688: 1–23.
- Gazzali, A. M., Lobry, M., Colombeau, L. Stability of folic acid under several parameters. *European Journal of Pharmaceutical Sciences.* (2016);93, 419-430.
- Gelse K, Pöschl E, Aigner T. Collagens-structure, function and biosynthesis. Elsevier. 2003;55:1531-1546. Doi: 10.1016/j.adcr.2003.08.002
- Genç, A., (2005). Hemoglobin Varyantlarının DNA Dizi Analizi ile Belirlenmesi. Çukurova Üniversitesi, Sağlık Bilimleri Enstitüsü, Yüksek Lisans Tezi, Adana, s 108.

- Geracioti Jr, T.D., Strawn, J.R., Ekhator, N.N. et al. (2009). Neuroregulatory Peptides of Central Nervous System Origin: From Laboratory to Clinic. Donald W. Pfaff, Arthur P. Arnold, Anne M. Etgen, Susan E. Fahrbach and Robert T. Rubin (Editors). *Hormones, Brain and Behavior* (Second Edition) (Pages 2541-2599). AcademicPress.
- Geyikli İ, Bayıl S. Kromun insülin duyarlılığı ile ilişkisi. *Gaziantep tıp dergisi*. 2008;14:59-63.
- Goldstein JL, Brown MS. A century of cholesterol and coronaries: from plaques to genes to statins. *Cell*. 2015;161(1):161-72.
- Gomez-Cambronero J. The oxygen dissociation curve of hemoglobin: Bridging the gap between-biochemistry and physiology. *J Chem Educ.*, 2001;78(6):757-763. Doi: 10.1021/ed078p757
- Gonellin R, Roberts S, Jefferis R. *Introduction to Biology and Small Molecule Drug Research and Development Theory and Case Studies*. (2013) Elsevier, USA.
- Goodbred, A. J., & Langan, R. C. Vitamin B12 deficiency: recognition and management. *American family physician*. (2017); 96(6), 384-389.
- Gosselin R, Hawes E, Moll S, Adcock D. Performance of various laboratory assays in the measurement of dabigatran in patients receiving therapeutic doses: a prospective study based on peak and trough plasma levels. *Am. J. Clin. Pathol.* 2014 Feb;141(2):262-7.
- Gökhan N: Prematüre Over Yetersizliği ve D Vitamini Rezeptör Polimorfizmleri Arasındaki İlişki. Mersin Üniversitesi, Sağlık Bilimleri Enstitüsü, Biyokimya Anabilim Dalı, Yüksek Lisans Tezi, Mersin, 2019.
- Gökyer Söylemez D, Altı Kaya Z. Türkiye'de orak hücreli anemi dağılımı, patofiziolojisi ve Demir Toksisitesi. *Marmara Pharmaceutical Journal*, 2016;20:92-99. Doi: 10.12991/mpj.201620227342
- Green, R., Allen, L. H., Bjørke-Monsen, A. -L. Vitamin B12 deficiency. *Nature Reviews Disease Primers*. (2017); 3.
- Greenwood NN, Earnshaw A. (1988). *Chemistry of the Elements* (2nd ed.). Oxford: Butterworth Heinemann.
- Gröber U, Schmidt J, Kisters K. Magnesium in Prevention and Therapy. *Nutrients*. 2015;7(9):8199-8226.
- Guilloteau, P, Le Meuth-Metzinger, V, Morisset, J, et al. Gastrin, cholecystokinin and gastrointestinal tract functions in mammals. *Nutrition Research Reviews*, 2006;19:254–283.
- Gunstone, F.D., Harwood, J.L. and Dijkstra, A.J., (2007). *The Lipid Handbook* (Third Edition) (Taylor & Francis, Boca Raton, FL)]. *Physics of Lipids*. 16 (2): 115–22.
- Gupta, K. and Raja, A. (Last Update: August 25, 2019). *Physiology, Gastric Inhibitory Peptide. StatPearls [Internet]*. Treasure Island (FL): StatPearls Publishing.
- Guyton AC, Hall EJ. *Tibbi Fizyoloji* (11.baskı), Çavuşoğlu H,Yegen BÇ. (Çeviri edt), Nobel Tıp Kitabevi, İstanbul, 2007: ss 419-977.
- Gürgöl, F. (2015). Konformasyon ve Fonksiyon. Figen Gürdöl (Ed.), *Tibbi Biyokimya* (s. 77-113). İstanbul: Nobel Tıp Kitabevleri
- Gürol C: D Vitamini Eksikliğinde Görülen Hastalıklar ve D Vitamini Eksikliğine Etki Eden faktörler ve Bu Hastalara Farmasötik Bakım Sağlanmasında Klinik Eczacının Rolü. İstanbul Medipol Üniversitesi, Sağlık Bilimleri Enstitüsü, Klinik Eczacılık anabilim Dalı, Yüksek Lisans Tezi, İstanbul, 2019.
- Güven B, Can M, Eskici Z. Hemoglobin varyantının HbA1c ölçümüne etkisi. *Fırat Tıp Dergisi*, 2011;16(2):97-99.
- Hambidge M. Human zinc deficiency. *J Nutr.* 2000;130:1344-1349.
- Hancı V, Özbilgin Ş. Kalsiyum dengesi bozuklukları:hipokalsemi-hiperkalsemi. *Yoğun Bakım Dergisi*. 2018;12(1):43-58.

- Handelsman, D. J. (Last Update: December 12, 2016). Androgen Physiology, Pharmacology and Abuse. Feingold K.R., Anawalt B., Boyce A., et al., (Editors). *Endotext [Internet]*. South Dartmouth (MA): MDText.com, Inc.
- Hansen TK, Dall R, Hosoda H et al. Weight loss increases circulating levels of ghrelin in human obesity. *Clin Endocrinol (Oxf)* 2002; 56:203–206.
- Harding M. Globulins. Patient website, 2014. Available at: patient.info/doctor/globulins (accessed 10 July 2018).
- Hariri, L. and Rehman, A. (Last Update: December 15, 2019). Estradiol. *StatPearls [Internet]*. Treasure Island (FL): StatPearls Publishing.
- Harrison, E. H. Mechanisms of digestion and absorption of dietary vitamin A. *Annu. Rev. Nutr.* (2005); 25, 87-103.
- Harrison, E. H. Mechanisms of transport and delivery of vitamin A and carotenoids to the retinal pigment epithelium. *Molecular nutrition & food research.*(2019); 63(15), 1801046.
- Harvey R, Ferrier D. (2011). Lippincott's Illustrated Reviews: Biochemistry 5th Edition. Wolters Kluwer/ Lippincott Williams & Wilkins. http://www.uobabylon.edu.iq/eprints/paper_11_9137_715.pdf
- Havory J, Hammond J. Measurement of proteins in biological fluids. In: Gradwohl's clinical laboratory methods and diagnosis, Sonnenwirth AC, Jarett L, eds. St Louis: C. V. Mosby, 1980;256–70.
- Hebbel RP. Pathobiology of sickle cell disease. *Hematology Basic Principles and Practice* (Hoffman R, Benz EJ, Shattil SJ). 5th ed. Philadelphia: Elsevier Churchill Livingstone 2009; 565-576.
- Hedayat, K. M. and Lapraz, J.-C. (2019). Corticotropin axis. *The Theory of Endobiogeny, Volume 1: Global Systems Thinking and Biological Modeling for Clinical Medicine* (Pages 61-88). Academic Press.
- Hedman, C. J., Wiebe, D. A., Dey, S. Development of a sensitive LC/MS/MS method for vitamin D metabolites: 1, 25 Dihydroxyvitamin D2&3 measurement using a novel derivatization agent. *Journal of Chromatography B.*(2014); 953, 62-67.
- Heim MU, Meyer B, Hellstern P. Recommendations for the use of therapeutic plasma. *Curr Vasc Pharmacol.* 2009 Apr;7(2):110-9.
- Heidt H, Piechulla B. (2011). Lipids are membrane constituents and function as carbon stores, in *Plant Biochemistry* (Fourth Edition). Academic Press
- Hemalatha T, UmaMaheswari T, Krithiga G, et al. Enzymes in clinical medicine : An overview. *Indi-an J Exp Biol.* 2013; 51:777-788.
- Henning, R. J. (2013). VIP. Abba J. Kastin (Editor). *Handbook of Biologically Active Peptides* (Second Edition)(Pages 1443-1449). Academic Press.
- Hill T. R., and Morrissey P. A. Vitamin K. In: (Ed.), Vitamins. Elsevier Inc. (2011); 661-666.
- Hodgson E. (2012). Progress in Molecular Biology and Translational Science. *Toxicology and Human Environments.* 112: 349-372. Elsevier: UK.
- Holcnenberg JS. Enzyme Therapy: Problems And Solutions. *Ann. Rey. Biochem.* 1982; 51:795-812.
- Holick, M. F. Sunlight and vitamin D for bone health and prevention of autoimmune diseases, cancers, and cardiovascular disease. *The American journal of clinical nutrition.* (2004); 80(6), 1678S-1688.
- Holyoak T. (2013) Molecular Recognition: Lock-and-Key, Induced Fit, and Conformational Selection. In: Roberts G.C.K. (eds) Encyclopedia of Biophysics. Springer: Berlin, Heidelberg
- Hopkins PN, Wu LL, Hunt SC, James BC, Vincent MC, Wiliams RR. Higher serum bilirubin is associated with decreased risk for early familial coronary artery disease. *Arteroscler Thromb Vasc Biol* 1996;16:250–5.
- Hopurcuoğlu D: Hashimoto Tiroiditli Hastalarda D Vitamin Metabolizması; 25(OH) D Vitamini, 1,25 (OH)2 D Vitamini Oranı . İstanbul Üniversitesi, Cerrahpaşa Tıp Fakültesi, Tıpta Uzmanlık Tezi, İstanbul, 2019.

- Hrvolová, B., Martínez-Huéamo, M., Colmán-Martínez, M. Development of an advanced HPLC-MS/MS method for the determination of carotenoids and fat-soluble vitamins in human plasma. *International journal of molecular sciences.* (2016); 17(10), 1719.
- Huang L, Drake VJ, Ho E. Zinc. *Adv Nutr.* 2015;6(2):224-226.
- Hubbard S, Hendrickson W, David G. X-ray crystalstructure of a recombinant human myoglobin mutant at 2.8 Å resolution. *J.Mol.Biol.* 1990; 213,215-218
- Huens ER. (1970) Diseases due to abnormalities of hemoglobin structure. *Annu. Rev. Med.*, 21: 157-178.
- Hussain MM. Intestinal lipid absorption and lipoprotein formation. *Current opinion in lipidology.* 2014;25(3):200-6.
- Hypoalbuminemia: Background, Pathophysiology, Etiology. *Medscape Reference.* 2019-11-10. Retrieved 2019-12-22.
- Iheagwara OS, Ing TS, Kjellstrand CM, et al. Phosphorus, phosphorous, and phosphate. *Hemodial Int.* 2013;17(4):479-82.
- Institute of Medicine. (2001). Dietary Reference Intakes for Vitamin A, Vitamin K, Arsenic, Boron, Chromium, Copper, Iodine, Iron, Manganese, Molybdenum, Nickel, Silicon, Vanadium, and Zinc. Washington, DC: The National Academies Press. <https://doi.org/10.17226/10026>.
- Insulin. David A. Wilson (Ed.). *Clinical Veterinary Advisor, The Horse.* (Page 941). Elsevier.
- Irwin N. and Flatt P. R. (2013). GIP. Abba J. Kastin (Editor). *Handbook of Biologically Active Peptides* (Second Edition) (Pages 1227-1235). Academic Press.
- İpek H. Molibden. *YYÜ. Vet. Fak. Derg.* 2003;14 (1):73-76.
- Jackson CM. (2011). Enzymes and Enzyme Regulation.(Bhagavan NV, Chung-Eun Ha Eds.) *Essentials of Medical Biochemistry*, (2nd Edit:47-58.). Elseiver: UK.
- Jhonson A.R, Rohlis E.M, Silverman L.M. Proteins. In *Textbook of Clinical Chemistry*. Burtis C.A; Aswood E.R (Eds.) Third Edition, W.B. Sounders Company, Philadelphia (1999):477-540.
- Jhonson A.R, Rohlis E.M, Silverman L.M. Proteins. In *Textbook of Clinical Chemistry*. Burtis C.A; Aswood E.R (Eds.) Third Edition, W.B. Sounders Company, Philadelphia (1999):477-540. 10.
- Jim Clark (2004) (Modified April 2016). The acid-base behaviour of amino acids. (01.05.2020 tarihinde <https://www.chemguide.co.uk/organicprops/aminoacids/acidbase.html> adresinden ulaşılmıştır).
- Jo Y, Okazaki H, Moon YA, Zhao T (2016). "Regulation of Lipid Metabolism and Beyond". *International Journal of Endocrinology.* 2016: 5415767.
- Johnson, L. R. Gastrointestinal Hormones And Their Functions. *Ann. Rev. Physiol.* 1977;39:135-58.
- JR, Stevenson DK, Oski FA. Physiologic Jaundice. In:Taeusch WH, Ballard RA, editors. *Avery's Diseases of the Newborn*. Philadelphia, WB Saunders Com-pany; 2000.p.51-66.
- Jurevics, H; Hostettler, J; Muse, ED; Sammond, DW; Matsushima, GK; Toews, AD; Morell, P.Cerebroside synthesis as a measure of the rate of remyelination following cuprizone-induced demyelination in brain". *Journal of Neurochemistry.* 2001;77 (4): 1067–76
- Kakar S, Hoffman FG, Storz JF, Fabian M, Hargrove MS. Structure and reactivity of hexacoordinate hemoglobins. *Biophys Chem.* 2010;152(1-3):1-14.
- Kamal, S. and Lappin, S. L. (Last Update: August 9, 2019). Biochemistry, Catecholamine Degradation. *StatPearls [Internet].* Treasure Island (FL): StatPearls Publishing.
- Kazazian HH Jr. The thalassemia syndromes: molecular basis and prenatal diagnosis in 1990. *Semin Hematol*, 1990; 27(3):209-228.
- Keegan, M. T. (2019). Endocrine Pharmacology. Hugh C. Hemmings, Jr. and Talmage D. Egan (Editors). *Pharmacology and Physiology for Anesthesia (Second Edition), Foundations and Clinical Application* (Pages 708-731). Elsevier.

- Keha, E., Küfrevoğlu, Ö.i. (2000). *Biyokimya* (2. Baskı). Erzurum: Aktif Yayınevi.
- Kendrew JC, Parrish RG, Marrack JR. Orlans ES. (1954). The species specificity of myoglobin. *Nature* 174, 946-949
- Kerns, J., Arundel, C., & Chawla , L. Thiamin deficiency in people with obesity. *Advances in nutrition.* (2015); 6(2), 147-153.
- Khan, M. and Sharma, S. (Last Update: April 25, 2019). Physiology, Parathyroid Hormone (PTH). *StatPearls [Internet].* Treasure Island (FL): StatPearls Publishing.
- Khoo, C. M. (2017). Diabetes Mellitus Treatment. *International Encyclopedia of Public Health* (Second Edition) (Pages 288-293). Elsevier.
- Kılıç, Y. (2007). Talasemide demir yükü ve selasyon. *Talasemi ve Hemoglobinopatiler*, s. 255-262.
- Kiela PR, Ghishan FK. Physiology of intestinal absorption and secretion. *Best Pract Res Clin Gastroenterol.* 2016;30(2):145-159.
- Kilpatrick WS, Wosornu D, McGuiness JB, Glen ACA. Early diagnosis of acute myocardial infarction: CK-MB and myoglobin compared. *Ann Clin Biochem* 1993;30:435
- King MW, Integrative Medical Biochemistry Examination and Board Review. (2014). *Hemoglobin and Myoglobin. Integrative Medical Biochemistry: Examination and Board Review.* Terre Haute, Indiana.
- Kobayashi J, Miyashita K, Nakajima K, Mabuchi H. Hepatic Lipase: a Comprehensive View of its Role on Plasma Lipid and Lipoprotein Metabolism. *Journal of atherosclerosis and thrombosis.* 2015;22(10):1001-11.
- Koch J, Lüdemann J, Spies R, Last M, Amemiya CT, Burmester T. Unusual Diversity of Myoglobin Genes in the Lungfish. *Mol. Biol. Evol.* 2016;33(12):3033-3041.
- Koch J, Lüdemann J, Spies R, Last M, Amemiya CT, Burmester T. Unusual Diversity of Myoglobin Genes in the Lungfish. *Mol. Biol. Evol.* 2016 Dec;33(12):3033-3041
- Kolancı Ç. (2003). *Biyokimya ve Klinik Biyokimya.* Nobel Tip Kitapevleri.
- Kono, N., & Arai, H. Intracellular transport of fat-soluble vitamins A and E. *Traffic.* (2015); 16(1), 19-34
- Koshland DE, Neet KE. The Catalytic And Regulatory Properties Of Enzymes. *Annu. Rev. Biochem.* 1968;37:359-411.
- Köse E, ÖzTÜRK H, Özçelik RE et al. Klasik Fenilketonüri Tanılı Olgularda Fenilalaninden Kısıtlı Diyetin Antropometrik Ölçümler Üzerine Etkisi. *İzmir Dr. Behçet Uz Çocuk Hast. Dergisi* 2019;9(1):29-33.
- Kruit J.K., Groen A.K, van Berkel T.J., Emerging roles of the intestine in control of cholesterol metabolism *World Journal of Gastroenterology: WJG.* 2006;12 (40):6429.
- Kulkarni, J., Gavrilidis, E. and Worsley, R. (2016). Hormones and Schizophrenia. *Handbook of Behavioral Neuroscience* (Pages 463-480). Elsevier.
- Kutlu M, Çekmiş H, Başak M, et al. Talasemiler. *Bakırköy Tıp Dergisi*, 2006;2:33-40.
- Küçükkağa, B., & Kan B. Heterotrimerik G Proteinleri. *Turkish Journal of Biochemistry/Turk Biyokimya Dergisi.*(2007); 32(1).
- Larder, R., Lim,, C. T. And Coll, A. P. (2014). Genetic aspects of human obesity. Eric Fliers, Mártá Korbonits, Johannes A. Romijn (Editors). *Handbook of Clinical Neurology* (Pages 93-106). Elsevier.
- Larry R. Engelking (2015), Lipid Digestion, in *Textbook of Veterinary Physiological Chemistry* (Third Edition), Academic Press.
- Le Roux CW, Patterson M, Vincent RP et al. Postprandial plasma ghrelin is suppressed proportional to meal calorie content in normal-weight but not obese subjects. *J Clin Endocrinol Metab* 2005;90:1068-71.

- Lehninger AL, Nelson DL, Cox MM (2000). Lehninger Principles of Biochemistry (3rd ed.). New York: Worth Publishers.
- León-Del-Río, A. Biotin in metabolism, gene expression, and human disease. *Journal of inherited metabolic disease.* (2019); 42(4), 647-657.
- Levitt DG, Levitt MD. Human serum albumin homeostasis: a new look at the roles of synthesis, catabolism, renal and gastrointestinal excretion, and the clinical value of serum albumin measurements. *Int J Gen Med.* 2016;9:229-55.
- Lichtenstein A.H., Appel L.J., Brands M, Diet and lifestyle recommendations revision: A scientific statement from the American Heart Association Nutrition Committee. *Circulation.* 2006;114(1):82-96.
- Lipid Metabolism Disorders". MedlinePlus. Retrieved 2016-11-20.
- Lippincott Williams & Wilkins Lippincott Williams & Wilkins, 2005:174-175
- Litwack, G. (2018). Polypeptide Hormones. *Human Biochemistry* (Pages 427-465) . Academic Press.
- Lofrese, J. J., Basit, H. and Lappin, S. L. (Last Update: April 25, 2019). Physiology, Parathyroid. *StatPearls [Internet].* Treasure Island (FL): StatPearls Publishing.
- Long S, Romani AM. Role of Cellular Magnesium in Human Diseases. *Austin J Nutr Food Sci.* 2014;2(10):1051.
- Longo, N., Frigeni, M., & Pasquali, M. Carnitine transport and fatty acid oxidation. *Biochimica et biophysica acta (BBA)-molecular cell research.* (2016); 1863(10), 2422-2435.
- Lopez DR, Olivares M. Risk and benefits of copper in light of new insights of copper homeostasis. *Journal of Trace Elements in Medicine and Biology.* 2011;25,3-13.
- Loukopoulos D. Thalassemia: genotypes and phenotypes. *Ann Hematol* 1991; 62:85.
- Lukens JN. The Thalassemias and Related Disorders In: *Quantitative Disorders of Hemoglobin Synthesis;* Eds: Lee GR, Bithell CT, Foester J, Athens JW, Lukens JN. Lee and Febiger Com, Pennsylvania 1993.
- Lust RM. (2006).Oxygen and Carbon Dioxide Transport in Blood. Michael G. Levitzky (Ed) xPharm: The Comprehensive Pharmacology Reference. New Orleans. Tulane University Medical Center M.H. Gordon, in Encyclopedia of Food Sciences and Nutrition (Second Edition), 2003
- Mahmood , L. The metabolic processes of folic acid and Vitamin B12 deficiency. *Journal of Health Research and Reviews.* (2014); 1(1), 5.
- Maisels MJ, Pathak A, Nelson NM, Nathan DG, Smith CA. Endogenous production of carbon monoxide in normal and erythroblastotic newborn infants. *J Clin Invest.* 1971; 50 :1-8.
- Malik, K. and Dua, A. Prostaglandins. (Last Update: December 18, 2019). *StatPearls [Internet].* Treasure Island (FL): StatPearls Publishing.
- Manna, P., & Kalita, J. Beneficial role of vitamin K supplementation on insulin sensitivity, glucose metabolism, and the reduced risk of type 2 diabetes: A review. *Nutrition.* (2016); 32(7-8), 732-739.
- Maratos-Flier, E. (2016). Appetite Regulation and Thermogenesis. *Endocrinology: Adult and Pediatric* (Seventh Edition) (Pages 457-467). Elsevier, Saunders.
- Marcinowska-Suchowierska, E., Płudowski, P., Witamina, Z. Vitamin D toxicity. *Post N Med.* (2016); 29(10), 756-759.
- Marengo-Rowe, M.D., Alain Justin, Structure-fuction relation of human hemoglobins, Proc(Bayl Univ Med Cent). 2006; 19(3): 239-245
- Margarson MP, Soni N. Serum albumin: touchstone or totem? *Anaesthesia.* 1998;53(8):789-803.
- Mawe, G. M. , Lavoie, B., Nelson, M. T. et al. (2018). Neuromuscular Function in the Biliary Tract. Hamid M. Said (Editor). *Physiology of the Gastrointestinal Tract* (Sixth Edition), (Pages 453-468). Academic Press.

- McKay, L. I. and Cidlowski, J. A. (2003). Pharmacokinetics of Corticosteroids. Donald W Kufe,MD, Raphael E Pollock, MD, PhD, Ralph R Weichselbaum et al. (Editors). *Holland-Frei Cancer Medicine* (6th edition). Hamilton (ON): BC Decker.
- McKittrick J, Chen PY, Bodde G, et al. The structure, functions and mechanical properties of keratin. *JOM*. 2012;64(4):449-468. Doi: 10.1007/s11837-012-0302-8
- McLaughlin, M. B. and Jialal, I. (Last Update: September 30, 2019). Calcitonin. *StatPearls [Internet]*. Treasure Island (FL): StatPearls Publishing.
- McLaughlin, P. J. and Zagon, I. S. (2013). POMC-Derived Opioid Peptides. Abba J. Kastin (Editor). *Handbook of Biologically Active Peptides* (Second Edition), (Pages 1592-1595). Academic Press.
- Mehdi Y, Hornick JL, Istasse L, et al. Selenium in the environment, metabolism and involvement in body functions. *Molecules*. 2013;18(3):3292-3311.
- Mendel RR, Bittner F. Cell biology of molybdenum. *Biochim Biophys Acta*. 2006;1763(7):621-635.
- Mentzer WC. (2003) Pyruvate Kinase Deficiency and Disorders of Glycolysis. In:, Nathan DG, Orkin SH, Ginsburg D Look TA(Eds). *Hematology of Infancy and Childhood*. (6th ed: 687-720). Philadelphia: Saunders.
- Minisola S, Pepe J, Piemonte S, et al. The diagnosis and management of hypercalcaemia. *BMJ*. 2015;350:2723.
- Minokoshi Y, Kim YB, Peroni OD, et al. Leptin stimulates fatty-acid oxidation by activating AMP-activated protein kinase. *Nature* 2002; 415: 339–343.
- Mistry HD, Broughton Pipkin F, Redman CW, Poston L. Selenium in reproductive health. *Am J Obstet Gynecol*. 2012;206(1):21-30.
- Mojtahedi MH, Parastar M, Jalali-Heravi J, Chamani FC, Chilaka AA. Moosavi. Comparison between two different hemichromes of hemoglobin (HbA and Hbs) induced by n-dodecyl trimethylammonium bromide: Chemometric study. *Collodies Surf. B: Biointerfaces*, 2008; 63:183-191.
- Moll, R., & Davis, B. Iron, vitamin B12 and folate. *Medicine*. (2017);45(4), 198-203.
- Monastral, G., Unfer, V., Harrath, A. H. Combining treatment with myo-inositol and D-chiro-inositol (40: 1) is effective in restoring ovary function and metabolic balance in PCOS patients. *Gynecological Endocrinology*(2017); 33(1), 1-9.
- Moorthy, A. V. and Blichfeldt, T. C. (2009). Anatomy and Physiology of the Kidney. A. Vishnu Moorthy(Editor). *Pathophysiology of Kidney Disease and Hypertension*, (Pages 1-15). Saunders.
- Moran, L. A., Horton, H. R., Scrimgeour, K. G., Perry, M. D. (2012). Structure and Function. A. Jaworski, M. Sypes (Eds.), *Principles of Biochemistry* (5th ed., pp. 55-134). United States of America: Pearson
- Morenko-Rowe AJ. The thalassemias and related disorders. Baylor University Medical Center Proceedings, 2007;20(1):27-31.
- Morris AL, Mohiuddin SS. (2020) Biochemistry, Nutrients. In:StatPearls.Treasure Island (FL).
- Murray RK, Bender KM, Kennelly PJ et al. Harper's Illustrated Biochemistry. 30th Edition Mc Graw Hill Education.
- Murray, R. K., Granner, D. K., Mayes, P. A., Rodwell, V.W. (2003). Structures & Functions of Proteins & Enzymes. J. Foltin, J. Ransom, J. M. Oransky (Eds.), *Harper's Illustrated Biochemistry* (26th ed., pp. 21-49). United States of America: McGraw-Hill Companies.
- Mutlu EA, Keshavarzian A, Mutlu GM (June 2006). "Hyperalbuminemia and elevated transaminases associated with high-protein diet". *Scandinavian Journal of Gastroenterology*. 41 (6): 759–60. doi:10.1080/00365520500442625
- Myint ZW, Oo TH, Thein KZ, et al. Copper deficiency anemia: review article. *Ann. Hematol.* 2018;97(9):1527-1534.

- Nagami GT. Hyperchloremia-why and how. *Nefrologia*. 2016;36(4):347-353.
- Namazi, N., Larijani, B., & Azadbakht, L. Alpha-lipoic acid supplement in obesity treatment: A systematic review and meta-analysis of clinical trials. *Clinical Nutrition*. (2018);37(2), 419-428.
- Nassar, G. N., Raudales, F. and Leslie, S. W. (Last Update: November 24, 2019). Physiology, Testosterone. *StatPearls [Internet]*. Treasure Island (FL): StatPearls Publishing.
- Nedresky, D. and Singh, G. (Last Update: April 8, 2019). Physiology, Luteinizing Hormone. *StatPearls [Internet]*. Treasure Island (FL): StatPearls Publishing.
- Nelson DV, Cox MM. (2005). Lehninger Biyokimyanın İlkeleri (Çeviri: N. Kılıç), 3. Baskı, Palme Yayıncılık, Ankara.
- Nguyen MK. Kurtz I. Quantitative interrelationship between Gibbs-Donnan equilibrium, osmolality of body fluid compartments, and plasma water sodium concentration. *J Appl Physiol* (1985). 2006 Apr;100(4):1293-300. Epub 2005 Dec 15.
- Niki, E. Evidence for beneficial effects of vitamin E. *The Korean journal of internal medicine*. (2015); 30(5), 571.
- Norman, A. W. and Litwack, G. (1997). Anterior Pituitary Hormones. *Hormones* (Second Edition) (Pages 133-168). Academic Press.
- Norman, A. W. and Litwack, G. (1997). Pancreatic Hormones: Insulin and Glucagon. *Hormones* (Second Edition). (Pages 193-227). Academic Press.
- Norris, D. O. and Carr, J. A. (2013). Organization of the Mammalian Hypothalamus–Pituitary Axes. *Vertebrate Endocrinology* (Fifth Edition) (Pages 93-150). Academic Press.
- Nussey, S. and Whitehead, S. (2001). The adrenal gland. *Endocrinology, An Integrated Approach*. Oxford: BIOS Scientific Publishers.
- Nwabuobi, C., Arlier, S., Schatz, F., et al. hCG: Biological Functions and Clinical Applications. *Int. J. Mol. Sci.* 2017; 18(10): 2037.doi:10.3390/ijms18102037.
- Olivecrona G. Role of lipoprotein lipase in lipid metabolism. *Current opinion in lipidology*. 2016;27(3):233-41.
- O'Malley K (1984). Clinical Pharmacology and Drug treatment in the elderly. Edinburgh; New York: Churchill Livingstone
- Ophardt CE (2013). Lipid Metabolism Summary. Virtual Chembook. Elmhurst College.
- Ordway GA, Garry DJ. Myoglobin: an essential hemoprotein in striated muscle. *J. Exp. Biol.* 2004 Sep;207(Pt 20):3441-6. [PubMed]
- Orlowski, M. and Sarao, M. S. (Last Update: December 16, 2018.). Physiology, Follicle Stimulating Hormone. *StatPearls [Internet]*. Treasure Island (FL): StatPearls Publishing; NCBI Bookshelf
- Osilla, E. V. and Sharma, S. (Last Update: March 26, 2020). Oxytocin. *StatPearls [Internet]*. Treasure Island (FL): StatPearls Publishing.
- Ossoli A, Simonelli S, Vitali C, Franceschini G, Calabresi L. Role of LCAT in Atherosclerosis. *Journal of atherosclerosis and thrombosis*. 2016;23(2):119-27.
- Ölmez, H., Yılmaz, V.T. (2010). *Anorganik Kimya Temel Kavramlar* (5. Baskı). Bursa: MKM Yayıncılık.
- Ömer, B., Salmanyenli, N., Ademoğlu, E. ve diğerleri. (2015). Metabolik Kontrol. Figen Gürdöl (Editor). *Tıbbi Biyokimya* (s 389-481). İstanbul: Nobel Tıp Kitabevleri.
- Palmer BF, Clegg DJ. Physiology and pathophysiology of potassium homeostasis. *Adv Physiol Educ*. 2016;40(4):480-490.
- Papachristodoulou D, Snape A, Elliott WH, Elliott DC. (2014). *Biochemistry and Molecular Biology*. 5th edition. Oxford University Press:UK.
- Paravati, S. and Warrington, S. J. (Last Update: May 5, 2019). Physiology, Catecholamines. *StatPearls [Internet]*. Treasure Island (FL): StatPearls Publishing.
- Parikh, A. and Thevenin, C. (Last Update: January 12, 2020). Physiology, Gastrointestinal Hormonal Control. *StatPearls [Internet]*. Treasure Island (FL): StatPearls Publishing.

- Park, M. K. (2016). Glucagon. Yoshio Takei, Hironori Ando and Kazuyoshi Tsutsui (Editors). *Handbook of Hormones, Comparative Endocrinology for Basic and Clinical Research*, (Pages 129-131). Academic Press.
- Paşaoğlu, H.(2017). Temel/Klinik Biyokimya. (1). Ankara: Pelikan Yayınevi
- Patel, H. and Tiwari, V. (Last Update: January 29, 2020). Physiology, Posterior Pituitary. *StatPearls [Internet]*. Treasure Island (FL): StatPearls Publishing.
- Pelley JW (2012). Elsevier's Integrated Review Biochemistry (2nd ed.). Philadelphia: Elsevier/Mosby.
- Pelley JW. (2012).*Elsevier's Integrated Review Biochemistry*.(2nd Edit.) Philadelphia :Elsevier.
- Peterfy M. Lipase maturation factor 1: a lipase chaperone involved in lipid metabolism. *Biochimica et biophysica acta*. 2012;1821(5):790-4.
- Peters T Jr, ed. All about albumin: biochemistry, genetics and medical applications. San Diego: Academic Press, 1996:432pp. 2. Watkins S, Madison J, Galliano M, Minchiotti L, Putnam FW. A nucleotide insertion and frameshift cause analbuminemia in an Italian family. *Proc Natl Acad Sci USA* 1994;91:2275-9.
- Pike J. W. and Meyer M. B. (2012). 1,25-Dihydroxyvitamin D3: Synthesis, Actions, and Genome-scale Mechanisms in the Intestine and Colon. *Physiology of the Gastrointestinal Tract* (Fifth Edition), (Pages 1681-1709).Elsevier.
- Piketty, M. L., Prie, D., Sedel, F. High-dose biotin therapy leading to false biochemical endocrine profiles: validation of a simple method to overcome biotin interference . *Clinical Chemistry and Laboratory Medicine (CCLM)*. (2017);55(6), 817-825.
- Pirahanchi, Y. and Jialal, I. (Last Update: April 25, 2019). Physiology, Thyroid Stimulating Hormone (TSH). *StatPearls [Internet]*. Treasure Island (FL): StatPearls Publishing.
- Polat G, Tamer L, Eskandari G, Atik U. Hemoglobininin yapısı ve islevi. Mersin Üniversitesi Tıp Fakültesi Dergisi 2000; 1: 71-77.
- Prosapio, J. G. and Jialal, I. (Last Update: March 24, 2020). Physiology, Gastrin. *StatPearls [Internet]*. Treasure Island (FL): StatPearls Publishing.
- Punekar NS. (2018).*Enzymes: Catalysis, Kinetics and Mechanics*. Singapore: Springer.
- Puppalwar PV. Goswami K. Dhok A. Review on "Evolution of Methods of Bilirubin Estimation". IOSR Journal of Dental and Medical Sciences,2012; 1:3 -17-28
- Qaid M. M. & Abdelrahman M. M. (2016). Role of insulin and other related hormones in energy metabolism—A review. González-Redondo P. (Ed.). *Journal. Cogent Food & Agriculture*. Volume 2, - Issue 1.
- Qu, W., Wu, K., & Hu, S. Voltammetric determination of pyridoxine (Vitamin B6) by use of a chemically-modified glassy carbon electrode. *Journal of pharmaceutical and biomedical analysis*. (2004); 36(3), 631-635.
- Quesada, I., Tuduri', E., Ripoll, C. et al. Physiology of the pancreatic a-cell and glucagon secretion: role in glucose homeostasis and diabetes. *Journal of Endocrinology*, 2008;199: 5–19.
- Raederstorff, D., Wyss, A., Calder, P. C. Vitamin E function and requirements in relation to PUFA. *British Journal of Nutrition*. (2015); 114(8), 1113-1122.
- Ratnayake W.M., Galli C. Fat and fatty acid terminology, methods of analysis and fat digestion and metabolism: a background review paper Ann Nutr Metab.2009;8-43.
- Rédei GP(2008) Eadie-Hofstee Plot. In: *Encyclopedia of Genetics, Genomics, Proteomics and Informatics*. Springer, Dordrecht.
- Ren Zhang; Yan Lin & Chun-Ting Zhang (2008). "Geglist: a database listing potential G-quadruplex regulated genes". *Nucleic Acids Res.* 36 (suppl 1) (Database issue): D372–D376. doi:10.1093/nar/gkm787. PMC 2238908. PMID 17916572.

- Robinson PK. Enzymes: principles and biotechnological applications. *Essays in Biochemistry*. (2015);59;1-41.
- Rolschau, J., Date, J., & Kristoffersen, K. FOLIC ACID SUPPLEMENT AND INTRAUTERINE GROWTH. *Acta obstetricia et gynecologica Scandinavica*. (1979); 58(4), 343-346.
- Rose JJ, Wang L, Xu Q, et al. Carbon monoxide poisoning: Pathogenesis, management and future directions therapy. *American Journal of Respiratory and Critical Care Medicine*, 2017;195(5):596-606. Doi: 10.1164/rccm.201606-1275CI
- Rosol, T. J. and Gröne, A. (2016). Endocrine Glands. M. Grant Maxie (Editor). *Jubb, Kennedy & Palmer's Pathology of Domestic Animals: Volume 3* (Sixth Edition),(Pages 269-357.e1). Saunders Ltd.
- Ross, L. D. (2014). Reproductive function in the female. William J. Marshall, Marta Lapsley, Andrew P. Day, Ruth M. Ayling. (Editors). *Clinical Biochemistry: Metabolic and Clinical Aspects* (Third Edition) (Pages 433-450).Churchill Livingstone.
- Rossi, M., Amaretti, A., Raimondi, S., Folate Production by Lactic Acid Bacteria. *Nutrients*. (2011); 3, 118-134.
- Rote N, McCance K. Structure and function of the hematologic system. In: McCance K, Huether S, editors. *Pathophysiology: the biologic basis for disease in adults and children*, 7 edition. Amsterdam: Elsevier Health Sciences, 2013: 946.
- Rothschild M, Oratz M, Schreibner S. Albumin synthesis and albumin degradation. In: Proceedings of the workshop on albumin, Sgouris JT, Rene A, eds. 1975;57-74.
- Rovira C (2003). The structure and dynamics of the Fe-CO bond in myoglobin. *Journal of Physics: Condensed matter*;S1809-S1822
- Rozner S., Garti N. The activity and absorption relationship of cholesterol and phytosterols Colloids and Surfaces A: Physicochemical and Engineering Aspects, 2006;435-456
- Rucker, D. and Dhamoon, A. S. (Last Update: March 26, 2020). Physiology, Thromboxane A2. *StatPearls [Internet]*. Treasure Island (FL): StatPearls Publishing.
- Ruth Pietri, Elddie Román-Morales, and Juan López-Garriga. Hydrogen Sulfide and Hemeproteins: Knowledge and Mysteries. *Antioxid Redox Signal*. 2011; 15; 15(2): 393–404.
- Sadiq, N. M., Naganathan, S. and Badireddy, M. (Last Update: January 20, 2020). Hypercalcemia. *StatPearls [Internet]*. Treasure Island (FL): StatPearls Publishing.
- Saito H. Metabolism of iron stores. *Nagoya J Med Sci*. 2014;76(3-4):235-254.
- Samour, J., Perlman, J., Kinne , J. VITAMIN B6 (PYRIDOXINE HYDROCHLORIDE) TOXICOSIS IN FALCONS. *Journal of Zoo and Wildlife Medicine*. (2016);47(2), 601-608.
- Sanchaisuriya K, Fucharoen G, N. Sae-ung, Jetsrisuparb A. Fucharoen S. Molecular and hematologic features of hemoglobin E heterozygotes with different forms of α-thalassemia in Thailand Ann Hematol 2003; 82(10): 612-616
- Sandhu, S. and Jialal, I. (Last Update: November 27, 2019). Glucagonoma Syndrome. *StatPearls [Internet]*. Treasure Island (FL): StatPearls Publishing.
- Sarwal, D. and Bordoni, B. (Last Update: January 18, 2020). Physiology, Enteroglucagon. *StatPearls [Internet]*. Treasure Island (FL): StatPearls Publishing.
- Satyanarayana, U., Chakrapani, U. (2006). Proteins and amino acids. U. Satyanarayana (Ed.), *Biochemistry* (3rd ed., pp. 43-69). India: Books and Allied (P) Ltd.
- Sauret JM, Marinides G, Wang GK. Rhabdomyolysis. *Am Fam Physician*. 2002 Mar 01;65(5):907-12.
- Savage, R. A. Basnet, S. and Miller, J.-M. M. (Last Update: October 23, 2019). Melatonin. *StatPearls [Internet]*. Treasure Island (FL): StatPearls Publishing.
- Schaich, K. M., Tian, X., & Xie, J. Reprint of "Hurdles and pitfalls in measuring antioxidant efficacy: A critical evaluation of ABTS, DPPH, and ORAC assays". *Journal of Functional Foods*. (2015); 18, 782-796.

- Scheffler IE (2008). Mitochondria (2nd ed.). Hoboken, N.J.: Wiley-Liss
- Schmid R. Bilirubin Metabolism in Man. *N Eng J Med* 1972;287:703- 709
- Schmitt E, Tanrikulu IC, Yoo TH, Panvert M, et al. Switching from an induced-fit to a lock-and-key mechanism in an aminoacyl-tRNA synthetase with modified specificity. *J Mol Biol.* 2009;394(5):843-851.
- Schoener, B. and Borger, J. (Last Update: March 24, 2020). Erythropoietin. *StatPearls [Internet].* Treasure Island (FL): StatPearls Publishing.
- Schrier RW. (2013). Manual of Nephrology. Güneş tip kitapevleri:Lippincott Williams& Wilkins.
- Schwalfenberg, G. K. Vitamins K1 and K2: the emerging group of vitamins required for human health. *Journal of nutrition and metabolism.*(2017);2017
- Scott, J. H. and Dunn, R. J. Physiology, Aldosterone. (Last Update: May 5, 2019). *StatPearls [Internet].* Treasure Island (FL): StatPearls Publishing.
- Scully C. (2014). Metabolic disorders. Alison Taylor (Ed). Scully's Medical Problems in Dentistry (s 594-606). London. Churchill Livingstone.
- Sekiguchi, T. (2016). Cholecystokinin. Yoshio Takei, Hironori Ando and Kazuyoshi Tsutsui. (Editors). *Handbook of Hormones, Comparative Endocrinology for Basic and Clinical Research* (Pages 177-178). Academic Press.
- Sekiguchi, T. (2016). Gastrin. Yoshio Takei, Hironori Ando and Kazuyoshi Tsutsui (Editors). *Handbook of Hormones, Comparative Endocrinology for Basic and Clinical Research* (Pages 174-176). Academic Press.
- Senoo, H., Kojima, N., & Sato, M. Vitamin A-storing cells (stellate cells). *Vitamins & Hormones.* (2007); 75, 131-159.
- Sharma D, Singh A, Verma K, et al. Fluoride: A review of pre-clinical and clinical studies. *Environ Toxicol Pharmacol.* 2017;56:297-313.
- Shearer, M. J., & Newman, P. Metabolism and cell biology of vitamin K. *Thrombosis and haemostasis.* (2008);100(10), 530-547.
- Sherding RG. Chapter 18 – Icterus. Canine and Feline Gastroenterology 2013, 140-147. Edited by: Robert J. Washabau and Michael J. Day.
- Shim, J. and Yu, R. (2020). Gut Hormones in Pregnancy and Lactation. Christopher S. Kovacs and Cheri L. Deal (Editors). *Maternal-Fetal and Neonatal Endocrinology, Physiology, Pathophysiology, and Clinical Management* (Pages 91-99). Academic Press.
- Shiyya T, Nakazato M, Mizuta M et al. Plasma ghrelin levels in lean and obese humans and the effect of glucose on ghrelin secretion. *The Journal of Clinical Endocrinology and Metabolism* 2002; 87: 240-4.
- Silverstein TP, Kirk SR, Meyer SC, Holman KL. Myoglobin structure and function: A multiweek biochemistry laboratory project. *Biochem Mol Biol Educ.* 2015;43(3):181-8.
- Small D. M., (1986). The Physical Chemistry of Lipids. Handbook of Lipid Research. Plenum Press.
- Smith, M. E. and Morton, D. G. (2010). The Stomach: Control. *The Digestive System* (Second Edition) (Pages 51-69). Churchill Livingstone.
- Soni N, Margarson M. Albumin. Where are we now? *Current Anaesthesia and Critical Care.* 2004;15:61-68
- Staron P, Banach M, Kowalski Z. Keratin-origins, properties, application. *Chemik.* 2011;65(10):1019-1026.
- Steptoe, A. (1998). Psychophysiological Bases of Disease. Alan S. Bellack and Michel Hersen (Editors). *Comprehensive Clinical Psychology* (Pages 39-78). Elsevier.
- Strazzullo P, Leclercq C. Sodium. *Adv Nutr.* 2014;5(2):188-190.
- Subczynski W.K., M. Pasenkiewicz-Gierula, J. Widomska, L. Mainali, M. Raguz High cholesterol/low cholesterol: Effects in biological membranes: A review Cell Biochemistry and Biophysics, 75 (3-4) (2017), pp. 369-385.

- Sun, Q. and Zhao, Z. (2017). Peptide Hormones as Tumor Markers in Clinical Practice. Tony Y. Hu and Fuyuhiko Tamanoi (Editors). *The Enzymes* (Pages 65-79). Elsevier.
- Sur Ü, Erkekoğlu P, Koçer-Gümüşel B. Selenyum, selenoproteinler ve hashimoto tiroiditi. *J. Pharm. Sci.* 2020;45(1):45-64.
- Şahin K, Elevli M, Pop S, et al. Bebeklik döneminde görülen methemoglobinemi olgusu. *Med Bull Haseki*, 2018;56:169-71. Doi: 10.4274/haseki.3806
- Şahin Z.Y: Geriatrik Hastalarda D Vitamini Eksikliğinin Yürüme ve Denge Parametreleri Üzerine Uzun Dönem Etkisi. Dokuz Eylül Üniversitesi, Tıp Fakültesi, Dahiliye Anabilim Dalı, Tıpta Uzmanlık Tezi, İzmir, 2018.
- T. Takano. Structure of myoglobin refined at 2–0 Å resolution. I. Crystallographic refinement of metmyoglobin from sperm whale, *J. Mol. Biol.* 1977; 110, 537–558.
- Tan, T. M. and Bloom, S. R. (2013). Pancreatic Polypeptide. Abba J. Kastin (Ed.). *Handbook of Biologically Active Peptides* (Second Edition). (Pages 1294-1299). Academic Press.
- Taylor, P. N., & Davies, J. S. A review of the growing risk of vitamin D toxicity from inappropriate practice. *British journal of clinical pharmacology*. (2018); 84(6), 1121-1127.
- Terekeci H. Kritik Hastada Magnezyum ve Fosfat Dengesi Bozuklukları. *Yoğun Bakım Dergisi*. 2018;12(1):59-65.
- Thakur, K., Tomar, S. K., Singh, A. K. Riboflavin and health: A review of recent human research. Critical reviews in food science and nutrition. (2017);57(17), 3650-3660.
- Thau, L. and Sharma, S. Physiology, Cortisol. (Last Update: February 15, 2019). *StatPearls [Internet]*. Treasure Island (FL): StatPearls Publishing.
- Thaver, D., Saeed, M. A., & Bhutta, Z. B. Pyridoxine (vitamin B6) supplementation in pregnancy. Cochrane Database of Systematic Reviews. (2006);2.
- Thein SL. Genetic modifiers of beta-thalassemia. *Haematologica*. 2005; 90 (5): 649- 660. Oney S, Öztürk Z, Küpesiz A, Keser İ, Yeşilipe kayak MA. Beta-Talasemi Taşıyıcılarında Beta-Globin Gen Mutasyon Tipi ve Hematolojik Fenotip Arasındaki İlişki. Türk – Çocuk Hemotoloji Dergisi, cilt.2, ss. 23-28, 2008.
- Thomas C, Lumb A. Physiology of haemoglobin. *British Journal of Anaesthesia*, 2012;12(5):251-256. Doi: 10.1093/bjaceaccp/mks025
- Tiribelli C, Ostrow JD. The molecular basis of bilirubinencephalopathy and toxicity: report of an EASL SingleTopic Conference. *J Hepatol* 2005; 43: 156–6
- Tolerable upper intake levels for vitamins and minerals. (2006). http://www.sennutricion.org/media/Docs_Consenso/Tolerable_Upper_Intake_Levels_for_Vitamins_and_Minerals_-_EFSA_2006.pdf. (01.05.2020 tarihinde ulaşılmıştır.)
- Tripathi Y. Blood and plasma proteins. In: Tripathi Y. Concise textbook of physiology for dental students. Chennai: Elsevier India, 2011: 93.
- Troke, R., Tan, T. M. and Bloom, S. R. (2013). PYY. Abba J. Kastin (Editors). *Handbook of Biologically Active Peptides* (Second Edition) (Pages 1160-1165). Academic Press.
- Trüeb, R. M. Serum Biotin Levels in Women Complaining of Hair Loss. *International journal of trichology*. (2016); 8(2), 73.
- Tunalı, N.K., Özkar, S. (1999). *Anorganik Kimya* (4. Baskı). Ankara: Gazi Kitabevi.
- Turğut, Mine. Egzersiz Uygulanan Ratlarda Krom ve Histidinatin Glukoz Metabolizması PPAR- γ , IRS-1 ve NF-kB Ekspresyonu Üzerine Etkileri. Elazığ : Yüksek Lisans Tezi, Sağlık Bilimleri Enstitüsü, Fırat Üniversitesi, 2016.
- Turnlund JR, Keyes WR, Peiffer GL. Molybdenum absorption, excretion, and retention studied with stable isotopes in young men at five intakes of dietary molybdenum. *Am J Clin Nutr*. 1995;62(4):790-796.

- Türkiye Beslenme Rehberi 2015 (TÜBER). (2016).T.C. Sağlık Bakanlığı. Ankara.
- Uhing MR. The albumin controversy. *Clin Perinatol*. 2004 Sep;31(3):475-88.
- Ulatowski, L. M., & Manor, D. Vitamin E and neurodegeneration. *Neurobiology of disease*. (2015);84, 78-83.
- Ulloa-Aguirre, A. and Timossi, C. Structure–function relationship of follicle-stimulating hormone and its receptor. *Human Reproduction Update* (1998), Vol. 4, No. 3 pp. 260–283.
- Ulusal tedavi klavuzu. (2011). Yetişkinde demir eksikliği tanı ve tedavi klavuzu. <http://www.thd.org.tr/thdData/Books/94/bolum-iii-yetiskinde-demir-eksikligi-tani-ve-tedavi-kilavuzu.pdf>. (05.05.2020 tarihinde ulaşılmıştır.)
- Uslu S. Enzimüri ve Mikroproteinürünün Klinik Önemi. *Türk Klinik Biyokimya Derg*. 2005; 3(3): 125-141.
- Uygun V, Karasu Tezcan G. Hemoglobin F ve ilişkili klinik durumlar. *Van Tıp Dergisi*, 2016;23(2):229-234.
- Üstdal M, Karaca L, Türköz Y, Kuş S, Paşaoğlu H. (2003). Biyokimya : Enzimler, Koenzimler, Enzimiyojeli. Malatya: Medipress.
- Üstdal, K.M., Donma, O., Kuş, S., Çimen, B. (2011). *Genel ve Klinik Biyokimya I* (1. Baskı). İstanbul: İstanbul Tıp Kitabevi.
- Vargas, E., Joy, N. V. and Carrillo Sepulveda, M. A. (Last Update: March 28, 2020). Biochemistry, Insulin Metabolic Effects. *StatPearls [Internet]*. Treasure Island (FL): StatPearls Publishing.
- Vasilaki A.T., McMillan D.C. (2011) Lipid Peroxidation. In: Schwab M. (eds) Encyclopedia of Cancer. Springer, Berlin, Heidelberg.
- Vella, A. and Drucker, D. J. (2011). Gastrointestinal Hormones and Gut Endocrine Tumors. Shlomo Melmed, Kenneth S. Polonsky, P. Reed Larsen and Henry M. Kronenberg (Editors). *Williams Textbook of Endocrinology* (Twelfth Edition), (Pages 1697-1716). Elsevier.
- Venugopal, S. K. and Jialal, I. (Last Update: March 24, 2020). Physiology, Glucagon. *StatPearls [Internet]*. Treasure Island (FL): StatPearls Publishing.
- Villa, J. K. D., Diaz, M. A. N., Pizziolo, V. R. Effect of vitamin K in bone metabolism and vascular calcification: a review of mechanisms of action and evidences. *Critical reviews in food science and nutrition*. (2017); 57(18), 3959-3970.
- Vitamins, F. S. Micronutrients: Vitamins. *The Institute for Functional Medicine*. (2017).
- Voet D, Voet JG, Pratt CW (2013). Fundamentals of Biochemistry: Life at the Molecular Level (Fourth ed.). Hoboken, NJ: Wiley.
- Voet D.J; Voet J.G.; Pratt C.W.(2008). "Lipids, Bilayers and Membranes". Principles of Biochemistry, Third edition. Wiley.
- Vol'kenshtain M.V. (1969) Macromolecular Properties of Enzymes. In: *Enzyme Physics*. Springer: Boston, MA
- Vrolijk, M. F., Opperhuizen, A., Jansen, E. H. The vitamin B6 paradox: Supplementation with high concentrations of pyridoxine leads to decreased vitamin B6 function. *Toxicology in Vitro*. (2017); 44, 206-212.
- Wallace, T. C., & Fulgoni III, V. L. Assessment of total choline intakes in the United States. *Journal of the American College of Nutrition*. (2016); 35(2), 108-112.
- Washington, I. M. and Hoosier, G. V. (2012). Clinical Biochemistry and Hematology. *The Laboratory Rabbit, Guinea Pig, Hamster, and Other Rodents*. 2012 : 57–116.
- Wassef, L., Wirawan, R., Chikindas, M. β-Carotene–Producing Bacteria Residing in the Intestine Provide Vitamin A to Mouse Tissues In Vivo. *The Journal of nutrition*. (2014);144(5), 608-613.
- Watkins, D., Rosenblatt, D. S., & Fowler, B. Disorders of Cobalamin and Folate Transport and Metabolism. *Inborn Metabolic Diseases* . (2016);385-399.

- Weatherall DJ, Clegg J B, Higgs D R and Wood W G. The Hemoglobinopathies. Scriver CR, Beaudet A L, Sly W S, Valle D. The Metabolic and Molecular Bases of Inherited Disease, Volume III. Eighth edition, U.S.A: International Edition, 2001: 4571-4627
- Weatherall DJ. The Thalassemia. in Hematology; Eds: Williams WJ, Beutler E, Erslev AJ, Lichtman MA.3th ed, Mc Graw-Hill, Singapore 1986.
- Weingärtner O., Lütjohann D., Vanmierlo T, Markers of enhanced cholesterol absorption are a strong predictor for cardiovascular diseases in patients without diabetes mellitus Chemistry and Physics of Lipids, 2011;164(6):451-456
- Weisshof, R., & Chermesh, I. Micronutrient deficiencies in inflammatory bowel disease. *Current Opinion in Clinical Nutrition & Metabolic Care*. (2015); 18(6), 576-581.
- Wenger, G. D., Sue O'Dorisio, M. and Campolito, L. B. (1991). Assays for Vasoactive IntestinalPeptide Receptor. P. Michael Conn (Editor). *Methods in Neurosciences*, (Pages 362-385). Elsevier.
- WH Freeman (2002) Enzymes Can Be Inhibited by Specific Molecules. Berg JM, Tymoczko JL, Stryer L(Eds). *Biochemistry*, (5th edition). New York.
- Williams KI, Higgs GA. Eicosanoids and Inflammation. *The Journal of Pathology*. 1988;156 (2): 101–110.
- Wiseman, E. M., Bar-El Dadon, S., & Reifen, R. The vicious cycle of vitamin A deficiency: a review. *Critical reviews in food science and nutrition*. (2017); 57(17), 3703-3714.
- Wittenberg BA. Wittenberg JB. (1975). Role of myoglobin in the oxygen supply to red skeletal muscle. *J. Biol. Chem.* 250, 9038-9043.
- Wittenberg, B.A. Wittenberg, JB. Role of myoglobin in the oxygen supply to red skeletal muscle. *J. Biol. Chem.* 1975;250, 9038-9043.
- Wittenberg, J. B. and Wittenberg, B. A. (2003). Myoglobin function reassessed. *J. Exp. Biol.* 206, 2011-2020.
- Woods SC, D'Alessio DA Central control of body weight and appetite. *Journal of Clinical Endocrinology & Metabolism*. 2008; 93(11 Suppl 1): 37–50.
- Wren AM, Seal LJ, Cohen MA et al. Ghrelin enhances appetite and increases food intake in humans. *The Journal of Clinical Endocrinology and Metabolism* 2001; 86: 5992–5.
- Yasir, M., Goyal, A., Bansal, P. et al. (Last Update: March 1, 2020). Corticosteroid Adverse Effects. *StatPearls [Internet]*. Treasure Island (FL): StatPearls Publishing.
- Yerlikaya G: D Vitamini Replasman Tedavisi İle Metabolik Sendrom Bulguları Arasındaki İlişkinin Değerlendirilmesi. Sağlık Bilimleri Üniversitesi, Antalya sağlık Uygulama ve Araştırma Merkezi, Tıpta Uzmanlık Tezi, Antalya,2019
- Yıldız G, Kayataş M, Candan F. Hiponatremi; güncel tanı ve tedavisi. *Turk Neph Dial Transpl*. 2011;20(2):115-131.
- Yin J, Hu Y, Yoon J. Fluorescent probes and bioimaging: alkali metals, alkaline earth metals and pH. *Chem Soc Rev*. 2015;44(14):4619-4644.
- Young SG. Recent progress in understanding apolipoprotein B. *Circulation*. 1990;82(5):1574-94.
- Young, E. R. and Jialal, I. (Last Update: September 29, 2019). Biochemistry, Ghrelin. *StatPearls [Internet]*. Treasure Island (FL): StatPearls Publishing.
- Yu, E. and Sharma, S. (Last Update: March 9, 2019). Physiology, Calcium. *StatPearls [Internet]*. Treasure Island (FL): StatPearls Publishing.
- Yuan Y, Tam MF, Simplaceanu, V, et al. New Look at Hemoglobin Allostery. *Chem. Rev.*2015; 115, 1702–1724.
- Zutt R, van der Kooi AJ, Linthorst GE, Wanders RJ, de Visser M. Rhabdomyolysis: reviewof the literature. *Neuromuscul. Disord.* 2014 Aug;24(8):651-9.