

BÖLÜM 1

EGZERSİZ VE KLOREKTAL KANSER EPİDEMİYOLOJİSİ: 1985-2025 DÖNEMİNE AİT BİBLİYOMETRİK BİR İNCELEME

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GİRİŞ

Kolorektal kanser (KRK), dünya genelinde ciddi bir halk sağlığı problemi olarak ön plana çıkmaktadır. Uluslararası Kanser Araştırmaları Ajansı'nın 2022 GLOBOCAN verilerine göre, sadece kolon kanseri için 1.142.286 yeni olgu ve 538.167 ölüm kaydedilmiş; bu da onu tüm kanserler arasında hem en sık görülen ve ölümcül kanserlerden biri haline getirmiştir (Bray et al., 2024; Sung et al., 2021). KRK'nin görülme sıklığı; yaşlanma, Batı tipi diyet, obezite, sigara, alkol kullanımı ve fiziksel inaktivite gibi çevresel ve yaşam tarzı faktörleriyle ilişkilidir. Fiziksel aktivite, bu faktörler arasında en modifiye edilebilir ve halk sağlığı düzeyinde en ulaşılabilir olanlardan biridir. Bu nedenle egzersizin kolorektal kansere etkileri, son 30-40 yılda giderek artan sayıda epidemiyolojik çalışmaya konu olmuştur. Son yıllarda Türkiye'de de egzersiz ve kolorektal kanser ilişkisine dair farkındalık artmaktadır. Örneğin, Tanık ve Naz'ın "Kanserde Fiziksel Aktivite ve Egzersiz" adlı derleme çalışmasında, düzenli egzersizin özellikle meme ve kolorektal kanser insidansını %40-50 oranında azaltabileceği ifade edildiği görülmüştür (Tanık et al., 2022).

Yapılan çok sayıda prospektif kohort ve meta-analiz çalışması, düzenli fiziksel aktivitenin kolorektal kanser riskini anlamlı düzeyde azalttığını ortaya koymuştur. Örneğin, Colditz ve arkadaşları (1997) (Colditz et al., 1997a), fiziksel aktivite düzeyi yüksek bireylerde kolon kanseri riskinin %40'a varan oranda daha düşük olduğunu bildirirken, Samad et al. (2005) (Samad et al., 2005a) tarafından yapı-

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yol açmaktadır. Ayrıca düşük ve orta gelirli ülkelerden gelen araştırma katkıları-
nın sınırlı kalması, bu bölgelerdeki bilimsel üretimin artırılması gerektiğini gös-
termektedir.

Bu bağlamda, gelecek araştırmaların multidisipliner yaklaşımla planlanması,
metodolojik standartların geliştirilmesi ve kapsayıcı veri üretimine önem veril-
mesi büyük önem taşımaktadır. Egzersiz, kolorektal kanserin önlenmesi ve yöne-
timinde halk sağlığı stratejilerinin merkezine alınmalı; klinik kılavuzlara entegre
edilerek bireysel ve toplumsal düzeyde uygulanabilir müdahalelerle desteklenme-
lidir.

KAYNAKLAR

- Allen, J. M., Mailing, L. J., Niemi, G. M., Moore, R., Cook, M. D., White, B. A., Holscher, H. D., & Woods, J. A. (2018). Exercise Alters Gut Microbiota Composition and Function in Lean and Obese Humans. *Medicine and Sports and Exercise*, 50(4), 747–757. <https://doi.org/10.1249/MSS.0000000000001495>
- Aria, M., & Cuccurullo, C. (2017). bibliometrix: An R-tool for comprehensive science mapping analysis. *Journal of Informetrics*, 11(4), 959–975. <https://doi.org/10.1016/J.JOI.2017.08.007>
- Bray, F., Laversanne, M., Sung, H., Ferlay, J., Siegel, R. L., Soerjomataram, I., & Jemal, A. (2024). Global cancer statistics 2022: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. *CA: A Cancer Journal for Clinicians*, 74(3), 229–263. <https://doi.org/10.3322/caac.21834>
- Colditz, G. A., Cannuscio, C. C., & Frazier, A. L. (1997a). Physical activity and reduced risk of colon cancer: implications for prevention. *Cancer Causes & Control : CCC*, 8(4), 649–667. <https://doi.org/10.1023/A:1018458700185>
- Colditz, G. A., Cannuscio, C. C., & Frazier, A. L. (1997b). Physical activity and reduced risk of colon cancer: implications for prevention. *Cancer Causes & Control : CCC*, 8(4), 649–667. <https://doi.org/10.1023/A:1018458700185>
- Courneya, K. S., Vardy, J. L., O'Callaghan, C. J., Gill, S., Friedenreich, C. M., Wong, R. K. S., Dhillon, H. M., Coyle, V., Chua, N. S., Jonker, D. J., Beale, P. J., Haider, K., Tang, P. A., Bonaventura, T., Wong, R., Lim, H. J., Burge, M. E., Hubay, S., Sanatani, M., ... Booth, C. M. (2025). Structured Exercise after Adjuvant Chemotherapy for Colon Cancer. *The New England Journal of Medicine*, 393(1), 13–25. <https://doi.org/10.1056/NEJMOA2502760>
- Duvivier, B. M. F. M., Schaper, N. C., Bremers, M. A., van Crombrugge, G., Menheere, P. P. C. A., Kars, M., & Savelberg, H. H. C. M. (2013). Minimal intensity physical activity (standing and walking) of longer duration improves insulin action and plasma lipids more than shorter periods of moderate to vigorous exercise (cycling) in sedentary subjects when energy expenditure is comparable. *PloS One*, 8(2). <https://doi.org/10.1371/JOURNAL.PONE.0055542>
- Giovannucci, E. (2001). Insulin, insulin-like growth factors and colon cancer: A review of the evidence. *Journal of Nutrition*, 131(11 SUPPL.). <https://doi.org/10.1093/jn/131.11.3109s>
- Johnson, C. M., Wei, C., Ensor, J. E., Smolenski, D. J., Amos, C. I., Levin, B., & Berry, D. A. (2013). Meta-analyses of colorectal cancer risk factors. *Cancer Causes & Control : CCC*, 24(6), 1207–1222. <https://doi.org/10.1007/S10552-013-0201-5>
- Lee, I. M. (2003). Physical activity and cancer prevention--data from epidemiologic studies. *Medicine and Science in Sports and Exercise*, 35(11), 1823–1827. <https://doi.org/10.1249/01.MSS.0000093620.27893.23>
- Lee, I. M., Paffenbarger, R. S., & Hsieh, C. cheng. (1991). Physical activity and risk of developing colorectal cancer among college alumni. *Journal of the National Cancer Institute*, 83(18), 1324–1329. <https://doi.org/10.1093/JNCI/83.18.1324>

- Malats, N., & Castaño-Vinyals, G. (2007). Cancer epidemiology: study designs and data analysis. *Clinical & Translational Oncology : Official Publication of the Federation of Spanish Oncology Societies and of the National Cancer Institute of Mexico*, 9(5), 290–297. <https://doi.org/10.1007/S12094-007-0056-X>
- Markozannes, G., Becerra-Tomás, N., Cariolou, M., Balducci, K., Vieira, R., Kiss, S., Aune, D., Greenwood, D. C., Gunter, M. J., Copson, E., Renehan, A. G., Bours, M., Demark-Wahnefried, W., Hudson, M. M., May, A. M., Odedina, F. T., Skinner, R., Steindorf, K., Tjønneland, A., ... Chan, D. S. M. (2024). Post-diagnosis physical activity and sedentary behaviour and colorectal cancer prognosis: A Global Cancer Update Programme (CUP Global) systematic literature review and meta-analysis. *International Journal of Cancer*, 155(3), 426–444. <https://doi.org/10.1002/IJC.34903>
- Mattiuzzi, C., & Lippi, G. (2019). Current Cancer Epidemiology. *Journal of Epidemiology and Global Health*, 9(4), 217. <https://doi.org/10.2991/JEGH.K.191008.001>
- Meyerhardt, J. A., Giovannucci, E. L., Holmes, M. D., Chan, A. T., Chan, J. A., Colditz, G. A., & Fuchs, C. S. (2006a). Physical activity and survival after colorectal cancer diagnosis. *Journal of Clinical Oncology : Official Journal of the American Society of Clinical Oncology*, 24(22), 3527–3534. <https://doi.org/10.1200/JCO.2006.06.0855>
- Meyerhardt, J. A., Giovannucci, E. L., Holmes, M. D., Chan, A. T., Chan, J. A., Colditz, G. A., & Fuchs, C. S. (2006b). Physical activity and survival after colorectal cancer diagnosis. *Journal of Clinical Oncology : Official Journal of the American Society of Clinical Oncology*, 24(22), 3527–3534. <https://doi.org/10.1200/JCO.2006.06.0855>
- Meyerhardt, J. A., Giovannucci, E. L., Ogino, S., Kirkner, G. J., Chan, A. T., Willett, W., & Fuchs, C. S. (2009a). Physical activity and male colorectal cancer survival. *Archives of Internal Medicine*, 169(22), 2102–2108. <https://doi.org/10.1001/ARCHINTERNMED.2009.412>
- Meyerhardt, J. A., Giovannucci, E. L., Ogino, S., Kirkner, G. J., Chan, A. T., Willett, W., & Fuchs, C. S. (2009b). Physical activity and male colorectal cancer survival. *Archives of Internal Medicine*, 169(22), 2102–2108. <https://doi.org/10.1001/ARCHINTERNMED.2009.412>
- Paschke, S., Jafarov, S., Staib, L., Kreuser, E. D., Maulbecker-Armstrong, C., Roitman, M., Holm, T., Harris, C. C., Link, K. H., & Kornmann, M. (2018). Are Colon and Rectal Cancer Two Different Tumor Entities? A Proposal to Abandon the Term Colorectal Cancer. *International Journal of Molecular Sciences*, 19(9). <https://doi.org/10.3390/IJMS19092577>
- Patel, A. V., Friedenreich, C. M., Moore, S. C., Hayes, S. C., Silver, J. K., Campbell, K. L., Winters-Stone, K., Gerber, L. H., George, S. M., Fulton, J. E., Denlinger, C., Morris, G. S., Hue, T., Schmitz, K. H., & Matthews, C. E. (2019). American College of Sports Medicine Roundtable Report on Physical Activity, Sedentary Behavior, and Cancer Prevention and Control. *Medicine and Science in Sports and Exercise*, 51(11), 2391–2402. <https://doi.org/10.1249/MSS.0000000000002117>
- Samad, A. K. A., Taylor, R. S., Marshall, T., & Chapman, M. A. S. (2005a). A meta-analysis of the association of physical activity with reduced risk of colorectal cancer. *Colorectal Disease : The Official Journal of the Association of Coloproctology of Great Britain and Ireland*, 7(3), 204–213. <https://doi.org/10.1111/J.1463-1318.2005.00747.X>
- Samad, A. K. A., Taylor, R. S., Marshall, T., & Chapman, M. A. S. (2005b). A meta-analysis of the association of physical activity with reduced risk of colorectal cancer. *Colorectal Disease : The Official Journal of the Association of Coloproctology of Great Britain and Ireland*, 7(3), 204–213. <https://doi.org/10.1111/J.1463-1318.2005.00747.X>
- Schottenfeld, D. (1981). The epidemiology of cancer: an overview. *Cancer*, 47(5), 1095. <https://pubmed.ncbi.nlm.nih.gov/7237366/>
- Schottenfeld, D., & Beebe-Dimmer, J. L. (2005a). Advances in cancer epidemiology: understanding causal mechanisms and the evidence for implementing interventions. *Annual Review of Public Health*, 26, 37–60. <https://doi.org/10.1146/ANNUREV.PUBLHEALTH.26.021304.144402>
- Schottenfeld, D., & Beebe-Dimmer, J. L. (2005b). Advances in cancer epidemiology: understanding causal mechanisms and the evidence for implementing interventions. *Annual Review of Public Health*, 26, 37–60. <https://doi.org/10.1146/ANNUREV.PUBLHEALTH.26.021304.144402>

- Slattery, M. L., Edwards, S., Curtin, K., Ma, K., Edwards, R., Holubkov, R., & Schaffer, D. (2003). Physical activity and colorectal cancer. *American Journal of Epidemiology*, 158(3), 214–224. <https://doi.org/10.1093/AJE/KWG134>
- Stein, M. J., Baurecht, H., Bohmann, P., Fervers, B., Fontvieille, E., Freisling, H., Friedenreich, C. M., Konzok, J., Peruchet-Noray, L., Sedlmeier, A. M., Leitzmann, M. F., & Weber, A. (2024a). Diurnal timing of physical activity and risk of colorectal cancer in the UK Biobank. *BMC Medicine*, 22(1), 1–11. <https://doi.org/10.1186/S12916-024-03632-4/TABLES/4>
- Stein, M. J., Baurecht, H., Bohmann, P., Fervers, B., Fontvieille, E., Freisling, H., Friedenreich, C. M., Konzok, J., Peruchet-Noray, L., Sedlmeier, A. M., Leitzmann, M. F., & Weber, A. (2024b). Diurnal timing of physical activity and risk of colorectal cancer in the UK Biobank. *BMC Medicine*, 22(1). <https://doi.org/10.1186/S12916-024-03632-4>
- Sung, H., Ferlay, J., Siegel, R. L., Laversanne, M., Soerjomataram, I., Jemal, A., & Bray, F. (2021). Global Cancer Statistics 2020: GLOBOCAN Estimates of Incidence and Mortality Worldwide for 36 Cancers in 185 Countries. *CA: A Cancer Journal for Clinicians*, 71(3), 209–249. <https://doi.org/10.3322/CAAC.21660>
- Tanik, F., Naz, İ., Kâtip Çelebi Üniversitesi Sağlık Bilimleri Fakültesi Fizyoterapi ve Rehabilitasyon Bölümü, İ., Yazar, S., Author, C., & Fzt İzmir Kâtip Çelebi Üniversitesi Sağlık Bilimleri Enstitüsü Fizyoterapi ve Rehabilitasyon Anabilim Dalı, U. (2022). Kanserde Fiziksel Aktivite ve Egzersiz - Koruyucu ve Tedavi Edici Etki. *İzmir Katip Çelebi University Faculty of Health Science Journal*, 7(1), 129–132. <https://dergipark.org.tr/en/pub/ikcusbfd/issue/68428/979502>
- The Cancer Genome Atlas Program (TCGA). (n.d.). Retrieved September 15, 2025, from <https://www.cancer.gov/ccg/research/genome-sequencing/tcga>
- Vena, J. E., Graham, S., Zielezny, M., Swanson, M. K., Barnes, R. E., & Nolan, J. (1985). Lifetime occupational exercise and colon cancer. *American Journal of Epidemiology*, 122(3), 357–365. <https://doi.org/10.1093/OXFORDJOURNALS.AJE.A114116>
- Wei, E. K., Giovannucci, E., Wu, K., Rosner, B., Fuchs, C. S., Willett, W. C., & Colditz, G. A. (2004). Comparison of risk factors for colon and rectal cancer. *International Journal of Cancer*, 108(3), 433–442. <https://doi.org/10.1002/IJC.11540>
- West, M. A., Loughney, L., Lythgoe, D., Barben, C. P., Sripadam, R., Kemp, G. J., Grocott, M. P. W., & Jack, S. (2015). Effect of prehabilitation on objectively measured physical fitness after neoadjuvant treatment in preoperative rectal cancer patients: A blinded interventional pilot study. *British Journal of Anaesthesia*, 114(2), 244–251. <https://doi.org/10.1093/bja/aeu318>
- Wolin, K. Y., Yan, Y., Colditz, G. A., & Lee, I. M. (2009a). Physical activity and colon cancer prevention: a meta-analysis. *British Journal of Cancer*, 100(4), 611–616. <https://doi.org/10.1038/SJ.BJC.6604917>
- Wolin, K. Y., Yan, Y., Colditz, G. A., & Lee, I. M. (2009b). Physical activity and colon cancer prevention: a meta-analysis. *British Journal of Cancer*, 100(4), 611–616. <https://doi.org/10.1038/SJ.BJC.6604917>
- Yin, Z., Yao, C., Zhang, L., & Qi, S. (2023). Application of artificial intelligence in diagnosis and treatment of colorectal cancer: A novel Prospect. *Frontiers in Medicine*, 10, 1128084. <https://doi.org/10.3389/FMED.2023.1128084>
- Yuhara, H., Steinmaus, C., Cohen, S. E., Corley, D. A., Tei, Y., & Buffler, P. A. (2011). Is diabetes mellitus an independent risk factor for colon cancer and rectal cancer? *The American Journal of Gastroenterology*, 106(11), 1911–1921. <https://doi.org/10.1038/AJG.2011.301>