

Nieschlag E, Nieschlag S. Testosterone deficiency: a historical perspective. *Asian J Androl.* 2014 Mar-Apr;16(2):161-8. doi: 10.4103/1008-682X.122358. PMID: 24435052; PMCID: PMC3955324.

Agarwal AK, Monder C (1988). In vitro metabolism of 7-alpha-methyl-19-nortestosterone by rat-liver, prostate, and epididymis. *Endocrinology* 123: 2187–2193.

Alen M, Hakkinen K (1987). Androgenic steroid effects on serum hormones and on maximal force development in strength athletes. *J Sports Med Phys Fitness* 27: 38–46.

Antonio J, Wilson JD, George FW (1999). Effects of castration and androgen treatment on androgen-receptor levels in rat skeletal muscles. *J Appl Physiol* 87: 2016–2019.

Bardin CW, Lipsett MB (1967). Testosterone and androstenedione blood production rates in normal women and women with idiopathic hirsutism or polycystic ovaries. *J Clin Invest* 46: 891–902.

Bartsch W, Krieg M, Voigt KD (1980). Quantification of endogenous testosterone, 5-alpha-dihydrotestosterone and 5-alpha-androstane-3-alpha, 17-beta-diol in subcellular fractions of the prostate, bulbocavernosus/levator ani muscle, skeletal muscle and heart muscle of the rat. *J Steroid Biochem* 13: 259–264.

Basaria S, Wahlstrom JT, Dobs AS (2001). Anabolic-androgenic steroid therapy in the treatment of chronic diseases. *J Clin Endocrinol Metab* 86: 5108–5117.

<https://doi.org/10.1038/bjp.2008.165>

Kicman AT. Pharmacology of anabolic steroids. *Br J Pharmacol.* 2008 Jun;154(3):502-21. doi: 10.1038/bjp.2008.165. PMID: 18500378; PMCID: PMC2439524.

Österbrand M, Fors H, Norjavaara E. Pharmacological treatment for pubertal progression in boys with delayed or slow progression of puberty: A small-scale randomized study with testosterone enanthate and testosterone undecanoate treatment. *Front Endocrinol (Lausanne).* 2023 Apr 14;14:1158219. doi: 10.3389/fendo.2023.1158219. PMID: 37124726; PMCID: PMC10140442.

Anabolic Steroid (Oral Route, Parenteral Route).” Mayo Clinic, 1 June 2023, www.mayoclinic.org/drugs-supplements/anabolic-steroid-oral-route-parenteral-route/description/drg-20069323. Accessed 18 Aug. 2023.

Anabolic Steroids and Sport: Winning at Any Cost.” New York State Department of Health, www.health.ny.gov/publications/1210/. Accessed 9 Jul. 2024.

Craig, Charles R., and Robert E. Stitzel, eds. *Modern Pharmacology with Clinical Applications*. 6th ed., Lippincott, 2004.

Guyton, Arthur C., and John E. Hall. *Human Physiology and Mechanisms of Disease*. 6th ed. Philadelphia: W. B. Saunders, 1997.

Henry, Helen L., and Anthony W. Norman, eds. *Encyclopedia of Hormones*. 3 vols. Academic Press, 2003.

Melmed, Schlomo, and Robert Hardin Williams, eds. *Williams Textbook of Endocrinology*. 12th ed., Saunders/Elsevier, 2011.

Montgomery, Rex, et al. *Biochemistry: A Case-Oriented Approach*. 6th ed. St. Louis, Mo.: Mosby, 1996.

“Steroids.” MedlinePlus, medlineplus.gov/steroids.html. 18 Aug. 2023.

“Steroids.” National Health Service, 19 Apr. 2023, www.nhs.uk/conditions/steroids/. Accessed 9 Jul. 2024.

Tortora, Gerard J., and Bryan Derrickson. *Principles of Anatomy and Physiology*. 16th ed., John Wiley & Sons, 2021.

Zelman, Mark, et al. *Human Diseases: A Systemic Approach*. 8th ed., Pearson, 2015.

Lieberman HR, Caldwell JA, Vartanian O, Carmichael OT, Karl JP, Berryman CE, Gadde KM, Niro PJ, Harris MN, Rood JC, Pasiakos SM. Effects of testosterone enanthate on aggression, risk-taking, competition, mood, and other cognitive domains during 28 days of severe energy deprivation. *Psychopharmacology (Berl)*. 2024 Mar;241(3):461-478. doi: 10.1007/s00213-023-06502-8. Epub 2023 Dec 1. PMID: 38038817; PMCID: PMC10884082.

Stein JA, Karl JP, Berryman CE, Harris MN, Rood JC, Pasiakos SM, Lieberman HR. Metabolomics of testosterone enanthate administration during severe-energy deficit. *Metabolomics*. 2022 Nov 30;18(12):100. doi: 10.1007/s11306-022-01955-y. PMID: 36450940; PMCID: PMC9712311.

Rivero MJ, Ory J, Diaz P, Thirumavalavan N, Han S, Reis IM, Ramasamy R. Comparison of Hematocrit Change in Testosterone-deficient Men Treated With Intranasal Testosterone Gel vs Intramuscular Testosterone Cypionate: A Randomized Clinical Trial. *J Urol.* 2023 Jul;210(1):162-170. doi: 10.1097/JU.0000000000003487. Epub 2023 May 1. PMID: 37126399.

Sampaio LV, Landim HRDS, Vazão AR, Fiais GA, de Freitas RN, Veras ASC, Dornelles RCM, Fakhouri WD, Lima RR, Teixeira GR, Chaves-Neto AH. Effects of a supraphysiological dose of testosterone cypionate on salivary gland function in adult male Wistar rats. *J Steroid Biochem Mol Biol.* 2024 Oct;243:106587. doi: 10.1016/j.jsbmb.2024.106587. Epub 2024 Jul 14. PMID: 39004377.

Choi EJ, Xu P, Barham D, El-Khatib FM, Yafi FA, Kavoussi PK. Comparison of Outcomes for Hypogonadal Men Treated with Intramuscular Testosterone Cypionate versus Subcutaneous Testosterone Enanthate. *J Urol.* 2022 Mar;207(3):677-683. doi: 10.1097/JU.0000000000002301. Epub 2021 Oct 25. PMID: 34694927.

Vieira TM, Rossi Junior WC, Da Ré Guerra F, Damião B, Marques PP, Esteves A. Effect of testosterone cypionate and stanozolol on the heart of young trained mice: A morphometric study. *Steroids*. 2019 May;145:19-22. doi: 10.1016/j.steroids.2019.02.011. Epub 2019 Feb 15. PMID: 30772437.

Abdel-Raouf M, Hussein HA. Effect of long-term testosterone propionate or human chorionic gonadotrophin administration on reproductive glands in adult male rabbits. *Andrologia*. 2015 May;47(4):455-63. doi: 10.1111/and.12288. Epub 2014 May 9. PMID: 24811403.

Parrilla-Carrero J, Figueroa O, Lugo A, García-Sosa R, Brito-Vargas P, Cruz B, Rivera M, Barreto-Estrada JL. The anabolic steroids testosterone propionate and nandrolone, but not 17alpha-methyltestosterone, induce conditioned place preference in adult mice. *Drug Alcohol Depend.* 2009 Feb 1;100(1-2):122-7. doi: 10.1016/j.drugalcdep.2008.09.014. Epub 2008 Nov 22. PMID: 19028026; PMCID: PMC2671726.

Ung RV, Rouleau P, Guertin PA. Effects of co-administration of clenbuterol and testosterone propionate on skeletal muscle in paraplegic mice. *J Neurotrauma*. 2010 Jun;27(6):1129-42. doi: 10.1089/neu.2009.1211. PMID: 20482256.

Cui R, Zhang G, Kang Y, Cheng Q, Tan H, Cui H, Shi G. Amelioratory effects of testosterone propionate supplement on behavioral,

biochemical and morphological parameters in aged rats. *Exp Gerontol*. 2012 Jan;47(1):67-76. doi: 10.1016/j.exger.2011.10.009. Epub 2011 Oct 29. PMID: 22075531.

Bates PC, Chew LF, Millward DJ. Effects of the anabolic steroid stanozolol on growth and protein metabolism in the rat. *J Endocrinol*. 1987 Sep;114(3):373-81. doi: 10.1677/joe.0.1140373. PMID: 3668427.

Scaletti Hutchinson E, Gustafsson Westergren R, Almlöf I, Jemth AS, Scobie M, Warpman Berglund U, Helleday T, Stenmark P. The anabolic steroid stanozolol is a potent inhibitor of human MutT homolog 1. *FEBS Lett*. 2025 Oct;599(19):2790-2801. doi: 10.1002/1873-3468.70116. Epub 2025 Jul 27. PMID: 40878820; PMCID: PMC12519060.

Falanga V, Greenberg AS, Zhou L, Ochoa SM, Roberts AB, Falabella A, Yamaguchi Y. Stimulation of collagen synthesis by the anabolic steroid stanozolol. *J Invest Dermatol*. 1998 Dec;111(6):1193-7. doi: 10.1046/j.1523-1747.1998.00431.x. PMID: 9856839.

Vaishnav R, Beresford JN, Gallagher JA, Russell RG. Effects of the anabolic steroid stanozolol on cells derived from human bone. *Clin Sci (Lond)*. 1988 May;74(5):455-60. doi: 10.1042/cs0740455. PMID: 3259487.

Lye MD, Ritch AE. A double-blind trial of an anabolic steroid (stanozolol) in the disabled elderly. *Rheumatol Rehabil*. 1977 Feb;16(1):62-9. doi: 10.1093/rheumatology/16.1.62. PMID: 139671.

Borodi G, Turza A, Bende A. Exploring the Polymorphism of Drostanolone Propionate. *Molecules*. 2020 Mar 21;25(6):1436. doi: 10.3390/molecules25061436. PMID: 32245263; PMCID: PMC7145311.

Van Hoof N, Courtheyn D, Gillis W, Van Hende J, Van Peteghem C, Van de Wiele M, Poelmans S, Noppe H, Van Poucke C, Cobbaert E, Vanthemse P, De Brabander HF. Metabolism of methenolone acetate in a veal calf. *Vet Res Commun*. 2007 Apr;31(3):259-72. doi: 10.1007/s11259-006-3432-z. Epub 2006 Dec 23. PMID: 17216314.

Kicman AT, Cowan DA, Myhre L, Nilsson S, Tomten S, Oftebro H. Effect on sports drug tests of ingesting meat from steroid (methenolone)-treated livestock. *Clin Chem*. 1994 Nov;40(11 Pt 1):2084-7. PMID: 7955383.

Ushimaru S, Sumi H, Aso M, Fujishima R, Shiizaki K, Tominaga N. Attenuation of Bone Mineral Density Decline During Anemia Treatment With Methenolone Acetate in Myelodysplastic Syndrome. *JCEM Case Rep*. 2024 Apr 15;2(4):luæ055. doi: 10.1210/jcemcr/luæ055. PMID: 38623532; PMCID: PMC11017109.

Kintz P, Cirimele V, Dumeštre-Toulet V, Villain M, Ludes B. Doping control for methenolone using hair analysis by gas chromatography-tandem mass spectrometry. *J Chromatogr B Analyt Technol Biomed Life Sci*. 2002 Jan 5;766(1):161-7. doi: 10.1016/s0378-4347(01)00425-x. PMID: 11820291.

Patanè FG, Liberto A, Maria Maglitta AN, Malandrino P, Esposito M, Amico F, Cocimano G, Rosi GL, Condorelli D, Nunno ND, Montana A. Nandrolone Decanoate: Use, Abuse and Side Effects. *Medicina (Kaunas)*. 2020 Nov 11;56(11):606. doi: 10.3390/medicina56110606. PMID: 33187340; PMCID: PMC7696474.

Prokopidis K, Ispoglou T, Thompson T, Sanchez-Rodriguez D, Hergelegiu AM, Balci C, Alves M, Pizzol D, McLean J, Soysal P, Unim B, Cherubini A, Veronese N; Special Interest Group in Systematic Reviews and Meta-analyses of the European Geriatric Medicine Society (EuGMS). Effects of Nandrolone Decanoate on Muscle Strength, Body Composition and Bone Density: A Systematic Review and Meta-Analysis. *J Cachexia Sarcopenia Muscle*. 2026 Apr;17(2):e70276. doi: 10.1002/jcsm.70276. PMID: 41936385; PMCID: PMC13052333.

Pozzi R, Fernandes L, Cavalcante da Silva V, D'Almeida V. Nandrolone decanoate and resistance exercise affect body composition and energy metabolism. *Steroids*. 2021 Oct;174:108899. doi: 10.1016/j.steroids.2021.108899. Epub 2021 Aug 3. PMID: 34358557.

Zellerroth S, Nylander E, Kjellgren E, Grönbladh A, Hallberg M. Nandrolone decanoate and testosterone undecanoate differently affect stress hormones, neurotransmitter systems, and general activity in the male rat. *Behav Brain Res*. 2022 Aug 26;432:113971. doi: 10.1016/j.bbr.2022.113971. Epub 2022 Jun 20. PMID: 35738337.

Geusens P. Nandrolone decanoate: pharmacological properties and therapeutic use in osteoporosis. *Clin Rheumatol*. 1995 Sep;14 Suppl 3:32-9. doi: 10.1007/BF02210686. PMID: 8846659.

Borecki R, Byczkiewicz P, Słowikowska-Hilczek J. Impact of trenbolone on selected organs. *Endokrynol Pol*. 2024;75(3):267-278. doi: 10.5603/ep.99130. Epub 2024 Jun 18. PMID: 38887114.

Zellerroth S, Stam F, Nylander E, Kjellgren E, Gising J, Larhed M, Grönbladh A, Hallberg M. The decanoate esters of nandrolone, testosterone, and trenbolone induce steroid specific memory impairment and somatic effects in the male rat. *Horm Behav*. 2024 May;161:105501. doi: 10.1016/j.yhbeh.2024.105501. Epub 2024 Feb 17. PMID: 38368844.

Piatkowski TM, Neumann DL, Dunn M. 'My mind pretty much went to mush': A qualitative exploration of trenbolone in the performance and image enhancing drug community. *Drug Alcohol Rev*. 2023 Sep;42(6):1566-1576. doi: 10.1111/dar.13656. Epub 2023 Mar 29. PMID: 36992616.

Borecki R, Byczkiewicz P, Słowikowska-Hilczek J. Impact of trenbolone on selected organs. *Endokrynol Pol*. 2024;75(3):267-278. doi: 10.5603/ep.99130. Epub 2024 Jun 18. PMID: 38887114.

López-Bote C, Sancho G, Martínez M, Ventanas J, Gázquez A, Roncero V. Trenbolone acetate induced changes in the genital tract of male pigs. *Zentralbl Veterinarmed B*. 1994 Mar;41(1):42-8. doi: 10.1111/j.1439-0450.1994.tb00204.x. PMID: 7941846.

Piatkowski T, De Andrade D, Neumann D, Tisdale C, Dunn M. Examining the association between trenbolone, psychological distress, and aggression among males who use anabolic-androgenic steroids. *Int J Drug Policy*. 2024 Dec;134:104636. doi: 10.1016/j.drugpo.2024.104636. Epub 2024 Oct 31. PMID: 39486244.

Morano I. Influence of exercise and Dianabol on the degradation rate of myofibrillar proteins of the heart and three fiber types of skeletal muscle of female guinea pigs. *Int J Sports Med*. 1984 Dec;5(6):317-9. doi: 10.1055/s-2008-1025924. PMID: 6511149.

Hickson RC, Heusner WW, Huss WD, Jackson DE, Anderson DA, Jones DA, Psalidas AT. Effects of dianabol and high-intensity sprint training on body composition of rats. *Med Sci Sports*. 1976 Fall;8(3):191-5. doi: 10.1249/00005768-197600830-00011. PMID: 979567.

Schroeder ET, Zheng L, Yarasheski KE, Qian D, Stewart Y, Flores C, Martinez C, Terk M, Sattler FR. Treatment with oxandrolone and the durability of effects in older men. *J Appl Physiol* (1985). 2004 Mar;96(3):1055-62. doi: 10.1152/japphysiol.00808.2003. Epub 2003 Oct 24. PMID: 14578370.

Papadopoulos P, Wang C, Savoie FH 3rd, You Z, Ge D. Oxandrolone treatment prevents muscle atrophy and retraction after rotator cuff injury: an experimental study in rats. *JSES Rev Rep Tech*. 2025 Aug 18;5(4):625-634. doi: 10.1016/j.xrrt.2025.08.003. PMID: 41179411;

PMCID: PMC12573484.

- Chao T, Porter C, Herndon DN, Siopi A, Ideker H, Mlcak RP, Sidossis LS, Suman OE. Propranolol and Oxandrolone Therapy Accelerated Muscle Recovery in Burned Children. *Med Sci Sports Exerc.* 2018 Mar;50(3):427-435. doi: 10.1249/MSS.0000000000001459. PMID: 29040226; PMCID: PMC5820183.
- Hart DW, Wolf SE, Ramzy PI, Chinkes DL, Beauford RB, Ferrando AA, Wolfe RR, Herndon DN. Anabolic effects of oxandrolone after severe burn. *Ann Surg.* 2001 Apr;233(4):556-64. doi: 10.1097/0000658-200104000-00012. PMID: 11303139; PMCID: PMC1421286.
- Marin E, Torres NV, Severo MMR, Santos NG, Cattani S, Rossato-Grando LG, Dallegre E, Leal MB, Gomez R, Garcia SC, Arbo MD, Arbo BD. Effects of repeated administration of oxandrolone in female wistar rats undergoing strength training. *J Steroid Biochem Mol Biol.* 2026 Apr;258:106949. doi: 10.1016/j.jsbmb.2026.106949. Epub 2026 Jan 29. PMID: 41620041.
- Chaipokam J, Rojnuckarin P. Good response to oxymetholone in adult aplastic anemia. *Ann Hematol.* 2025 Jul;104(7):3609-3618. doi: 10.1007/s00277-025-06460-5. Epub 2025 Jun 14. PMID: 40515826; PMCID: PMC12334477.
- Tarashande Foumani A, Elyasi F. Oxymetholone-Induced Acute Renal Failure: A Case Report. *Caspian J Intern Med.* 2018 Fall;9(4):410-412. doi: 10.22088/cjim.9.4.406. PMID: 30510659; PMCID: PMC6230458.
- Pavlatos AM, Fultz O, Monberg MJ, Vootkur A, Pharmd. Review of oxymetholone: a 17alpha-alkylated anabolic-androgenic steroid. *Clin Ther.* 2001 Jun;23(6):789-801; discussion 771. doi: 10.1016/s0149-2918(01)80070-9. PMID: 11440282.
- Chang JC, Slutzker B, Lindsay N. Remission of pure red cell aplasia following oxymetholone therapy. *Am J Med Sci.* 1978 May-Jun;275(3):345-51. doi: 10.1097/0000441-197805000-00012. PMID: 686041.
- Elmajdoub A, Garbaj A, Abolghait S, El-Mahmoudy A. Evaluation of boldenone as a growth promoter in broilers: safety and meat quality aspects. *J Food Drug Anal.* 2016 Apr;24(2):284-292. doi: 10.1016/j.jfda.2015.12.001. Epub 2016 Feb 23. PMID: 28911580; PMCID: PMC9339561.
- Behairy A, Mohamed WAM, Ebraheim LLM, Soliman MM, Abd-Elhakim YM, El-Sharkawy NI, Saber TM, El Deib MM. Boldenone Undecylenate-Mediated Hepatorenal Impairment by Oxidative Damage and Dysregulation of Heat Shock Protein 90 and Androgen Receptors Expressions: Vitamin C Preventive Role. *Front Pharmacol.* 2021 Apr 27;12:651497. doi: 10.3389/fphar.2021.651497. PMID: 33986679; PMCID: PMC8111012.
- Oda SS, El-Ashmawy IM. Adverse effects of the anabolic steroid, boldenone undecylenate, on reproductive functions of male rabbits. *Int J Exp Pathol.* 2012 Jun;93(3):172-8. doi: 10.1111/j.1365-2613.2012.00814.x. PMID: 22583130; PMCID: PMC3385914.
- Cannizzo FT, Zancanaro G, Spada F, Mulasso C, Biolatti B. Pathology of the testicle and sex accessory glands following the administration of boldenone and boldione as growth promoters in veal calves. *J Vet Med Sci.* 2007 Nov;69(11):1109-16. doi: 10.1292/jvms.69.1109. PMID: 18057824.
- Moriarty N, Attar N. Clenbuterol-Induced Myocarditis: A Case Report. *Eur J Case Rep Intern Med.* 2020 Jun 24;7(9):001662. doi: 10.12890/2020_001662. PMID: 32908823; PMCID: PMC7473675.
- Kataveni S, Gourishetty RP, Mundada SM, Avvaru MP, Kollipara VS, Gottimukkala SP. Clenbuterol Abuse in Bodybuilding and Athletics: Unsupervised Use, Psychological Motivations, and Health Consequences. *Cureus.* 2025 May 27;17(5):e84904. doi: 10.7759/cureus.84904. PMID: 40575216; PMCID: PMC12200009.
- Hostrup M, Moesgaard L, Fischer M, Wickham KA, Pleshardt M, Andersen AB, Beijder J, Thomassen M, Nielsen JJ, Dehnes Y, Bangsbo J, Nordsborg NB, Jessen S. Clenbuterol induces lean mass and muscle protein accretion, but attenuates cardiorespiratory fitness and desensitizes muscle β_2 -adrenergic signalling. *J Physiol.* 2025 Oct;603(19):5529-5545. doi: 10.1113/JP289023. Epub 2025 Sep 14. PMID: 40946331; PMCID: PMC12487599.
- Nass R, Huber RM, Klauss V, Müller OA, Schopohl J, Strasburger CJ. Effect of growth hormone (hGH) replacement therapy on physical work capacity and cardiac and pulmonary function in patients with hGH deficiency acquired in adulthood. *J Clin Endocrinol Metab.* 1995 Feb;80(2):552-7. doi: 10.1210/jcem.80.2.7852519. PMID: 7852519.
- Kniess A, Ziegler E, Kratzsch J, Thieme D, Müller RK. Potential parameters for the detection of hGH doping. *Anal Bioanal Chem.* 2003 Jul;376(5):696-700. doi: 10.1007/s00216-003-1926-x. Epub 2003 May 16. PMID: 12750868.
- Baumann GP. Growth hormone doping in sports: a critical review of use and detection strategies. *Endocr Rev.* 2012 Apr;33(2):155-86. doi: 10.1210/er.2011-1035. Epub 2012 Feb 24. PMID: 22368183.
- Widdowson WM, Gibney J. The effect of growth hormone replacement on exercise capacity in patients with GH deficiency: a meta-analysis. *J Clin Endocrinol Metab.* 2008 Nov;93(11):4413-7. doi: 10.1210/jc.2008-1239. Epub 2008 Aug 12. PMID: 18697875.
- Rhoads RP, Baumgard LH, El-Kadi SW, Zhao LD. PHYSIOLOGY AND ENDOCRINOLOGY SYMPOSIUM: Roles for insulin-supported skeletal muscle growth. *J Anim Sci.* 2016 May;94(5):1791-802. doi: 10.2527/jas.2015-0110. PMID: 27285676.
- Cheek DB, Graystone JE. Insulin and growth hormone: regulators of growth with particular reference to muscle. *Kidney Int.* 1978 Oct;14(4):317-22. doi: 10.1038/ki.1978.130. PMID: 366225.
- Anderson LJ, Tamayose JM, Garcia JM. Use of growth hormone, IGF-I, and insulin for anabolic purpose: Pharmacological basis, methods of detection, and adverse effects. *Mol Cell Endocrinol.* 2018 Mar 15;464:65-74. doi: 10.1016/j.mce.2017.06.010. Epub 2017 Jun 9. PMID: 28606865; PMCID: PMC5723243.
- Molinoff PB, Shadiack AM, Earle D, Diamond LE, Quon CY. PT-141: a melanocortin agonist for the treatment of sexual dysfunction. *Ann N Y Acad Sci.* 2003 Jun;994:96-102. doi: 10.1111/j.1749-6632.2003.tb03167.x. PMID: 12851303.
- Flores JM, Salter CA, Mulhall JP. Clomiphene citrate therapy for testosterone deficiency: a proposed clinical care pathway. *J Sex Med.* 2023 Apr 27;20(5):588-590. doi: 10.1093/jsxmed/qdad030. PMID: 37122109; PMCID: PMC10149379.
- AinMelk Y, Belisle S, Carmel M, Jean-Pierre T. Tamoxifen citrate therapy in male infertility. *Fertil Steril.* 1987 Jul;48(1):113-7. doi: 10.1016/s0015-0282(16)59299-1. PMID: 3297810.
- Behjati S, Frank MH. The effects of tamoxifen on immunity. *Curr Med Chem.* 2009;16(24):3076-80. doi: 10.2174/092986709788803042. PMID: 19689284; PMCID: PMC2902982.
- Barakat RR. The effect of tamoxifen on the endometrium. *Oncology (Williston Park).* 1995 Feb;9(2):129-34; discussion 139-40, 142. PMID: 8771096.

Wibowo E, Pollock PA, Hollis N, Wassersug RJ. Tamoxifen in men: a review of adverse events. *Andrology*. 2016 Sep;4(5):776-88. doi: 10.1111/andr.12197. Epub 2016 May 6. PMID: 27152880.

Viani GA, Bernardes da Silva LG, Stefano EJ. Prevention of gynecomastia and breast pain caused by androgen deprivation therapy in prostate cancer: tamoxifen or radiotherapy? *Int J Radiat Oncol Biol Phys*. 2012 Jul 15;83(4):e519-24. doi: 10.1016/j.ijrobp.2012.01.036. PMID: 22704706.

Di Lorenzo G, Perdonà S, De Placido S, D'Armiento M, Gallo A, Damiano R, Pingitore D, Gallo L, De Sio M, Autorino R. Gynecomastia and breast pain induced by adjuvant therapy with bicalutamide after radical prostatectomy in patients with prostate cancer: the role of tamoxifen and radiotherapy. *J Urol*. 2005 Dec;174(6):2197-203. doi: 10.1097/01.ju.0000181824.28382.5c. PMID: 16280763.

Flores JM, Salter CA, Mulhall JP. Clomiphene citrate therapy for testosterone deficiency: a proposed clinical care pathway. *J Sex Med*. 2023 Apr 27;20(5):588-590. doi: 10.1093/jsxmed/qdad030. PMID: 37122109; PMCID: PMC10149379.

Huijben M, Lock MTWT, de Kemp VF, de Kort LMO, van Breda HMK. Clomiphene citrate for men with hypogonadism: a systematic review and meta-analysis. *Andrology*. 2022 Mar;10(3):451-469. doi: 10.1111/andr.13146. Epub 2022 Jan 8. PMID: 34933414.

Huijben M, Huijsmans RLN, Lock MTWT, de Kemp VF, de Kort LMO, van Breda JHMK. Clomiphene citrate for male infertility: A systematic review and meta-analysis. *Andrology*. 2023 Sep;11(6):987-996. doi: 10.1111/andr.13388. Epub 2023 Jan 29. PMID: 36680549.

Delu A, Kiltz RJ, Kuznetsov VA, Trussell JC. Clomiphene citrate improved testosterone and sperm concentration in hypogonadal males. *Syst Biol Reprod Med*. 2020 Dec;66(6):364-369. doi: 10.1080/19396368.2020.1822457. Epub 2020 Oct 12. PMID: 33043679.

Guo B, Li JJ, Ma YL, Zhao YT, Liu JG. Efficacy and safety of letrozole or anastrozole in the treatment of male infertility with low testosterone-estradiol ratio: A meta-analysis and systematic review. *Andrology*. 2022 Jul;10(5):894-909. doi: 10.1111/andr.13185. Epub 2022 Apr 26. PMID: 35438843.

Ceccato F, Lizzul L, Voltan G, Barbot M, Scaroni C. Anastrozole as add-on therapy for cabergoline-resistant prolactin-secreting pituitary adenomas: real-life experience in male patients. *Pituitary*. 2021 Dec;24(6):914-921. doi: 10.1007/s11102-021-01165-0. Epub 2021 Jun 26. PMID: 34173929; PMCID: PMC8550050.

Yang Y, Chen S, Chen H, Guo Y, Teng X. The efficacy of anastrozole in subfertile men with and without abnormal testosterone to estradiol ratios. *Transl Androl Urol*. 2022 Sep;11(9):1262-1270. doi: 10.21037/tau-22-95. PMID: 36217397; PMCID: PMC9547167.

Almaman AA. Effect of testosterone boosters on body functions: Case report. *Int J Health Sci (Qassim)*. 2018 Mar-Apr;12(2):86-90. PMID: 29599700; PMCID: PMC5870326.

Clemesha CG, Thaker H, Samplaski MK. 'Testosterone Boosting' Supplements Composition and Claims Are not Supported by the Academic Literature. *World J Mens Health*. 2020 Jan;38(1):115-122. doi: 10.5534/wjmh.190043. Epub 2019 Jun 14. PMID: 31385468; PMCID: PMC6920068.

Melville GW, Siegler JC, Marshall PWM. The effects of d-aspartic acid supplementation in resistance-trained men over a three month training period: A randomised controlled trial. *PLoS One*. 2017 Aug 25;12(8):e0182630. doi: 10.1371/journal.pone.0182630. PMID: 28841667; PMCID: PMC5571970.

Wiciński M, Fajkiel-Madajczyk A, Sławatycki J, Szambelan M, Szyperski P, Wojciechowski P, Wójcicki J, Gawryjolek M. Ashwagandha (*Withania somnifera*) and Its Effects on Well-Being-A Review. *Nutrients*. 2025 Jun 27;17(13):2143. doi: 10.3390/nu17132143. PMID: 40647248; PMCID: PMC12252077.

Visuvanathan T, Than LTL, Stanslas J, Chew SY, Vellasamy S. Revisiting *Trigonella foenum-graecum* L.: Pharmacology and Therapeutic Potentialities. *Plants (Basel)*. 2022 May 29;11(11):1450. doi: 10.3390/plants11111450. PMID: 35684222; PMCID: PMC9182856.

Atkinson RL, Blank RC, Loper JF, Schumacher D, Lutes RA. Combined drug treatment of obesity. *Obes Res*. 1995 Nov;3 Suppl 4:497S-500S. doi: 10.1002/j.1550-8528.1995.tb00218.x. PMID: 8697049.

Wilborn CD, Kerksick CM, Campbell BI, Taylor LW, Marcello BM, Rasmussen CJ, Greenwood MC, Almada A, Kreider RB. Effects of Zinc Magnesium Aspartate (ZMA) Supplementation on Training Adaptations and Markers of Anabolism and Catabolism. *J Int Soc Sports Nutr*. 2004 Dec 31;1(2):12-20. doi: 10.1186/1550-2783-1-2-12. PMID: 18500945; PMCID: PMC2129161.

Lee JY, Bang J, Kim J, Baek KS, Oh D, Lee YH. Effect of Fenugreek Extract on Testosterone Propionate-Induced Benign Prostatic Hyperplasia. *Int J Mol Sci*. 2025 Jan 31;26(3):1261. doi: 10.3390/ijms26031261. PMID: 39941027; PMCID: PMC11818512.

Nowacka A, Śniegocka M, Śniegocki M, Ziółkowska E, Bożiłow D, Smuczyński W. Multifaced Nature of Yohimbine-A Promising Therapeutic Potential or a Risk? *Int J Mol Sci*. 2024 Nov 29;25(23):12856. doi: 10.3390/ijms252312856. PMID: 39684567; PMCID: PMC11641166.

Csajka C, Haller CA, Benowitz NL, Verotta D. Mechanistic pharmacokinetic modelling of ephedrine, norephedrine and caffeine in healthy subjects. *Br J Clin Pharmacol*. 2005 Mar;59(3):335-45. doi: 10.1111/j.1365-2125.2005.02254.x. PMID: 15752380; PMCID: PMC1884794.

Pilz S, Frisch S, Koertke H, Kuhn J, Dreier J, Obermayer-Pietsch B, Wehr E, Zittermann A. Effect of vitamin D supplementation on testosterone levels in men. *Horm Metab Res*. 2011 Mar;43(3):223-5. doi: 10.1055/s-0030-1269854. Epub 2010 Dec 10. PMID: 21154195.

Pizzorno L. Nothing Boring About Boron. *Integr Med (Encinitas)*. 2015 Aug;14(4):35-48. PMID: 26770156; PMCID: PMC4712861.

Jadhav N, Ajgaonkar S, Saha P, Gurav P, Pandey A, Basudkar V, Gada Y, Panda S, Jadhav S, Mehta D, Nair S. Molecular Pathways and Roles for Vitamin K2-7 as a Health-Beneficial Nutraceutical: Challenges and Opportunities. *Front Pharmacol*. 2022 Jun 14;13:896920. doi: 10.3389/fphar.2022.896920. PMID: 35774605; PMCID: PMC9237441.

Osmanska J, Petrie MC, Docherty KF, Lee MMY, McMurray JJV, Campbell RT. Subcutaneous furosemide in heart failure: a systematic review. *Eur Heart J Cardiovasc Pharmacother*. 2025 Feb 8;11(1):94-104. doi: 10.1093/ehjcvp/pvae083. PMID: 39520561; PMCID: PMC11805693.

Kreider RB, Stout JR. Creatine in Health and Disease. *Nutrients*. 2021 Jan 29;13(2):447. doi: 10.3390/nu13020447. PMID: 33572884; PMCID: PMC7910963.

Trexler ET, Smith-Ryan AE, Stout JR, Hoffman JR, Wilborn CD, Sale C, Kreider RB, Jäger R, Earnest CP, Bannock L, Campbell B, Kalman D, Ziegenfuss TN, Antonio J. International society of sports nutrition position stand: Beta-Alanine. *J Int Soc Sports Nutr*. 2015 Jul 15;12:30. doi: 10.1186/s12970-015-0090-y. PMID: 26175657; PMCID: PMC4501114.

Courel-Ibáñez J, Vetrovsky T, Dadova K, Pallarés JG, Steffl M. Health Benefits of β -Hydroxy- β -Methylbutyrate (HMB) Supplementation in Addition to Physical Exercise in Older Adults: A Systematic Review with Meta-Analysis. *Nutrients*. 2019 Sep 3;11(9):2082. doi: 10.3390/nu11092082. PMID: 31484462; PMCID: PMC6769498.

Hepsomali P, Groeger JA, Nishihira J, Scholey A. Effects of Oral Gamma-Aminobutyric Acid (GABA) Administration on Stress and Sleep in Humans: A Systematic Review. *Front Neurosci*. 2020 Sep 17;14:923. doi: 10.3389/fnins.2020.00923. PMID: 33041752; PMCID: PMC7527439.

Lo TE, Andal ZC, Lantion-Ang FL. Fluoxymesterone-induced gynaecomastia in a patient with childhood aplastic anaemia. *BMJ Case Rep*. 2015 May 6;2015:bcr2014207474. doi: 10.1136/bcr-2014-207474. PMID: 25948845; PMCID: PMC4434366.

Tomas FM, Lemmey AB, Read LC, Ballard FJ (1996). "Superior potency of infused IGF-I analogues which bind poorly to IGF-binding proteins is maintained when administered by injection". *J. Endocrinol*. 150 (1): 77–84.

Mohan S, Baylink DJ (2002). "IGF-binding proteins are multifunctional and act via IGF-dependent and -independent mechanisms". *J. Endocrinol*. 175 (1): 19–31.

Tomas FM, Knowles SE, Owens PC, Chandler CS, Francis GL, Read LC, Ballard FJ (1992). "Insulin-like growth factor-I (IGF-I) and especially IGF-I variants are anabolic in dexamethasone-treated rats". *Biochem. J*. 282 (Pt 1) (Pt 1): 91–7.

von der Thüsen JH, Borensztajn KS, Moimas S, van Heiningen S, Teeling P, van Berkel TJ, Biessen EA (2011). "IGF-1 has plaque-stabilizing effects in atherosclerosis by altering vascular smooth muscle cell phenotype". *Am. J. Pathol*. 178 (2): 924–34.

Esposito S, Deventer K, Goeman J, Van der Eycken J, Van Eenoo P (September 2012). "Synthesis and characterization of the N-terminal acetylated 17-23 fragment of thymosin beta 4 identified in TB-500, a product suspected to possess doping potential". *Drug Testing and Analysis*. 4 (9): 733–738.

Van Troys M, Dewitte D, Goethals M, Carlier MF, Vandekerckhove J, Ampe C (January 1996). "The actin binding site of thymosin beta 4 mapped by mutational analysis". *The EMBO Journal*. 15 (2): 201–210.

Rahaman KA, Muresan AR, Min H, Son J, Han HS, Kang MJ, et al. (March 2024). "Simultaneous quantification of TB-500 and its metabolites in in-vitro experiments and rats by UHPLC-Q-Exactive orbitrap MS/MS and their screening by wound healing activities in-vitro". *Journal of Chromatography. B, Analytical Technologies in the Biomedical and Life Sciences*. 1235 124033.

Davison G, Brown S (2013). "The potential use and abuse of thymosin β -4 in sport and exercise science". *Journal of Sports Sciences*. 31 (9): 917–918.

Ying Y, Lin C, Tao N, Hoffman RD, Shi D, Chen Z, et al. (2023). "Thymosin β 4 and Actin: Binding Modes, Biological Functions and Clinical Applications". *Current Protein & Peptide Science*. 24 (1): 78–88.

Jetté L, Léger R, Thibodeau K, Benquet C, Robitaille M, Pellerin I, et al. (July 2005). "Human growth hormone-releasing factor (hGRF)1-29-albumin bioconjugates activate the GRF receptor on the anterior pituitary in rats: identification of CJC-1295 as a long-lasting GRF analog". *Endocrinology*. 146 (7): 3052–8.

Alba M, Fintini D, Sagazio A, Lawrence B, Castaigne JP, Frohman LA, et al. (December 2006). "Once-daily administration of CJC-1295, a long-acting growth hormone-releasing hormone (GHRH) analog, normalizes growth in the GHRH knockout mouse". *American Journal of Physiology. Endocrinology and Metabolism*. 291 (6): E1290-4.

Teichman SL, Neale A, Lawrence B, Gagnon C, Castaigne JP, Frohman LA (March 2006). "Prolonged stimulation of growth hormone (GH) and insulin-like growth factor I secretion by CJC-1295, a long-acting analog of GH-releasing hormone, in healthy adults". *The Journal of Clinical Endocrinology and Metabolism*. 91 (3): 799–805.

Ionescu M, Frohman LA (December 2006). "Pulsatile secretion of growth hormone (GH) persists during continuous stimulation by CJC-1295, a long-acting GH-releasing hormone analog". *The Journal of Clinical Endocrinology and Metabolism*. 91 (12): 4792–7.

Memdouh S, Gavrilović I, Ng K, Cowan D, Abbate V (November 2021). "Advances in the detection of growth hormone releasing hormone synthetic analogs". *Drug Testing and Analysis*. 13 (11–12): 1871–1887.

Hu ZY, Wang WJ, Hu L, Shi JH, Jiang SL (April 2024). "Comprehending the intermolecular interaction of dacomitinib with bovine serum albumin: experimental and theoretical approaches". *Journal of Biomolecular Structure & Dynamics*. 42 (7): 3579–3592

Jetté L, Léger R, Thibodeau K, Benquet C, Robitaille M, Pellerin I, et al. (July 2005). "Human growth hormone-releasing factor (hGRF)1-29-albumin bioconjugates activate the GRF receptor on the anterior pituitary in rats: identification of CJC-1295 as a long-lasting GRF analog". *Endocrinology*. 146 (7): 3052–3058.

Hartman ML, Farello G, Pezzoli SS, Thorner MO (1992). "Oral administration of growth hormone (GH)-releasing peptide stimulates GH secretion in normal men". *J Clin Endocrinol Metab*. 74 (6): 1378–84.

Graul AI, Prous JR (2006). "The Year's New Drugs: A Historical and Research Perspective on the 41 New Products that Reached their First Markets in 2005"

Moulin A, Brunel L, Verdié P, Gavara L, Martinez J, Fehrentz JA (2014). "Ghrelin Receptor Ligands: Design and Synthesis of Pseudo-peptides and Peptidomimetics". *Current Chemical Biology*. 7 (3): 254–270.

Jameson JL, De Groot LJ (25 February 2015). *Endocrinology: Adult and Pediatric: Expert Consult - Online*. Elsevier Health Sciences. pp. 1366–. ISBN 978-0-323-32195-2.

Adis Editorial (2004). "Pramorelin: GHRP 2, GPA 748, growth hormone-releasing peptide 2, KP-102 D, KP-102 LN, KP-102D, KP-102LN". *Drugs in R&D*. 5 (4): 236–239. doi:10.2165/00126839-200405040-00011

Furuta S, Shimada O, Doi N, Ukai K, Nakagawa T, Watanabe J, Imaizumi M (2004). "General pharmacology of KP-102 (GHRP-2), a potent growth hormone-releasing peptide". *Arzneimittel-Forschung*. 54 (12): 868–880.

Müller TD, Nogueiras R, Andermann ML, Andrews ZB, Anker SD, Argente J, et al. (June 2015). "Ghrelin". *Molecular Metabolism*. 4 (6): 437–460.

Cabrales A, Gil J, Fernández E, Valenzuela C, Hernández F, García I, et al. (January 2013). "Pharmacokinetic study of Growth Hormone-Releasing Peptide 6 (GHRP-6) in nine male healthy volunteers". *European Journal of Pharmaceutical Sciences*. 48 (1–2): 40–46.

Javed, Muhammad; Yarrow, Jeremy; Hemington gorse, Sarah (2013-10-01). "Does melanotan injections (TAN JAB) cause melanoma? A systemic review of the effects of melanotan injections". *International Journal of Surgery*. 11 (8): 677.

Wensink, Debby; Wagenmakers, Margreet A.E.M.; Langendonk, Janneke G. (2021-02-01). "Afamelanotide for prevention of phototoxicity in erythropoietic protoporphyria". *Expert Review of Clinical Pharmacology*. 14 (2): 151–160.

Ryakhovsky, Vladimir V; Khachiyani, Georgy A; Kosovova, Nina F; Isamiddinova, Elena F; Ivanov, Andrey S (30 October 2008). "The first preparative solution phase synthesis of melanotan II". *Beilstein Journal of Organic Chemistry*. 4: 39.

Wikberg JE (2001). "Melanocortin receptors: new opportunities in drug discovery". *Expert Opinion on Therapeutic Patents*. 11 (1): 61–76.

Norris DO, Lopez KH (25 November 2010). *Hormones and Reproduction of Vertebrates*. Academic Press. pp. 4–. ISBN 978-0-08-095809-5.

King SH, Mayorov AV, Balse-Srinivasan P, Hruby VJ, Vanderah TW, Wessells H (2007). "Melanocortin receptors, melanotropic peptides and penile erection". *Curr Top Med Chem*. 7 (11): 1098–1106.

Medsafe. New Zealand Medicines and Medical Devices Safety Authority. June 2025.

Harris DR, Chapman-Lopez T, Machek SB, Forsse JS, Sulak T, Funderburk LK. The Effects of Multiple Acute Turkesterone Doses on Indirect Measures of Hypertrophy and Metabolic Measures: A Preliminary Investigation. *Muscles*. 2024 Oct 23;3(4):364-375. doi: 10.3390/muscles3040031. PMID: 40757520; PMCID: PMC12121319.

Anabolics (10th Edition) – William Llewellyn

The Steroid Bible – Steve Gallaway

Chemical Muscle Enhancement – Author: L. Rea

Clinical Gynecologic Endocrinology and Infertility – Speroff & Fritz

Drugs in Sport – Professor David Mottram

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فارماکولوژی ورزش و دوپینگ تألیف احسان یوسف علیزاده

کتاب رویکرد تجویز و زمان بندی تغذیه و مکمل ها تألیف سارا صالح پور و دانیال اسداللهی سهی

فیزیولوژی ورزش: تئوری و کاربرد برای آمادگی جسمانی و اجرای ورزشی