

R CITATIONS

TREN IS BIRTH CONTROL FOR YOUR BRAIN

Every source cited in the film. 146 entries: peer-reviewed literature, patents, regulatory filings, and period documents.

Note on numbering: each section has its own citation numbering, matching the numbers shown on screen. The same number in a different section refers to a different source – always read the number against the section it appears in.

THE FORGOTTEN HUMAN APPROVAL

SOURCES 1–76

1. Kruskemper HL, Noell G. Liver toxicity of a new anabolic agent: Methyltrienolone (17 α -methyl-4,9,11-estratriene-17 β -ol-3-one). *Steroids*. 1966;8(1):13-24.
2. Nominé G, Bucourt R, Pierdet A, inventors; Roussel-Uclaf, assignee. Nouveaux stéroïdes estratriènes et procédé de préparation. French patent FR1380414A. Filed 1962 Apr 20; granted 1964 Oct 26.
The trenbolone-base synthesis. The separate hexahydrobenzyl-carbonate ester method is Allais & Paturet, French Patent FR1421227A, 1965.
3. Rosenberg IH. Summary comments: epidemiological and methodological problems in determining nutritional status of older persons. *Am J Clin Nutr*. 1989;50:1231-1233.
4. World Health Organization. Assessment of fracture risk and its application to screening for postmenopausal osteoporosis. WHO Technical Report Series No. 843; 1994.
5. Friedewald WT, Levy RI, Fredrickson DS. Estimation of the concentration of low-density lipoprotein cholesterol in plasma, without use of the preparative ultracentrifuge. *Clin Chem*. 1972;18(6):499-502.
6. Furuyama S, Mayes DM, Nugent CA. A radioimmunoassay for plasma testosterone. *Steroids*. 1970;16(4):415-428.
7. Dictionnaire Vidal 1975. 51st ed. Paris: Office de Vulgarisation Pharmaceutique; 1975. Hexabolan entry, Laboratoires Phartec Boehringer Mannheim France et Cie.
8. Dictionnaire Vidal 1996. Paris: Vidal SA; 1996. Parabolan entry, Negma Laboratoires.
9. Parabolan prescribing insert. Negma Laboratoires, 584 rue Fourny, Buc, France. A.M.M. 304.932.0.
10. Mondenard JP. Dictionnaire du Dopage: Fiche Trénbolone [Internet]. dopagedemondenard.com; 2026 Jun.
Enriched and updated edition (successor to the 2024 edition). Documents the 1989-2010 Châtenay-Malabry detection gap, the WADA prohibited-list evolution, the 1972-1997 French commercial history including the stated cause of the 1997 withdrawal (French Medicines Agency recommendation over off-label diversion of the AMM), and the case record through the 2025 Knighton CAS ban.
11. Bordenave Y, Simon S. Paroles de dopés. Paris: J.-Cl. Lattès; 2000.
Marc Ioro testimonial, p.139.
12. US Food and Drug Administration. New Animal Drug Application NADA 138-612: Finaplix-H and Finaplix-S (Roussel-Uclaf, sponsor). Approved 1987 Jul 2. Freedom of Information Summary and April 1987 Environmental Assessment retrieved from Animal Drugs at FDA [Internet]. animaldrugsatfda.fda.gov; document IDs 423 (FOI) and 180 (EA).
Each pellet contains 20 mg trenbolone acetate. Heifer implant = 10 pellets/200 mg. Steer implant = 7 pellets/140 mg. Ear-implant placement, last 63 days before slaughter for heifers, reimplant after 63 days for steers.
13. Council of the European Communities. Council Directive 88/146/EEC of 7 March 1988 prohibiting the use in livestock farming of certain substances having a hormonal action.
14. World Trade Organization. EC Measures Concerning Meat and Meat Products (Hormones). WT/DS26. Panel Report 1997; Appellate Body Report 1998.
15. World Anti-Doping Agency. Prohibited List [Internet]. All editions 2004-2026.
Trenbolone explicitly listed in Section S1 (Anabolic Agents) since January 1, 2004.
16. International Association of Athletics Federations (IAAF), now World Athletics.
Trenbolone reported banned since January 2003, per Mondenard, Fiche Trénbolone (entry [10]). The locally held IAAF anti-doping page is a general information page and does not itself name trenbolone.



17. A New Era Arbitration Tribunal (sole arbitrator Jeanne Charles). Erriyon Knighton doping case, No. 24052801: No Fault finding (contaminated-oxtail defense); 2024 Jul 18. Court of Arbitration for Sport (panel headed by Jacques Radoux). Appeal decision: 4-year ban; 2025 Sep 12. Published by Athletics Integrity Unit; 2025 Oct 21.
Erriyon Knighton, 200-meter sprinter, March 2024 out-of-competition trenbolone positive (epitrenbolone). USADA was the prosecuting party at first instance and lost; World Athletics and WADA appealed. CAS found the contamination scenario not "scientifically impossible" but "certainly not more likely than not," and that Knighton failed to prove the violation was not intentional.
18. RTS.ch [Internet]. 2022 Jun 28. RMC/AFP [Internet]. 2021 Jul 28.
Alex Wilson, 100/200-meter sprinter, March 2021 trenbolone positive; June 2022 four-year ban by Swiss Sport Integrity; beef-contamination defense rejected. The locally held SSI file is an access-restricted page, not the ruling text.
19. Bonenti B, et al. The Trenbolo(g)ne sandwich: an international study comparing health harms among men who use anabolic-androgenic steroids with and without trenbolone. Drug Alcohol Rev. 2026;45:e70162. doi:10.1111/dar.70162.
Data source: Global Drug Survey 2024; n = 1,146 men reporting past-year AAS use, mean age 31.5.
20. Piatkowski TM, et al. "My mind pretty much went to mush": a qualitative exploration of trenbolone in the performance and image enhancing drug community. Drug Alcohol Rev. 2023. doi:10.1111/dar.13656. PMID: 36992616.
21. Piatkowski TM, et al. Examining the association between trenbolone, psychological distress, and aggression among males who use anabolic-androgenic steroids. Int J Drug Policy. 2024;134.
Online survey, n = 282; higher trenbolone dose significantly associated with higher verbal aggression after controlling for age and BMI.
22. Le Quotidien du Médecin. 1995 Dec 11.
Counterfeit Parabolan reported outside legitimate pharmaceutical circuit.
23. Wockhardt Ltd. Press release. 2007 May.
Acquisition of Negma Laboratoires for US\$265 million.
24. US Environmental Protection Agency. Endocrine Disruptor Screening Program Test Guideline OPPTS 890.1150: Androgen Receptor Binding (Rat Prostate Cytosol).
R1881 specified as reference radioligand.
25. Dictionnaire Vidal 1980, supplementary booklet. Paris: Office de Vulgarisation Pharmaceutique; 1980. Parabolan RCP (Résumé des Caractéristiques du Produit), Negma Laboratoires, AMM 311.877.1.
AMM 311.877.1 is the authorization number on the 1975 Hexabolan label, carried over to Parabolan and printed through the 1982 Vidal; from the 1986 edition the label instead shows AMM 304.932.0, itself stamped 1976. The relationship between the two numbers is not clear from the documents.
26. B.I.A.M. (Banque d'Informations Automatisée sur les Médicaments). Correspondence to Dr Jean-Pierre de Mondenard; 1990 Apr 17. Reference FM/LD-212.
Documents the June 5, 1973 Journal Officiel publication of the Hexabolan-to-Parabolan AMM transfer from Phartec to Negma Laboratoires. Source attribution: "Je tiens cela des laboratoires NEGMA."
27. L'anabolisant du mois – Finajet (Parabolan acétate). Body Fitness. 1997 Apr;(29):175.
Recurring column that featured a different anabolic steroid in each issue from issue 1 (December 1994) to issue 34 (August 1997).
28. Mondenard JP. Dopage : pourquoi on n'en sort pas. Le Figaro. 1997 Jul 7.
Op-ed paragraph five documents the Body Fitness "l'anabolisant du mois" column and its testing-evasion content. Mondenard documents it in his Fiche Trénbolone; Le Figaro original not held locally, and the script quote is translated from the French.
29. Mondenard JP. Dictionnaire du Dopage – Trenbolone: l'anabolisant du mois de Body Fitness 1997 [Internet]. dopagedemondenard.com; 2026 Jun.
Personal correspondence and blog entry shared with the author.
30. Reiterer W. Autobiographical exposé. Published before the 2000 Sydney Olympics.
Names Parabolan and Finajet among 44 performance drugs (26 banned). Reproduced in Mondenard, Fiche Trénbolone (entry [10]); primary exposé not held locally.



31. Mondenard JP. La trenbolone, un stéroïde anabolisant pour bovins que la France a tranquillement refilé aux hommes pendant 20 ans! Dictionnaire du dopage [Internet]. dopagedemondenard.com; 2026 Jun 10 [cited 2026 Jul 10].
Served on the trenbolone tag/archives page; individual permalink retired. Quote: "...malgré l'absence d'essais cliniques préalables !"
32. World Health Organization; Joint FAO/WHO Expert Committee on Food Additives (JECFA). Trenbolone acetate: observations in human beings. WHO Food Additives Series 23. 1987. Available from: <https://www.inchem.org/documents/jecfa/jecmono/v23je03.htm>
33. Krüskemper HL, Morgner KD, Noell G. Klinische Pharmakologie von Trienolonen, eine Gruppe neuartiger anabol wirksamer Oestran-Derivate. Arzneimittelforschung. 1967;17:449-454.
German; print-only; primary source obtained and read in full 2026-07-09.
34. The Merck Index. 10th ed. Monograph 9402, Trenbolone. Rahway (NJ): Merck & Co.; 1983.
35. Council of the European Communities. Council Directive 75/318/EEC of 20 May 1975 on the approximation of the laws of Member States relating to analytical, pharmaco-toxicological and clinical standards and protocols in respect of the testing of proprietary medicinal products. OJ L147. 1975 Jun 9:1. CELEX 31975L0318.
Annex, Part 3 (Clinical documentation), Ch. I(2): "controlled clinical trials."
36. Council of the European Communities. Council Directive 65/65/EEC of 26 January 1965 on the approximation of provisions relating to proprietary medicinal products. OJ 22. 1965 Feb 9:369. CELEX 31965L0065.
Art. 4(8) – a list of published references may substitute for test results; Art. 5 – refusal only if efficacy "lacking or is insufficiently substantiated by the applicant."
37. Chauveau S. Genèse de la « sécurité sanitaire » : les produits pharmaceutiques en France aux XIXe et XXe siècles. Revue d'histoire moderne et contemporaine. 2004;51(2):88-117. Available from: shs.cairn.info/revue-d-histoire-moderne-et-contemporaine-2004-2-page-88
French visa dossier standard ("L'intérêt thérapeutique n'a pas à être démontré par le compte rendu d'essais cliniques") and the Stalinon verdict ("cette autorisation de vente n'est pas une caution scientifique").
38. Urfalino P. L'autorisation de mise sur le marché du médicament. Revue française des affaires sociales. 2001;(4):85-105. Available from: shs.cairn.info/article/RFAS_014_0085
Controlled/randomized/double-blind trials spread in France only in the 1970s; the French AMM commission was created in 1978.
39. US Food and Drug Administration. Methandrostenolone; Drug Efficacy Study Implementation; withdrawal of approval. Fed Regist. 1985 Dec 13;50:50964.
Quote: "...there is a lack of substantial evidence that the products will have the effect they purport or are represented to have..."
40. US Food and Drug Administration. Oxandrolone; proposal to withdraw approval; notice. Fed Regist. 2023 Jun 28;88:41970.
Quoting the January 1984 FDA Endocrinologic and Metabolic Drugs Advisory Committee: "unanimously concluded that there was no evidence of efficacy for oxandrolone."
41. Fruehan AE, Frawley TF. Current status of the anabolic steroids. JAMA. 1963;184:527-532.
Article title to confirm against JAMA record; block quote verified.
42. US Food and Drug Administration. Nandrolone decanoate; Drug Efficacy Study Implementation. Fed Regist. 2010 Aug 10;75:48351.
Retained for anemia of renal insufficiency – "was not withdrawn from sale for reasons of safety or effectiveness."
43. Dictionnaire Vidal 1972. 48th ed. Paris: Office de Vulgarisation Pharmaceutique; 1972. Hexabolan entry, Laboratoires Phartec, p.744. Visa NL 6.520.
Tolérance: "Locale : parfaite. Générale : excellente, en particulier absence totale d'hépto-toxicité."
44. Schaffner F, Popper H, Chesrow E. Cholestasis produced by the administration of norethandrolone. Am J Med. 1959;26:249.
45. Smith C, Johnson PC. Anabolic effect of 19-nortestosterone phenylpropionate in underweight geriatric women. 1961.
Journal title, volume, and pages not yet confirmed against source PDF.



46. Roussel-Uclaf, assignee. British patent GB1193099. 1970 May 28.
Hexahydrobenzylcarbonate of trenbolone; English sibling of FR 5.979M. Indications include supplementary treatment of breast cancer and healing of varicose ulcers; stated adult dose 37 to 370 mg. Image-only scan; indication text read from the scan, not machine-verified.
47. Spranger B, Metzler M. Disposition of 17 β -trenbolone in humans. J Chromatogr. 1991;564(2):485-492.
48. Trémolières J, Velluz L. L'étude, en chambre métabolique, d'une nouvelle hormone stéroïde triénique. Bull Acad Natl Med. 1965;149(1-2):14-17.
49. Yarrow JF, McCoy SC, Borst SE. Tissue selectivity and potential clinical applications of trenbolone (17 β -hydroxyestra-4,9,11-trien-3-one): a potent anabolic steroid with reduced androgenic and estrogenic activity. Steroids. 2010;75(6):377-389. PMID: 20138077.
\$5.5, p.383: "We are unaware of any controlled studies which have been published regarding the effects of 17 β -TBOH administration in humans." Read in full locally; verbatim confirmed.
50. Caulin C. Historique de l'évaluation des médicaments et de l'AMM (FMC / formation médicale continue). J Fr Ophtalmol. 2008;31(1):71-74.
Section headings "LA PRÉHISTOIRE : AVANT 1975," "LA PROTO-HISTOIRE : 1975," and "1978 : L'INVENTION DE L'AMM."
51. Turner JR. [Kefauver-Harris Amendments and the RCT as the efficacy instrument]. J Clin Hypertens (Greenwich). 2012;14(11):810-814.
"The central novel requirements of the Kefauver-Harris Amendments concerned the provision of compelling evidence of efficacy"; the amendments were signed into law October 10, 1962.
52. U.S. Food and Drug Administration. Estrogen-androgen combination drug products for the treatment of vasomotor symptoms; reclassification (DESI 7661). Fed Regist. 2003;68:17953-17957.
Operative finding (68 FR 17955): "FDA believes that substantial evidence is lacking that the addition of an androgen can improve the effectiveness of estrogen alone in the treatment of vasomotor symptoms (i.e., hot flushes)."
53. Wilson JD, Griffin JE. The use and misuse of androgens. Metabolism. 1980;29(11):1278-1295.
Section heading, p.1282: "Nitrogen Balance and Muscle Development. The futile search for an anabolic steroid." The review does not list trenbolone among human therapeutic androgens.
54. Delettré J, Mornon JP, Lepicard G, Ojasoo T, Raynaud JP. Steroid flexibility and receptor specificity. J Steroid Biochem. 1980;13(1):45-59.
Trenbolone (RU 2341) Table 4 relative binding affinities: Androgen 197 $\pm$ 30, Progestin 74 $\pm$ 16, Mineralocorticoid 1.33 $\pm$ 0.03, Glucocorticoid 2.9 $\pm$ 0.8 (AR summary range 105-197 across assay conditions; Table 3 sets testosterone AR = 100). Flexibility-of-trienes hypothesis, Discussion p.57.
55. Heller M, Lenhard RH, Bernstein S. An unusual dehydrogenation of steroidal Δ 5(10),9(11)-dienes. Steroids. 1967;10(2):211-217.
Independent Lederle Laboratories / American Cyanamid synthesis of trenbolone (17 β -hydroxyestra-4,9,11-trien-3-one) by DDQ dehydrogenation, p.212.
56. Nominé G, Bucourt R, Vignau M, inventors; Roussel-Uclaf, assignee. Novel estradienes and preparation thereof. US patent 3,052,672. Filed 1962 Jul 17; priority France, 1960 Jul 29.
The estradiene precursor to trenbolone, characterized as "particularly useful as anabolisants" (col. 1).
57. World Health Organization, Joint FAO/WHO Expert Committee on Food Additives (JECFA). Trenbolone acetate. Toxicological monograph. WHO Food Additives Series 25 (34th meeting). 1989.
Evaluation Summary (INCHEM). Functional class "VETERINARY DRUG (XENOBIOTIC GROWTH PROMOTER)"; ADI 0-0.00002 mg/kg bw (0-0.02 μ g/kg); MRLs muscle 0.002 mg/kg (β -trenbolone) / liver 0.01 mg/kg (α -trenbolone); genotoxicity weight-of-evidence verdict "unlikely" (Comments §3); study references tagged "Submitted to WHO/FAO by Roussel-UCLAF" (labs: Huntingdon Research Centre; ILOB Wageningen; Hoechst A.G.). Distinct from Food Additives Series 23 (1987), citation 33.
58. Council of the European Communities. Council Directive 81/602/EEC of 31 July 1981 concerning the prohibition of certain substances having a hormonal action. OJ. 1981 Aug 7;L222:32.
Article 5 names "Trenbolone" among substances for administering to farm animals "for fattening purposes" – seven years before 88/146/EEC (13), which inherits the substance list by reference.
59. Marchal C. Gaston Roussel [biographical note]. Mediachimie.
Veterinary diploma, École vétérinaire de Lyon, 1903; elected to the Académie de médecine, section des sciences vétérinaires, 24 April 1945.



60. European Commission, DG SANTE. Hormones in meat [Internet]. food.ec.europa.eu.
Legal instrument in force: Directive 96/22/EC as amended by Directive 2003/74/EC; names trenbolone acetate as a growth promoter; reports the SCVPH 1999 conclusion that "no acceptable daily intake (ADI) could be established for any of these hormones."
61. European Commission. Case No COMP/M.1681 – Akzo Nobel/Hoechst Roussel Vet. Article 6(1)(b) non-opposition decision. 1999 Nov 22, ¶5. CELEX 399M1681.
Divestiture of Hoechst Roussel Vet to Akzo Nobel/Intervet as an undertaking in the Hoechst/Rhône-Poulenc (Aventis) merger. The decision does not name trenbolone or Finaplix; the product-level succession is an inference from the corporate vehicle.
62. Goyon A. [Davy Galand – first French trenbolone positive]. France 3.fr. 2011 Mar 4.
Regional report. Galand and teammate Clément Attiel (Espoirs, USA Perpignan) placed in garde à vue at Perpignan customs, 26 January 2011; accredited lab found urinary metabolites of nandrolone, boldenone and trenbolone; four-year ban by the Fédération Française de Rugby. Via Mondenard, Fiche Trénbolone.
63. Harrigan T. Free-agent outfielder Max Kepler suspended 80 games for PEDs. MLB.com. 2026 Jan 9.
Epitrenbolone (trenbolone metabolite); 80-game suspension under MLB's Joint Drug Prevention and Treatment Program.
64. Lawson v. IAAF, CAS 2019/A/6313.
US sprinter Jarrion Lawson; June 2018 epitrenbolone positive (A 0.65 / B 0.80 ng/mL); meat-contamination defense (teriyaki beef bowl) accepted; No Fault. Catalogued as a precedent within the New Era Arbitration Tribunal Final Award (Knighton), Case No. 24052801. Beef-defense color via press (L'Equipe, 1 September 2018).
65. Roussel-Uclaf, assignee. New Estrane Derivatives, Compositions incorporating them and processes for their preparation. GB patent 1,035,683 A. Published 1966 Jul 13; priority FR 895,239, 1962 Apr 20.
English sibling of FR1958M: claims 1–4 cover trenbolone (17 β -hydroxy-estra-4,9,11-trien-3-one) and its acetate and benzoate esters; claim 5 recites "A therapeutic composition for use in human or veterinary medicine." Pharmacology (Hershberger rat assay, benzoate vs nandrolone benzoate): $\approx 5\times$ seminal-vesicle / $\approx 4\times$ ventral-prostate androgenic activity at equimolecular dose, and at low dose androgenicity "practically nil" while anabolic activity $\approx$ that of "10 times larger doses" of nandrolone benzoate; posology "5 to 50 milligrams per day"; use "envisaged in the treatment of women or children without fear of producing virilization side-effects." No human clinical data and no acute-toxicity study in the document.
66. Roussel-Uclaf, assignee. Brevet Spécial de Médicament FR 1.958M. République Française. Demandé 1962 Jul 13; délivré 1963 Aug 5. Divisional of P.V. 895.239 (1962 Apr 20).
Covers 17 β -hydroxy-3-oxo- Δ 4,9(10),11(12)-estratriène (trenbolone) and its acetate and benzoate esters; stated object "nouveau médicament notamment pour le traitement de l'andropause, de la sénescence et des troubles de l'anabolisme protéique et de l'édification cellulaire"; posology 5–50 mg per dose per day. English sibling: GB1035683A (65).
67. Nedelec L, Costerousse G, inventors; Roussel-Uclaf, assignee. Brevet Spécial de Médicament FR 5.979M. République Française. Filed 1966 Nov 17; granted (arrêté) 1968 Apr 22.
First BSM covering trenbolone hexahydrobenzylcarbonate (the Hexabolan/Parabolan ester); posology 25–250 mg (en alcool libre); rat comparator vs nandrolone phenylpropionate (Sakamoto + Hershberger assays); implants listed among envisioned administration routes. English sibling: GB1193099A (46).
68. Eli Lilly & Company, assignee. Brevet Spécial de Médicament FR 993M. République Française. Filed 1961 Jan.
19-nor- Δ 4,9(10) steroid family; describes anabolic, progestinogène and anti-œstrogène activity. Cited as prior art on FR1958M (66).
69. Nominé, Bucourt, Pierdet, inventors; Roussel-Uclaf, assignee. 13 β -alkyl- Δ 4,9,11-gonatriene-3-ones. US patent 3,257,278. Filed 1965; granted 1966 Jun 21.
Characterizes the progestomimetic/antiestrogenic 13 β -alkyl variants of the trenbolone scaffold (including the gestrinone precursor).
70. Velluz L, Nominé G, Bucourt R, Mathieu J. Un analogue triénique de la méthyltestostérone. Comptes rendus hebdomadaires des séances de l'Académie des sciences. 1963;257:569-570.
Séance du 8 juillet 1963. Original disclosure of methyltrienolone (R1881); reports it "au moins 50 fois plus androgène que la méthyltestostérone."
71. Velluz L, Valls J, Nominé G. Recent Advances in the Total Synthesis of Steroids. Angewandte Chemie International Edition in English. 1965 Mar;4(3):181-200.
Centre de Recherches Roussel-Uclaf. Compound (136) = methyltrienolone, "50 times more active than methyltestosterone."
72. Dictionnaire Vidal 1989. Paris: Office de Vulgarisation Pharmaceutique; 1989.
Parabolan entry, Negma Laboratoires; first edition carrying the "Sportifs" anti-doping warning, introduced under France's late-1980s anti-doping rules.



73. Ben-Ismaïl K. [Undercover investigation; "Bruno" testimonial on Parabolan use]. L'Équipe Magazine. 1997 Nov 15;(815):8-10.
Quoted (with the franc-to-euro conversions) via Mondenard, Fiche Trénbolone; L'Équipe original not held locally.
74. Metcalf W, Blumberg H, Roach J. A quantitative expression for nitrogen retention with anabolic steroids. IV. Oxandrolone. Metabolism. 1965;14(1):59-66. PMID: 14252343.
G. D. Searle-funded. Retention-ratio "constant" (five anabolics 22.0-24.9%; 27 trials/13 subjects); verbatim "...probably a constant." Source of the metric Krüskemper adopts.
75. van Wayjen RGA, van den Ende A. Clinical-pharmacological investigation of the nitrogen-retaining effect of nandrolone cyclotrate. Acta Endocrinol (Copenh). 1973;73(1):171-178. PMID: 4740146.
Nandrolone-cyclotrate g/day (~1.0 at 50 mg, ~1.6 at 100 mg; all-female; single depot averaged; ≈ decanoate). Illustrative color; not ranked on the comparable metric.
76. Mondenard JP. [Le double jeu des médecins face au dopage – Dr Jean-Paul Fanen]. dopagedemondenard.com. 2026 May 4.
Quotes Dr Jean-Paul Fanen, a federal cycling physician, from Le Point, 22 November 1976: pursued by angry racers in August 1971, and in October 1972 assaulted by men a team's sporting director had hired, sustaining a fractured vertebra and two broken ribs.

ESTROGEN

SOURCES 31–50

31. Yarrow JF, et al. Tissue selectivity and potential clinical applications of trenbolone. Steroids. 2010;75(6):377-89.
32. Ye F, et al. Preferential effects of trenbolone on androgen-dependent protein and fat metabolism in orchidectomized rats. J Appl Physiol. 2014;116(1):59-67.
33. McTernan PG, Anderson LA, Anwar AJ, Eggo MC, Crocker J, Barnett AH, Stewart PM, Kumar S. Glucocorticoid regulation of P450 aromatase activity in human adipose tissue: gender and site differences. Journal of Clinical Endocrinology and Metabolism. 2002;87(3):1327-36.
34. Mahendroo MS, Means GD, Mendelson CR, Simpson ER. Tissue-specific expression of human P-450arom. J Biol Chem. 1993;268(26):19463-70.
35. Wilson VS, et al. In vitro and in vivo effects of 17beta-trenbolone: a feedlot effluent contaminant. Toxicol Sci. 2002;70(2):202-11.
36. Danhaive PA, Rousseau GG. Evidence for sex-dependent anabolic response to androgenic steroids mediated by muscle glucocorticoid receptors. J Steroid Biochem. 1988;29(6):575-81.
37. Polari L, et al. Glucocorticoid receptor-dependent regulation of aromatase expression in male adipose tissue. Endocrinology. 2015;156(3):1133-42.
38. Zhao Y, Mendelson CR, Simpson ER. Characterization of the sequences of the human CYP19 (aromatase) gene that mediate regulation by glucocorticoids in adipose stromal cells and fetal hepatocytes. Mol Endocrinol. 1995;9(3):340-9.
39. Guertin MJ, et al. Transient estrogen receptor binding and p300 redistribution support a squelching mechanism. Mol Endocrinol. 2014;28(9):1522-33.
40. De Amicis F, Chiodo C, Morelli C, Casaburi I, Marsico S, Bruno R, Sisci D, Andò S, Lanzino M. AIB1 sequestration by androgen receptor inhibits estrogen-dependent cyclin D1 expression in breast cancer cells. BMC Cancer. 2019;19:1038. doi:10.1186/s12885-019-6262-4.
41. Kamanga-Sollo E, et al. IGF-I mRNA levels in bovine satellite cell cultures. J Cell Physiol. 2004;201(2):181-9.
42. Saartok T, Dahlberg E, Gustafsson JA. Relative binding affinity of anabolic-androgenic steroids. Endocrinology. 1984;114(6):2100-6.
43. Blouin K, Veilleux A, Luu-The V, Tchernof A. Androgen metabolism in adipose tissue: recent advances. Molecular and Cellular Endocrinology. 2009;301(1-2):97-103.
44. Weihua Z, Lathe R, Warner M, Gustafsson JÅ. An endocrine pathway in the prostate, ERβ, AR, 5α-androstane-3β,17β-diol, and CYP7B1, regulates prostate growth. PNAS. 2002;99(21):13589-94.
45. Kuiper GGJM, Carlsson B, Grandien K, Enmark E, Häggblad J, Nilsson S, Gustafsson JÅ. Comparison of the ligand binding specificity and transcript tissue distribution of estrogen receptors α and β. Endocrinology. 1997;138(3):863-870.



46. Rance NE, Krajewski SJ, Smith MA, Cholanian M, Dacks PA. Neurokinin B and the hypothalamic regulation of reproduction. *Brain Research*. 2010;1364:116-128. doi:10.1016/j.brainres.2010.08.059. PMID: 20800582.
47. Mittelman-Smith MA, Williams H, Krajewski-Hall SJ, McMullen NT, Rance NE. Role for kisspeptin/neurokinin B/dynorphin (KNDy) neurons in cutaneous vasodilatation and the estrogen modulation of body temperature. *Proceedings of the National Academy of Sciences*. 2012;109(48):19846-19851. doi:10.1073/pnas.1211517109. PMID: 23150555.
48. Padilla SL, Johnson CW, Barker FD, Patterson MA, Palmiter RD. A neural circuit underlying the generation of hot flushes. *Cell Reports*. 2018;24(2):271-277. doi:10.1016/j.celrep.2018.06.037. PMID: 29996088.
49. Lederman S, Ottery FD, Cano A, Santoro N, Shapiro M, Stute P, Thurston RC, English M, Franklin C, Lee M, Neal-Perry G. Fezolinetant for treatment of moderate-to-severe vasomotor symptoms associated with menopause (SKYLIGHT 1): a phase 3 randomised controlled study. *Lancet*. 2023;401(10382):1091-1102. doi:10.1016/S0140-6736(23)00085-5. PMID: 36924778.
50. Day R, Ganz PA, Costantino JP, Cronin WM, Wickerham DL, Fisher B. Health-related quality of life and tamoxifen in breast cancer prevention: a report from the National Surgical Adjuvant Breast and Bowel Project P-1 Study. *Journal of Clinical Oncology*. 1999;17(9):2659-2669. doi:10.1200/JCO.1999.17.9.2659. PMID: 10561341.

PR ACTIVITY

SOURCES 51-64, 96-97

51. Bauer ER, et al. Characterization of the affinity of different anabolics and synthetic hormones to the human androgen receptor, human sex hormone binding globulin and to the bovine progesterin receptor. *APMIS*. 2000;108(12):838-46.
52. Sasano H, Kimura M, Shizawa S, Kimura N, Nagura H. Aromatase and steroid receptors in gynecomastia and male breast carcinoma: an immunohistochemical study. *J Clin Endocrinol Metab*. 1996;81(8):3063-67.
53. Chen D, Reierstad S, Lin Z, Lu M, Brooks C, Li N, Innes J, Bulun SE. Prostaglandin E2 induces breast cancer-related aromatase promoters via activation of p38 and c-Jun NH2-terminal kinase in adipose fibroblasts. *Cancer Research*. 2007;67(18):8914-22.
54. Zhao H, Zhou L, Shangguan AJ, Bulun SE. Aromatase expression and regulation in breast and endometrial cancer. *J Mol Endocrinol*. 2016;57(1):R19-R33.
55. Samarajeewa NU, Yang F, Docanto MM, Sakurai M, McNamara KM, Sasano H, Fox SB, Simpson ER, Brown KA. HIF-1α stimulates aromatase expression driven by prostaglandin E2 in breast adipose stroma. *Breast Cancer Research*. 2013;15(2):R30. doi:10.1186/bcr3402.
Open access.
56. Deberles E, Durand I, Mittre H, Reznik Y, Morera J. Local aromatase excess with recruitment of unusual promoters of CYP19A1 gene in prepubertal patients with gynecomastia. *Journal of Pediatric Endocrinology and Metabolism*. 2022;35(7):924-930. doi:10.1515/jpem-2021-0757. PMID: 35667691.
57. Singh A, Purohit A, Ghilchik MW, Reed MJ. The regulation of aromatase activity in breast fibroblasts: the role of interleukin-6 and prostaglandin E2. *Endocrine-Related Cancer*. 1999;6:139-147.
58. Gregersen I, Scarth ME, Abdullah R, Thorsby PM, Hauger LE, Haugaa KH, Sagen EL, Michelsen AE, Ueland T, Edvardsen T, Aukrust P, Almaas VM, Bjørnebekk AK, Halvorsen B. Elevated interleukin 8 and matrix metalloproteinase 9 levels are associated with myocardial pathology in users of anabolic-androgenic steroids. *European Journal of Preventive Cardiology*. 2024;31(12):1469-1476. doi:10.1093/eurjpc/zwae126. PMID: 38573232.
59. Verde G, De Llobet LI, Wright RHG, Quilez J, Peiró S, Le Dily F, Beato M. Unliganded progesterone receptor governs estrogen receptor gene expression by regulating DNA methylation in breast cancer cells. *Cancers*. 2018;10(10):371.
60. Beleut M, Rajaram RD, Caikovski M, Ayyanan A, Germano D, Choi Y, Schneider P, Briskin C. Two distinct mechanisms underlie progesterone-induced proliferation in the mammary gland. *Proceedings of the National Academy of Sciences USA*. 2010;107(7):2989-94. doi:10.1073/pnas.0915148107. PMID: 20133621.
61. Mohammed H, Russell IA, Stark R, Rueda OM, Hickey TE, Tarulli GA, Serandour AA, Birrell SN, Bruna A, Saadi A, Menon S, Hadfield J, Pugh M, Raj GV, Brown GD, D'Santos C, Robinson JL, Silva G, Launchbury R, Perou CM, Stingl J, Caldas C, Tilley WD, Carroll JS. Progesterone receptor modulates ERα action in breast cancer. *Nature*. 2015;523(7560):313-317. doi:10.1038/nature14583. PMID: 26153859.



62. Vegeto E, Shahbaz MM, Wen DX, Goldman ME, O'Malley BW, McDonnell DP. Human progesterone receptor A form is a cell- and promoter-specific repressor of human progesterone receptor B function. *Molecular Endocrinology*. 1993;7(10):1244-1255. PMID: 8264658.
63. Wen DX, Xu YF, Mais DE, Goldman ME, McDonnell DP. The A and B isoforms of the human progesterone receptor operate through distinct signaling pathways within target cells. *Molecular and Cellular Biology*. 1994;14(12):8356-8364. PMID: 7969170.
64. Giangrande PH, Pollio G, McDonnell DP. Mapping and characterization of the functional domains responsible for the differential activity of the A and B isoforms of the human progesterone receptor. *Journal of Biological Chemistry*. 1997;272(52):32889-32900. PMID: 9407067.
96. Mote PA, Bartow S, Tran N, Clarke CL. Loss of co-ordinate expression of progesterone receptors A and B is an early event in breast carcinogenesis. *Breast Cancer Research and Treatment*. 2002;72(2):163-172.
97. Graham JD, Clarke CL. Physiological action of progesterone in target tissues. *Endocrine Reviews*. 1997;18(4):502-519.

BRAIN

SOURCES 65–89, 98–100

65. Aknouche F, Gheddar L, Kernalléguen A, Maruéjols C, Kintz P. Anabolic steroids and extreme violence: a case of murder after chronic intake and under acute influence of metandienone and trenbolone. *International Journal of Legal Medicine*. 2021;135(4):1449-1453. doi:10.1007/s00414-021-02587-y.
66. Belelli D, Lambert JJ. Neurosteroids: endogenous regulators of the GABA-A receptor. *Nature Reviews Neuroscience*. 2005;6(7):565-575. PMID: 15959466.
67. Skovlund CW, Mørch LS, Kessing LV, Lidegaard Ø. Association of hormonal contraception with depression. *JAMA Psychiatry*. 2016;73(11):1154-1162. PMID: 27680324.
68. Skovlund CW, Mørch LS, Kessing LV, Lange T, Lidegaard Ø. Association of hormonal contraception with suicide attempts and suicides. *American Journal of Psychiatry*. 2018;175(4):336-342. PMID: 29145737.
69. Zuo X, Kuang X, Li R, Zhao Y, Tuo J, Qiu J, Zhao Q, Bai H, Zhao X, Feng X. 17 β -trenbolone increases circulating myeloid-derived MMP8 in CSDS-induced mice and drives depressive tendencies to social threat. *Environmental Research*. 2025;285:122733. doi:10.1016/j.envres.2025.122733.
70. Zuo X, Bai H, Qiu J, Li R, Kuang X, Zhao Y, Tuo J, Zhao Q, Zhao X, Feng X. 17 β -Trenbolone modulates anxiety-related synaptic plasticity by affecting the interaction between hippocampal TACR3 and systemic testosterone in male mice. *Environmental Research*. 2025;279:121796. doi:10.1016/j.envres.2025.121796.
71. Foradori CD, Weiser MJ, Handa RJ. Non-genomic actions of androgens. *Frontiers in Neuroendocrinology*. 2008;29(2):169-181.
72. Zarei F, Moazedi AA, Salimi Z, Pourmotabbed A, Yousofvand N, Farshad M, Akrami MR. Activation of androgen receptors alters hippocampal synaptic plasticity and memory retention through modulation of L-type calcium channels. *Life Sciences*. 2023;314:121155. doi:10.1016/j.lfs.2022.121155.
73. Foradori CD, Werner SB, Sandau US, Clapp TR, Handa RJ. Activation of the androgen receptor alters the intracellular calcium response to glutamate in primary hippocampal neurons and modulates sarco/endoplasmic reticulum calcium ATPase 2 transcription. *Neuroscience*. 2007;149(1):155-164.
74. Orlando R, Caruso A, Molinaro G, Motolese M, Matrisciano F, Togna G, Melchiorri D, Nicoletti F, Bruno V. Nanomolar concentrations of anabolic-androgenic steroids amplify excitotoxic neuronal death in mixed mouse cortical cultures. *Brain Research*. 2007;1165:21-29.
75. Caraci F, Pistrà V, Corsaro A, Tomasello F, Giuffrida ML, Sortino MA, Nicoletti F, Copani A. Neurotoxic properties of the anabolic androgenic steroids nandrolone and methandrostenolone in primary neuronal cultures. *Journal of Neuroscience Research*. 2011;89(4):592-600.
76. Pomara C, Neri M, Bello S, Fiore C, Riezzo I, Turillazzi E. Neurotoxicity by synthetic androgen steroids: oxidative stress, apoptosis, and neuropathology. A review. *Current Neuropharmacology*. 2015;13(1):132-145.
77. Borecki K, et al. Neurological effects of anabolic-androgenic steroid use: a focus on trenbolone. *Endokrynologia Polska*. 2024;75(3):267-278. doi:10.5603/ep.99130.
78. Zhang S, Zhang S, Zhu D, Jiao Z, Zhao X, Sun M, Che Y, Feng X. Effects of 17 β -trenbolone exposure on sex hormone synthesis and social behaviours in adolescent mice. *Chemosphere*. 2020;245:125679. doi:10.1016/j.chemosphere.2019.125679.
79. Pope HG, Kanayama G, Hudson JI, Kaufman MJ. Anabolic-androgenic steroids, violence, and crime: two cases and literature review. *American Journal on Addictions*. 2021;30(5):423-432. doi:10.1111/ajad.13157.



80. Bontempi L, Bonci A. μ -opioid receptor-induced synaptic plasticity in dopamine neurons mediates the rewarding properties of anabolic androgenic steroids. *Science Signaling*. 2020;13(648):eaba1169. doi:10.1126/scisignal.aba1169.
81. Lamb H, Dunn M, Havnes IA, Piatkowski T. 'I go back to it every f**king time': the normalization of problematic Trenbolone use in online anabolic-androgenic steroid communities. *Addiction Research & Theory*. 2024. doi:10.1080/16066359.2024.2352092.
82. Rasmussen JJ, Albrethsen J, Frandsen MN, Jørgensen N, Juul A, Kistorp C. Serum Insulin-like Factor 3 Levels Are Reduced in Former Androgen Users, Suggesting Impaired Leydig Cell Capacity. *The Journal of Clinical Endocrinology & Metabolism*. 2021;106(7):e2664-e2672. doi:10.1210/clinem/dgab129.
83. Pinna G, Costa E, Guidotti A. Changes in brain testosterone and allopregnanolone biosynthesis elicit aggressive behavior. *Proceedings of the National Academy of Sciences USA*. 2005;102(6):2135-2140. doi:10.1073/pnas.0409643102.
84. Pibiri F, Nelson M, Carboni G, Pinna G. Neurosteroids regulate mouse aggression induced by anabolic androgenic steroids. *NeuroReport*. 2006;17(15):1537-1541. PMID: 16957604.
85. Thomas KM, Rodway RG. Effects of trenbolone acetate on adrenal function and hepatic enzyme activities in female rats. *Journal of Endocrinology*. 1983;98(1):121-127. PMID: 6134779.
86. Guzman JN, Ilijic E, Nguyen J, Surmeier DJ. Intranasal administration of isradipine preferentially targets the brain. *bioRxiv*. 2025:2025.03.10.639346. doi:10.1101/2025.03.10.639346.
87. Xia P, Chen HV, Zhang D, Lipton SA. Memantine preferentially blocks extrasynaptic over synaptic NMDA receptor currents in hippocampal autapses. *Journal of Neuroscience*. 2010;30(33):11246-11250. doi:10.1523/JNEUROSCI.2488-10.2010.
88. Tikka T, Fiebich BL, Goldsteins G, Keinänen R, Koistinaho J. Minocycline, a tetracycline derivative, is neuroprotective against excitotoxicity by inhibiting activation and proliferation of microglia. *Journal of Neuroscience*. 2001;21(8):2580-2588. PMID: 11306611.
89. Do Rego JL, Seong JY, Burel D, Leprince J, Luu-The V, Tsutsui K, Tonon MC, Pelletier G, Vaudry H. Neurosteroid biosynthesis: enzymatic pathways and neuroendocrine regulation by neurotransmitters and neuropeptides. *Frontiers in Neuroendocrinology*. 2009;30(3):259-301. doi:10.1016/j.yfrne.2009.05.006.
98. Biglan KM, Oakes D, Lang AE, et al. A novel design of a Phase III trial of isradipine in early Parkinson disease (STEADY-PD III). *Annals of Clinical and Translational Neurology*. 2017;4(6):360-368. doi:10.1002/acn3.412.
99. Surmeier DJ, Nguyen JT, Lancki N, et al. Re-Analysis of the STEADY-PD II Trial – Evidence for Slowing the Progression of Parkinson's Disease. *Movement Disorders*. 2022;37(2). doi:10.1002/mds.28850.
100. Ankley GT, Jensen KM, Makynen EA, Kahl MD, Korte JJ, Hornung MW, Henry TR, Denny JS, Leino RL, Wilson VS, Cardon MC, Hartig PC, Gray LE. Effects of the androgenic growth promoter 17- β -trenbolone on fecundity and reproductive endocrinology of the fathead minnow. *Environmental Toxicology and Chemistry*. 2003;22(6):1350-1360. PMID: 12785594.

SARM

SOURCES 90-95

90. Yarrow JF, et al. 17 β -Hydroxyestra-4,9,11-trien-3-one (trenbolone) exhibits tissue selective anabolic activity. *Am J Physiol Endocrinol Metab*. 2011;300(4):E650-60.
91. Bhasin S, Jasuja R. Selective androgen receptor modulators as function promoting therapies. *Curr Opin Clin Nutr Metab Care*. 2009;12(3):232-40. PMID: 19357508.
92. McCoy SC, et al. 17 β -Hydroxyestra-4,9,11-trien-3-one (trenbolone) preserves bone mineral density in orchiectomized rats without prostate enlargement. *Bone*. 2012;51(4):667-673.
93. Lee HS, et al. Veterinary drug 17 β -trenbolone promotes proliferation of human prostate cancer cell line through Akt/AR signaling. *Chemosphere*. 2018;198:364-369.
94. Zhou ZX, Lane MV, Kemppainen JA, French FS, Wilson EM. Specificity of ligand-dependent androgen receptor stabilization: receptor domain interactions influence ligand dissociation and receptor stability. *Mol Endocrinol*. 1995;9(2):208-218.
95. Chen S, et al. Androgen and glucocorticoid receptor heterodimer formation. *J Biol Chem*. 1997;272(22):14087-92. PMID: 9162034.

— 146 SOURCES · END OF LIST —

