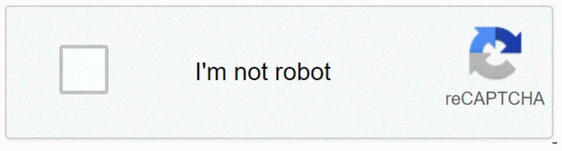

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Anabolic steroids pdf

Anabolic steroids (also known as androgenic steroids) are synthetic derivatives of testosterone. Legal, as well as illegal use of anabolic steroids, is gaining popularity. There are two types of anabolic steroids: 1) 17 alpha alkyl derivatives: for example, oxandrolone, oxymetholone, and fluoxymesterone; and 2) 17 beta ester derivatives: for example, testosterone cypionate, testosterone enanthate, testosterone heptylate, testosterone propionate, nandrolone decanter, nandrolone phenpropionate, and dromostanolone. Nandrolone phenpropionate is a C18 androgenic anabolic steroid and was one of the first anabolic steroids to be used as a performance enhancing agent by professional athletes in the 1960s. It was banned from the IOC Olympics in 1974. All anabolic steroids are DEA Plan III drugs. [1] [2] [3] FDA approved indications for anabolic steroid use are primary hypogonadism, delayed puberty in boys (testosterone enanthate), hypogonadotropic hypogonadism (testosterone cypionate, enanthate, and undecanoate), gonadotropin and luteinizing hormone releasing hormone deficiency, pituitary hypochondundaic dysfunction from various tumors, injuries and radiation. Other indications for testosterone use include primary testicular failure in patients with cryptorchidism, orchitis, testicular torsion, disappearing testis syndrome, previous history of orchiectomy, Klinefelter syndrome, chemotherapy, toxic damage from alcohol and heavy metal use. Non-FDA approved indications of androgenic steroids include bone marrow stimulation in leukemia, aplastic anemia, kidney failure, growth failure, appetite stimulation, and muscle mass in malignancy and acquired immunodeficiency syndrome. Anabolic steroid users are sometimes used by athletes at all levels in sports such as bodybuilding, weightlifting, baseball, football, cycling, wrestling, and many others to improve their performance. Endogenous androgen is responsible for the growth and development of the genital organs in men and the maintenance of secondary sex characteristics. Endogenous anabolic steroids such as testosterone and dihydrotestosterone and synthetic anabolic steroids mediate their effects by binding to androgen receptors and activation. In skeletal muscles, anabolic steroids regulate the transcription of target genes that control the storage of DNA in the skeletal musbone needed for muscle growth. [4] [5] [3] Anabolic steroids also upregulate and increase the number of androgen receptors, allowing for increased training intensity and thus indirectly contributing to increased muscle mass and strength. They also have a stimulating effect on the brain through their diverse effects on various neurotransmitters of the central nervous system, glucocorticoid antagonism, and growth hormone stimulation insulin-like growth factor-1 axis. Nandrolone decanoate and nandrolone phenpropionate are associated with an increased ratio of anabolic activity versus androgenic activity. Nandrolone decanoate is anabolic steroid intended only for the purpose of increasing muscle mass. It works by promoting nitrogen retention in muscles, which leads to an increase in muscle mass, and provide relief from joint pain by promoting collagen synthesis and increased bone mineralization. Nandrolone phenpropionate also causes an increase in muscle growth, stimulating appetite, and increasing red blood cell production. Dromostanolone is a synthetic anabolic steroid with anti-estrogenic properties and is five times more potent than methyltestosterone, which is widely used by bodybuilders to prepare for competition. It increases the retention of nitrogen, phosphorus and potassium, which leads to an increase in protein anabolism and a decrease in catabolism of amino acids, which leads to an increase in the density and hardness of muscles. Anabolic steroids administration can be like oral pills, injections, creams or topical gels, and skin patches. Testosterone cypionate is administered as 50 to 400 mg intramuscularly once to 4 times a month for primary hypogonadism and hypogonadotropic hypogonadism. Testosterone undecanoate dosage starts as an initial dose of 750 mg, then 750 mg given four weeks after the first dose, and 750 mg subsequently, whereas at ten weekly intervals between each dose. Testosterone gel is administered as 11 mg 3 times a day, with a total dose of 33 mg daily. Transdermal testosterone is applied as 50 mg applied once a day in the morning to the upper limbs, shoulder, or abdomen with a maximum dose of 100 mg per day. Another testosterone gel is administered at a dose of 40 mg once a day every morning with a maximum dose of 70 milligrams per day. Drugs not approved by the FDA for medical useNandrolone decanoate dosage is 100 mg per week for comfort and relief of joint pain and within a dose range of 200 mg to 400 mg per week to increase growth and performance. It is ideally used for about ten to twelve weeks in total to get the desired results in athletes, powerlifters, and bodybuilders. Dromostanolone is available as 200 to 400 mg per week that bodybuilders use to enhance their athletic performance. Due to its short half-life, dromostanolone injections are given every 3 to 4 days. Below are a list of some anabolic steroid side effects:Cardiovascular: Coronary artery disease, cardiomyopathy, and hypertension (3% or less)Endocrine and metabolic: Decreased concentration of HDL cholesterol (6% or less), hyperlipidemia (6% or less), hypokalemia, increased serum triglycerides thyroid-stimulating hormone levels and plasma concentration of estradiol, decreased libido (3% or less), gynecomasesta (3% or less), hot flashes and weight gainGastrointestnal : Ginginitis (9% or less), mouth irritation (9% or less), increased serum bilirubin, abnormal liver function tests, decreased appetite, dysgeusia, gastroesophageal reflux disease and gastrointestinal bleedingGenitourinary: Increase in prostate specific antigen (topical 18% or less), benign prostatic (12%), testicular atrophy (6% or less), suppression of spermatogenesis, mastalgia, hypogonadism (after withdrawal), prostatitis, dysuria, hematuria, impotence, pelvic pain, urinary incontinence, urinary tract infection, testicular sensitivity, ejaculation disorder and erectile dysfunction (nandrolone)Haematological and oncological: Polycymithea (6%) and prostate cancer (less than 3%)Neuromuscular and skeletal: Myalgia (6% or less), premature epiphysal closure (if taken before puberty), limb pain, tendon rupture, abnormal bone growth, and hemorrhosisNeuropsytricchia: Emotional lability, major mood disorders, anosmia, headache, depression, nervousness, body pain, violence insomnia, and aggressive behaviorDermatologic: Skin blister (12%), acne vulgaris (8% or less), crusty skin, nasal excoriation (6% or less), contact dermatitis, bulmatitis, skin rash, and pruritusRenal: Increased serum creatinine and frequency of urinationNandrolone causes hirsut deepening of the voice in a woman with a longer period of use due to its androgenic properties. Testosterone cypionate is contraindicated in the presence of severe renal, cardiac and liver diseases, men with breast and prostate cancer, venous thromboembolism, pregnant women, or women who may become pregnant, nursing women, hypersensitivity to any component of the formulation. The Endocrinology Society suggests that it may be reasonable to avoid testosterone treatment in men who have a history of myocardial infarction and stroke in the past six months. [6] [7] Before starting testosterone treatment, diagnoses of hypogonadism require confirmation by measuring early morning testosterone levels for two separate days. Before starting treatment, lipid profile, liver function tests, hemoglobin, hematocrit, prostate specific antigen and prostate examination in patients over 40 years of age are required. During the treatment of anabolic steroids, doctors should obtain the patient's lipid profile, liver function tests, hemoglobin, and hematocrit (at 3 to 6 months, then every year). Women treated with testosterone for breast cancer require monitoring for signs of virilization. Patients should be monitored for response to testosterone treatment as well as for adverse reactions three to six months after initiation of treatment and every year thereafter, especially for cardiac adverse reactions. Men over 40 years of age with baseline prostate specific antigen (PSA) of more than 0.6 ng/ml should have measured PSA levels and prostate examination after 3 to 6 months. Treatment should be discontinued in men with a palpable prostate or prostate specific antigen of more than 4 ng/ml and in patients for which there is a high risk of prostate malignancy with prostate specific antigen greater than 3 ng/mL.Testosterone levels should be measured in the middle between injections of testosterone enanthate and testosterone cypionate and dose and frequency adjustments should take place to maintain testosterone between 400 ng/dl and 700 ng/dl (Endocrine Society 2010). Serum testosterone levels should be measured two to eight hours after application and fourteen days after initiation of treatment or dose titration in patients with topical testosterone solution. Total serum testosterone should be measured regularly, starting the first month after initiation of treatment in patients taking nasal testosterone gel, and treatment should end if total testosterone exceeds 1050 ng/dl. Serum testosterone levels should be measured approximately 14 days after initiation of treatment, in the morning, before the application of transdermal testosterone, at the end of the dosing interval in testosterone pellets, and 4 to 12 weeks after initiation of treatment and before the morning dose in patients taking the buccal form of testosterone. [8] [9] There is no doubt that anabolic steroids have a clinical role in patients with HIV, liver disease, kidney failure, some malignancy, and in patients with burns. But today the problem with these agents is one of abuse. Despite legislation restricting empirical prescription and dispensing these substances, these drugs continue to be abused by athletes. To prevent the abuse of anabolic drugs, the role of a nurse and pharmacist is critical. Athletes need education about the potential harm from these drugs and that there are very sophisticated methods of detecting them in the blood and urine. Plus, athletes need to know that many anabolic steroids purchased online are counterfeit and also contain ingredients that can be toxic. Another problem is addiction to these agents and referral to a mental health counselor. In addition, the user must understand that the psychoactive effects of anabolic steroids can be deadly, resulting in anger, suicidal thoughts, anger, and extreme violence. Abuse of anabolic steroids is a problem at all levels of schooling and involves both sexes. The doctor, assistant doctor, nurse and pharmacist should support the cessation of these substances and refer the patient to the appropriate specialist for treatment. [10] [11] [Level III]How proper therapeutic use as well as addressing illegal abuse of anabolic steroids requires interprofessive team efforts. When dealing with illicit use, all members must be aware of the symptoms of steroid abuse and be prepared to advise as needed to try to solve the problem. With legitimate therapeutic use, the doctor prescribes an agent based on clinical need, and the pharmacist can verify the appropriate administration, as well as control of drug interactions. Nursing can provide administrative advice along with the pharmacist, and also monitor side effects on subsequent visits; pharmacists and nurses need an open communication channel for the prescriber in such cases. These actions demonstrate the potential effectiveness of the interprofessional team's approach to anabolic steroid use or abuse. [Level V] ResultsWhen used appropriately Steroids can help with weight gain, but a person needs to monitor the patient for side effects. In general, when used for a short period of time, when indicated, anabolic steroids can reverse cachexia in several disorders. At the same time, healthcare professionals should be fully aware that these drugs are suffering from abuse and therefore close monitoring is required. [12] [13] [Level III]Further Education/Questions1.Lusetti M, Licata M, Silingardi E, Bonsignore A, Palmiere C. Appearance/Image- and Performance-Enhancing Drug Users: Forensic Approach. Am J Forensic Med Pathol. 2018 Dec;39(4):325-329. [PubMed: 30153114] 2.Jones IA, Togashi R, Hatch GFR, Weber AE, Vangsness CT. Anabolic Steroids and Tendons: An overview of their mechanical, structural, and biological effects. J Orthop Res. 2018 Nov;36(11):2830-2841. [PubMed: 30047601] 3.Armstrong JM, Avant RA, Charchenko CM, Westerman ME, Ziegelmann MJ, Miest TS, Trost LW. The effect of anabolic androgenic steroids on sexual function. Transl Androl Urol. 2018 Jun;7(3):483-489. [PMC free article: PMC6043738] [PubMed: 30050806] 4.Melo Junior AF, Dalpiaz PLM, Sousa GJ, Oliveira PWC, Birocale AM, Andrade TU, Abreu GR, Bissoli NS. Nandrolone alters left ventricular contractilite and promotes remodeling involving proteins for manipulating calcium and the renin-angiotensin system in male SHR. Life Sci. 2018 Sep 01;208:239-245. [PubMed: 30040952] 5.Zhou S, Glowacki J. Dehydroepiandrosterone and bone. Vitam Horm. 2018;108:251-271. [PubMed: 30029729] 6.Garner O, Iardino A, Ramirez A, Yakoby M. Cardiomyopathy induced anabolic androgenic steroid abuse. BMJ Case Rep. 2018 Jul 23;2018 [PMC free article: PMC6059226] [PubMed: 30037963]7.Costanzo PR, Pacenza NA, Aszpis SM, Suárez SM, Pragier UM, Usher JGS, Vásquez Cayoja M, Iturrieta S, Gottlieb SE, Rey RA, Knoblovits P. Clinical and etiological aspects of gynecomastia in adult men: Multicenter study. Biomed Res Int. 2018;2018:8364824. [PMC free article: PMC5996435] [PubMed: 30003107] 8.Moretti S, Lega F, Rigoni L, Saluti G, Giusepponi D, Gioiello A, Manuali E, Rossi R, Galarini R. Multiclass screening method for detection of more than fifty prohibited substances in beef bile and urine. Chim Acta. 2018 Nov 22;1032:56-67. [PubMed: 30143222] 9.Dahmani H, Louati K, Hajri A, Bahri S, Safta F. Development of extraction methods for anabolic androgenic steroids in dietary supplements and analysis of gas chromatography mass spectrometry: Application for doping control. Steroids. 2018 Oct;138:134-160. [PubMed: 30118779]10.Smit DL, de Ronde W. Outpatient Clinic for Anabolic Androgenic Steroid Users: overview. Neth J Med. 2018 May;76(4):167. [Pubmed: 29845939]11.Creagh S, Warden D, Latif MA, Paydar A. New classes of synthetic illegal drugs can significantly damage the brain: Neuro Imaging perspective with a full review of MRI findings. Clin Radiol Imaging J. 2018;2(1) [PMC free article: PMC6048967] [PubMed: 30027157]12.Andrews MA, Magee CD, Combest TM, Allard RJ, Douglas KM. Physical effects Steroids in Healthy Adult Exercise: A Systematic Review and Meta-Analysis. Curr Sports Med Rep. 2018 Jul;17(7):232-241. [PubMed: 29994823]13.Elliott J, Kelly SE, Millar AC, Peterson J, Chen L, Johnston A, Kotb A, Skidmore B, Bai Z, Mamdani M, Wells GA. Testosterone treatment in hypogodian men: systematic review and networked meta-analysis. BMJ open. 2017 Nov 16;7(11):e015284. [PMC free article: PMC5701987] [PubMed: 29150464] 29150464]