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Rodrigues R, Ramos S, Almeida N. Anabolic androgenic steroids in psychiatric practice. Eur Neuropsychopharmacol. 2012;22:S403. Sagoe D, Molde H, Andreassen CS, Torsheim T, Pallesen S. The global epidemiology of anabolic-androgenic steroid use: A meta-analysis and meta-regression analysis. Annals of Epidemiology. 2014;24(5):383–398. Santamarina RD, Besocke AG, Romano LM, Ioli PL, Gonorazky SE. Ischemic stroke related to anabolic abuse. Clin Neuropharmacol. 2008;31(2):80. 20.12 Other Substance Use and Addictive Disorders This section considers a diverse set of drugs not covered in the previous sections that are not easily categorized and grouped with other substances. The fifth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) includes a diagnostic category for these substances called unknown or unspecified substance-related disorders. Some of these are discussed in the following. γ-HYDROXYBUTYRATE γ-Hydroxybutyrate (GHB) is a naturally occurring neurotransmitter in the brain that is related to sleep regulation. GHB increases dopamine levels in the brain. In general, GHB is a central nervous system (CNS) depressant with effects through the endogenous opioid system. It is used to induce anesthesia and long-term sedation, but its unpredictable duration of action limits its use. GHB has been evaluated recently for the treatment of alcohol and opioid withdrawal and narcolepsy. Until 1990, GHB was sold in U.S. health food stores, and body builders used it as a steroid alternative. Reports indicate, however, that GHB is abused for its intoxicating effects and consciousness-altering properties. It is variously referred to as “GBH” and “liquid ecstasy,” and it is sold illicitly in various forms (e.g., powder and liquid). Similar chemicals, which the body converts to GBH, include γ-butyrolactone (GBL) and 1,4butanediol. Adverse effects include nausea, vomiting, respiratory problems, seizures, coma, and death. In some reports, GHB abuse has been linked to a syndrome similar to Wernicke-Korsakoff syndrome. NITRITE INHALANTS The nitrite inhalants include amyl, butyl, and isobutyl nitrites, all of which are called “poppers” in popular jargon. The intoxication syndromes seen with nitrites can differ markedly from the syndromes seen with the standard inhalant substances, such as lighter fluid and airplane glue. Nitrite inhalants are used by persons seeking the associated mild euphoria, altered sense of time, feeling of fullness in the head, and, possibly, increased sexual feelings. The nitrite compounds are used by some gay men and users of other drugs to heighten sexual stimulation during orgasm and, in some cases, to relax the anal

sphincter for penile penetration. Under such circumstances, a person may use the substance for a few or a dozen times within several hours.

Adverse reactions include a toxic syndrome characterized by nausea, vomiting, headache, hypotension, drowsiness, and irritation of the respiratory tract. Some evidence indicates that nitrite inhalants can adversely affect immune function. Because sildenafil (Viagra) and its congeners are lethal when combined with nitrite compounds, persons at risk should be cautioned never to use the two together. NITROUS OXIDE Nitrous oxide, commonly known as “laughing gas,” is a widely available anesthetic agent that is subject to abuse because of its ability to produce feelings of lightheadedness and of floating, sometimes experienced as pleasurable or specifically as sexual. With long-term abuse patterns, nitrous oxide use has been associated with delirium and paranoia. Female dental assistants exposed to high levels of nitrous oxide have reportedly experienced reduced fertility. A 35-year-old male dentist with no history of other substance problems complained of problems with nitrous oxide abuse for 10 years. This had begun as experimentation with what he had considered a harmless substance. His rate of use increased over several years, however, eventually becoming almost daily for months at a time. He felt a craving before sessions of use. Then, using the gas while alone in his office, he immediately felt numbness, a change in his temperature and heart rate, and alleviation of depressed feelings. “Things would go through my mind. Time was erased.” He sometimes fell asleep. Sessions might last a few minutes or up to 8 hours. They ended when the craving and euphoria ended. He had often tried to stop or cut down, sometimes consulting a professional about the problem. OTHER SUBSTANCES Nutmeg Nutmeg can be ingested in a number of preparations. When nutmeg is taken in sufficiently high doses, it can induce depersonalization, derealization, and a feeling of heaviness in the limbs. In sufficiently high doses, morning glory seeds can produce a syndrome resembling that seen with lysergic acid diethylamide (LSD), characterized by altered sensory perceptions and mild visual hallucinations. Catnip Catnip can produce cannabis-like intoxication in low doses and LSD-like intoxication in high doses. Betel Nuts

Betel nuts, when chewed, can produce a mild euphoria and a feeling of floating in space. Kava Kava, derived from a pepper plant native to the South Pacific, produces sedation and incoordination and is associated with hepatitis, lung abnormalities, and weight loss. Over-the-Counter Drugs Some persons abuse over-the-counter and prescription medications, such as cortisol, antiparkinsonian agents, and antihistamines. Ephedra Ephedra, a natural substance found in herbal tea, acts like epinephrine and, when abused, produces cardiac arrhythmia and fatalities. Chocolate A controversial possible substance of abuse is chocolate derived from the cacao bean. Anandamide, an ingredient in chocolate, stimulates the same receptors as marijuana. Other compounds in chocolate include tryptophan, the precursor of serotonin, and phenylalanine, an amphetamine-like substance, both of which improve mood. So-called chocoholics may be self-medicating because of a depressive diathesis. POLYSUBSTANCE-RELATED DISORDER Substance users often abuse more than one substance. A diagnosis of polysubstance dependence is appropriate if, for a period of at least 12 months, a person has repeatedly used substances from at least three categories (not including nicotine and caffeine), even if the diagnostic criteria for a substance-related disorder are not met for any single substance, as long as, during this period, the criteria for substance dependence have been met for the substances considered as a group. TREATMENT AND REHABILITATION Treatment approaches for the substances covered in this section vary according to substances, patterns of abuse, availability of psychosocial support systems, and patients’ individual features. Two major treatment goals for substance abuse have

been determined: the first is abstinence from the substance; and the second is the physical, psychiatric, and psychosocial well-being of the patient. Significant damage has often been done to a patient’s support systems during prolonged periods of substance abuse. For a patient to stop a pattern of substance abuse successfully, adequate psychosocial supports must be in place to foster the difficult change in behavior.

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