



هيئة الدواء المصرية



## EPVC Mission

Pharmaceutical Vigilance administration is the way through which the processes for authorizing, regulating, monitoring and evaluating the safety of any pharmaceutical product or medical device take place, in addition to disseminating any safety information for public health programs, healthcare professionals, and the Egyptian citizen.

The Pharmaceutical vigilance administration is an integral part of the Central Administration of Pharmaceutical Care that works on the enhancement of the pharmaceutical services to guarantee safe and effective use of medications in Egypt, under the patronage of the Egyptian Drug Authority.

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## Newsletter

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## Direct Healthcare Professional Communication (DHPC): COVID-19 mRNA Vaccine Comirnaty: Risk of Myocarditis and Pericarditis

EPVC in agreement with Pfizer initiated distribution of Direct healthcare professional communication (DHPC) concerning COVID-19 mRNA vaccine comirnaty regarding risk of myocarditis and pericarditis

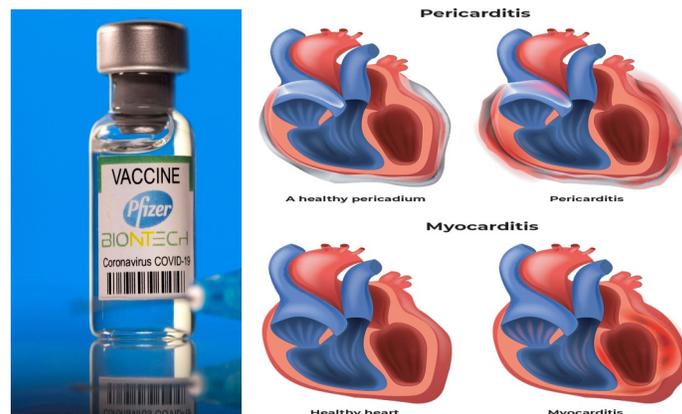
### Summary:

- Post marketing data demonstrate increased risks of myocarditis and pericarditis, particularly within 7 days following the second dose. The observed risk is higher among males under 40 years of age than among females and older males. The observed risk is highest in males 12 through 17 years of age.
- Although some cases required intensive care support, available data from short-term follow-up suggest that most individuals have had resolution of symptoms with conservative management. Information is not yet available about potential long-term sequelae.
- Healthcare professionals should advise vaccinated individuals to seek immediate medical attention should they experience chest pain, shortness of breath, or palpitations.

### Background on the safety concerns

Myocarditis is inflammation of the heart muscle, and pericarditis is inflammation of the lining outside the heart. In both cases, the body's immune system is causing inflammation in response to an infection or some other trigger. Symptoms can include chest pain, shortness of breath, or palpitations.

The severity of cases of myocarditis and pericarditis can vary. For the cases reported after mRNA COVID-19 vaccination, most who presented to medical care have responded well to medications and rest.



For initial evaluation, consider an ECG, troponin level, and inflammatory markers such as C-reactive protein and erythrocyte sedimentation rate. In the setting of normal ECG, troponin, and inflammatory markers, myocarditis or pericarditis are unlikely.

For suspected cases, consider consultation with cardiology for assistance with cardiac evaluation and management. Evaluation and management may vary depending on the patient age, clinical presentation, potential causes, or practice preference of the provider.

It is important to rule out other potential causes of myocarditis and pericarditis. Consider consultation with infectious disease and/or rheumatology to assist in this evaluation.

Where available, evaluate for potential etiologies of myocarditis and pericarditis, particularly acute COVID-19 infection (e.g., PCR testing), prior SARS-CoV-2 infection (e.g., detection of SARS-CoV-2 nucleocapsid antibodies), and other viral etiologies (e.g., enterovirus PCR and comprehensive respiratory viral pathogen testing).





## Local Case Report

### Case Report from Alexandria: A Case of Drug Abuse Resulted in Acute Renal Injury, Cardiomegaly, Muscle Weakness, Ulcers, Sepsis and Finally Death Following Paraffin Oil, Anabolic Steroids and Synthol Local Administration

The regional center in Alexandria received an ICSR concerning a 29 years old male patient administered intramuscularly Paraffin oil, Anabolic steroid (Epitestosterone-D3) and Synthol as muscle building in an abused way for three years.

The patient was admitted to the ICU on October 2, 2021, suffering from bilateral upper limb ulceration, back ulcer infected with pus, thigh ulcer, muscle weakness, sepsis, moderate ascites, bilateral decreased air entry and the respiratory rate was increased to 24 breaths/ min, where the normal respiratory rate is 12 to 16 breath/ min.

On admission, the creatinine level increased to 2.9 mg/dL, the hemoglobin level decreased to 6.7 g/dL, the blood pressure increased to 220/110 mmHg, the random blood glucose level decreased to 72 mg/dL and his body temperature was 37.5 °C, then he complained of intermittent fever.

The patient received a blood transfusion for the decreased hemoglobin level and he was given Nitroglycerin, Concor and Norvasc as treatments for the increase in blood pressure, Averozolid and Meropenem as a treatment for sepsis and infected ulcers, Clexane as a prophylactic treatment for deep venous thrombosis, Nalophen as an analgesic, Perfalgan for fever. The patient died after several days after hospital admission.

The patient was admitted to the hospital earlier (1 month ago), suffering from acute kidney injury but he did not need hemodialysis, muscle weakness and he was bedridden with bedsores stage 2 and cardiomegaly as ADRs caused by Paraffin oil, Anabolic steroid (Epitestosterone-D3) and Synthol administration. The reporter told that the muscle weakness started 8 months ago.



In 2021, the patient underwent abscess surgical drainage in his left shoulder that resulted from the intramuscular injection of the previously mentioned drugs.

#### Background:

**Synthol<sup>(1)</sup>:** Synthol consists usually of oil, benzyl alcohol and lidocain. It consists of 85% of oil (normally it is oil built by medium-length MTC chains because it gives the best effects), 7.5% of lidocain (painkiller), 7.5% of alcohol (to sterilize the mixture). Synthol is a substance used by body builders as a temporary implant which is injected deeply into the muscle. The enlargement effects are immediate. Synthol oil does not contain steroids.

Synthol is used in small groups of muscles to enlarge their volume (for example triceps, biceps, deltoids, muscles of the calf). Some serious drawbacks can be visible while using synthol. The muscles deform and become unnaturally shaped.

**Paraffin oil<sup>(2)</sup>:** Liquid paraffin, also known as paraffinum liquidum or Russian mineral oil, is a very highly refined mineral oil used in cosmetics and medi-



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cine. Cosmetic or medicinal liquid paraffin should not be confused with the paraffin (or kerosene) used as a fuel. It is a transparent, colorless, nearly odorless, and oily liquid that is composed of saturated hydrocarbons derived from petroleum.

The most noteworthy uses of liquid paraffin oil in medicine and cosmetics are:

- \* As a laxative this oil is not absorbed by the intestinal tract.
- \* In the manufacture of penicillin and is an important ingredient in many medicated creams, ointments, and balms.
- \* In the cosmetic industry as well as for the preparation of a number of solid and liquid brilliantine, moisturizers, cold cream, and lotions, and in makeup products such as lipstick, lip balm, and foundation cream.
- \* In skin treatment, especially in treating diaper rash and eczema and to preserve unstable or reactive substances

Injection of paraffin oil IM to change physical configuration is an obsolete procedure from 1899, revived by bodybuilders as an alternative to intramuscular injections of steroids.

**Site enhancement oils (SEO)<sup>3</sup>:** Cosmetic doping is part of the more complex ongoing doping process in sports and among people desiring to look bigger and stronger.

It is thought that SEOs could increase muscular volume by causing muscle fiber hypertrophy and stimulating the appearing of new muscle fibers due to their irritant effect. Bodybuilders use these kinds of SEOs as a resource to improve the shape of muscles and to appear more cosmetically attractive as the muscle volume artificially increases. The increasing number of bodybuilders self-injecting oils validate a real concern

about this practice. Despite immediate positive aesthetic results, several short- and long-term adverse effects to SEOs have been reported.

Different kinds of SEOs such as soy oil, paraffin oil, safflower oil, sesame oil, silicon, coconut oil, and purified long- and medium-chain emulsion such as Synthol, are injected in a pure form or mixed with anabolic steroids.

**Anabolic steroids<sup>4</sup>:** Anabolic steroids are synthetic, or human-made, variations of the male sex hormone testosterone. The proper term for these compounds is anabolic-androgenic steroids. "Anabolic" refers to muscle building, and "androgenic" refers to increased male sex characteristics.

Anabolic steroids act at androgen receptors to influence cellular functioning and gene expression. In addition to regulating pathways involved in the development of male characteristics, activation of androgen receptors also produces rapid increases in calcium levels within skeletal muscle, heart, and brain cells. Calcium plays important roles in neuronal signaling.

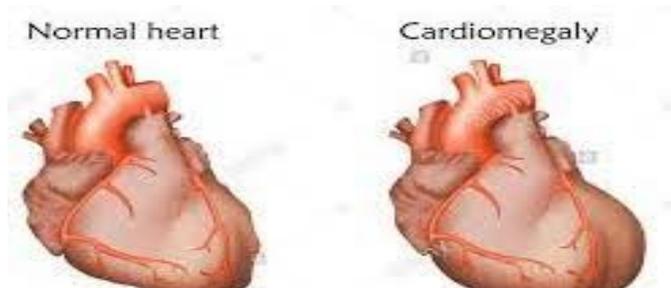
Health care providers can prescribe steroids to treat hormonal issues, such as delayed puberty. But some athletes and bodybuilders misuse these drugs in an attempt to boost performance or improve their physical appearance.

Anabolic steroids increase lean muscle mass when used in conjunction with weight training. The aim, for non-athlete weightlifters, is improvement of appearance. Steroid use is often associated with a form of male body dysmorphic disorder called muscle dysmorphia.

**Acute kidney injury (AKI)<sup>5</sup>:** is defined as an abrupt or rapid decline in renal filtration function.



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**Cardiomegaly**<sup>6</sup>: refers to an enlarged heart seen on any imaging test, including a chest X-ray.

**Sepsis**<sup>7</sup>: is the body's extreme response to an infection. It is a life-threatening medical emergency. Sepsis happens when an infection you already have triggers a chain reaction throughout your body. Infections that lead to sepsis most often start in the lung, urinary tract, skin, or gastrointestinal tract. Without timely treatment, sepsis can rapidly lead to tissue damage, organ failure, and death.

### Reported adverse effects:

According to the reported ADRs concerning Synthol and paraffin oil<sup>3</sup>:

The side effects of Synthol are many including causing nerves damage, pulmonary oil embolism, occlusion of the pulmonary artery, myocardial infarction, cerebral stroke and infectious complications.

Synthol oil is one of the Site enhancement oils (SEOs), it is a material similar to silicone, considered as a doping substance, but unlike others, it does not bring any real benefit to the body or increase athletic performance. Its function is to inflate the muscles by being injected directly into the site of desired enhancement. The human body is unable to assimilate synthol oil and, therefore, it remains in the muscles

for a long time, eventually causing swelling. The muscle enhancement requires several injections until a satisfactory level of muscle size and thickening is reached.

The most frequently injected SEO is Paraffin oil. This type of SEO had been used earlier, between the years 1950 and 1960, with immediate good aesthetic results but resulted in complications of skin inflammation, edema, abscesses, and lymphangitis. Paraffin oil usually becomes a foreign body and can cause an acute or chronic reaction depending on the dose injected. These complications are related to the migration of destructive paraffin oil in the tissues. Complications of subcutaneous paraffin oil injection<sup>8</sup> including acute local inflammation usually followed by a latent phase. Dependent on the volume injected and potential contamination, chronic foreign-body granulomas may form, appearing as dense nodules with occasional ulceration or fistulas secreting oily materials and paraffinomas, which contributed to severe hypercalcemia resulting in nephrocalcinosis and reduced renal function.

It has been described that inflammation is the first sign of foreign-body reaction that appears, usually 1 to 6 months after injection. After a period of latency, ulcerations and fistulas develop in the superficial plane, but oil diffusion to deeper planes, such as the reticular dermis, may lead to lipogranulomas, which are edema formations in perivascular fat and perimuscular fat that cause replacement of the subcutaneous fat with oil dispersed within fibrous tissue.

There is no specific treatment to remove oil from tissues; a treatment aim is to hold diffusion of the substance to stop the dissemination to deeper tissues and other nearby organs. The first therapy given to



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patients consists of antibiotics and steroids during the acute inflammation phase. Surgical treatment may be an effective treatment modality. In an acute phase of the disease, surgical excision of the damaged tissue might help to remove the excessive oil deposits and the affected areas when there is a suspicious of lipogranuloma.

Nevertheless, conservative treatment should be considered when there is a widespread distribution of the oil; for example, use of compression bandages on ulcers caused by oil injections, may improve circulation and reduce edema due to the shorter distance between skin and capillaries. Compression therapy was also applied with good results.

Additional aggressive surgical procedures should be avoided because of the risk of damaging nearby tissues, worsening chronic injuries, and predisposing to large scars. Therefore, in chronic stages, conservative surgical procedures might be performed evaluating the risks and benefits over the condition of the patient and the possibility to improve function and pain if any tissue was damaged.

### **Anabolic steroids adverse events<sup>9</sup>:**

A variety of side effects can occur when anabolic steroids are misused, ranging from mild effects to ones that are harmful or even life-threatening. Most are reversible if the user stops taking the drugs. However, others may be permanent or semi-permanent.

Serious and life-threatening adverse effects may be underreported, especially since they may occur many years later. One review found 19 deaths in published case reports related to anabolic steroid use between 1990 and 2012.

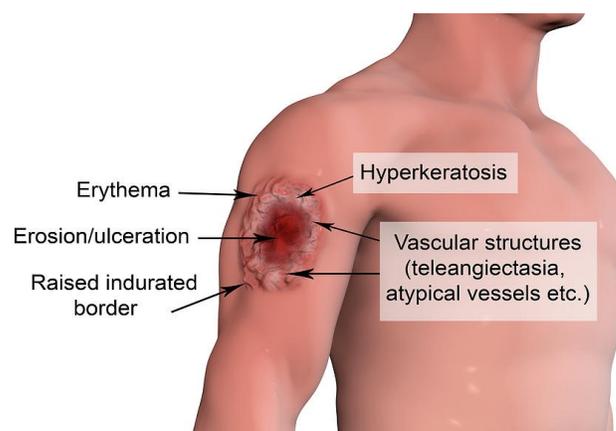
The common side effects of androgens include gynec-

comastia, shrinking of testicles, azoospermia, and infertility in men; and mood changes and aggression, stunted height, and early puberty.

Females with AAS abuse may have severe acne, menstrual irregularities, hirsutism, and clitoromegaly.

All groups can experience high blood pressure, changes in cholesterol, liver diseases such as cysts, heart diseases such as coronary artery disease, kidney diseases, and the risk of infections due to unsterile injections.

In observational studies on males who used anabolic steroids, there was also higher coronary plaque formation volume when compared to non-users. Moreover, approximately 71% of the anabolic steroid users had impaired ability to pump



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### Warnings and Recommendations:

1. Anabolic steroids are completely prohibited in sports, whether in- or out-of-competition. The following organizations prohibit anabolic steroids intake: National Collegiate Athletic Association (NCAA), International Olympic Committee (IOC), U.S. Anti-Doping Agency (USADA), and World Anti-Doping Agency
2. The illegal use of anabolic steroids may involve doses 10 to 100 times higher than the normal prescription dose that has been linked to a higher risk of heart attack or stroke and reproductive organs damage.
3. People who injects drugs is at risk of HIV and other blood borne viruses, regardless of their substance of choice.
4. As anabolic steroids not legal for athletic purposes, so there is no legal control over the quality or use of drugs sold for this purpose.
5. Health care providers should be aware of patients at risk of anabolic-androgenic steroid misuse.
6. Ongoing patient education about the potential side effects should be provided for patients who take androgens for therapeutic use.
7. Treatment for an addiction to anabolic steroids will be similar to that of other types of addiction, by consulting the GP to show how to safely stop taking steroids, and any faced obstacles when trying to stop, plus strategies for dealing with those obstacles.
8. The use of synthol is dangerous, despite what we may read in advertisements online to buy the muscle-enhancing compound.
9. Synthol abuse in large doses can turn muscle into rock, potentially leading to amputations.
10. For building big muscles safely, work with a trainer on a regimen of aggressive strength training and dietary changes.
11. Health professionals should report cases when these users are submitted due to their complications, since the studies and cases documented until the present time are only a small part of a reality of public health that tends to considerably increase

### References:

- |   |   |
|---|---|
| 1. <i>Pubmed</i> ( <a href="#">Click here</a> )         | 6. <i>Webmed</i> ( <a href="#">Click here</a> ) |
| 2. <i>Science Direct</i> ( <a href="#">Click here</a> ) | 7. <i>CDC</i> ( <a href="#">Click here</a> )    |
| 3. <i>NCBI</i> ( <a href="#">Click here</a> )           | 8. <i>NCBI</i> ( <a href="#">Click here</a> )   |
| 4. <i>NIH</i> ( <a href="#">Click here</a> )            | 9. <i>NCBI</i> ( <a href="#">Click here</a> )   |
| 5. <i>Medscape</i> ( <a href="#">Click here</a> )       |   |





## One report counts

### A call for reporting

#### What is Pharmacovigilance

Pharmacovigilance (PV) is defined as the science and activities relating to the detection, assessment, understanding and prevention of adverse effects or any other drug-related problem.

#### What is the Egyptian Pharmaceutical Vigilance Center?

With the increasing demand for patient's safety which is becoming more stringent, . The Egyptian Pharmaceutical Vigilance Center was established to be responsible for the safety monitoring of the pharmaceutical products throughout its lifecycle and it is the regulatory authority regarding Pharmacovigilance and its applications .

EPVC monitors the safety of all types of pharmaceutical products, including human medicines, biological products, supplements, cosmetics, veterinary medicines, medical devices, Biocides and pesticides

Please remember that you can report safety information of medicines to EPVC using the following communication information:

#### Communication information

The Egyptian Drug Authority (EDA)

Pharmaceutical Care Administration

The Egyptian Pharmaceutical Vigilance Center (EPVC)



Address: 21 Abd El Aziz AlSoud Street. El-Manial, Cairo, Egypt, PO Box: 11451

Hotline: 15301

Fax: +202 – 23610497

Email: [pv@edaegypt.gov.eg](mailto:pv@edaegypt.gov.eg),

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Reporting link: [www.edaegypt.gov.eg](http://www.edaegypt.gov.eg)

<https://sites.google.com/view/epvc-reporting/healthcare-professional-public-adverse-drug-event-reporting/reporting-other-adverse-drug-event-cases>



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