

## Special Interest Articles:

- Orlistat
- Button batteries
- CBD oil



## Did you know?

According to the Centers for Disease Control and Prevention, 80,000 Americans died of flu and complications last winter. In recent years, flu-related deaths have ranged from about 12,000 to 56,000. One possibility may be that there are more elderly Americans than previous years.

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## Orlistat™: First FDA Approved Oral Treatment for Endometriosis Related Pain

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Endometriosis affects about 6 to 10 percent of women of childbearing age. This is a disorder in which the endometrium tissue that normally lines the inside of the uterus starts to grow outside of the uterus.

Symptoms include irregular bleeding or spotting, bloating, fertility issues, and pain. Of these symptoms, endometriosis-related pain (e.g. menstrual and non-menstrual pelvic pain, and dyspareunia) is the most common issue for these patients.

Orlistat (elagolix) is the first FDA approved oral treatment for endometriosis-related pain in over a decade. It is a Gonadotropin-releasing hormone receptor antagonist (GnRH) that blocks receptors in the pituitary, thereby suppressing the release of the luteinizing hormone (LH) and the follicle-stimulating hormone (FSH).

The 150 mg tablet is administered once daily for up to 24 months for pelvic pain while the 200 mg tablet can be used twice daily for up to 6 months for pelvic pain and dyspareunia. A longer administration duration than those listed previously is not advised due to evidence of decreased bone mineral density which may not be

reversible after stopping treatment. Orlistat is contraindicated in those who are pregnant, those with known osteoporosis or severe hepatic impairment, and those with concomitant use of OATP 1B1 inhibitors.

In the two placebo-controlled clinical trials conducted (150 mg and 200 mg), the proportion of responders for both dysmenorrhea and non-menstrual pelvic pain was greater than those taking placebo at month three. Dose-dependent elevations of serum ALT (at least 3 times the upper limit) have also been observed; therefore, patients should use the lowest effective dose. Patients taking estrogen containing contraceptives should also use caution as these products may decrease the efficacy of Orlistat. The most common side effects observed in clinical trials >5% were the following: headache, nausea, night sweats and hot flashes, anxiety, mood changes and depression-related effects, and amenorrhea. To date there are currently no reports of human or pediatric toxicity from overdose.



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## Use of Honey in Button Battery Ingestions

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While advances in technology have brought countless improvements and devices to our daily lives, the need for small batteries to power these devices has led to an increase in button battery ingestion and resulting injuries. These injuries include esophageal burns from the highly charged batteries, necessitating a quick response, especially given that the majority of these ingestions occur in children less than six years old. In the last decade there has been a consistently elevated number of ingestions, with 3,240 recorded instances of button battery ingestions in 2017. Of the 2017 button battery ingestions, 1,984 were in children under six years of age. In order to more effectively treat these ingestions and prevent serious esophageal damage, a number of studies have looked into the utilization of medications and common household products, such as honey, to neutralize or coat the battery.

Two studies have attempted to look at medications and products commonly found in the home. In 2017, Jatana et al. looked into confirming the process through which injury occurs in battery ingestions, as well as protective effects from the administration of various acidic liquids, to attempt to neutralize the destructive surface of button batteries. The in vitro studies showed mucosal membrane contact with the battery acted to complete the circuit, generating hydroxide ions that lead to necrotic damage. Their tests of neutralizing liquids found that between lemon juice, orange juice, Coke®, Dasani® water, Pepsi®, and saline, the lemon and orange juice administered every 5 minutes had the most benefit in neutralizing the tissue pH and minimizing the resultant burns.

These findings were soon followed up in 2018 by Anfang et al, who further looked into a variety of compounds capable of neutralizing the batteries as well as coating them to prevent burns to the esophageal tissue. This study began with in vitro esophageal porcine tissue and then moved to in vivo porcine test animals using the two compounds they found most successful in the in vitro tests, honey and Carafate® (sucralfate). Their findings showed significantly less damage to esophageal tissue in the pigs that were quickly administered these agents that helped to coat the battery in the esophagus, minimizing the ability to react with the tissue itself.

Following the publishing of these findings, some poison control centers modified their guidelines on button battery ingestion to include the suggestions of the study. In cases where a button battery ingestion is directly observed and known to have occurred, 10 mL of honey every 10 minutes can be administered to patients one year or older. However, transport to the ER should not be in any way delayed to administer the honey and the patients should be given otherwise nothing by mouth (NPO). Additionally, typical commercial honey is preferred over the artisanal kinds, which may be made from potentially toxic flowers. Sucralfate is similarly recommended, though unlikely to be on hand at home in most scenarios. Up to three 10mL doses of sucralfate may be given by mouth every 10 minutes between x-ray determinations of battery presence and until sedation for endoscopy occurs.

As of now, the question of whether or not to recommend honey to parents of children still remains. In addition to this, *honey would never be recommended in children less than one years old*. There are immediate concerns that parents may feel less urgency in getting their child to an emergency room, negating any delaying benefits the honey may have. Additionally, concerns have arisen about blocking the airway with the combination of both battery and honey filling up space in the esophagus. Going forward, there may be cases where honey or sucralfate are appropriate options, such as when transporting patients from outlying hospitals to bigger establishments that have the staff on hand capable of performing the endoscopy and battery removal. Overall the potential for delaying damage needs to be weighed against delaying treatment, but in certain scenarios honey may end up being a real sweet option.

### References

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“In the last decade there has been a consistently elevated number of ingestions, with 3,240 recorded instances of button battery ingestions in 2017.”



## The Rising Use of CBD Oil

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CBD or Cannabidiol is a naturally occurring compound that is derived from cannabis. It is advertised as containing no tetrahydrocannabinol (THC) - the psychoactive component of cannabis. It was originally isolated from cannabis in the 1940's by organic chemist Roger Adams. As Americans continue to look for natural remedies for health conditions, use of CBD products has recently escalated. With increase in use, comes cause for concern with regard to CBD off-label therapeutic uses.

The role of CBD in pharmaceuticals has been controversially researched and studied. CBD has been used to help alleviate pain from multiple sclerosis, and to treat disorders such as seizures in epilepsy, anxiety disorders, restless leg syndrome, and insomnia. THC is known to cause paranoia and anxiety in those that use marijuana, however CBD is thought to have the opposing effect on anxiety disorders, producing a calming effect. CBD can be extracted and formed into a variety of different products such as aerosol spray, candies, and oils.

### Illegal Use

There is much controversy surrounding CBD's legality in Alabama. The Agricultural Act of 2014 permits all states to grow and research industrial hemp, the source of most CBD products. However, regulations require that CBD derived from this source be used for research purposes only. In July of 2018, the first CBD store opened on Highway 280 in Birmingham and stores in other areas were soon to follow. CBD is also being sold in gas stations and cigar shops. In an article published by *Times Daily*, the director of the Lauderdale County Drug Task Force claims there are at least 120 businesses in his county that are selling CBD. Police in the area are currently investigating all businesses selling CBD products and will soon begin the process of shutting these businesses down. Currently, however, many of these stores remain open and continue to distribute CBD products.



Studies of CBD oil use in monkeys showed that large doses of CBD oil produced convulsions. Since data regarding CBD use in adults and children is limited, this is cause for concern. Amounts of CBD in many OTC products may not be properly documented on product labeling. Many OTC CBD products have even been found to contain the psychoactive component, THC.

### Legal Use

In 2015, Alabama legislature passed Carly's Law. Carly's Law provides for CBD oil to be used at the University of Alabama in Birmingham Hospital for childhood epileptic patients who experience more than 100 seizures per month and in which previous

treatments have been unsuccessful. In 2016, legislature also passed Leni's Law which expanded on Carly's Law. Leni's Law includes treatment with CBD for patients who have certain debilitating medical conditions diagnosed by a doctor. CBD laws such as Carly's Law are highly regulated and studied.

Two rare epilepsy disorders known for frequent, difficult-to-control seizures are Dravet syndrome and Lennox-Gastaut syndrome. The CBD-derived prescription drug Epidiolex® (cannabidiol) has been used for treatment of these disorders with great success. The Food and Drug Administration approved this product in June of 2018 with the Drug Enforcement Administration moving it to Schedule V from Schedule I on September 28, 2018. As of late September, GW Pharmaceuticals, manufacturers of Epidiolex, state that they will make Epidiolex available in the next six weeks. Epidiolex will be available at specialty pharmacies and will be shipped to the patient's home when prescribed for the indicated syndromes. *(Continued next page)*

## The Rising Use of CBD Oil (continued)

It is anticipated that overdose effects will be similar to adverse effects reported at therapeutic doses. The most common adverse events occurring in 10% or more of patients treated with cannabidiol include: somnolence, decreased appetite, diarrhea, transaminase elevation, fatigue, malaise, asthenia, rash, insomnia, sleep disorder, poor quality sleep and various infections (ie, fungal, viral, pneumonia).

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Priya Bhatt, Auburn University pharmacy student, attends health fair at Trussville Senior Citizen Center in September.



Auburn and Samford University pharmacy students, Priya Bhatt, Rynne Spivey and Chris Russell teach seniors at the Gardendale Senior Citizen Center about Medication Safety in September.