



**What are the possible side effects of Icosapent Ethyl Capsules?**

Icosapent ethyl capsules may cause serious side effects, including:

- **Heart rhythm problems (atrial fibrillation and atrial flutter).** Heart rhythm problems which can be serious and cause hospitalization have happened in people who take icosapent ethyl capsules, especially in people who have heart (cardiovascular) disease or diabetes with a risk factor for heart (cardiovascular) disease, or who have had heart rhythm problems in the past. Tell your doctor if you get any symptoms of heart rhythm problems such as feeling as if your heart is beating fast and irregular, lightheadedness, dizziness, shortness of breath, chest discomfort, or you faint.
- **Possible allergic reactions if you are allergic to fish or shellfish.** Stop taking icosapent ethyl capsules and tell your doctor right away or get emergency medical help if you have any signs or symptoms of an allergic reaction.
- **Bleeding.** Serious bleeding can happen in people who take icosapent ethyl capsules. Your risk of bleeding may increase if you are also taking a blood thinner medicine.

If you have liver problems and are taking icosapent ethyl capsules, your doctor should do blood tests during treatment.

- The most common side effects of icosapent ethyl capsules include:
  - Muscle and joint pain.
  - Swelling of the hands, legs, or feet.
  - Constipation
  - Gout
  - Heart rhythm problems (atrial fibrillation).

These are not all the possible side effects of icosapent ethyl capsules. Call your doctor for medical advice about side effects. You may report side effects to FDA at 1-800-FDA-1088.

**How should I store Icosapent Ethyl Capsules?**

- Store icosapent ethyl capsules at room temperature between 68 to 77 °F (20 to 25° C).
- Safely throw away medicine that is out of date or no longer needed.

**Keep icosapent ethyl capsules and all medicine out of the reach of children.**

**General information about the safe and effective use of icosapent ethyl capsules.**

Medicines are sometimes prescribed for purposes other than those listed in a Patient Information leaflet. Do not use icosapent ethyl capsules for a condition for which it was not prescribed. Do not give icosapent ethyl capsules to other people, even if they have the same symptoms that you have. It may harm them. You can ask your pharmacist or healthcare provider for information about icosapent ethyl capsules that is written for health professionals.

**What are the ingredients in Icosapent Ethyl Capsules?**

**Active ingredient:** icosapent ethyl

**Inactive ingredients** alpha tocopherol, gelatin, glycerin, mannitol, sorbitol, and purified water.

The imprinting Opacode NSP-78-18022 White contains, ammonium hydroxide, macrogol, polyvinyl acetate phthalate, propylene glycol and titanium dioxide.

This Patient Information has been approved by the U.S. Food and Drug Administration

For more information, call 1-888-375-3784.

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Princeton, NJ 08540

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**8.4 Pediatric Use**

Safety and effectiveness in pediatric patients have not been established.

**8.5 Geriatric Use**

Of the total number of patients in well-controlled clinical studies of icosapent ethyl, 45% were 65 years of age and over. No overall differences in safety or effectiveness were observed between these patients and younger groups. Other reported clinical experience has not identified differences in responses between the elderly and younger patients.

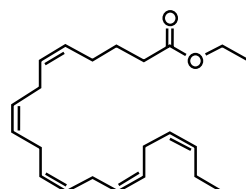
**8.7 Hepatic Impairment**

In patients with hepatic impairment, alanine aminotransferase (ALT) and aspartate aminotransferase (AST) levels should be monitored periodically during therapy with icosapent ethyl.

**11 DESCRIPTION**

Icosapent ethyl capsules, a lipid-regulating agent, is supplied as a 1 gram transparent natural colored oblong shaped, liquid-filled soft gelatin capsule for oral use.

Each icosapent ethyl capsule contains 1 gram of icosapent ethyl (in a 1 gram capsule). Icosapent ethyl is an ethyl ester of the omega-3 fatty acid eicosapentaenoic acid (EPA). The empirical formula of icosapent ethyl is C<sub>52</sub>H<sub>98</sub>O<sub>2</sub>, and the molecular weight is 330.51. The chemical name for icosapent ethyl is ethyl all-cis-5,8,11,14,17-icosapentaenoate with the following chemical structure:



Icosapent ethyl capsules also contain the following inactive ingredients: alpha tocopherol, gelatin, glycerin, mannitol, sorbitol, and purified water.

The imprinting Opacode NSP-78-18022 White contains, ammonium hydroxide, macrogol, polyvinyl acetate phthalate, propylene glycol and titanium dioxide.

**12 CLINICAL PHARMACOLOGY**

**12.1 Mechanism of Action**

Studies suggest that EPA reduces hepatic very low-density lipoprotein triglycerides (VLDL-TG) synthesis and/or secretion and enhances TG clearance from circulating VLDL particles. Potential mechanisms of action include increased β-oxidation; inhibition of acyl-CoA:1,2-diacylglycerol acyltransferase (DGAT); decreased lipogenesis in the liver; and increased plasma lipoprotein lipase activity.

**12.2 Pharmacodynamics**

In a 12-week, dose-ranging study in patients with severe hypertriglyceridemia, icosapent ethyl 4 grams per day reduced median TG from baseline relative to placebo [see *Clinical Studies (14)*].

**12.3 Pharmacokinetics**

**Absorption**

After oral administration, icosapent ethyl is de-esterified during the absorption process and the active metabolite EPA is absorbed in the small intestine and enters the systemic circulation mainly via the thoracic duct lymphatic system. Peak plasma concentrations of EPA were reached approximately 5 hours following oral doses of icosapent ethyl.

Icosapent ethyl capsules was administered with or following a meal in all clinical studies; no food effect studies were performed. Take icosapent ethyl capsules with or following a meal.

**Distribution**

The mean volume of distribution at steady state of EPA is approximately 88 liters. The majority of EPA circulating in plasma is incorporated in phospholipids, triglycerides and cholesteryl esters, and <1% is present as the unesterified fatty acid. Greater than 99% of unesterified EPA is bound to plasma proteins.

**Elimination**

**Metabolism**

EPA is mainly metabolized by the liver via beta-oxidation similar to dietary fatty acids. Beta oxidation splits the long carbon chain of EPA into acetyl Coenzyme A, which is converted into energy via the Krebs cycle. Cytochrome P450-mediated metabolism is a minor pathway of elimination of EPA.

**Excretion**

The total plasma clearance of EPA at steady state is 684 mL/hr. The plasma elimination half-life (t<sub>1/2</sub>) of EPA is approximately 89 hours. Icosapent ethyl does not undergo renal excretion.

**Specific Populations**

**Gender**

When administered icosapent ethyl in clinical trials, plasma total EPA concentrations did not differ significantly between men and women.

**Pediatric**

The pharmacokinetics of icosapent ethyl have not been studied in pediatric patients.

**Hepatic or Renal Impairment**

Icosapent ethyl has not been studied in patients with renal or hepatic impairment.

**Drug Interaction Studies**

**Omeprazole**

In a drug-drug interaction study with 28 healthy adult subjects, icosapent ethyl 4 g/day at steady-state did not significantly change the steady-state AUC<sub>t</sub> or C<sub>max</sub> of omeprazole when co-administered at 40 mg/day to steady-state.

**Rosiglitazone**

In a drug-drug interaction study with 28 healthy adult subjects, icosapent ethyl 4 g/day at steady-state did not significantly change the single dose AUC or C<sub>max</sub> of rosiglitazone at 8 mg.

**Warfarin**

In a drug-drug interaction study with 25 healthy adult subjects, icosapent ethyl 4 g/day at steady-state did not significantly change the single dose AUC or C<sub>max</sub> of R- and S- warfarin or the anti-coagulation pharmacodynamics of warfarin when co-administered as racemic warfarin at 25 mg.

**Atorvastatin**

In a drug-drug interaction study of 26 healthy adult subjects, icosapent ethyl 4 g/day at steady-state did not significantly change the steady-state AUC<sub>t</sub> or C<sub>max</sub> of atorvastatin, 2-hydroxyatorvastatin, or 4-hydroxyatorvastatin when co-administered with atorvastatin 80 mg/day at steady-state.

**13 NONCLINICAL TOXICOLOGY**

**13.1 Carcinogenesis, Mutagenesis, Impairment of Fertility**

In a 2-year rat carcinogenicity study with oral gavage doses of 0.09, 0.27, and 0.91 g/kg/day icosapent ethyl, respectively, males did not exhibit drug-related neoplasms.

Hemangiomas and hemangiosarcomas of the mesenteric lymph node, the site of drug absorption, were observed in females at clinically relevant exposures based on body surface area comparisons across species relative to the maximum clinical dose of 4 g/day. Overall incidence of hemangiomas and hemangiosarcomas in all vascular tissues did not increase with treatment.

In a 6-month carcinogenicity study in Tg.rasH2 transgenic mice with oral gavage doses of 0.5, 1, 2, and 4.6 g/kg/day icosapent ethyl, drug-related incidences of benign squamous cell papilloma in the skin and subcutis of the tail was observed in high dose male mice. The papillomas were considered to develop secondary to chronic irritation of the proximal tail associated with fecal excretion of oil and therefore not clinically relevant. Drug-related neoplasms were not observed in female mice.

Icosapent ethyl was not mutagenic with or without metabolic activation in the bacterial mutagenesis (Ames) assay or in the *in vivo* mouse micronucleus assay. A chromosomal aberration assay in Chinese Hamster Ovary (CHO) cells was positive for clastogenicity with and without metabolic activation.

In an oral gavage rat fertility study, ethyl-EPA, administered at doses of 0.3, 1, and 3 g/kg/day to male rats for 9 weeks before mating and to female rats for 14 days before mating through day 7 of gestation, increased anogenital distance in female pups and increased cervical ribs were observed at 3 g/kg/day (7 times human systemic exposure with 4 g/day clinical dose based on a body surface area comparison).

**14 CLINICAL STUDIES**

**14.2 Severe Hypertriglyceridemia**

The effects of icosapent ethyl 4 grams per day were assessed in a randomized, placebo- controlled, double-blind, parallel-group study of adult patients (76 on icosapent ethyl, 75 on placebo) with severe hypertriglyceridemia. Patients whose baseline TG levels were between

500 and 2,000 mg/dL were enrolled in this study for 12 weeks. The median baseline TG and LDL-C levels in these patients were 684 mg/dL and 86 mg/dL, respectively. Median baseline HDL-C level was 27 mg/dL. The randomized population in this study was mostly Caucasian (88%) and male (76%). The mean age was 53 years and the mean body mass index was 31 kg/m<sup>2</sup>. Twenty-five percent of patients were on concomitant statin therapy, 28% were diabetics, and 39% of the patients had TG levels >750 mg/dL.

The changes in the major lipoprotein lipid parameters for the groups receiving icosapent ethyl or placebo are shown in Table 2.

**Table 2. Median Baseline and Percent Change from Baseline in Lipid Parameters in Patients with Severe Hypertriglyceridemia (≥500 mg/dL)**

Parameter	Icosapent Ethyl 4 g/day N=76		Placebo N=75		Difference (95% Confidence Interval)
	Baseline	% Change	Baseline	% Change	
TG (mg/dL)	680	-27	703	+10	-33* (-47, -22)
LDL-C (mg/dL)	91	-5	86	-3	-2 (-13, +8)
Non-HDL-C (mg/dL)	225	-8	229	+8	-18 (-25, -11)
TC (mg/dL)	254	-7	256	+8	-16 (-22, -11)
HDL-C (mg/dL)	27	-4	27	0	-4 (-9, +2)
VLDL-C (mg/dL)	123	-20	124	+14	-29** (-43, -14)
Apo B (mg/dL)	121	-4	118	+4	-9** (-14, -3)

% Change= Median Percent Change from Baseline  
Difference= Median of [Icosapent Ethyl % Change – Placebo % Change] (Hodges-Lehmann Estimate)  
p-values from Wilcoxon rank-sum test  
\*p-value < 0.001 (primary efficacy endpoint)  
\*\*p-value < 0.05 (key secondary efficacy endpoints determined to be statistically significant according to the pre-specified multiple comparison procedure)

Icosapent ethyl 4 grams per day reduced median TG, VLDL-C, and Apo B levels from baseline relative to placebo. The reduction in TG observed with icosapent ethyl was not associated with elevations in LDL-C levels relative to placebo.

**16 HOW SUPPLIED/STORAGE AND HANDLING**

Icosapent ethyl capsules are supplied as:

Strength	Quantity	Description	NDC
1 gram capsules	Bottles of 120	transparent natural colored oblong shaped soft-gelatin capsules imprinted with "RDY 267" in white ink	43598-267-04

Store at 20 to 25 °C (68 to 77 °F); excursions permitted to 15 to 30 °C (59 to 86°F) [see USP Controlled Room Temperature]. Keep out of reach of children.

**17 PATIENT COUNSELING INFORMATION**

Advise the patient to read the FDA-approved patient labeling before starting icosapent ethyl capsules (Patient Information).

Inform patients that icosapent ethyl capsules may increase their risk for atrial fibrillation or atrial flutter [see *Warnings and Precautions (5.1)*].

Inform patients with known hypersensitivity to fish and/or shellfish about the potential for allergic reactions to icosapent ethyl capsules and advise them to discontinue icosapent ethyl capsules and seek medical attention if any reactions occur [see *Warnings and Precautions (5.2)*].

Inform patients that icosapent ethyl capsules may increase their risk for bleeding, especially if they are receiving other antithrombotic agents [see *Warnings and Precautions (5.3)*].

Advise patients to swallow icosapent ethyl capsules whole. Do not break open, crush, dissolve, or chew icosapent ethyl capsules [see *Dosage and Administration (2.2)*].

Instruct patients to take icosapent ethyl capsules as prescribed. If a dose is missed, patients should take it as soon as they remember. However, if they miss one day of, they icosapent ethyl capsules should not double the dose when they take it.

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