



# Does Hyperbaric Oxygen Therapy (HBOT) affect etonogestrel levels from a Nexplanon<sup>®</sup> implant?

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## Background

- Nexplanon<sup>®</sup> is a long-term birth control option that lasts for up to 3 years to prevent pregnancy.
- Nexplanon<sup>®</sup> is a small, thin, and flexible contraceptive arm implant that is placed under the skin of the inner, upper arm by the health care provider.
- The contraceptive arm implant puts a steady, low dose of etonogestrel (a synthetic form of the naturally occurring female sex hormone progesterone) into the bloodstream to prevent pregnancy.
- Historically, the concern regarding medication implants has been erratic or unpredictable drug absorption rates due to vasoconstriction and adiabatic temperature changes in the hyperbaric environment.



## Case Report

- A 28 y/o female with fistulizing Crohn's disease was referred for hyperbaric treatment. (40 treatments, ATA 2.4 for 90 minutes once daily M-F)
- Her etonogestrel (Nexplanon<sup>®</sup>) implant had been placed 6 months before the consultation.
- A phone call to the manufacturer indicated no data existed on whether HBOT would affect the implant.
- The patient was advised to utilize alternative birth control method(s) due to the lack of data regarding possible alterations in efficacy and/or the effective life of the implant.

## Materials and Methods

- Arrangements were made to collect blood samples and analyze them at the Clinical Pharmacology and Toxicology Laboratory at Columbia University.
- Due to the time needed to make arrangements, the first samples could not be collected until treatment had already begun.

# Does HBOT affect etonogestrel levels from a Nexplanon® implant?

## Results

- The therapeutic range for etonogestrel from the lab was 150-800 pg/ml.
- Levels during HBOT showed:

Date	Treatment #	Pre-treatment	Post-treatment
10/12/18	HBOT #15	140.93 pg/ml	105.14 pg/ml
11/12/18	HBOT #36	264.54 pg/ml	230.78 pg/ml
11/23/18	7 days after final treatment		198.73 pg/ml



## Conclusions/Summary

- These are results from a single individual, where the baseline level prior to treatment was unknown, so the conclusions are limited.
- Etonogestrel levels seemed to increase over the treatment course.
- The levels were assessed on separate occasions, so some results might be confounded by **inter-laboratory** variability.
- Further data are needed to make firm recommendations to patients.
- The prudent course is to advise Nexplanon® users to use alternative forms of contraception while undergoing hyperbaric treatment:
- Also, if HBOT increased implant output, it may decrease the life of the implant.

