

## MEDICAL BENEFITS OF LONG-TERM USE OF MIRENA®

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There is currently only one medicated intrauterine system on the market for clinical use; Mirena®, which releases levonorgestrel (LNG). It was approved for the marketing in 1990 in Finland, the country of origin and in USA in 2000 by the FDA.

The final 5-year dose finding study was a randomized comparative trial (1), indicating that a daily release rate of 20 mcg was as effective as 30 mcg.

Mirena is a highly effective long-term reversible contraceptive. There are several large, long-term studies in which no intrauterine or ectopic pregnancies have been reported. Overall the studies indicate 12,000 women years without a single ectopic pregnancy. Prevention of implantation or abortion cannot explain the absence of ectopic pregnancies. In women aged 25-34 years using no contraception, the expected rate of ectopic pregnancy is between 7,5 and 10,6 per 1000 women - years. Thus for 12,000 women-years, the expected incidence would be 90-127 ectopic pregnancies. The mode of action must be prevention of fertilization. That also explains why Mirena® ( LNG IUS) has the same low pregnancy rate across all age groups. Most other methods of family planning, have high failure rates in young women which decline with increasing age (2).

The cumulative number of Mirena® users is over 12.5 million (June 2008) and the number of scientific reports on Mirena® 1579(March 2008). It is marketed as a contraceptive in 122 countries. The other approved indications are Menorrhagia in 115 countries and HRT in 106 countries. We can conclude that Mirena® is not an experimental device. There is a large number of excellent research papers and none of these report any harmful or unexpected side effects or reasons for concern.

### Health benefits

The intrauterine release of LNG has a strong antiproliferative effect on the endometrium. The endometrium is transformed into an inactive epithelium, which is insensitive to ovarian estrogens. This results in a progressive and strong **reduction in the number of menstrual bleeding days and menstrual blood loss (MBL)**. This improves the health and quality of everyday life for LNG IUS users.

The suppression of the endometrium can be used for the **prevention and treatment of anaemia**.

The study by Faundes *et al.* (4) demonstrated in a low-income population with a high incidence of anaemia **significant improvement in iron balance in women using LNG IUS** compared with a decrease in iron stores in women using inert or Cu IUD:s.

In a large randomized comparative trial specially designed to detect pelvic infection in LNG IUD and Cu IUD users, there were **less endometritis and PID** at three and five years in users of LNG IUS than in users of Cu IUDs. **The decrease in the number of bleeding days and the MBL combined with thickening of the cervical mucus** contributed to this effect. The interested reader is referred to a recent review (5) for the detailed information on the following health benefits: **Decreased incidence of- Dysmenorrhea, PMS, Risk of ectopic pregnancy and Hysterectomy; Mirena as an alternative to sterilization, endometrial resection or ablation It has also been used in the prevention of fibroid formation and in the treatment of endometriosis, adenomyosis and finally latent Endometrial Pre-cancer.has been treated by long term use of Mirena - during pre- and post-menopausal periods (5)**. These health benefits form the foundation for therapeutic use of Mirena®

The excellent study of Morin-Papunen, Martikainen, McCarthy *et al.* compared OC users with LNG IUS users at 31 years of age. They found that compared with the OC pill the use of LNG IUS was associated with less adverse findings in several metabolic, cardiovascular, and inflammatory parameters, which is consistent with increased future risk of cardiovascular and metabolic disease. These findings may alter present guidelines relating to the use of hormonal contraceptives long-term and /or during last decades of the reproductive life (6).

#### References

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