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## **NRP Endocrine Disruptors**

### **Intermediate Summary**

<b>Drop of male fertility in various geographic regions of Switzerland: Investigation of the critical parameters usable for prospective repeated evaluations.</b>
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<b>Project leader</b>
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Prof. Dr. Marc Germond
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<b>Project number</b>
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4050-66564
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### **English Summary**

**Drop in semen quality according to the year of birth in a large cohort of men in Switzerland**

In order to study the variation of sperm quality in Switzerland, we analysed the spermograms stored in the database of the reproductive medicine unit (CHUV) since 1985. Changes in sperm concentration (in millions spermatozoa per milliliter) and total number of spermatozoa per ejaculate were examined in respect to the year of birth and the duration of sexual abstinence.

### **Project description:**

**Research questions**

Since a few decades, a significant decrease in human spermatozoa concentration has been reported in various industrialized countries. We decided to investigate a possible decrease in semen quality in Switzerland by analyzing retrospectively more than 20'000 spermograms (men aged 30-40 years) performed in our andrology laboratory since 1985. The aim was to highlight the possible relationship between the year of birth and the semen quality.

**Results**

Analysis of the collected data showed that the median spermatozoa concentration decreased from 42 to 22 millions per milliliter for patients born between 1945 and 1975. The total number of spermatozoa in the ejaculate decreased from 126 to 76 millions over the same period.

The year of birth seems to play a significant role in the amount of spermatozoa present in the ejaculate of patients consulting for infertility. This observation suggests that, as hypothesized by several other studies, possible environmental effects during the gestation period may have influenced the offspring's fertility. However, a finer statistical analysis of our dataset showed a critical influence of the sexual abstinence before semen collection. The abstinence length is recorded on the basis of the patient's recollection and measured in days. This value is unprecise and may affect the interpretation of the sperm concentration. We thus suggest that in further studies, abstinence should imperatively be recorded in hours.

### **Perspectives**

The results presented are based on a retrospective analysis of clinical data. The scientific relevance of such studies is controversial. The correlation found between spermatozoa concentrations and year of birth needs to be confirmed by standardized research methods, as proposed in our initial study (see project number 4050-66564).