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Title: Effects of iron deficiency on the ovarian cycle

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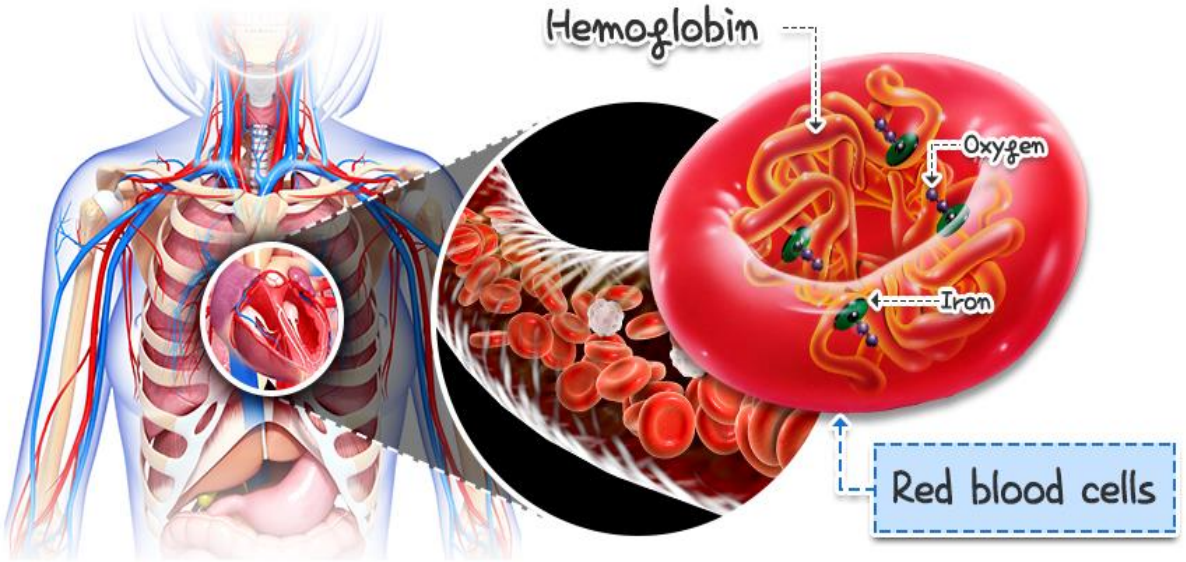
Introduction

Iron is a vital trace element involved in more than 400 chemical reactions and is a structural component of several proteins and enzymes. It is even an indispensable cofactor for hormone synthesis, forming the heme group of cytochromes necessary for the structure of steroid hormones. It has been experimentally demonstrated that iron deficiency anemia alters the ovarian cycle; however, it is not known whether iron deficiency can alter the ovarian cycle without reaching the anemia level.



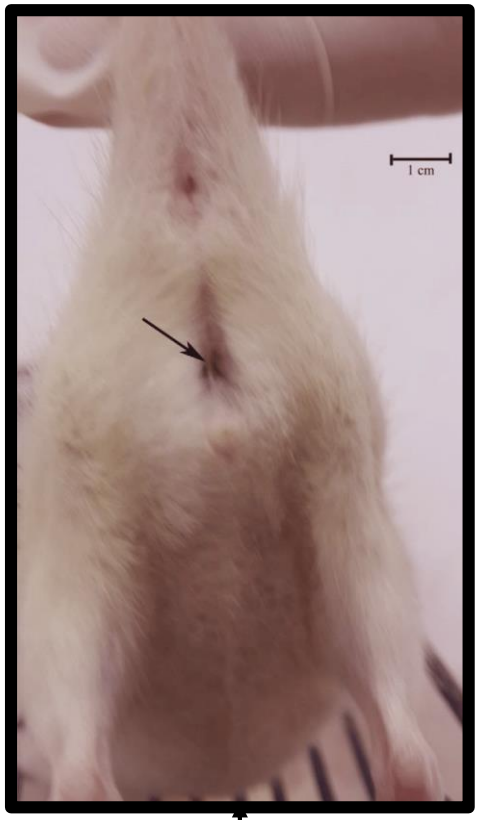
Methodology

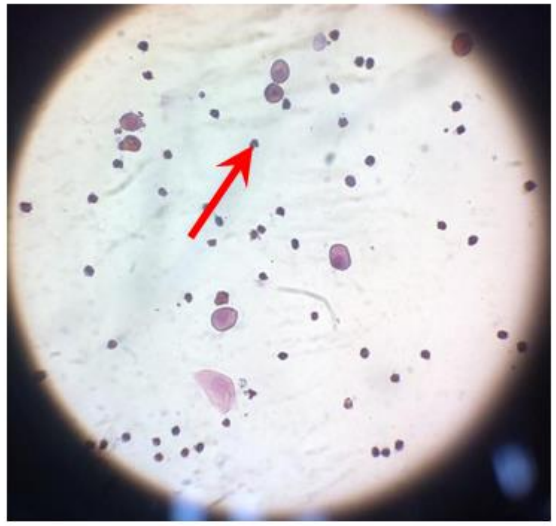
GROUPS AND DIET

Iron-deficient diet (10 ppm FeSO4 (AIN-76W/10 laboratory diet)
n=10 offsprings (0 PND) – 70 PND (adult age)

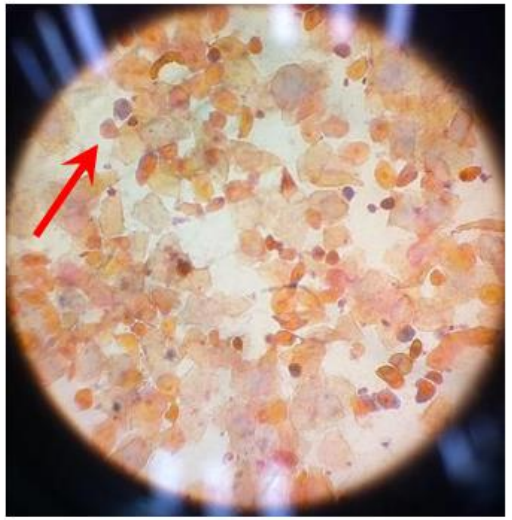
Control diet (100 ppm FeSO4 (AIN-76W/100 laboratory diet)
n =10 offsprings (0 PND) – 70 PND (adult age)

Sample to exfoliative cytology at 70 PND

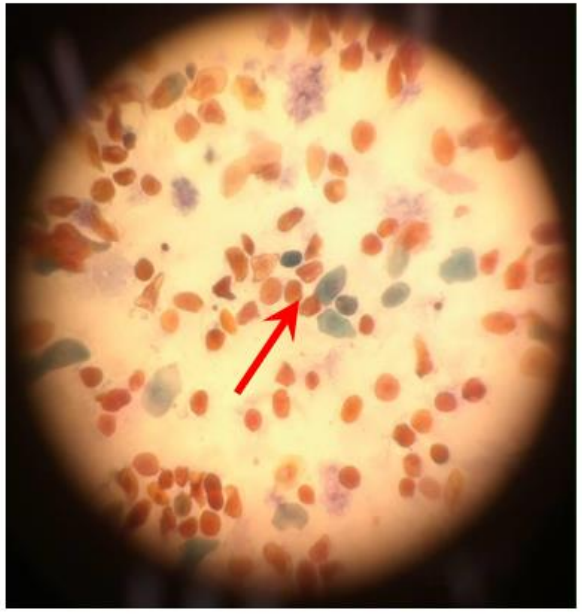




METESTRUS/DIESTRUS STAGE.
Predominance of leukocytes



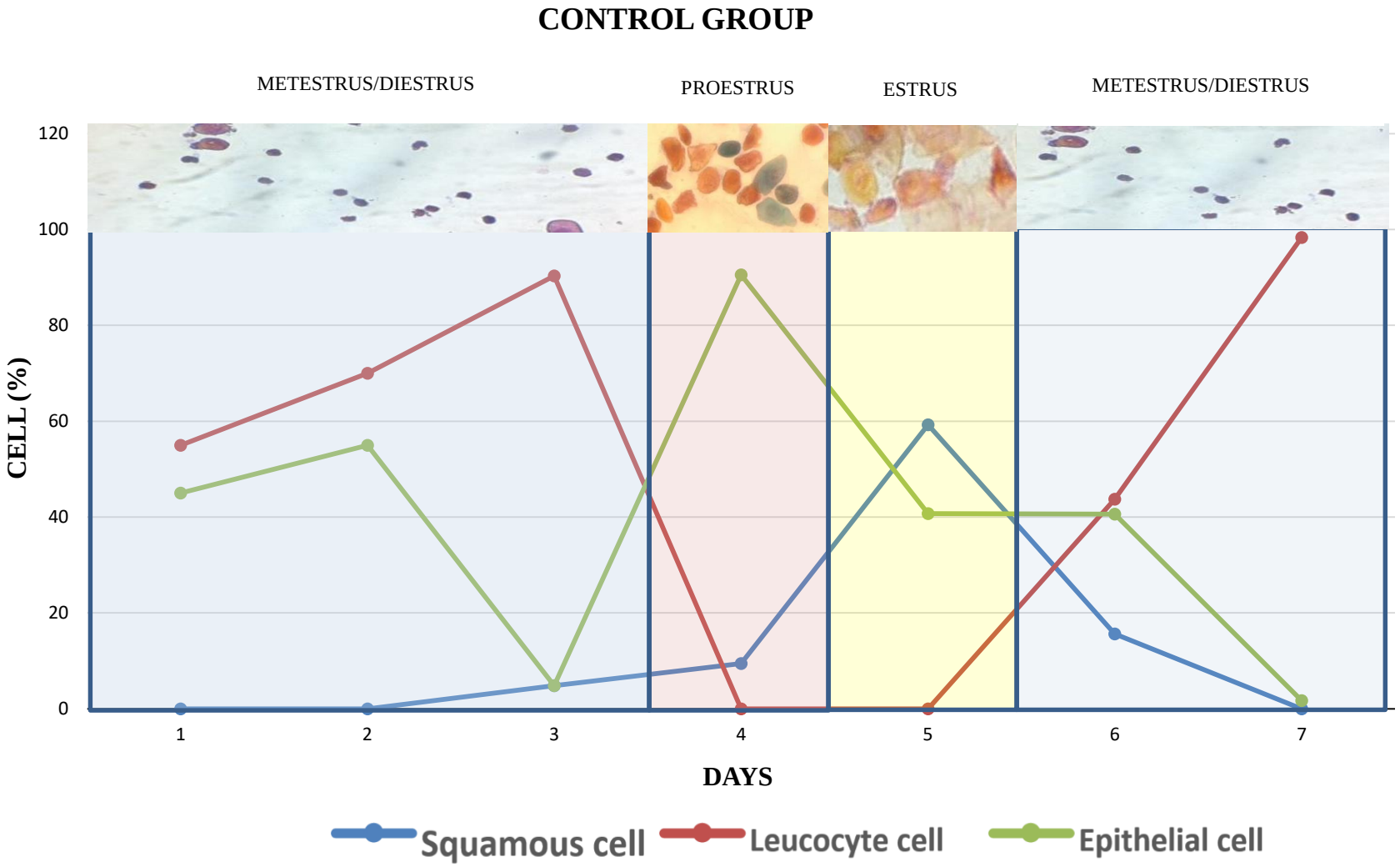
ESTRUS STAGE.
Predominance of squamous cell



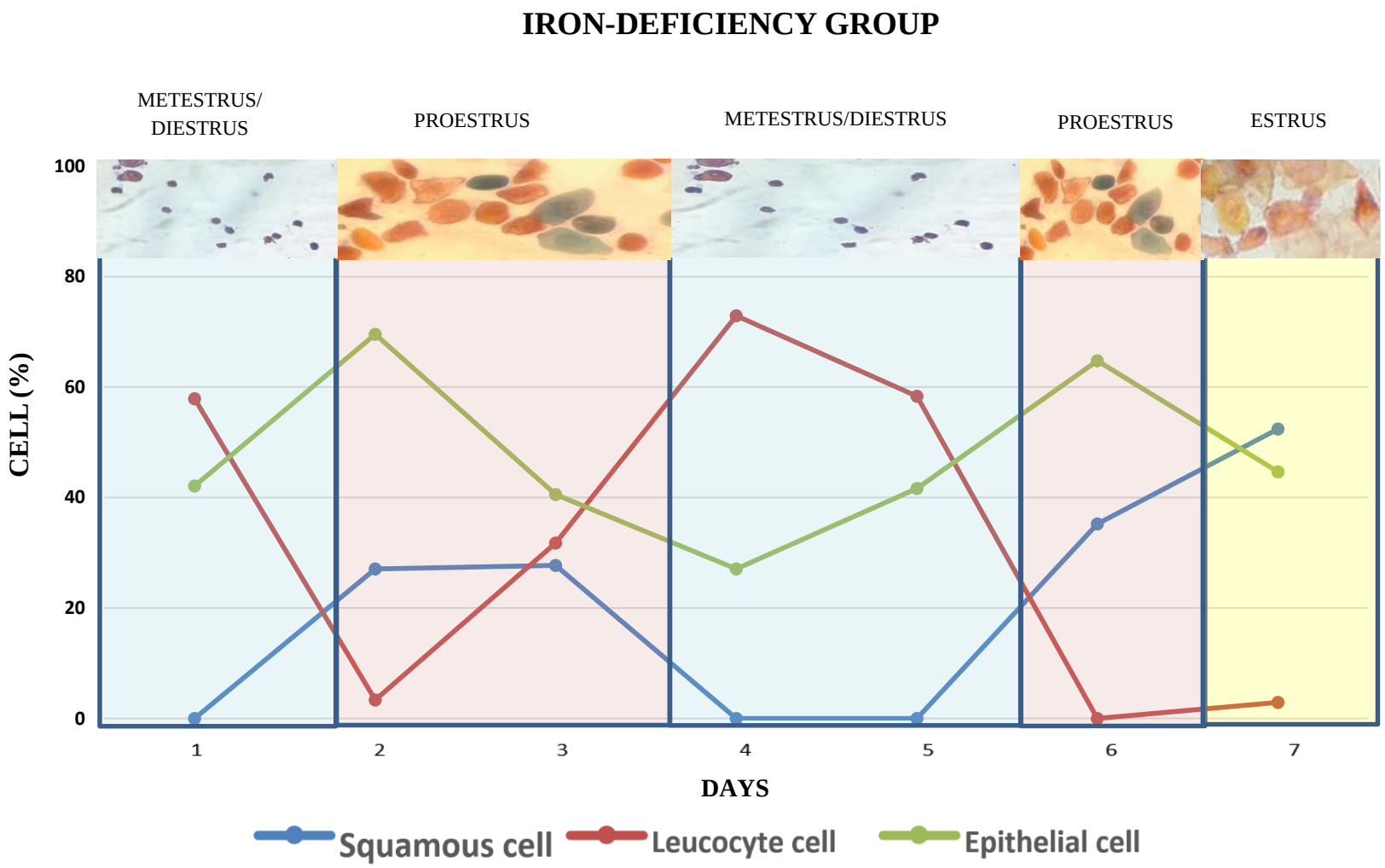
PROESTRUS STAGE.
Predominance of epithelial cells.

Figure 1. ***Typical cell patterns that are seen during the ovarian cycle.***

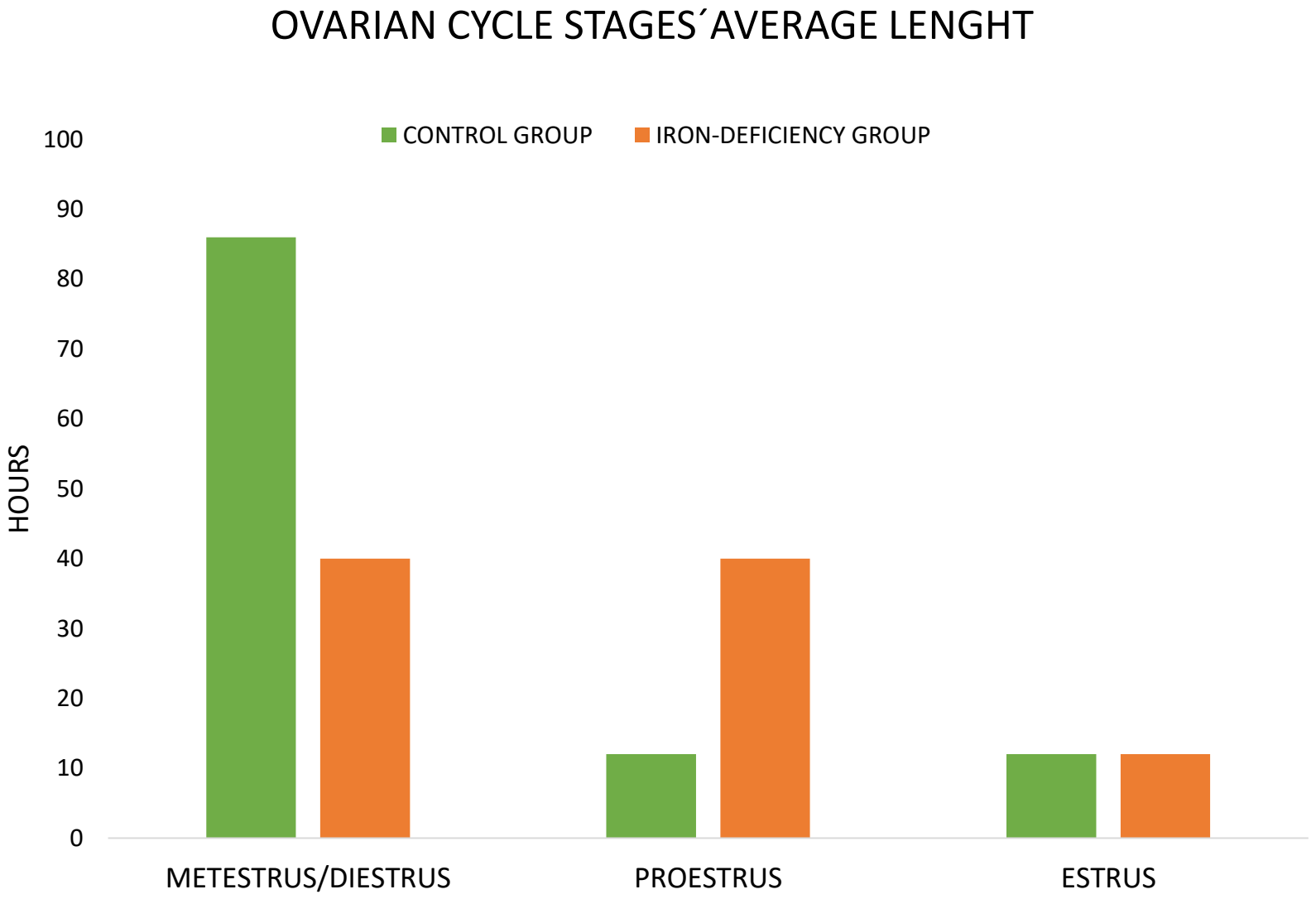
Results



Graph 1. ***Cell percentage obtaine by exfoliative cytology in rats from the control group.***



Graph 2. ***Cell percentage was obtained by exfoliative cytology in rats from the iron deficient-group.***



Graph 3. ***Duration of the metestrus/diestrus (shortening) and proestrus (lengthening) stages in the study groups.***

Conclusions

Due to changes in the length of the ovarian cycle's stages, iron deficiency shortens the metestrus/diestrus phase's duration and lengthens the proestrus, which may affect fertility.

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