: Divergent patterns of complete blood cell count parameters in relationship with the sex of healthy neonates and infants less than three years old: a longitudinal study. Preliminary results.

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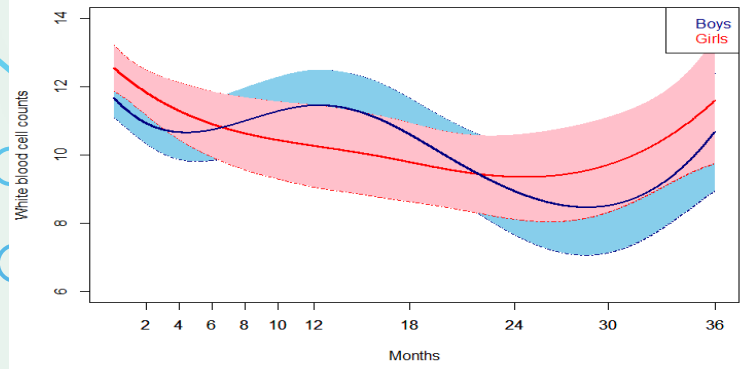
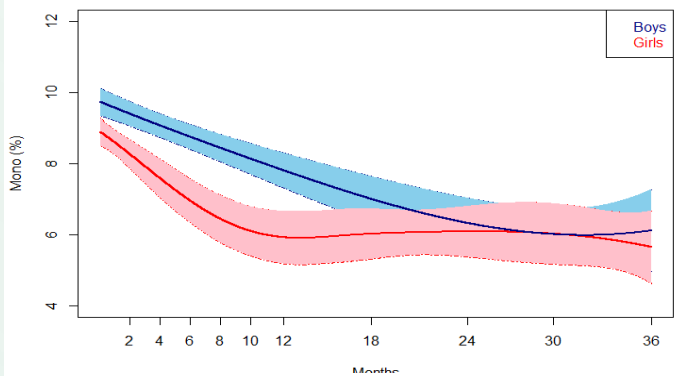
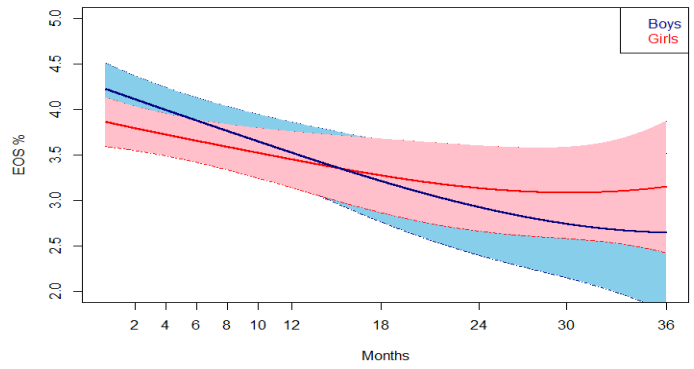
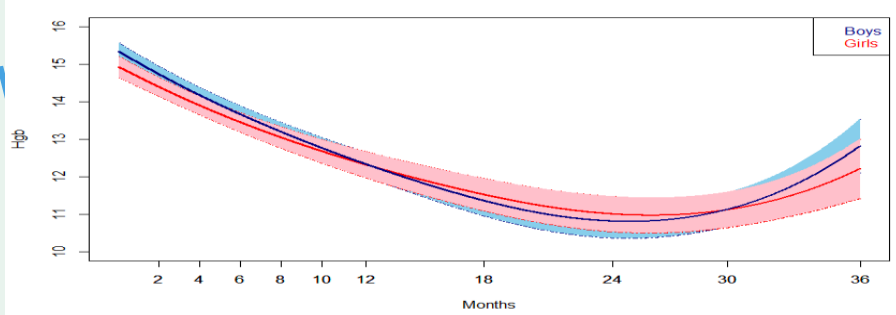
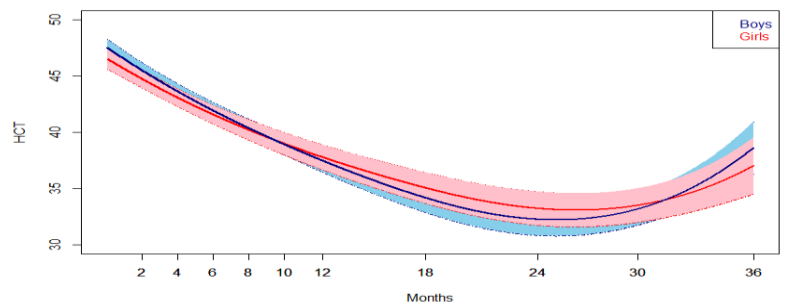
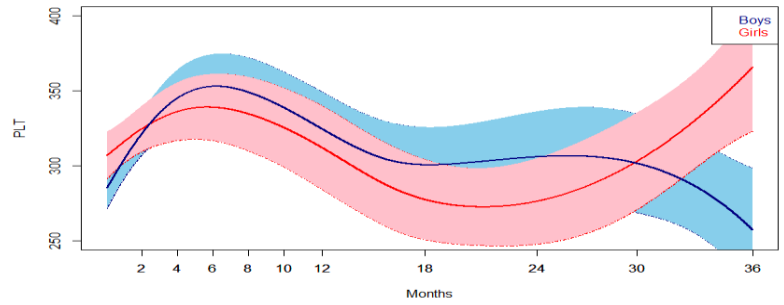
Background: A longitudinal study was conducted in full-term healthy infants who were born between 2019 and 2023 in Athens, Greece, in order to elucidate the evolution of white blood cells (WBCs) and other red blood cells (RBCs) parameters according to sex, from their day of birth until 3 years old. Preliminary results presented include the following parameters: white blood cells, monocytes, eosinophiles, hematocrit (Hct), Hemoglobin (Hgb) and Platelet (PLT) counts.

Methods: Blood samples were taken from the day of birth and then every 2th months up to 2 years of age and then at the end of the 3rd year of age. Measurements are performed by Siemens / Atellica HEMA 570 and 580 Analyzers. The study took place at the Iaso General, Maternity and Gynecological Clinic in Athens, Greece.

Results: The sample consisted of 902 full-term healthy neonates/infants: 468 (51.8%) boys and 434 (48.1%) girls). A steady gradual 2 fold decrease ($p<0,001$) was document inside the normal range of all blood parameters tested namely, WBCs, monocytes,eosinophiles,Hct,Hbg from the day of birth up to 30 months stabilized for monocytes and eosinophiles ,although WBCs ,Hct and Hbg exhibit further a 50% increase of the baseline values ($p<0,01$). A distinct pattern was documented for platelets counts exhibiting an upward followed by a downward slope up to 30 months for both sexes, although boys seemed increase further up to 36 months.

Conclusions: In terms of clinical practice, our findings suggest the need for a re-evaluation of the reference ranges of the white and red blood cells studied parameters according to sex, especially in the first months of life and until the third year. Furthermore, our results suggest new optimal ranges of complete blood cell counts for that specific period.

Descriptive statistics according to sex and overall

	Sex	N	Mean	Median	SD	Min	Max
EOS %	Girls	354	3.66	3.00	2.095	1.00	14.00
	Boys	414	3.88	4.00	2.498	0.70	28.00
	Sum	768	3.78	4.00	2.322	0.70	28.00
Mono %	Gilrs	434	7.64	7.00	3.105	1.00	28.00
	Boys	468	8.75	8.00	3.608	2.00	30.00
	Sum	902	8.22	8.00	3.419	1.00	30.00
WBC	Gilrs	434	11.48	10.34	5.205	2.14	31.44
	Boys	468	11.08	10.17	4.851	2.95	38.17
	Sum	902	11.27	10.30	5.026	2.14	38.17