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Analysis of the possibility to compensate menstrual blood loss in young Polish women by the dietary iron intake

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Low iron intake, its low dietary bioavailability and menstruation are crucial factors in the development of iron deficiency in women at childbearing age. Therefore it is necessary to assess the iron need individually and to provide adequate iron intake to compensate menstrual blood loss [1]. The aim of the study was to analyse the association between menstrual blood loss and blood count analysis, as well as to indicate if the menstrual blood loss is compensated by the dietary iron intake.

Analysis of the total iron, animal iron, plant iron, haem-iron and non-haem iron intake was conducted in a group of 61 women aged 20–30, using a validated food frequency questionnaire (*IRONIC-FFQ*) [2] and metodology by Zhu et al. (2001). The parameters of the menstrual cycle were determined based on participants' declarations using the methodology by Blanco-Rojo et al. (2014). Menstrual blood loss during the days with the heaviest bleeding was estimated using a validated menstrual pictogram by Wyatt et al. (2001). The complete blood count analysis was conducted directly before menstruation. The analysis of correlation between menstrual blood loss and haematological parameters, as well as menstrual blood loss and dietary iron intake were conducted using Spearman rank correlation coefficient.

It was indicated that menstrual blood loss was not correlated with haematological parameters (Table 1), suggesting the possibility of compensating the blood loss with the dietary intake. However, compensating the blood loss with the dietary intake was not proven in the analysis of correlation (Table 2).

Table 1.

Haematological parameters	Menstrual blood loss**	
	p-Value	R
Red blood cells	0,1403*	−0,1910
Haemoglobin	0,3199*	−0,1295

* verified using the Spearman rank test (due to the non parametric distribution; p ≤ 0.05)
** assessment based on menstrual pictogram by Wyatt et al.

Table 2.

Form of iron***	Menstrual blood loss**	
	p-Value	R
Total iron intake	0,1403*	−0,1910
Animal iron	0,3199*	−0,1295
Plnat iron	0,2319*	−0,1553
Haem-iron	0,3199*	−0,1295
Non-haem iron	0,1603*	−0,1820

* verified using the Spearman rank test (due to the non parametric distribution; p ≤ 0.05)
** assessment based on menstrual pictogram by Wyatt et al.
*** assessment based on *IRONIC-FFQ* food frequency questionnaire by Głąbska et al.

It was observed that the menstrual blood loss was not associated with the dietary iron intake, but at the same time it was not associated with haematological parameters. It may be concluded that for women with the highest menstrual blood loss some adaptation mechanisms may play some role in maintaining an adequate iron status in organism.

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2. Głąbska D, Guzek D, Ślązak J *et al.* (2017) *Nutrients*, **9**, 199.
3. Zhu Z, Wu F, Lu Y *et al.* (2018) *Nutrients*, **10**, 1663.
4. Wyatt KM, Dimmock PW, Walker TJ *et al.* (2001) *Fertil Steril*, **76**, 125–131.