**Supplement 1.**

Exclusion criteria:

* Changed type of/started using contraception within the last two months
* Blood sample drawn after 10.30 am
* No blood sample drawn
* Noncompliance of contraception
* Incomplete study questionnaire/no written, informed consent
* Presence of a mouth ulcer/gingivitis at the time of collection of saliva
* Use of a contraceptive containing a different estrogen than ethinyl estradiol

**Supplement 2.**

**‘Far-out’ values**

Three of the values of serum cortisol binding globulin (s-CBG) in the non-ethinyl estradiol group (NEEG) were identified as high ‘far-out’ values by Tukey’s method. The study participant with the highest of these three values had a relatively low concentration of serum cortisol (s-cortisol): 230 nmol/L. The use of an estrogen was unlikely given the clinical context and the fact that the participant denied it in a face-to-face interview. The other two study participants had s-cortisol of 528 and 441 nmol/L, respectively. It cannot be excluded that these two study participants used some sort of estrogen (e.g. face cream or dietary supplement) or were pregnant, since the s-cortisol in their blood samples were at a level where the reference intervals of the NEEG and the ethinyl estradiol group (EEG) overlap (284-569 nmol/L).

Two study participants using oral contraceptive pills (OCPs) containing 30 μg of EE had serum free cortisol indexes (s-FCIs) that were identified as high ‘far-out’ values: 3.39 and 2.99. These two women had low ‘outside’ values of s-CBG (222 and 221 nmol/L), but s-cortisol values close to the median value of the EEG (753 and 660 nmol/L, respectively). There are several possible reasons for low s-CBG including glucocorticoid use, cirrhosis, nephrosis, hyperthyroidism and some rare inherited abnormalities [1-3]. Literature strongly suggests that s-cortisol varies with s-CBG [4-10], and it is known that s-cortisol is increased during stress, while acute stress does not change s-CBG [11]. A relatively high s-cortisol in individuals with normal or low s-CBG could indicate acute stress. Another possible explanation for a high s-FCI is an analytical issue where either the s-CBG analysis provided a false low value or the s-cortisol analysis provided a false high value. Both these scenarios would give a high s-FCI. In hindsight it could have been useful to have the results from quantification of s-estradiol and s-progesterone of the reference individuals, as having information about their menstrual cycle phase possibly could aid in explaining the ‘far-out’ and “outside” values.

The values from the reference individuals with the extreme outliers were not excluded, because the reference individuals were all healthy and it was not likely that the outliers represented analytical blunders. If their values had been excluded, the upper reference limit of s-FCI for the EEG would have been 0.53, and the lower reference limit for s-CBG would have been 1269 nmol/L.

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