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Consuming Multivitamins (at least three per week) associated with Reduced Risk of Ovulatory Infertility

Infertility occurs among 1 of 6 couples over a reproductive lifetime, especially among couples in developing countries that are delaying childbearing to later in life. Use of IVF for treating infertility is extremely expensive and time consuming. Therefore, less expensive and less invasive methods of treatment or prevention are important. There is some evidence that the use of folate supplements aids in the ovarian response to FSH. Therefore, Harvard University researchers sought to determine the association of multivitamin supplementation on the incidence of ovulatory infertility.¹

The participants for this study were a subset of The Nurses' Health Study (NHS) that began in 1989 with 116,671 female United States registered nurses aged 24 to 42 years who were followed with a mailed questionnaire every 2 years. The questionnaire included information on dietary patterns, vitamin use, and whether the respondents were unsuccessful in achieving pregnancy, and what caused the inability to conceive. The researchers identified 18,555 women without a history of infertility who tried to become pregnant or who became pregnant during the 8 year follow-up period of the study. In the 8 year follow-up period women who reported infertility caused by an ovulatory disorder were considered cases, and the remaining women were considered noncases.

The researchers discovered that during the 8 year follow-up period of the NHS, there were 26,971 pregnancies and pregnancy attempts among 18,555 women. Of these pregnancy attempts, 3,430 reported infertility from any cause, and of these, 438 reported ovulatory infertility. When adjusted for age and calendar time, multivitamin users had approximately a 1/3 lower risk of developing ovulatory infertility than nonusers ($p < 0.001$). The association of multivitamin use was dose dependent in that there was no difference in risk of infertility with those that consumed 2 or less multivitamins per week. The researchers estimated that 20% of ovulatory infertility could be avoided if women consumed 3 or more multivitamins per week. Specifically, the intake of folic acid, iron, vitamins B₁, B₂, and D attenuated the inverse association between multivitamins and ovulatory infertility. Furthermore, there was a strong inverse association between folic acid intake and ovulatory infertility. There was no interaction between use of multivitamins and age or presence of long menstrual cycles. However, multivitamin users were more likely to consume less alcohol and coffee, to smoke less and to be physically active compared with non-users of multivitamins. The authors

concluded that the consumption of multivitamins at least 3 times per week was associated with a reduced risk of ovulatory infertility and that this association appeared to be partially mediated by folic acid.

Comments: NFP and FAM teachers should recommend multivitamins that contain folic acid for those women who wish to attempt a pregnancy. In particular, for those women who have long and irregular cycle patterns. Folic acid supplementation is already recommended for women wishing to become pregnant to prevent tubal defects. Therefore, the added effect of decreasing ovulatory infertility is a plus.

1. Chavarro JE, Rich-Edwards JW, Rosner BA, Willett WC. **Use of multivitamins, intake of B vitamins, and risk of ovulatory infertility.** *Fertility and Sterility*, 2007, Article In Press.

Post-fertilization Effects Influence Women's Choice of Family Planning Methods

Providing information about the mechanisms of action of family planning methods by health providers is important for the decision making process of potential users. One of the concerns is whether family planning methods act post-fertilization and cause early embryo loss. Spanish researchers recently surveyed 755 potentially fertile women in order to determine their attitudes towards postfertilization effects of family planning methods.¹

The 775 female participants were between the ages of 18-49 and were approached by health providers at 10 primary health centers in Pamplona, Spain. They were asked to complete a 30 item questionnaire about family planning methods, mechanisms of action, and medical and surgical abortion. Of the 755, the researchers were able to obtain 581 (80%) usable questionnaires.

The researchers found that almost half of the respondents (46.3%) believed that life began at fertilization and most (58.7%) felt it was important to distinguish between natural embryo loss and those caused by family planning methods. A majority of respondents (57%) would not use a family planning method that sometimes works after implantation of the embryo and a large minority (39.4%) would not use a family planning method that sometimes works after fertilization but before implantation. The researchers realized that the respondents (who were mostly well educated Catholic women) did not represent the entire population of Spanish women and recommended further studies with other populations. The authors concluded that the results emphasize that full information about the mechanisms of action for family planning methods is important for many women.

Comments: Since some bioethicists claim that NFP methods are a cause of early embryo loss due to aging gametes I wonder if those Spanish women would consider NFP a natural cause. The researchers also asked an open ended question as to what are the most important characteristics in choosing a method of family planning. The three highest rated responses were: 1) efficacy (76%), 2) convenience and ease of use (53.4%) and, 3) absence of side effects (28.6%). Although most of the respondents listed their religion as Catholic, there was a low level of religiosity based on church attendance and self-reported importance of religion.

1. De Irala J, Lopez del Burgo C, Lopez de Fez C, Arredondo J, Mikolajczyk RT, Stanford J. **Women's attitudes towards mechanisms of action of family planning methods: survey in primary health centres in Pamplona, Spain.** *BMC Women's Health*, 2007;7:1-10.

Supplementary Feeding related to Resumption of Menstruation and Ovulation

The time after delivery of a child and the restoration of menstrual cycles is a difficult time for women (who wish to avoid pregnancy) because of the variability of return of menstruation and ovulation. The return of menstruation does not mean the return of ovulation. Furthermore, breastfeeding and supplementary feeding patterns confound this variability. Therefore, Chinese researchers studied the relationship of supplementary feeding after child birth on the return of menstruation and ovulation.¹

The participants for this study were 101 primiparous lactating women from one Province in China. Each participant monitored their basal body temperature every morning along with cervical mucus observations and completed a lactation history questionnaire. The participants were also monitored by ultrasonography, beginning at 6 weeks postpartum, to determine follicular development and to document ovulation.

Of these 101 women, 53 had ovarian follicles larger than 1.8 cm in diameter at the first measurement. The Chinese researchers found that those women with larger follicles (i.e., over 1.8 cm) began supplementary feeding earlier (a mean of 4 months; \pm 1.1 months). The first ovulation occurred at 110 days past delivery (mean 155; \pm 45 days) and the BBT was elevated 6-13 days afterwards. Of the 53 women, 23 (43.4%) had their first ovulation before their first menses. The other 30 had their first ovulation 8-172 days after the first documented menses-- 14 of which had their first ovulation after their second recorded menses and 3 after the third menses. They also found that the start of supplementary feeding positively correlated with the resumption of ovulation ($r=0.476$, $p<0.01$) and menstruation ($r=0.555$, $p<0.01$). The rate of ovulation within the first 6 months post delivery was 1-5% among total breastfeeding mothers. The authors concluded that the starting time of supplementary feeding significantly affected the resumption of menstruation and ovulation. However, many other factors affect the

resumption of menstrual cycles. They recommended that women use prolonged breastfeeding and postpone supplementary feeding to lengthen the time of amenorrhea.

Comments: I found it remarkable that the BBT shift (that confirmed ovulation) was 6-13 days after the ultrasound documented ovulation. Furthermore, ovulation occurred before the first menses in a considerable number of cases. This would negate the use of the BBT shift and menses as a viable marker for the return of ovulation and the resumption of intercourse.

1. Li W, Qiu Y. **Relation of supplementary feeding to resumption of menstruation and ovulation in lactating postpartum women.** *Chinese Medical Journal*, 2007;120:868-870.

Use of Passive Lactation Amenorrhea Method related to Low Empowerment among Egyptian Women

Empowering women to make decisions about family planning and other health behaviors is important for the health of the woman and her family. An Egyptian researcher was interested in the association of the lactation amenorrhea method (LAM) and passive LAM on the empowerment of household decisions among Egyptian women with children below 6 months of age.¹ Passive LAM was defined as women who: a) satisfied all elements of LAM, b) did not report the use of another method of family planning, and c) did not report relying on prolonged breastfeeding as a method of family planning.

The author obtained data from the 200 Egypt Demographic Health Survey which included 15,773 ever married women. From that data set she selected women whose last born was less than three years of age, were currently married, were not sterilized, and were currently breastfeeding their children. There were 3,447 women who met those criteria and of these, 1,141 had children less than six months of age.

The researcher found that nearly 58% of the sample had children under 6 months of age and were exclusive breastfeeders and of these women 70% had amenorrhea, i.e., they met the LAM criteria of a) full or near full breastfeeding, b) post partum amenorrhea, and c) an infant under 6 months of age. Most of the women (82%) who met the LAM criteria were passive LAM users. Almost 12% of the LAM users also used another method of contraception. The most frequent method among the entire sample was the IUD (33%). The researchers also found that empowerment in household decision making inversely predicted passive LAM along with increase in child age, i.e., the less empowered the greater use of passive LAM. They concluded that

women who had a low empowerment index in household decisions were more likely to use passive LAM. The passive use of LAM however might lead to discontinuation and unnecessary use of contraceptives. They felt that if women were provided knowledge of LAM they would more likely continue to use LAM and progress to use modern methods of contraception.

Comments: I would add that increasing the knowledge of natural family planning and fertility awareness methods might empower the woman and her spouse. This type of empowerment might lead to not needing to use hormonal or IUD methods of contraception. A recent study of LAM among 1490 Mexican women found that the main reasons for accepting the use of LAM were “conviction following postpartum counseling” and “use of LAM initially before switching to another method of contraception.”²

1. Afifi, M. **Lactational amenorrhea method for family planning and women empowerment in Egypt.** *Singapore Medical Journal*, 2007;48:758-762.
2. Lopez-Martinez MG, Romero-Gutierrez G, DE Leon AL. **Acceptance of lactational amenorrhea for family planning after postpartum counseling.** *European Journal of Contraception and Reproductive Health Care*, 2006;11:297-301.

Return of Menses Occurs Rapidly after Use of Continuous Oral Contraception

Traditional oral hormonal contraception produces an artificial menses every 28 days due to the withdrawal of exogenous hormones through by use of hormone free placebo pills or by a pill free interval. Recently, continuous oral hormonal contraception has been introduced that reduces the frequency of artificially induced menses. There is some concern that use of continuous hormonal contraception might delay the return of menses and ovulation. Therefore, researchers conducted a study to determine the effect that prolonged use of continuous hormonal contraception has on the return to fertility – with spontaneous menses as the marker of fertility return.¹

The participants for this study were 198 women who were a subset of the 2,134 subjects (with regular menstrual cycles of 21-35 days) who participated in a phase 3 efficacy and safety trial of daily continuous oral levonogestrel (LNG) 90 µg/ethinyl E₂ (EE) 20 µg (trade name Lybrel) and who completed at least 6 months of use. Most (81.8%) of the 198 subjects had completed 12 months of Lybrel with a mean duration before enrollment of 349 days. Of the 198 participants, 187 completed the study. Of these, 185 (98.9%) returned to spontaneous menses or became pregnant within 90 days of stopping LNG/EE. Of the two subjects that did not experience a return of menses within 90 days, one did so at 124 days and the other approximately 2 months after the

completion of the study. The median time to return to menses was 32 days. Furthermore, the researchers found that the length of amenorrhea (i.e., length of use of LNG/EE) was unrelated to the time to return to menses. The authors concluded that the inhibition of menses with continuous use of LNG/EE was readily and quickly reversible.

Comments: NFP/FAM teachers who have women coming off of continuous LNG/EE (Lybrel) to achieve a pregnancy or to use natural methods for avoiding pregnancy can assure them that menses (and presumably ovulation) will most likely return within 1-2 months. However, these results only apply to those women who previously had regular length menstrual cycles.

Davis R, Kroll R, Soltis B, Zhang N, Grubb GS, Constantine GD. **Occurrence of menses or pregnancy after cessation of a continuous oral contraceptive.** *Fertility and Sterility*, 2007, Article in Press.