Current Medical Research

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Natural Family Planning

Diocesan Activity Report

SUPPLEMENT

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Natural Family Planning: Current Knowledge and New Strategies for the 1990's. Procedings of a Conference, Georgetown University, December 10-14, 1990. *American Journal of Obstetrics and Gynecology.* Dec. 1991, 165:Supp. 1997-2078.

[Due to the restrictions of space, we cannot adequately review the reports of this Conference in this publication. For your information we will provide an outline of the contents in AJOG's supplement. Ed.]

The Supplement is divided into four sections. Section one "Major Scientific Issues in NFP," focusses particularly on breastfeeding, fetal outcomes of NFP acceptors, sex selection, and cervical mucus. Section two highlights "Ovulation Prediction," especially discussing the development of various monitors of estrogen and progesterone. Section three entitled, "The Interface of Breastfeeding, Natural Family Planning, and the Lactational Amenorrheic Methods (LAM)," reports clinical studies, ultrasound patterns of ovarian activity during breastfeeding, and risk of unplanned pregnancy when LAM is combined with the Billings Method or the Sympto-Thermal Method. And Section four treats "Natural Family Planning Use Effectiveness and Continuation." A final section offers abstracts of the nine sessions which will be published as a separate volume (most dealing with some aspect of program development).

Copies of the AJOG's Supplement can be obtained from the Institute for Reproductive Health, Department of Obstetrics and Gynecology, Georgetown University, 3800 Reservoir Road, N.W., Washington, D.C. 20007.

Peer Support, Program Spotlight to Keep Teen-agers Alive and Well. Patricia Rind. *Family Planning Perspectives.* January/February, 1992, 24:36-37.

Planned Parenthood of Maryland began a program to persuade adolescents to use condoms and has called the program Teen STARS: (Students Taking Responsibility About Sexuality). The program is now in its third year. Staff recruit adolescents 19 years of age and younger by giving demonstration classes in Baltimore public schools and leaving flyers in Health Clinic waiting rooms. Those who choose to attend the program meet bi-weekly in single sex groups for 12-16 sessions for 2 hours. For the first two years of operation, each participant received a travel stipend of $5.00 for each session attended. The first three sessions were devoted to icebreakers, selection of topics for later discussion, and setting the ground rules. At later meetings, they defined values and discovered that people have different values.

In the first year of operation, the program received $100,000 from the Centers for Disease Control, the next year $200,000, and the third year $150,000. Much of the money went for food and cash stipends, but now the staff have trained other organizations to run the programs. Formal evaluation is planned for the current year; however the research consultants have already identified participant attrition as a major problem with only 50% continuing until the end of the sessions. Moreover, by the end of the program, even those teenagers who continued were no more likely to choose a partner based on HIV-risk or use a condom than they were at the beginning. While condom use was associated with the number of meetings attended, it appears that even the stated goals of the program have yet to be realized. The program targets mostly inner city Black adolescents. *[Since both Planned Parenthood of Maryland and staff of the Teen STAR Program of the Natural Family Planning Center of Washington, D.C. have attended the meetings of the Maryland Coalition for Adolescent Pregnancy Prevention and Parenting annually for the last five years, it is unlikely that PPM was unaware of the existence of the Teen STAR Program. Ed.]*

Condom Slippage and Breakage Rates. J. Trussell, D.L. Warner, and R.A. Hatcher. *Family Planning Perspectives.* January/February, 1992, 24:20-23.

While the authors acknowledge that the only way to avoid sexually transmited HIV is abstinence or limiting one's sexual activity to behaviors that do not involve the potential for exchange of body fluids, they acknowledge that a mutually monogamous relationship with a partner who is not infected and who does not use intravenous drugs "will also eliminate any risk," but they are skeptical that one can be truly certain that one's partner will not use drugs or participate in risky sexual activity, hence support the Public Health recom-

Questions? *Do you need further information regarding research reported in this Supplement? Have you a specific question which you'd like to ask the Editor? Please direct your letter to the Editor,* ***Current Medical Research,*** *DDP/NFP, 3211 Fourth St., N.E., Washington, D.C. 20017. We look forward to hearing from you.*

mendation of reducing the number of one's partners, avoiding anal intercourse, and using condoms. Besides the reluctance of many to use condoms because they interfere with their sensitivity, the risk of infection if the condom breaks or slips off during intercourse or withdrawal is acknowledged. A prospective study was conducted at Emory University to compare outcomes of a standard condom, the Trojan-ENZ, and a new thicker condom, Pleasure Plus, which has a different design from the standard condom to enhance sensitivity, yet provide greater protection. Of 405 condoms used for intercourse, 7.9% either broke during intercourse or withdrawal, or slipped off during intercourse, irrespective of the brand used. Of the remaining condoms, 7.2% slipped off during withdrawal. Slippage was not related to condom brand or past use of condoms, but was significantly higher when additional lubricant was used.

Contraceptive Failure Rates Based on the 1988 NSFG. E.F. Jones and J.D. Forrest. *Family Planning Perspectives.* January/February, 1992, 24:12-19.

The 1988 National Survey of Family Growth Contraceptive Failures Rates were analyzed and corrected for underreporting of abortion. Failure rates varied more according to the user's age, marital status, and poverty status, than by method; 8% of pill users accidentally became pregnant during the first year of use, 15% of condom users, 25% of spermicide users, and 26% of users of periodic abstinence *[which was not broken down according to method, even though available. Ed.]* They conclude that most of the unplanned pregnancies resulted from user factors. Religious affiliation was found to predict failure rates among women under 200% of poverty: fundamentalist Protestants had the lowest failure rates, other non-Catholics the highest. Religious affiliation of the higher income women appeared to make no difference. The authors conclude by recommending more research and wider use of systems such as Norplant. *[Bias against NFP is apparent in the abstract: "Periodic abstinence is the method most likely to fail (26%) but, accidental pregnancy is also relatively common among women using spermicides (25%)." There is no statistical difference between 26% and 25%. Ed.]*

Pelvic Actinomycocis Complicating Use of Intrauterine Device. Case Records of the Massachusetts General Hospital. *The New England Journal of Medicine.* March 5, 1992, 326:692-698.

This is a case report of a 41 year old woman with a large pelvic mass, which turned out to be extensive matted inflammation due to Actinomycocis israeli infection from an IUD which had been in place for an unknown period. The inflammatory mass had compressed the ureters requiring emergency drainage followed by an attempt at dissection of the pelvic mass. The woman was hospitalized for three weeks for post-operative treatment with intravenous antibiotics followed by lengthy oral treatment and recovery period. The discussion brought out that up to 25% of IUDs eventually become colonized by actinomycocis. Of this number, 2-4% of patients have serious actinomycocis infections which seldom appear until the IUD has been in place for at least three years. *[Contrast this with an effort to reintroduce the IUDs - A New Look at IUDs: Advancing Contraceptive Choices—a Conference, March 27-28 in New York City cosponsored by the Population Council and the Journal Contraception, and organized by the sponsors: The World Health Organization, the Center for Population Research of the National Institute of Child Health and Development, and the Agency for International Development. The purpose of the Conference is to delineate risks and benefits of IUDs in view of their plummeting popularity following the Dalkon shield disasters. Ed.]*

Menopausal Hormone Replacement Therapy and Breast Cancer: A Meta-Analysis. M. S. Arenas, M. Delgado-Rodriguez, R. Rodriguez-Canteras, A. Bueno-Cavanillas, and R. Galvez-Vargas. *Obstetrics and Gynecology.* Feb. 1992, 79:2:286-294.

A meta-analysis (examination of the scientific literature) was performed to see whether hormone replacement after menopause increases the risk of breast cancer. A very carefully designed study found that the risk for development of breast cancer with hormone replacement therapy was > 1 (relative risk = 1.63) in women who had had a natural menopause followed by hormonal replacement therapy.

Treatment of Postmenopausal Osteoporosis with Calcitriol or Calcium. M.W. Tilyard, G.F.S. Spears, J. Thomson, and S. Dovey. *The New England Journal of Medicine.* Feb. 6, 1992, 326:357-362.

Six hundred twenty-two (622) women with vertebral compression fractures were treated with either calcitriol 0.25 micrograms twice a day or supplemental calcium (1 g of elemental calcium daily for three years). They were examined each year for evidence of new vertebral fractures and calcium absorption was measured in 60% of the women. Women who received calcitriol had a far lower rate of new vertebral fractures in the second and third years of treatment as the women who received calcium. The effect was significant in women who had 5 or fewer fractures at baseline and was also significant in regard to fractures of the limbs, being far fewer in the calcitriol group than in the calcium treated group. Treatment for three years with calcitriol is safe and reduces the rate of new vertebral fractures according to the investigators from the Department of General Practice, University of Otago, Dunedin, New Zealand. *[The literature continues to be filled with reports of the effect of hormonal replacement on blood lipid fractions and its alleged protective effect against coronary athero-sclerosis and strokes. Since estrogen has a beneficial effect but must be balanced by progesterones which almost undo the beneficial effect of estrogen on blood lipids, the new emphasis on investigating other factors, such as diet and lifestyle, which may account for the presumed beneficial effect of hormonal replacement therapy on these parameters is welcome. Ed.]*

Legal Status and the Stability of Coresidential Unions. J.D. Teachman, J. Thomas, and K. Paasch. *Demography.* Nov. 1991, 28:571-583.

Analysis of data from the National Survey of Families and Households by Bumpass and Sweet (1989) found that nearly one-fourth of persons aged 19 or

over had cohabited non-maritally at some point. By age 30, this figure had reached almost 50%. The authors hypothesize that marriage is no longer the dominant marker of intimate living arrangement and examined the impact of marital vs. non-marital legal status of such intimate co-residential unions on the rate at which such unions disolved. Fourteen years after high school graduation, 28% of males and 36% of female graduates had entered unions which began non-maritally. Of these, 73% of the males' and 69% of the females' unions were legalized. Marriages which began legally were 44% less likely to have been dissolved among alumnae and 55% among alumni than those which began non-legally. Legalizing of a non-residential arrangement apparently added nothing to its stability. Since non-legal unions have a very high rate of dissolution, the authors suggest that some unions may perform a screening function. They suggest that even though "premarital cohabitation is positively related to subsequent marital disruption, it is possible that this difference would be even greater if non-legal cohabition were not an option." This notion is supported by the observation that aggregate divorce rates have stabilized in recent years, while rates of premarital cohabitation have continued to climb. *[No data about the subjects' sexual history prior to cohabitation/marriage are provided nor is there explanation for the difference in marital breakdowns between male and female graduates. Ed.]*

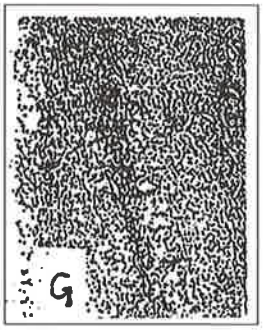
Bone Density in Women Receiving Depot Medroxy-Progesterone Acetate for Contraception. T. Cundy, M. Evans, H. Roberts, D. Wattie, R. Ames, and I.R. Reid. *British Medical Journal.* Jul. 6, 1991, 303:13-16.

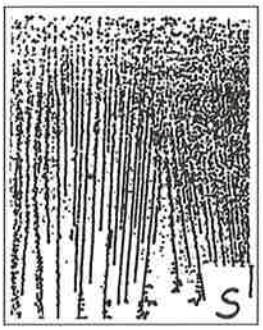
DMPA(Depot medroxprogesterone acetate) is a long-acting progesterone. The injection is usually repeated at intervals of 2 or 3 months and is designed to suppress ovulation. It is known that the concomittant reduction in ovarian estrogen is associated with reduction in bone density. Post-menopausal women were studied and compared with premenopausal women who had received DMPA for at least five years. DMPA had less effect on post-menopausal than pre-menopausal women; in pre-menopausal women, DMPA reduced bone density 7.5% in the lumbar spine and 6.6% in the femoral neck. *[It is clear that long-acting progesterone causes some loss of bone. At this time when the Norplant system is being promoted heavily, the total lack of studies of the effect of Norplant on the skeletons of young women is remarkable. These women appear to be at increased risk for stress fractures. Ed.]*

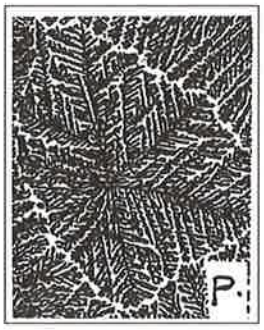
Investigations on the Cervical Secretions with Nuclear Magnetic Resonance and Some Other Supplementary Biophysical Methods. E. Odeblad. 1/17/92 *[Personal Communication].*

Odeblad has applied the technique NMR—Nuclear Magnetic Resonance—since 1952. NMR is a non-destructive way of studying cervical mucus and Odeblad was able to develop a micro-NMR method which could be applied to study the minute amounts of mucus produced by a single cervical crypt (1966). Odeblad found that the cyclical variation in mucus is due to the fact that different crypts are active during different phases of the cycle. In 1968, G-type mucus (produced by progesterone) was identified; in 1977 and 1978 the L and S mucus were shown to be due to estrogen. Most recently, P-mucus has been identified. NMR depends on recognition of the shape of the nucleus of a cell, its spin, and the result of the shape and the velocity of the spin which is called the nuclear moment of atomic nucleii. The chemical composition of the various mucus forms has been studied and is described in detail. Odeblad has also used NMR spectroscopy. The dried mucus looks like this:

Figure 1

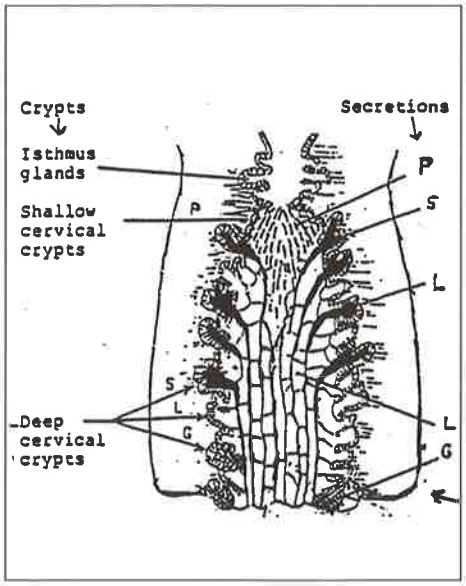






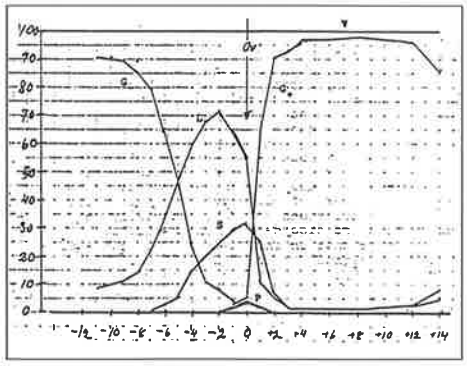
The Location of the crypts which produce the P-mucus is shown in Figure 2.

Figure 2



and the duration of the P mucus is shown to be from Peak-2 to Peak+2 in Figure 3.

Figure 3



Because P-mucus contains a much greater amount of potassium than the earlier occurring S-mucus, even though its quantity is very small, it alters the S-mucus and reduces its elasticity while increasing its wetness, thus many women report a sense of soapiness at the vulva when P-mucus is present. At the same time, the mucus may be so fluid, that its amount appears to be reduced. The paper contains a vast amount of physical documentation of technique, as well as of spectroscopy, studies of crystal patterns in polarized light and diffusion studies.

In summary, NMR, ESCA (electron spectroscopy for chemical analysis) crystallization and polarized light studies, pH and optical measurements have helped augment our knowledge about cervical function:

1) The studies confirm that the cervical mucus is a dynamic system, composed of G, L, S, and P mucus (hydrogels), produced in separate crypts in adequate proportions, varying cyclically.

2) The organic constituents of the secretions are different as visualised by NMR, spectroscopy and optical studies.

3) The water binding (hydration) in the four mucus types are of different kinds and strength (from NMR shifts and T_1 studies).

4) The concentrations of Na, K, CL and Ca ions are different in the four mucus types. There is evidence that the first three ions are bound to mucins or proteins to various extent.

5) Supplementary studies with ESCA indicate that also Mg and Zn have different concentrations in the four mucus types. ESR studies indicate that Cu, Fe and Mn have very low concentrations.

6) The difference in Na and K concentrations in S and P mucus give rise to concentration gradients which may favour sperm transport in the upper cervix. Similar gradients between S and L mucus may aid low-quality sperm to enter the micropockets of L mucus and become removed (sperm selection).

7) Optical studies with polarized light indicate that the P mucus exhibits molecular symmetry properties which may explain how it reduces the bulk stretchiness and also make an additional sperm selection based on chirality of sperm tail motion.

8) pH indicator observations may help to distinguish quickly between L and S crypts, aiding reconstructive microsurgery of S-crypt atrophy in post-pill infertility.

Relationships Between Pelvic Pain and Prostaglandin Levels in Plasma and Peritoneal Fluid Collected from Women after Sterilization. W. Zhenhai et al. *Contraception*. January, 1992, 45:67-71.

After sterilization some women have unexplained chronic pelvic pain. Ten women who had disabling pelvic pain for six months post-sterilization were studied and compared with 15 normal women. No pathology was found at laparoscopy. The investigators postulated that elevated prostaglandin levels could account for the pain. They found no differences in plasma prostaglandin, but found significant increases in the peritoneal fluid prostaglandin of the sterilized women who had chronic pain. The amount of peritoneal fluid was also considerably increased. Four prostaglandin fractions and thromboxane were measured and 6-ketoprostaglandin F1 alpha was markedly higher. While the investigators' results are at variance with others who have found no explanation, the doubling of the volume of pelvic peritoneal fluid, together with significant increase of the 6-keto-PGF a alpha fraction are persuasive. *[The authors give no explanation for the cause of this condition. Ed.]*

An Epidemiologic Study of Smoking and Primary Infertility in Women. S.L. Laurent et al. *Fertility and Sterility*. March, 1992, 57:565-572.

Thirty percent (30%) of women of reproductive age smoke in the United States. Cigarette smoking is already recognized as a cause of low birth weight babies and spontaneous abortion. This study investigated the effect of smoking on infertility. The subjects were a control group of the Cancer and Steroid Hormone Study coordinated by the National Institute of Child Health and Human Development and the National Cancer Institute. Ten percent (10%) of the 4,754 eligible women were classified as having experienced primary infertility; 2,200 were classifed as controls. Primary infertility was defined as 24 consecutive months of intercourse without conception. Smoking one pack of cigarettes per day and starting to smoke before 18 years of age were significantly associated with increased risk of infertility. It is recommended that couples stop smoking if they are trying to conceive.

Current Medical Research, a supplement of the **NFP Diocesan Activity Report**, is published quarterly. Hanna Klaus, M.D. is the editor. The purpose of the supplement is to serve the Roman Catholic diocesan NFP programs of the United States through providing them with up-to-date information on research within the field of fertility, family planning, and related issues. The Diocesan NFP teacher should be equipped to understand the various methods of contraception and be able to explain their incompatibility with the practice of the natural methods of family planning.