#### THE DES ACTION

## V O I C E

A FOCUS ON DIETHYLSTILBESTROL

Fall 1993

#58

## **Medical Report**

Reviewed by Cynthia Laitman (formerly Cynthia Laitman Orenberg), author of DES: The Complete Story

"Are estrogens involved in falling sperm counts and disorders of the male reproductive tract?"

Richard M. Sharpe & Niels E. Skakkebaek, Lancet, Vol. 341: 1392-1396, 29 May 1993.

since the early 1940s, (about the time that use of DES began in Europe and the United States), the incidence of reproductive tract abnormalities in men has more than doubled, while average sperm counts have declined by about half.

The authors argue that such an alarming increase in male reproductive abnormalities can only be explained by significantly increased exposure to estrogens before birth. They note that similar abnormalities have been found in DES sons, and can be induced in animals by "brief exposure" to DES during pregnancy. These abnormalities, which include testicular cancer, cryptorchidism (undescended

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DES as a Model for Environmental Estrogens testicles), and hypospadias<sup>1</sup>, all arise during fetal development, the authors contend, and may well result from the same cause as falling sperm counts. Interestingly, the authors cite two 1986 studies which respectively indicate: 1) links between testicular cancer and undescended testicles in men whose mothers had higher than average levels of naturally-occuring estrogens during pregnancy, and 2) between testicular cancer in men and breast cancer in their mothers.

The markedly increased occurrence of these abnormalities in men from many countries prompted the authors to review the sources of estrogen in our environment and to provide possible biological explanations for *how* exposure to DES and other estrogens during fetal life can alter normal male reproductive tract development.

Awash in a "sea of estrogens"

We humans, quote the authors, "now live in an environment that can be viewed as a virtual sea of estrogens." These include:

w synthetic estrogens prescribed by physicians (such as DES, contraceptives, fertility hormones, and hormone replacement treatment);

naturally occurring hormones which the body itself produces (the levels of such endogenous hormones are increased by low fiber diets which slow down excretion of body wastes and increase reabsorption from the gut<sup>2</sup>, and by excess body fat)

www.synthetic chemicals (DDT and other organo-chlorines commonly used in pesticides, and automobile exhaust fumes);

 edible plants, (soy beans, for example, have a weak estrogenic effect); and

dietary sources of estrogenic compounds.

Although the authors mention only cow's milk as a possible dietary source of estrogen, it should be noted that between 1940 and 1979 in the United States, DES was fed to or injected into millions of chickens and beef cattle to fatten them up before slaughter. What is particularly significant about this dietary source of DES is that the drug was *specifically designed* to resist stomach acids, so that it could be administered in pill form. The result of such durability was that residues of DES in the edible flesh of treated chickens and cattle remained biologically potent when eaten by humans.

Compounding the effects of its gastric durability, the authors point out that DES, unlike naturally-occurring estrogens, is not affected by a naturally-occurring estrogen inactivator known as

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Each group was created and nurtured by volunteers. Write them if you want information on their activities or can volunteer.

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### \*\*\*\*\* medical report

ere is the abstract of an article by Retha Newbold in the August 1993 issue of *Environmental Health Perspectives*, the journal of the National Institute of Environmental Health Sciences, NIH.

Accumulating evidence in experimental animals over the past three decades suggests that mammalian brain development and differentiation of the central nervous system are influenced by perinatal exposure to sex hormones. Hence, changes in human behavioral patterns may be associated with prenatal exposure to estrogenic substances such as diethylstilbestrol (DES).

This paper reviews relevant studies from a series of laboratories and finds that no clear-cut differences can be demonstrated to date between unexposed and DES-exposed women in gender-related behavior, although the physical and psychological impact of the problems associated with exposure to DES are well documented.

If both prenatal and postnatal influences such as social, economic, and environmental factors are taken into consideration, individual variation is more apparent than differences in genderrelated behavior between unexposed and DES-exposed women. In summary, gender-related behavior is determined by a complex array of interacting factors, and prenatal influences are only one of many developmental events. More studies are needed using larger populations with carefully controlled selection criteria to suggest a direct role of prenatal DES exposure on subsequent gender-related behavior. "

## **Notes From Nora**

reat news! The National Cancer Institute has decided to fund five DES education and outreach projects, located throughout the United States. These projects will test "interventions"—strategies for changing not only health care knowledge but also behavior which can then be used as models for national awareness programs. This is the largest effort in both public and health care provider education ever, and it has come about because of the efforts of DES Action and DES-

exposed people.

You, the consumers, made your voices heard and called upon Congress to take responsibility for the DES legacy and increase both research and education. Thanks to the hard work of Rep. Louise Slaughter and Sen. Tom Harkin, and their staffs, Congress acted by passing the "DES Research and Education Amendments of 1992" and mandated that the National Cancer Institute respond with grants for more research and education. The grants for education have now been awarded to five different institutions. DES Action, the DES Cancer Network, and the DES Sons Network will be intimately involved in each project.

Here is a brief description of the highlights of each project (parentheses indicate major sponsoring institutions; each project has many collaborators):

California

(California Public Health Fdn, University of California)

Investigators will survey a

"This is the largest effort in both public and health care provider education ever, and it has come about because of the efforts of DES Action and DES-exposed people."

representative sample of California as well as more detailed samples of two communities. "...this survey will be the first representative population-based survey of DES knowledge ever conducted and thus will make a significant contribution to the literature and to needs assessment for an education campaign." There will also be physician surveys to learn about attitudes, knowledge and behavior regarding DES exposure.

Following these surveys, consumer education will include a media campaign and printed materials, and use of social networks to spread the word and reinforce the media messages. There will be a special 1-800-DES Information number to be managed by DES Action, as well as collaboration with the Cancer Information Service on calls they receive for DES materials.

Physician education will feature a newsletter, a physician consultation line on DES where providers can get accurate information, and visits to physicians to emphasize the need for patient history questions on DES. Physicians in training will be reached through a curriculum unit on DES.

Two special one-day meetings for DES cancer daughters—one in Northern California and one in Southern California—will provide information on medical concerns and other issues.

Texas

(Baylor University in Houston)

Grantees at Baylor propose to set up a Southwest Regional DES Clinical Center for research, treatment and counseling. The Center would give clinical and educational consultations to DES-exposed and their health care providers, and would include a hotline for providers and for DES-exposed people.

A DES Resource Kit, to be developed for providers and for the public, will be used for individuals and groups. They will publish periodic newsletters and alerts.

"The need to maintain close contact with the DESAD Project cohort to keep it intact cannot be over-emphasized."

"The missing component to ongoing studies of DES exposure is the active identification and recruitment of the DES-exposed population. Without continued aggressive national efforts to educate the public about DES exposure and to recruit exposed women and their children into surveillance and treatment programs with expert consultants, complete comprehension of the phenomena associated with DES exposure will be unattainable."

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## Silicone Breast Implants

ilicone implants: yet another medical intervention is bringing pain and suffering to consumers. Some of our members have had these implants, only to learn months or years later of the irreversible damage a leaky implant can do to their bodies, especially to their immune systems. We want to tell you about some of the consumer self-help groups, most with newsletters, that you can contact for information and help. The newsletter of the American Silicone Implant Survivors for June 1993 points out some of the hazards:

All implants eventually rupture

Escaped silicone migrates to distant organs and is irretrievable

Foreign body reaction is progressive and continuous and damage is irreversible

Raw silica and other toxic chemicals are present in both the implant shell and in the gel

There is a long latency period between exposure and clinical problems, with most cases occurring 10 to 15 years after implantation

W Damages range from autoimmune diseases, neurological injury, to cancer and death.

#### Resources:

American Silicone Implant Survivors 1288 Cork Elm Drive Kirkwood MO 63122 Phone 314-821-0115

Command Trust Network Box 17082 Covington, KY 41017

Coalition of Silicone Survivors Box 129 Broomfield CO 80038 Phone 303-469-8242

Silicone Scene 1050 Cinnamon Lane Corona CA 91720 Phone 909-737-7769 Publishes Support Group Directory (\$11.05)

NOTES from page 3... Wisconsin (University of Wisconsin at Madison)

Investigators will establish an 800 number through the Wisconsin Cancer Information Service to answer initial queries.

They plan to develop "educational components based on findings that knowledge contributes to a sense of competency which reduces fear, empowers the subject, and promotes positive behavior changes."

The Wisconsin group also proposes interactive computer programs providing in-depth information on infertility problems and cancer and treatment options, made available through computers in offices of physicians seeing such patients.

New York (New England Research Institute) NERI will establish a panel of medical experts and consumer representatives to draft standards for diagnosis and care, and to supervise seeing that these standards are made known.

NERI plans to:

1) Set up a DES hotline for the public.

2) Produce educational materials: brochures, posters, public service announcements, a press kit, videotapes for health professionals (linked to CME credits).

3) Set up linkages with medical schools, public health departments, and community organizations so that these educational efforts can continue after the funding period.

Sites for this work will include Long Island counties in New York.

Boston (Education Development Center, Inc.)

EDC proposes a "multilevel communication campaign" utilizing low-intensity and high-intensity interventions in Massachusetts. Their approach will include video and audiotape-based Continuing Medical Education programs to educate health care providers about DES and a randomized clinicial trial in 14 Harvard Community Health Plan sites. The clinical trial will compare the low and high intensity interventions.

The goal of the EDC project is to "establish a medical practice environment that supports DES services as a component of comprehensive health care...with a core of health care providers with the clinical expertise to offer DES-exposed individuals in Massachusetts the highest-quality care."

#### V O I C E

## It's Only A Movie (Isn't It?)

By Andrea Goldstein, Vice-Pres., DES Action

escaped the heat one afternoon last August by going to
see the movie "The Fugitive." The week before, I watched
television re-runs of the third and
last episodes of the series of the
same name, which were aired to
give those not in the know an
idea of what the series was
about. I'd watched that show
many times as a teenager, but it
was seeing it again through the
eyes of an adult that really made
an impression upon me.

I had no recollection from twenty plus years ago that Dr. and Mrs. Kimball had had a stillborn baby, and because of complications, Mrs. Kimball required a hysterectomy. Much of that episode revolved around Helen Kimball's struggle in dealing with her infertility. As a DES daughter who is unable to have children, I could, and did, empathize with her pain. I found myself watching her through a veil of tears. At the same time I was fascinated that the writers had chosen infertility as the central theme surrounding the time before Mrs. Kimball was murdered.

At the beginning of the movie we see scenes from the murder, observe the sentencing of Dr. Kimball (the fugitive), and witness the circumstances surrounding his escape. But nothing could have prepared me for the plot which unfolds as the story continues. The similarities between the plot of the movie and the story of DES exposure are striking. The puzzle of DES will not be complete until the next generation; until the credits roll,

"The similarities between the plot of the movie and the story of DES exposure are striking."

the same is true of the movie.

It seems that a new "wonder" drug has been developed that stands to make a fortune for the drug company (where Dr. Kimball works) that produces it. Unfortunately, it is also toxic to the liver. Alas, we discover that officials of the drug company are a part of a plot to keep this information from being made public. As Dr. Kimball searches for his wife's murderer, this cover-up becomes clear to him, and ultimately, to the U.S. Marshall who pursues him mercilessly.

Apparently Kimball had suspected toxicity well before what we see as the beginning of the film. When the other two doctors realize this, they arrange the murder of Mrs. Kimball in order to frame Dr. Kimball and get him out of the way. After all, a little toxicity and a few deaths should not be allowed to stand in the way of mega profits. DES was a known carciogen well before it was ever used in humans. Though this was apparent to the drug companies, they managed to get approval to market DES without having to prove its safety or efficacy. A few cases of cancer and women with

deformed reproductive organs should not be allowed to stand in the way of mega profits. When the DES-injured plaintiffs filed lawsuits against these manufacturers, they, like the doctors, do everything in their power to silence them.

The screenwriters of the film have probably never heard of DES and most likely have no knowledge of the pain it has caused. The story of The Fugitive, the story of DES: art imitating life. We, like Richard Kimball, are fugitives, running from the fear of cancer, infertility, the unknown. But unlike Richard Kimball, we can never stop running, we can never go home.



Next time you decide to honor someone with a gift or memorial tribute, think of DES Action. Our Tribute Gift program allows you to donate in someone's honor or memory.

# Diethylstilbestrol as a Model for Environmental Estrogens

from Environmental Health Perspectives, June 1993 published by the National Institute of Environmental Health Sciences, (NIEHS), U.S. Dept. HHS

he health effects of diethylstilbestrol (DES) exposure are a research priority that reflects the convergence of several related investigative projects that are major areas of concern for NIEHS.... Although the public health hazards associated with further exposure to DES have been largely eliminated, there are a number of

#### letter to the editor

Dear Editor:

I am a DES daughter, age 46, who is beginning to have difficulties as I approach the menopausal years. I have good medical care through Kaiser Permanente and also keep abreast of all the latest research. I also have had my share of DES-related problems—infertility and miscarriages.

My concern now is with migraine headaches. I have heard of other DES daughters with similar symptoms, but have not had the opportunity to speak with any of them. My migraines primarily are induced by my hormonal changes which I believe is due in part to my exposure to DES.

I would like to hear from anyone who is experiencing the same type of ailments. Maybe you can give me an edge on coping with my migraines in a more positive way.

—Andrea Tabor 2013 Alameda Ave. #D Alameda CA 94501 (510) 522-7664 compelling reasons for the continued study of DES-exposed women, as well as for basic research on the biological effects of DES and other environmental estrogenic compounds.

First, it is unclear whether the human cancer incidence resulting from DES exposure has peaked. Although the majority of DES daughters have passed the age range for vaginal carcinoma development, few have reached the age range (postmenopausal) in which endometrial carcinoma typically occurs in the DES unexposed population, and endometrial carcinoma occurs with a much higher prevalence than vaginal carcinoma in DES-treated mice. Similarly, the threat of breast cancer is still a concern in this population. The identification of molecular genetic markers for DES carcinogenicity is therefore a continuing priority. Such markers would also be of value in predicting risk for third-generation DES offspring, for whom little is known about potential health risks.

Second, DES may be viewed as a model compound for other environmental agents with estrogenic potential. The bioaccumulation of these environmental estrogens is recognized as a problem of increasing magnitude. Certain human populations in the United States have been shown to carry amounts of these fat-soluble compounds which, in

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fish and other wildlife, cause significant endocrine dysfunction and developmental anomalies of the reproductive tract. Insights into the biological effects of DES should therefore provide a foundation upon which future environmental health problems may be effectively addressed.

NIEHS has a long history of accomplishments in conducting and supporting research on estrogen action, hormonal carcinogenesis, and other types of estrogen-related pathology, particularly for DES and similar compounds.... We now know that early exposure to DES at very low doses can affect bone density. Basic and clinical studies are now focusing on the potential role that dose and time of exposure to estrogenic substances may have on changes in bone density. These findings could play a significant role in the development of early intervention strategies for women with osteoporosis.

REPORT from page 1... sex-hormone-binding-globulin. The result, emphasize Sharpe and Skakkebaek, is that DES has a "very high biopotency if ingested." (Other studies have indicated that DES is roughly 2-1/2 times as potent as naturallyoccurring estrogens).

Effects of estrogen on male reproductive organ development

Normal formation and early development of the male reproductive tract, including descent of the testes into the scrotal sac, all occur before birth. Normal male development is dependent on normal maternal levels of estrogen. When too much estrogen is present (such as occurred with DES prescription), it upsets the delicate hormonal balance necessary to normal development.

Too much estrogen reduces follicle-stimulating hormone which, in turn, reduces the number of Sertoli cells that develop. In the adult male, Sertoli cells are responsible for the development of sperm. The fewer the number of Sertoli cells that form during fetal development,

the lower the sperm count for life.

Too much estrogen during pregnancy also prevents the regression in male fetuses of embrionic tissue known as Mullerian ducts. The persistence of this tissue is associated with undescended testicles.

Although the consequences of DES exposure during pregnancy have been overwhelmingly considered a "women's problem"—by the scientific community as well as by the general public—a small but compelling body of scientific evidence has indicated otherwise.

Starting from the year that DES was developed in 1938, various studies showed abnormalities in male as well as female animals exposed in utero to DES. These abnormalities in animals foreshadowed similar abnormalities found in DES sons many years later and described by Dr. William Gill and his associates at the University of Chicago in the late 1970s.

For decades, the evidence of the early animal studies was largely ignored—by the over 200 pharmaceutical companies which manufactured DES in this country, by the Food and Drug Administration which approved DES for use in 1940, and by the scientific community. The undeniable evidence and explanations presented by this most recent paper are reason enough for the most serious consideration—by physicians as well as by researchers—of DES effects on sons.

1 Hypospadias is the condition in which there is incomplete fusion of the folds of embrionic tissue which form the hollow shaft that becomes the penis. To explain further, imagine a garden hose with an imperfectly sealed seam down the length of it. In hypospadias, urine comes out of an opening along the side of the penis rather than from the tip. At least one doctor who studied nine DES sons with hypospadias found that the distance between the hypospadias opening and the base of the penis correlated with the precise week during pregnancy that each of the mothers began taking synthetic hormones. (Orenberg, C.L., DES: The Complete Story, chapter 5).

<sup>2</sup> A woman on a low-fiber diet (few fruits, vegetables and whole grains) is exposed to more of her own naturally-occurring estrogen than a woman on a high-fiber diet since natural estrogen is more easily reabsorbed from the gut, with a longer time for reabsorption, when the gut contains low amounts of dietary fiber.

> Oakland, CA 94612 (510) 465-4011



address



## Join DES Action!



165-1 W	and to get the answers about DEs	. Enclosed is my membersmp.
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#### books

Estrogen and Breast Cancer Carol Ann Rinzler, MacMillan, 1993, \$22.00.

inzler discusses the alarming rise in the rate of breast cancer and argues that "the clearest epidemiological paper trail" leads to "the possibility that a major, avoidable, direct cause of America's fiftyyear-old breast cancer epidemic has been our growing exposure to estrogen in the form of oral contraceptives and post-menopausal estrogen replacement therapy (ERT)." While acknowledging other possibilities such as environmental toxins and diet, Rinzler provides a strong case for estrogen as the leading culprit in the breast cancer "epidemic."

Those of us grown sadly familiar with experimentation with female hormones may not be surprised to learn that just two years after it was identified (in 1929) the first American woman was injected with estrogen (for menopause). Widespread use of DES was followed by the development and promotion of The Pill and ERT. I was also fascinated to learn that the word estrogen comes from the Greek and Roman words for "frenzy" and the Greek and Latin root for "begin." An interesting choice for this female-defining hormone.

One influential ob/gyn, Dr. Robert Wilson, believed that menopause was a "deficiency disease" and advocated beginning ERT as early as age 30. Wilson's ideas received widespread publicity after the publi-

cation of his book Feminine Forever in 1966. Although today's hormone replacement therapy (HRT) proponents are not quite as extreme, one hears echoes of Wilson in current promotion of menopausal hormone therapy.

Rinzler is not completely opposed to estrogen, but insists that both The Pill and ERT/HRT must be used more judiciously, and that each woman's individual risk factors—for heart disease vs. breast cancer, for example—must be evaluated before she decides to use estrogens. As we head into a huge menopausal-age population boom and the concurrent push for women to take HRT, this is a message we should all take to heart.

—Nora Cody

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