NEW YORK TIMES writer Gina Kolata this week renewed her efforts to discredit the theory and evidence that industrial chemicals interfere with hormones, causing harm to wildlife and humans.[1] A month ago, Ms. Kolata savagely attacked the new book, OUR STOLEN FUTURE,[2] claiming that "careful studies" (none of which she cited) had "refuted" the premise of the book. (See REHW #486.) OUR STOLEN FUTURE reviewed hundreds of studies published in peer-reviewed journals. The book offers substantial evidence that industrial pollutants may be interfering with the hormones that regulate growth, health and behavior in wildlife and humans, thus contributing to birth defects, problems of sexual development, breast cancer, prostate cancer, and even mental problems like attention deficit disorder, diminished IQ, and violent behavior.

Among the evidence discussed in OUR STOLEN FUTURE was declining sperm counts in men in industrialized countries, plus data and hypotheses linking such a decline to hormone-disrupting chemicals. In 1992, a report in the BRITISH MEDICAL JOURNAL[3] analyzed 61 previous sperm studies conducted in 20 countries, concluding that average sperm counts had declined from 113 million sperm per milliliter of semen to 66 million during the past 50 years, a 42% decline.

Ms. Kolata has made this her special cause, evidently determined to convince TIMES readers that there's nothing to it. On the same day that Ms. Kolata published OUR STOLEN FUTURE (March 19th), Ms. Kolata published a second article in the TIMES about sperm counts.[4] It is clear from Ms. Kolata's March 19th article that she requires little or no evidence to be persuaded that sperm counts are not declining. Instead of evidence, she offers two arguments:

(1) From 1960 to 1970 a million women were exposed to a synthetic sex hormone called DES. Recently, a large study of male offspring of DES-exposed mothers showed that these men are fertile, able to father children.[5] Ms. Kolata apparently wants her readers to believe that this means DES did not cause a decline in sperm counts among these men.

(2) Ms. Kolata offers her readers the opinion that infertility is not increasing in the U.S.[6]

The important point is that these arguments are both straw men. Neither argument reveals anything important about sperm counts. The original analysis of 61 studies of sperm counts showed a decline from 113 million sperm per milliliter (ml) of semen in 1940 to an average of 66 million in 1990. Men are able to sire children with a sperm count as low as 20 million sperm per ml, and they are not definitely sterile until their sperm count drops to 5 million. No one has ever claimed that average sperm counts worldwide have dropped this low. Ms. Kolata has set up a straw man and triumphantly demolished it, but in the process has misled her readers about the question of declining sperm counts. (In fact a decline in sperm quality and quantity has been reported among the sons of DES-exposed women, along with underdeveloped and undescended testicles and stunted penises. These men were not sterilized but the sperm of many of them was definitely diminished by their mother's exposure to DES.)[7]

This week Ms. Kolata took up the sperm count cause again in the TIMES. [1] On April 29, she reviewed three recent studies of sperm, omitting mention of other recent studies that don't support her bias. She highlighted two new studies that indicate sperm counts have slightly increased over the past 25 years among students in Seattle,[8] and among men preparing to have vasectomies in Los Angeles, New York, and Roseville, Minnesota.[9] Ms. Kolata describes a third study, by Harry Fisch, which re-analyzes the 61 previous studies.[10]

Ms. Kolata gives great weight to Dr. Fisch's re-analysis of the 61 studies, which concludes that sperm counts may not actually be declining worldwide. Dr. Fisch argues that the "decline" in sperm counts is really just previously-unnoticed "geographic variation" in sperm counts. In other words, Dr. Fisch argues that sperm counts may not actually be declining; instead, they may be holding steady, but they may appear to be declining because there is so much variation between sperm counts in different locations.

Ms. Kolata failed to mention it, but to reach his new conclusions about worldwide sperm counts, Dr. Fisch threw out 41 of the 61 original studies, re-analyzing only 20 of the original 61. He says he did this because the study populations in those 41 studies were small, involving all together only 9% of the original total study population. However, in so doing, Dr. Fisch reduced the number of countries involved from 20 to only 12. On the basis of the much smaller number of studies, from the much smaller number of countries, he concluded that sperm counts have not declined. Exclusion of so many relevant studies seems dubious at best. Ms. Kolata explains Dr. Fisch's findings this way: "Dr. Fisch argues that the decline reported was probably a result of previously unappreciated regional variations in sperm counts. Most of the early studies, with the high sperm counts, involved New York men, whose sperm counts have remained among the highest in the world. Most of the more recent studies involved men from developing countries and their sperm counts, for unknown reasons, tend to be lower." But is this true? Is Paris in a developing country?[11] Is London?[12] Is Brussels?[13] Is Scotland a developing country?[14] These are all places where good recent studies have reported declining sperm counts.

Ms. Kolata chose not to tell her TIMES readers about these important recent studies.

One new study reveals that sperm quantity has not changed for 20 years in rural Toulouse, France.[15] The authors of the Toulouse study suggest that environmental factors might distinguish Toulouse from Paris, where sperm counts seem to be declining. Combined with the two new U.S. studies, does the Toulouse study mean that all the other recent studies showing declines are wrong?[16] The U.S. studies do not seem particularly persuasive. Students in Seattle are unlikely to be representative of the general populace. Neither, necessarily, are a self-selected population of men preparing to have vasectomies. A general decline in sperm counts could be occurring, yet might not be revealed by studies of these particular populations.

Based on the Toulouse study, we can say that it is good news that some populations can be found who may not be experiencing declines in sperm. But it is not news that some populations have high sperm counts and others have low. The original analysis of 61 studies in 1992 made this very clear. No matter what is happening to the worldwide average, the question therefore remains: why is sperm count in some large populations low and/or declining? Gina Kolata seems to want her readers to believe that declines are not occurring and that low counts occur only in developing countries. But in his analysis Harry Fisch acknowledges the problem, and answers it this way: the "geographic variations" in sperm might be caused by environmental factors, nutrition, socioeconomic differences, or some other "unknown causes," he says.[10]

In other words, it is entirely possible that "environmental factors," such as hormone-disrupting chemicals, are affecting some large populations, causing a decline in sperm. Back in 1983, U.S. EPA [Environmental Protection Agency] identified 52 chemicals or groups of chemicals that adversely affected sperm (as well as 11 that enhanced sperm).[16] We have already seen that DES had adverse effects on the sperm of sons of DES-treated women. Is there laboratory data supporting such an idea?

Elaborate new studies of mice, reported in ENVIRONMENTAL HEALTH PERSPECTIVES (a U.S. government publication) in
December, reveal that exposing pregnant mice to low levels of an estrogenic chemical causes their male offspring to develop smaller-than-normal testicles, and to produce less sperm than untreated mice. [17] Three separate industrial chemicals (with estrogenic properties) were tested and they all caused small testicles and diminished sperm counts. (DES was also tested, as a "positive control," and--no surprise--it had the same effect.) The estrogenic chemicals used in these experiments are industrial pollutants commonly found in our food and water.

Gina Kolata chose not to tell her TIMES readers about these important new animal studies.

--Peter Montague


[3] Elisabeth Carlsen and others, "Evidence for decreasing quality of semen during past 50 years," BRITISH MEDICAL JOURNAL Vol. 305 (1992), pgs. 609-613. We have previously reported on this study, and subsequent studies. See REHW #290, #343, #369, #390, #436, #438, #446, #447, #448, #457.


[6] There is some evidence that this is untrue. Congress's Office of Technology Assessment (OTA) reported several years ago that Americans in their prime reproductive years (ages 20 to 24) have experienced an increase in infertility in recent years. See "Reproductive Dysfunction in the Population," in U.S. Congress, Office of Technology Assessment, REPRODUCTIVE HEALTH HAZARDS IN THE WORKPLACE [OTA-BA-266] (Washington, DC: U.S. Government Printing Office, 1985), pgs. 341-364.


[17] Richard M. Sharpe and others, "Gestational and Lactational Exposure of Rats to Xenoestrogens Results in Reduced Testicular Size and Sperm Production," ENVIRONMENTAL HEALTH PERSPECTIVES Vol. 103, No. 12 (December, 1995), pgs. 1136-1143. The chemicals tested were 4- octylphenol (OP), butyl benzyl phthalate (BBP), and octylphenol polyethoxylate (OPP). BBP is a phthalate, many of which are common in the environment and in our food because they are widely used as plasticizers.

Descriptor terms: sperm count; hormones; hormone disrupters; new york times; gina kolata; our stolen future; des; infertility; 4-octylphenol; butyl benzyl phthalate; octylphenol polyethoxylate; los angeles; new york; seattle; studies;