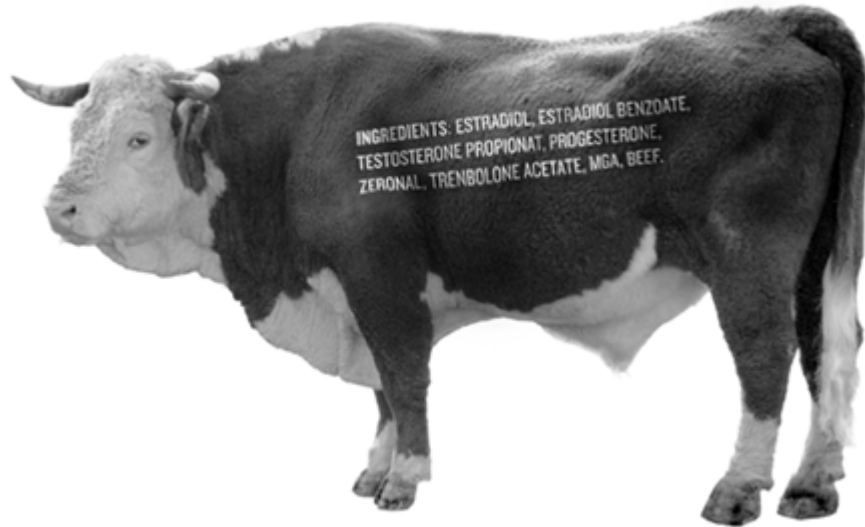


# The Real Dope on Beef Hormones

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A recent audit of Canada's food-inspection system by the European Commission (EC) raises serious questions about the safety of Canadian meat.(1) The audit reveals "very serious deficiencies" in the regulatory framework and documents wide-spread use of cancer-causing hormones, antibiotics and other endocrine disrupting substances in our meat supply. Canadian and European scientists believe that hormone-laced Canadian meat poses a serious threat to the public, particularly vulnerable groups like pregnant women and prepubertal children.(2) The 28 page audit is available on the Canadian Health Coalition website.(3)

Growing scientific evidence highlights the dangers of exposing people to hormones. Hormone residues in meat and meat products can disrupt the natural "endocrine equilibrium" (hormone balance) which exists within everyone's body. Any disruption of this equilibrium can result in multiple biological effects with potentially harmful consequences for human health. The EC audit concluded that in view of the intrinsic properties of hormones and recent scientific findings, Canadian meat consumers are exposed to unnecessary risk from the intake of hormone residues. Scientifically speaking, these risks include neurobiological (endocrine) effects, developmental effects, immunotoxicity, reproductive and immunological effects, genotoxicity and carcinogenicity.

Scientists believe that susceptible risk groups, particularly prepubertal children and pregnant women, are put at unnecessary risk by these hormones. Not enough data is available to allow a quantitative estimate of risk for any of the hormones in question. Therefore, because we can't establish safety thresholds, there is no means to ascertain the "acceptable daily intake". In the case of the common growth hormone estradiol, there is a growing body of evidence suggesting that it is a "complete carcinogen" in that it exerts both tumour initiating and promoting effects.(4)

## Children most vulnerable

Each stage of life - from embryo onwards - is characterized by a well defined natural hormonal balance. The level of hormonal activity varies greatly throughout different stages in the human life cycle. Scientific observation is now suggesting that prepubertal children constitute a high risk population for beef-hormones since the "endocrine equilibrium" at that age was grossly miscalculated. New, more sensitive and sophisticated bio-assays" (tests) developed for estradiol have concluded that the actual hormone production rates of children may have been overestimated by a factor of up to 100 fold.(5) This represents a much greater risk than originally thought. We should be taking precautionary actions to protect our children in light of this new information.

Consumption of hormone-treated beef may cause girls to reach puberty earlier, thus making them more susceptible to breast and other cancers. According to Carlos Sonnenschein, from Tufts University School of Medicine (Boston, MA), "Early onset of puberty with its raging hormones translates into higher risk of breast cancer" and it is "very likely" that hormone residues in North American beef is a contributing factor in the early onset of puberty among girls observed in recent decades.(6) "There is no other reason to explain it," stated Sonnenschein. According to Annie Sasco, from the International Agency for Research on Cancer, it makes sense that hormone-treated beef could trigger an earlier onset of puberty. "Even if the risk is small it would be prudent to stop the use of hormones in the cattle industry because there is no offsetting benefit for consumers," Sasco stated.(7)

An expert scientific panel to the US National Toxicology Program (a program of the National Institutes of Health) concluded that "all forms" of estrogen be listed as "known cancer-causing agents." This latest recommendation includes "steroidal estrogens" like those used by the beef industry to increase weight-gain in cattle.(8) The nine member panel, made up of experts in the fields of toxicology, epidemiology and cancer research, made their recommendation to the U.S. government after a thorough review of 20 years of data. Estrogen, the so-called female hormone, occurs naturally in men and women. Some forms of estrogen, including those used in birth control pills, have long been linked to increased cancer rates and are already classified as "reasonably anticipated to cause cancer".(9)

## WTO beef dispute

When Europe finally banned imports of Canadian beef, the federal government challenged the decision at the WTO. The WTO beef-hormone ruling, which allows the Canadian government to apply retaliatory trade sanctions against the European Commission, did not consider new scientific understanding of growth hormones when it made its decision. The WTO panel, made up of 'trade experts' with no scientific credentials, based its decision on inadequate, non-peer reviewed data - dating in some cases back to the 1960's. The studies are viewed by experts as being conducted under questionable procedures lacking transparency and scientific credibility. Much of the original work done on hormones was done long before anything was known about possible adverse effects - most of which only became apparent in the 1990s.

Precautionary Principle means that, in the face of scientific uncertainty, one should proceed with caution. In the case of beef-hormones the precautionary principle should dictate that, in light of worrisome scientific information, these hormone drugs should not be used until further research has ascertained their safety to humans. This is precisely why Europe banned the use of these potentially dangerous hormones and we feel Canada should do the same. It was profoundly unscientific and imprudent for the Canadian government to authorize the use of these hormones based on a non-scientific "assumption of safety". Simply put, the Canadian government threw the precautionary principle out the window. Despite the scathing European audit, the Canadian government maintains it can provide European consumers with hormone-free beef. It's an outrage that the same precautionary measures won't be afforded to Canadians.

## **Warning: System Failure**

The European audit provides further evidence that the federal government has made a major regulatory shift in the role of government. By shifting from a "precautionary principle" to that of a "risk management" approach (where illness and death are considered "acceptable risks"), food safety regulators now manage the damage instead of preventing harm from happening in the first place. This shift to risk management repudiates lessons learned from the European Mad Cow disaster and from Justice Horace Krever's Inquiry into Canada's Tainted Blood Disaster. To paraphrase Justice Krever, government must regulate in the public interest, not in the interest of the regulated.(10)

Despite being warned by its own experts in 1997 of the dangers of hormone residues in beef, the Canadian government ignored taking corrective measures.(11,12) Instead it gagged two of its most knowledgeable veterinary scientists and misled the Canadian public to believe that the European Commission's decision to stop importing Canadian beef was just a "trade dispute." Federal Agriculture Minister Lyle Vanclief responded to the EC audit by defending the use of animal hormones: "There has never been any scientific proof of any danger," stated Vanclief in a Toronto Star.(13) This is a dangerously misleading statement considering Health Canada's own scientific experts had recommended against approving the use of these hormones on the grounds that they posed a threat to human health.

In a speech to the European Union, Prime Minister Chrétien said: "We urge that science-based approaches be taken to determine the degree of risk to the environment or human health posed by certain products".(14) In April 1998, however, when the European Commission formally requested the risk assessment data which Health Canada based its decision to authorize the use of beef hormones, Canada refused the request claiming the data was confidential. So much for a "science-based" approach.

Beef hormones are used by industry to increase weight-gain in cattle. The use of such powerful hormones for non-therapeutic, non-essential purposes is irresponsible and offers no benefits to the consumer or society, only risk. Public health should come before beef industry profits. Let's do the right thing and ban the use of beef-hormones.

## **Hormones Used in Canada**

### **estradiol [estradiol benzoate, estradiol beta-17]**

Estradiol is one of the main ingredients in several controversial beef-hormone "preparations" used in Canada. One of these hormone preparations, Revelor-H, was approved as recently as 1997 against the advice of Health Canada's own scientific experts. According to a European study released in 1999, estradiol-17 beta is "considered a complete carcinogen ... it exerts both tumour-initiating and tumour-promoting effects." Apart from being carcinogenic, Canadian scientists also observed that Revelor-H resulted in a marked reduction of the Thymus gland - which is essential to the normal functioning of the immune system. A damaged immune system can result in a people being unable to defend themselves against common colds, infections or cancers.

### **progesterone**

Progesterone is a steroid hormone linked to the implantation of the egg in the uterus and the growth of the embryo and fetus. In laboratory animals, progesterone has been shown to increase the incidence of tumours in the mammary gland, ovary, uterus and vagina.

### **testosterone [testosterone propionat]**

Testosterone is the main sex hormone secreted by males and is known to induce tumours in mice and prostate cancer in rats.

### **trenbolone [trenbolone acetate]**

Trenbolone is a synthetic androgen having anabolic activity several-fold greater than testosterone. Feeding trenbolone to mice produced pancreatic tumours, liver tumours and hyperplasia.

### **zeranol**

Zeranol is a mycoestrogen produced by various species of fusarium moulds. Male mice exposed in utero to zeranol produced testicular abnormalities. Zeranol also caused the development of pituitary gland tumours in mice and the induction of adenomas and carcinomas of the liver in hamsters.

### **melengestrol acetate [MGA, melengestrol]**

Melengestrol acetate is the only beef-hormone administered as a feed additive and is a sister compound of Diethylstilbestrol (DES). MGA pellets implanted in female mice caused increased incidence in mammary tumours.

## FOOTNOTES:

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2. European Commissions 's Scientific Committee on Veterinary Measures Relating To Public Health: Assessment of Potential Risks to Human Health from Hormone Residues in Bovine Meat and Meat Products (April 30, 1999), On the web at: [http://www.europa.eu.int/comm/food/fs/sc/scv/out21\\_en.pdf](http://www.europa.eu.int/comm/food/fs/sc/scv/out21_en.pdf)
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11. Senate Agriculture Committee Proceedings (May, 1999), House of Commons: Reference No. Agriculture 34861 (pgs. 0910-11 to 0910-13)
12. The Globe and Mail (July 30, 1999), "Fears over hormone ignored, panel told: Scientists say they were pushed to approve drug later linked to cancer"
13. Toronto Star (November 21, 2001), "EC beef study tarnishes Canadian farmers' image"
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