

Committee: World Health Organization (WHO)
Topic: Hormones in meat
Chair members:
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Introduction

The World Health Organization (WHO) is the directing and coordinating authority for health within the United Nations system. It is responsible for providing leadership on global health matters, shaping the health research agenda, setting norms and standards, articulating evidence-based policy options, providing technical support to countries, and monitoring and assessing health trends.

When diplomats met to form the United Nations in 1945, one of the things they discussed was setting up a global health organization. In April 1945, during the Conference to set up the United Nations (UN) held in San Francisco, representatives of Brazil and China proposed that an international health organization be established and a conference to frame its constitution convened. On 15 February 1946, the Economic and Social Council of the UN instructed the Secretary-General to convene such a conference. A Technical Preparatory Committee met in Paris from 18 March to 5 April 1946 and drew up proposals for the Constitution which were presented to the International Health Conference in New York City between 19 June and 22 July 1946. On the basis of these proposals, the Conference drafted and adopted the Constitution of the World Health Organization, signed 22 July 1946 by representatives of 51 Members of the UN and of 10 other nations. The Constitution did not come into

force until 7 April 1948, a date we now celebrate every year as World Health Day, when the 26th of the 61 governments who had signed it ratified its signature. The first Health Assembly opened in Geneva on 24 June 1948 with delegations from 53 of the 55 Member States. It decided that the Interim Commission was to cease to exist at midnight on 31 August 1948, to be immediately succeeded by WHO.

Since the 1950s, the Food and Drug Administration (FDA) has approved a number of steroid hormone drugs for use in beef cattle and sheep, including natural estrogen, progesterone, testosterone, and their synthetic versions. These drugs increase the animals' growth rate and the efficiency by which they convert the feed they eat into meat. The FDA approves these drugs only after information and/or studies have shown that the food from the treated animals is safe for people to eat, and that the drugs do not harm the treated animal or the environment. The drugs also have to work as intended.

It was later found to be more convenient and effective as a pellet implanted between the skin and the cartilage of the ear. The implant released a small amount of the artificial hormone daily over a period of 60 to 120 days.

By the mid 1960's - and into the 1970's - new natural hormone products were introduced. Other products, which stimulated the animal to raise its own level of hormone production, were also registered. Before they could be registered for use all of these products were rigorously tested and proven not to cause cancer, birth defects, reproductive failure or other ill effects to both livestock and consumers.

Historical Background

Little research has been done on the health effects of these hormones in humans, in part because it's difficult to separate the effects of added hormones from the mixture of natural hormones, proteins, and other components found in milk and meat.

The scientists compared sperm concentrations and quality among the men born to women in the high and low beef consumption groups. They found that:

* Sperm concentration (volume) was 24.3 percent higher in the sons of mothers in the "low" beef consumption group.

* Almost 18 percent of the sons born to women in the high beef consumption group had sperm concentrations below the World Health Organization threshold for subfertility about three-times more than in the sons of women in the low consumption group.

These suggest maternal beef consumption is associated with lower sperm concentration and possible subfertility.

What are hormones?

Hormones are chemicals that are produced naturally in the bodies of all animals, including humans. They are chemical messages released into the blood by hormone-producing organs that travel to and affect different parts of the body. Hormones may be produced in small amounts, but they control important body functions such as growth, development and reproduction.

Hormones can have different chemistry. They can be steroids or proteins. Steroid hormones are active in the body when eaten. For example, birth control pills are steroid hormones and can be taken orally. In contrast, protein hormones are broken down in the stomach, and lose their ability to act in the

body when eaten. Therefore, ordinarily, protein hormones need to be injected into the body to have an effect. For example, insulin is a protein hormone. Diabetic patients need to be injected with insulin for treatment.

Types of hormones used in animals:

- Recombinant bovine growth hormone (rBGH)— to promote milk production (may also see it as bovine somatotropin [BST]) it also control the extent of growth, muscle and fat production and feed consumption.
- Estrogen, testosterone, and progesterone—steroid hormones added to promote growth and reproduction.
- Beef cattle are often given steroid additives to increase growth and development. Common steroids include:
 1. Natural steroids like estradiol, testosterone, and progesterone
 2. Man-made steroids from compounds
 3. These additives have proven benefits for increasing milk and meat production, but it does not come without controversy.
- Treating animals with specific combinations and doses of hormones can make a carcass more valuable, as muscle growth can be increased and fat is reduced. Most importantly, hormone-treated animals are cheaper to rear as they need less feed to maintain muscle. Overall the increase in productivity from using hormones is 5-20%.

How are the hormones introduced into the animals?

Steroid hormones are usually released into the animal from a pellet (ear implant) that is put under the skin of the ear. The ears of the animals are thrown away at slaughter. Improper use of pellet implants in other parts of the animal can result in higher levels of hormone residues to remain in the edible meat. Federal regulations prohibit their use in this manner. Melengestrol acetate is also available in a form that can be added to animal feed.

Dairy cattle may be injected under the skin with rbGH. This hormone is available in packages of single dose injections to reduce chances of accidental overdose.

Social aspects

An European Commission directive banning the use of hormones in meat production was introduced in the 1980s. Imported meat from animals with detectable levels of hormonal residues was also banned.

The ban was introduced as evidence suggested oestrogenic hormones were carcinogenic at high levels. While animals given correct dosages were unlikely to have high levels, they could occur if there was misuse, such as tissue from an implantation site being sent for consumption.

But the EU was not just concerned about health – the ban was also based on consumer perception that using hormones to manipulate growth is unnatural, unnecessary and a risk to animal welfare.

In the US, where hormones are used, officials maintain there is no good evidence of any health risk from using hormones. The country has long-

debated the issue with the EU as it claims the ban is against the spirit of free trade between countries

The debate on whether growth hormones should or should not be used for food production has become a very political issue. In 1989, the European Community (now European Union) issued a ban on all meat from animals treated with steroid growth hormones, which is still in effect. The use of steroid hormones for beef cattle is permitted in Canada.

Countries within the European Union do not allow the use of the protein hormone rbGH, for dairy cattle. In 1999, the Canadian government refused approval for the sale of rbGH for dairy cattle, based on concerns about the health effects including mastitis in treated animals.

Current position

The USA position on hormonal growth promoters has strengthened since the 1980s, partly because of examples of illegal hormone use – particularly muscle-building beta-agonists – in some countries. Monitoring residues of growth promoters is now more stringent and coordinated by a single body in each member state. In the UK, residues are monitored by the Veterinary Medicines Directorate, which also monitors residues from meat imported from other USA countries. Exporting countries also have their own surveillance programmes and infringements can lead in the cessation of exports to the USA.

Overseas producers supplying the USA usually designate special production units where no hormonal growth promoters are used. The loss of extra productivity is balanced by the high prices received. However, it can still be

argued that producers in these countries are at an advantage compared with USA producers because the bulk of their production benefits from greater overall efficiency and can 'subsidise' exports of meat from untreated animals.

The main argument against growth promoters is the food safety risk, but consumers in many non-USA countries are apparently unconcerned about their use in meat and milk production. Promoters are seen as a normal part of animal production and as a tool to make livestock farming more efficient.

While some claim they compromise animal welfare, most hormonal growth promoters have no measurable effects on welfare indicators, so the basis of a ban on welfare grounds is unclear.

With food security and climate change coming to the fore, some have argued the need to improve production efficiency while reducing greenhouse gas emissions means USA producers could argue for the use of growth promoters. However public perception of the treatment of animals used for food production will always be a major consideration.

Animal Briefs is an initiative of The British Society of Animal Science to provide factual and impartial information on matters of topical concern.

The UK imports about 30% of its meat. Some is from the USA, but a large amount is from countries including Brazil, Argentina and Australia, where lower production costs make meat cheaper.

In some non-USA countries, hormonal growth promoters are used in beef production to increase cow size and reduce fat content. But in Europe, these promoters were banned in the 1980s over food safety concerns.

The UN position

Hormones and Steroids Used in Cattle. Hormones are present in all animal products whether or not the animals have been treated with hormone supplements.

The most widely-used treatments are combinations of sex hormones (androgens and oestrogens) for use in beef cattle, growth hormones for milk production in cattle and growth in pigs and adrenal hormones (beta-agonists) which increase muscle in pigs and cattle. Sex hormones are released via a plastic pellet implanted behind the ear, while growth hormones are given by injection. Beta-agonists are included in animal feed and absorbed in the intestine.

The US Food and Drug Administration (FDA) and a joint committee of the Food and Agricultural Organization and World Health Organization (FAO/WHO) state that the amount of these hormones that make it into food products is safe for eating. Hormones and steroids are given to livestock to help improve the production of dairy and beef.

Conclusions

Studies done so far do not provide evidence to state that hormone residues in meat or dairy products cause any human health effects. However, a conclusion on lack of human health effect can only be made after large-scale studies compare the health of people who eat meat or dairy products from hormone-treated animals, to people who eat a similar diet, but from untreated animals. There are many advantages and disadvantages about putting hormones in meat.

It is amazing how science can manipulate some factors such as growth and production of products that are not natural. In conclusion Scientist should find a new hormone who doesnt affect either humans or animals so that we can live in a better world.

Support Documents

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