

# Understanding Hormone Use In Beef

## What are hormonal substances?

“Hormonal substances” is a term used to describe sex hormones given to cattle. Health Canada has approved three natural hormones and three synthetically produced hormones for use in cattle in Canada.

## Why are they used in the cattle industry?

Hormonal substances are used so that the animal uses its feed efficiently. The use of hormonal substances results in:

- Development of more lean meat with less fat deposited in the meat
- More growth using less feed
- Reduced cost for the cattle producer and less expensive beef for the consumer

## Does hormone use affect the safety of beef?

The safety of hormone use has been reviewed by many experts and agencies, including Health Canada, the World Health Organization and the Food and Agriculture Organization of the United Nations. All have concluded that hormones can be used safely in beef production.

Research has shown that very high levels of hormones taken for a long time (such as those levels found in oral contraceptive pills or hormone replacement pills) may be a risk factor in some kinds of cancer. However, the levels found in food products, such as beef, are too low to be of risk to human health.

## How do we know that the hormones are safe?

Health Canada, through the Food and Drug Act and Regulations, determines what hormonal substances can be used in animals and how these substances are to be used. In order for the hormone to be approved for use it must:

- Be effective for its purpose (do what it is suppose to do);
- Be safe for the animals;
- Result in food products that are safe for humans to eat.

## Who makes sure that beef producers use the appropriate level of hormonal substances?

The Canadian Food Inspection Agency makes sure that beef producers follow the Food and Drug Act and Regulations. They do this by inspecting the meat and testing it for residues. In Canada, the level of synthetic hormones that can be left in beef is zero. A review of the data from this testing program shows a near perfect record, that is, no hormonal residues in the beef.

## Are all cattle given hormonal substances?

No, each beef producer makes a business decision on the use of hormonal substances. This decision is based on many factors, including the cost/benefit of purchasing and administering the hormone. However, since cattle are bought and sold, there is only one way to ensure that a beef product has never received any hormonal substance. One must purchase beef, which has appropriate verification that it has been sourced from cattle that have been raised without the use of hormonal substances, such as certified organic beef.

# Understanding Hormone Use In Beef

There is no such thing as hormone-free beef. Even beef raised organically will contain hormones. All animal products contain hormones because all animals produce hormones naturally. The hormone levels found in a sample of organic beef are similar to beef from animals given hormonal substances.

## How much hormones are in beef?

Cattle, like humans, are mammals. All mammals have naturally occurring hormones. The level of hormones in beef from cattle given hormonal substances is no different than the level found in beef from cattle not given hormonal substances. Studies also show that there is more variation in hormone levels of animals of different sexes than between treated and untreated animals.

In addition, the level in a serving of beef is very low compared to other sources of hormones in our body.

Table 1—Hormones we produce naturally in our bodies

Total Daily Production	Estrogen (nanograms)	Progesterone (nanograms)	Testosterone (nanograms)
Prepubescent girls	54,000	250,000	32,000
Prepubescent boys	41,600	150,000	65,000
Non-pregnant women	192,000 – 1,192,000	420,000 – 19,600,000	240,000
Men	136,000	410,000	6,400,000

Table 2—Hormones we may consume in food

	Estrogen (nanograms)	Progesterone (nanograms)
Oral Contraceptive (per pill)	20,000-50,000	100,000-500,000
Hormone replacement therapy (per pill)	625,000	2,500,000
Beef from cattle not given hormonal growth promotants 100g	1.5	27
Beef from cattle given hormonal growth promotants 100g	2.2	44
Soybean oil, 15 mL	28,773**	Not applicable
Cabbage, 100 g	2,381**	Not applicable
Milk, 250 mL	35.9	Not applicable

\*\*estrogen equivalent activity (i.e. in the form of phytoestrogens)