
Abstract

The production of pâté de foie gras involves force-feeding ducks and geese by placing a long tube down the birds’ esophagi and pumping an unnatural quantity of food directly into their stomachs. Force-feeding induces hepatic lipidosis and causes the birds’ livers to become diseased and swollen. Substantial scientific evidence suggests that force-feeding causes pain and injury from feeding tube insertion, fear and stress during capture and handling, gait abnormality due to distended livers, pathologies in liver function, and increased mortality. Force-feeding birds to produce foie gras is detrimental to their welfare.

Introduction

Foie gras, French for “fatty liver,” is a food item produced from the livers of overfed ducks and geese. The majority of the world’s foie gras is now made from duck livers, and approximately 80% is produced in France.1 In the United States, there are three facilities producing livers for foie gras,2-4 slaughtering in total more than 400,000 ducks annually.5

Birds force-fed for foie gras can suffer from a number of significant welfare problems, including frustration of natural behaviors,6 injury,7 liver disease, lameness,6 diseases of the respiratory and digestive tracts,8 and high rates of mortality.6

The Scientific Committee on Animal Health and Animal Welfare (SCAHAW) is the European Union’s most authoritative scientific body on farm animal welfare. Members include more than a dozen professors of veterinary medicine and animal science from across Europe.9 After a thorough investigation, SCAHAW concluded that “force feeding, as currently practised, is detrimental to the welfare of the birds.”6

Force-Feeding

Between 10-14 weeks of age, birds on foie gras facilities begin to be force-fed by producers,1 with ducks usually force-fed twice daily for 12-15 days and geese three times a day for 15-21 days.10 In some instances, geese may be force-fed six times per day for 13-14 days, in order to reduce the total amount of corn that is used.11 When birds are kept in floor pens, capture and handling for the force-feeding procedure is stressful, as measured by an increase in corticosterone (stress hormone) levels.12

The procedure starts with holding a bird by the neck, drawing the animal towards the feeding pipe, thrusting a pipe approximately 20-30 cm (8-12 in) in length down the bird’s throat, and initiating the food pumping process.13 Corn mash is pushed through the pipe and into the bird’s esophagus with an auger or, in large units, via pneumatic pump. At the first force-feeding, 180 g (0.4 lb) of food is forced into a duck. By the last feeding, the amount is increased to 450 g (1 lb), injected in as little as 2 seconds.14 Reportedly, if the corn mash becomes lodged in the bird’s esophagus, a stick is sometimes used to force it down.15 This quantity of mash, injected twice daily, is much more food than ducks eat voluntarily.16

Ducks and geese are natural omnivores.6 The corn-based feed force-fed to birds in foie gras production is nutritionally incomplete. According to Yvan Beck, an expert on force-feeding in foie gras production: “The food given to palmipeds [waterfowl] does not cover the physiological needs of this species. It is an unbalanced diet,
designed to artificially cause hepatic lipidosis.” Beck explains that if the feed were given under natural
conditions, the birds would refuse it, and that the birds could not survive on this diet alone due to the
deficiencies that it would lead to in the long term.17

A chemical analysis of the corn mash used at Hudson Valley Foie Gras in New York established the feed did not
meet the nutrient requirements of ducks, being “too low in protein and too high in trace minerals.”18,19 Ducks
reportedly removed from a foie gras farm in California who were presented to a veterinarian for inspection were
extremely ill and showed signs of malnutrition.20

After the birds’ livers have expanded significantly, the animals are slaughtered and the livers are removed and
processed.1

Liver Disease

The purpose of pre-force-feeding, where access to food is increased to reach higher than normal ad libitum
consumption, is in part to cause the “onset of liver steatosis” or fatty degeneration—a pathological condition
characterized by the presence of abnormally large quantities of fat within cells. The concentration of fat gives
foie gras its distinctive taste. The liver of a healthy duck or goose is approximately 5% fat, while the liver of a
force-fed bird is about 50-60% fat.21-23

Force-feeding causes a rapid increase in the size of birds’ livers. Estimates of this change in size vary between
six and greater than ten times its original, healthy weight.11,23,24 The process changes the biochemical
composition of the organ and results in impaired hepatic function.25,26

From the SCAHAW report:

> The most obvious change [resulting from force-feeding] is the increase in the number of large fat
globules visible in the cells. A limited increase in the presence of fat globules in liver can occur in
normal liver in certain conditions but no normal animal has steatosis of the liver to the extent which
occurs in all force fed birds. During the force feeding period, liver function is impaired.27

In a sworn affidavit before the New York State Department of Agriculture and Markets, Bruce Feldmann
described the liver disease of three ducks he examined who were reportedly taken from a California foie gras
farm: “[T]hese animals suffered from various diseases, including hepatic lipidosis and possibly hepatic
encephalopathy, which were brought on directly by the force feeding process they were subjected to.”20

When functioning normally, the liver processes fats and filters toxins.28 Hepatic encephalopathy is damage to
the brain caused by toxins in the blood that are not filtered as they would normally be by a healthy liver.29

Ian Duncan, Emeritus Chair in Animal Welfare at the University of Guelph, states: “Force feeding quickly
results in birds that are obese and in a pathological state, called hepatic lipidosis or fatty liver disease. There is
no doubt, that in this pathological state, the birds will feel very ill.”30

In surveys cited in the SCAHAW report, 25 pathologists from various countries were asked their opinions of the
condition of force-fed livers. Most stated the condition of foie gras livers was pathological. SCAHAW stated
that “because normal liver function is seriously impaired in birds with the hypertrophied liver which occurs at
the end of force feeding this level of steatosis should be considered pathological.”31

Defenders of foie gras production sometimes argue force-feeding replicates a natural behavior of wildfowl
before migration:1 Ducks and geese increase their food intake in order to produce fat to fuel their long flights.
However, wild ducks and geese go through a very specific set of annual physiological adaptations triggered by
changes in day length in order to adjust for increased fat metabolism at this time. Even if they were to be
physiologically prepared for migration during the force-feeding period, birds do not eat larger-than-normal
meals as they assimilate energy reserves for migratory flights; rather, they eat many small meals throughout the
day. Further, the Muscovy duck, from whom most ducks raised for foie gras are derived, does not migrate. SCAHAW concludes: “Hence, whilst the domestic goose might well be adapted to store food before migration, it is less likely that a cross between the domestic duck and the Muscovy duck, the Mulard, has such a potential for food.”

Moreover, normally, fat is not stored in the liver but synthesized in the organ and then stored in adipose tissue and muscles. The livers of migrating birds never more than double in size. Force-feeding is therefore not analogous to the behavioral and physiological process in which pre-migratory birds engage.

**Fear**

Behavioral evidence suggests that force-feeding causes fear. Ducks show signs of aversion to force-feeding and may not voluntarily enter a feeding pen. One study, for example, compared responses of force-fed and non-force-fed ducks to a feeding pen. In general, the non-force-fed ducks went from the home pen into the feeding pen willingly. In contrast, the force-fed ducks had to be driven out of the home pen. SCAHAW concludes: “Since the feeding pen was attractive to the birds which were not force-fed, the results indicate that the force feeding pen was not attractive to the force fed ducks and that the procedure might involve an aversive component.”

**Injuries**

A variety of injuries can occur during force-feeding: injury from handling caused by the tubing of the force-feeding funnel; trauma caused by injecting high-temperature corn mash; inflammation of the neck resulting from too forcible an introduction of the pipe to the throat; bruising or perforation of the esophagus when the pipe is inserted; or asphyxia caused by food improperly forced into the trachea.

Duncan explains: “[T]he regular insertion of a feeding tube down the esophagus several times a day will inevitably lead to damage of the esophagus. When the esophagus becomes damaged, then the painfulness of every force feeding episode will be exacerbated.”

In a declaration submitted to the San Joaquin County District Attorney, Laurie Siperstein-Cook states: “It has been shown on necropsy that the esophagus of force-fed ducks exhibit scarring from the repeated trauma from the wide metal tubes that are pushed down the esophagus during the force-feeding process. Rough handling by the workers doing the force-feeding would exacerbate this trauma to the mucosal surface of the esophagus.”

SCAHAW reports:

Most injuries caused by tissue damage during handling or tube insertion would result in pain. The oropharyngeal area is particularly sensitive and is physiologically adapted to perform a gag reflex in order to prevent fluids entering the trachea. Force feeding will have to overcome this reflex and hence the birds may initially find this distressing and injury may result.

The working group was informed that ducks at the end of the force feeding period can have serious injuries to the oesophagus or, more usually, having clear evidence of tissue damage in the oesophagus. It seems likely that birds have sufficient damage to oesophagus tissue, caused by the force feeding process to have been painful to the birds.

Ducks used in foie gras production are prone to broken bones. The SCAHAW report states: “Different lesions can be observed on carcasses. The most frequent are bone fractures. They occur on wing bones, mainly the humerus.” The report continues by explaining that the prevalence of bone fractures due to handling at slaughter for Mulard ducks is between 30-70%. Scientists postulate that the problem of broken bones could be
due to changes in homeostasis caused by force-feeding of an abnormal diet, which could affect metabolism of calcium and phosphate and subject birds to osteopathy, “making their bones more fragile or even more painful.”

Greg Harrison, Diplomate of the American Board of Veterinary Practitioners and the European College of Avian Medicine and Surgery agrees: “The lack of sufficient protein, vitamins and minerals (calcium) leads the young birds’ rapidly growing bones to be structurally flawed (osteodystrophy). This leads to bending and breaking (rickets).”

**Lameness**

Some force-fed birds are unable to stand. SCAHAW found that force-fed birds with “expanded livers had difficulty in standing and their natural gait and ability to walk were severely impaired.” This is assumed to be because of the gross changes in body anatomy caused by the force-feeding. The great expansion of the liver seems to force the birds’ legs out to the side, placing undue stresses on the birds’ leg joints.

Feldmann examined two ducks reportedly from the California foie gras operation and noted: “The legs of both ducks also appeared swollen, and the bottoms of the feet were encrusted with ulcerated calluses. It appeared that the act of walking (or attempted walking) caused the ducks considerable pain, and they therefore avoided it when possible.”

Siperstein-Cook also found foot and leg disorders and declared that ducks kept on wire surfaces “will develop foot sores that lead to the infection called bumblefoot. This is a painful condition that can progress into the joint of the foot causing pain and difficulty walking.” Bumblefoot has also been found in ducks reportedly from New York foie gras operations.

Bone and skin disorders linked to the nutritional deficiencies in the diet of force-fed birds may exacerbate the problem. Harrison explains:

[Nutritional] imbalances also lead to a skin disorder known as hyperkeratosis (thinning, flaking, excess callus formation, slow healing). The bone pain combines with the lethargy from the toxins and leads to further immobilization of the bird. This lack of exercise leads to poor circulation in the feet. These factors combine with the hyperkeratosis to allow ulcers to form on the bottom of the feet. These become infected, red and swollen. Pain and bacterial toxins further complicate the situation.

**Other Diseases**

Force-fed birds suffer from a variety of diseases. One poultry handbook states:

Force-fed animals are fragile animals, and the accidents or illnesses during the course of this operation are many and varied: anoxemia, due to insufficient aeration; toxemia, which is an intoxication of the blood; cirrhosis of the liver; candidosis, which is provoked by a yeast which profits from esophageal inflammations (due to the feeding tube, for example); feeding tube injuries, caused by clumsiness, which can go as far as the bursting of the crop; “blue thigh”, due to internal muscular hemorrhages provoked by a deficiency in vitamin K and poor manipulation of the animals.

A guide to diseases of waterfowl notes: “The digestive pathology of the goose and the duck in the midst of force-feeding contains distinct causes linked to the operation of force-feeding, to latent parasitism and to bacterial or fungal infections.” Diseases suffered by force-fed ducks and geese include “[i]njuries; bowel obstruction; indigestion; typanism; parasitism; amidostimosis; epomidiostimosis; spirurosis; enteritis; intestinal indigestion; fibrosis of the liver; hypoglycemic coma; bronchial obstruction.”
In the section on enterotoxemias, the guide notes: “The determining causes are of nutritional origin. The excess of starch creates a diminishing intestinal pH; it results in an unbalanced microbial intestinal flora favoring the implantation and multiplication of toxin producing germs; clostridia, colibacillus, salmonella....”

Conditions that are rare in healthy birds can become common in force-fed birds: “Mycosis of the digestive tract, caused by Candida albicans, can occur frequently in some classes of poultry but not in geese. An exception is force-fed birds, where inflammation of the esophagus may be caused by the insertion of the corn dispenser. This inflammation can then provide a port of entry for Candida albicans.” In one study, candidosis was observed in up to 6% of birds. The necropsy of a duck apparently taken from the foie gras farm in California revealed lesions in the esophagus where bacteria and yeast had proliferated.

Thermoregulatory and respiratory disorders are also common. After force-feeding, ducks pant intensely to vent the excess heat generated by their forced over-consumption of grain: “The problem of thermoregulation which translates into the increase in the open beak frequency is therefore directly linked to force-feeding.” When ducks are kept in individual cages, in which they cannot spread their wings, they are prevented from cooling themselves and consequently pant more and consume more water during the force-feeding period. Some ducks allegedly from New York’s Hudson Valley Foie Gras died of aspiration pneumonia, a painful condition resulting from food being pushed into the birds' lungs during the force-feeding process. Necropsy reports also showed that other ducks alleged to be from the same facility were severely congested, demonstrated signs of bronchiolitis and aspiration pneumonia, and had food material in their lungs.

Veterinary inspection of force-fed ducks reportedly from a California foie gras farm revealed signs of infection, neurologic damage, and impaction of the crop and esophagus with undigested food.

SCAHAW notes the “effects of force feeding are lethal when the procedures are continued” and found that “[t]he mortality rate in force fed birds varies from 2% to 4% in the two week force feeding period compared with around 0.2% in non force fed ducks.”

**Housing**

In addition to the serious health issues resulting from force-feeding, birds raised for foie gras production also suffer as a result of their confinement on typical foie gras facilities. Ducks and geese are web-footed birds who primarily live in water. In nature, they are social animals and spend much of their time foraging and maintaining their plumage by bathing and preening. In foie gras production, however, the birds are housed at high densities and prevented from engaging in natural behaviors.

Both pen and cage systems provide only 900-2,500 cm² (1.0-2.7 ft²) per duck or 3,300 cm² (3.6 ft²) per goose. A group cage holds four to five ducks or three geese. The walls and floor are made of wire mesh, and the front is composed of metal bars, allowing access to a water trough placed outside the cage. It has no roof and the birds are restrained one at a time for force-feeding. A group pen holds 12 to 15 ducks or 9 geese, and has wire mesh walls and slatted floors. Water is available from a trough placed inside the pen.

Birds raised for foie gras are unable to forage for food and are denied water in which to swim and clean their plumage. The absence of opportunities to engage in these instinctual behaviors is likely to cause frustration and stress. Waterfowl are strongly motivated to bathe in water. In an experiment designed to assess their level of motivation, ducks lifted heavily weighted doors in order to gain access to a pen with bathing water. They performed this behavior at least as often as they lifted the weights in order to access a pen with food, suggesting that the internal drive to swim is as strong as the drive to eat.

On some farms, birds are housed in near darkness, in an attempt to keep them calm. Sonoma Foie Gras in California reportedly keeps its birds in darkened sheds for the two-week force-feeding period. Darkness likely impairs normal exploratory behaviors and physical exercise.
Conclusion

Expert opinions and an extensive scientific literature have found that force-feeding ducks and geese for foie gras production causes significant welfare issues, including disease, injury, and increased mortality. Animal welfare scientist Christine Nicol, Professor of Animal Welfare at the School of Veterinary Science at the University of Bristol, states: “My view on the production of foie gras is clear and supported by biological evidence. This practice causes unacceptable suffering to these animals... It causes pain during and as a consequence of the force feeding, feelings of malaise as the body struggles to cope with extreme nutrient imbalance, and distress due to the forceful handling. The most extreme distress is caused by loss of control of the birds’ most basic homeostatic regulation mechanism as their hunger control system is over-ridden.”

From the SCAHAW review:

The Scientific Committee on Animal Health and Animal Welfare concludes that force-feeding, as currently practised, is detrimental to the welfare of the birds...[T]he management and housing of the birds used for producing foie gras have a negative impact on their welfare. It should be noted that these are the only farm animal that are force fed and in some countries this procedure is prohibited.

After a comprehensive two-year study, the independent Pew Commission on Industrial Farm Animal Production, a project of The Pew Charitable Trusts and the Johns Hopkins Bloomberg School of Public Health chaired by former Kansas Governor John Carlin and including former U.S. Agriculture Secretary Dan Glickman, came to the conclusion that the practice of force-feeding birds to make foie gras should be ended.

Opinion leaders and the public have reflected these scientific findings. During an interview, Pope Benedict XVI (then Cardinal Joseph Ratzinger) said: “Certainly, a sort of industrial use of creatures, so that geese are fed in such a way as to produce as large a liver as possible, or hens live so packed together that they become just caricatures of birds, this degrading of living creatures to a commodity seems to me in fact to contradict the relationship of mutuality that comes across in the Bible.” Social conservative, author, commentator, and political figure Patrick Buchanan said on The McLaughlin Group, “Look, on the foie gras, I think this is manifest cruelty to animals, it seems to me. And it is a brutal thing. And I think I would certainly ban that type of thing being done in this country.”

A 2004 Zogby poll reportedly found that 77% of U.S. adults believe the process of force-feeding ducks and geese to produce foie gras should be banned. This reaction has been translated into policy. In 2004, the California legislature banned the production and sale of force-fed pâté de foie gras in the state on animal welfare grounds. Though later repealed, the city of Chicago banned the sale of foie gras in restaurants and groceries in 2006. Production has also been banned in more than a dozen countries, where force-feeding has been deemed a violation of national animal welfare laws. These countries include Argentina, Denmark, Finland, Germany, Israel, Italy, Norway, Poland, and the United Kingdom.

Reference List


17. Croft P. 2006. Sworn affidavit by Bruce Croft, DVM, before the New York State Department of Agriculture and Markets (Albany, NY, April 8).


49. Schlafer DH. 2005. Necropsy report by Donald Schlafer, DVM, of Cornell University College of Veterinary Medicine, Veterinary Medical Teaching Hospital (Ithaca, NY, October 4).
60. Letter dated February 3, 2004, from C. Nicol to Lauren Ornelas, Viva USA, opposing foie gras production methods.

The Humane Society of the United States is the nation's largest animal protection organization—backed by 10 million Americans, or one of every 30. For more than a half-century, The HSUS has been fighting for the protection of all animals through advocacy, education, and hands-on programs. Celebrating animals and confronting cruelty. On the Web at humanesociety.org.