

Balut

Description

Balut is a popular food commonly sold by street vendors in the Philippines and Vietnam (where it is called *hot vit lon*). It consists of a fertilized duck egg that has been incubated for approximately 18 days; a period of time which results in the formation of a partially developed embryo within the shell. Balut is eaten directly from the shell after being hard-boiled or steamed. It is also common in other Southeast Asian countries such as China, Laos, Cambodia, Thailand, Malaysia, and Indonesia. Balut is a relatively inexpensive source of protein and calcium, and is considered by some to be an aphrodisiac for men. Locally, balut is sold uncooked at many Asian grocery stores.



Embryo and yolk of a cooked balut

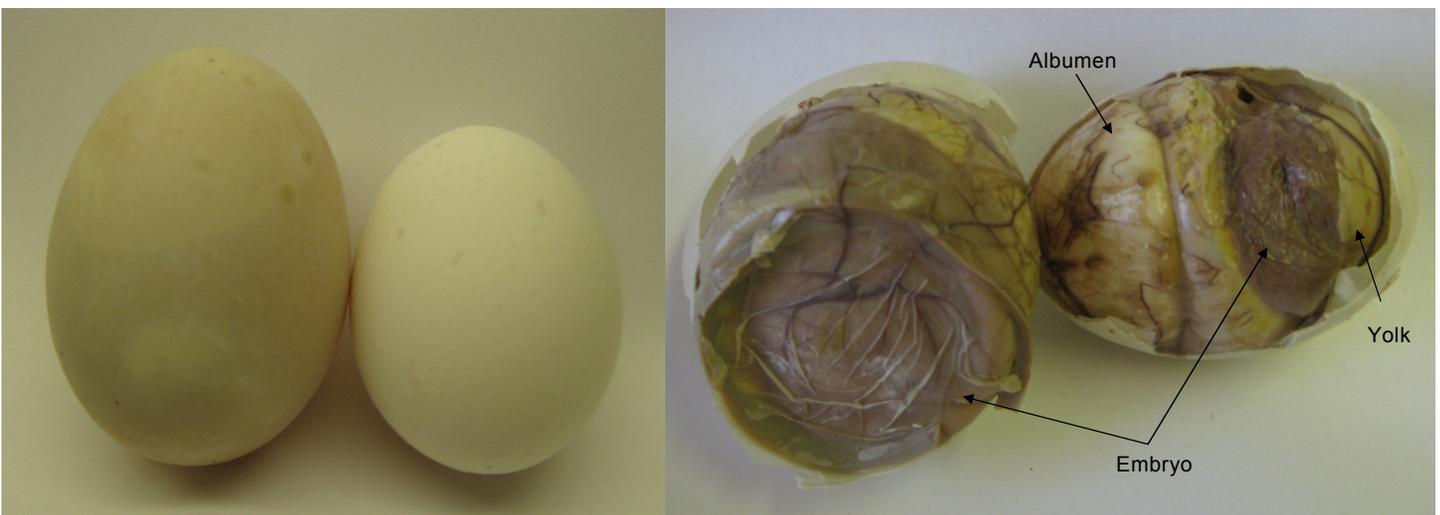
How balut is produced

To produce balut, fertilized duck eggs are incubated at 40-42.5°C in incubators with a relatively high humidity. These conditions allow for the development of the embryo until the eggs are removed at 18 days; a period of time which results in the formation of a partially developed embryo. Complete development and hatching of duck eggs typically occur at 28 days. Throughout the incubation period, the eggs are candled to monitor the growth and development of the embryos; infertile eggs or those containing a non-viable embryo are removed.

Although balut is typically made from duck eggs, chicken eggs can also be used. Where chicken eggs are used, fertile eggs are incubated at 37°C for approximately 14 days. Complete development and hatching of chicken eggs typically occur at 21 days.

Appearance

Duck eggs sold as balut are off-white in colour and larger than chicken eggs. Duck balut has four parts: the liquid (or soup), the embryo, the yolk, and the albumen (egg white). The embryo may be recognizable as a chick with a head, eyes, beak, and feathers.



Left photo: Side-by-side comparison of a balut egg (left) and a large-size chicken egg (right).
Right photo: Interior of two cooked baluts.

How balut is eaten

Locally, balut is sold uncooked at local Asian grocery stores. Balut is prepared by boiling or steaming for approximately 20 to 30 minutes, until hard-cooked. Balut is eaten immediately after cooking as a snack or as part of a meal. After the top of the eggshell is peeled away and the membrane is broken through, the liquid inside the egg is sipped from the shell. The balut is then eaten straight out of the shell with accompaniments such as herbs and seasoning. The entire content of the egg can be eaten, although the albumen is often considered too hard and tough to eat. Filipinos typically eat balut with salt, vinegar or soy sauce, and Vietnamese people typically eat balut with salt, pepper, and Vietnamese coriander.

Potential food safety risks

According to the 2009 *Food Code* published by the United States Food and Drug Administration (FDA), the temperature and humidity inside balut incubators are conducive to the potential growth of *Salmonella* organisms such as *S. Enteritidis* within the shell and an increase in pathogenic organisms outside of the shell. *Salmonella spp.* can be transmitted from the ova or oviduct of an infected hen to the interior contents of the egg through transovarial contamination. Pathogenic organisms on the outer shell surface may result from fecal contamination during egg laying.

Associated outbreaks

Based on a review of the literature, there have been no documented cases of foodborne illness attributed to the consumption of balut.

Food safety legislation

- According to the Canadian Food Inspection Agency, balut eggs are not subject to the *Egg Regulations* of the *Canadian Agricultural Products Act*; a set of federal regulations respecting the grading, packing, marking and inspection of eggs and international and interprovincial trade in eggs.
- Balut is not specifically addressed in Regulation 562 (Food Premises) made under the *Health Protection and Promotion Act*. However, balut meets the definition of a “hazardous food” as defined in Subsection 1(1) “any food that is capable of supporting the growth of pathogenic organisms or the production of the toxins of such organisms”, and is thus subject to subsection 33(2) that states that “a hazardous food shall be distributed, maintained, stored, transported, displayed, sold and offered for sale only under conditions in which the internal temperature of the food is, (a) 4 degrees Celsius, or lower; or (b) 60 degrees Celsius, or higher.”

Safe food handling of balut

Food safety guidelines for balut are contained in the 2009 FDA *Food Code*:

- Annex 3, 1-201.10(B) states that balut is a “potentially hazardous food” subject to time/temperature control for safety, including proper cooking and hot and cold holding.
- Subparagraph 3-401.11(A)(3) states that balut should be cooked to 74°C (165°F) or above for 15 seconds.
- Subparagraph 3-501.16(A) states that apart from during preparation, cooking, cooling, or when time is used as the public health control, potentially hazardous food should be maintained at 57°C (135°F) or above, or at 5°C (41°F) or less.



Individual baluts offered for sale at a local Asian market