Introduction

The definition of meat has evolved over time. In the King James Version of the Bible, meat was used to refer to food in general (John 4:8, Romans 14:7, and Mathew 3:4). Items required for the fulfillment of the law of the ceremonial meat offering were flour, oil, and frankincense (Leviticus 6:14–23). Currently, meat is defined as the flesh of animals used for food (Lawrie and Ledward, 2006). In practice, the definition is restricted to several dozens of the 3,000 mammalian species often widened to include the musculature organs such as the liver, kidney, brain, and other edible tissues (Lawrie and Ledward, 2006). Additionally, the American Meat Science Association has defined meat as skeletal muscle and its associated tissue (including nerves, connective tissue, blood vessels, skin, fat and bones) and edible offal derived from mammals, avian, and aquatic species deemed as safe and suitable for human consumption. Inevitably, the latter clarifies the definition by widening the range of tissues useful as meat.

Ghana is located on the West Coast of Africa 10° north of the equator with a population of 25 million people as of the last census in 2012 and more than 40 languages and 75 different dialects. Ethnic groups in Ghana comprise the Akan (47.5%), Mole-Dagbon (16.6%), Ewe (13.9%), Ga-Dangme (7.4%), Gurma (5.7%), Guan (3.7%), Grusi (2.5%), Mande-Busanga (1.1%), and other (1.6%) and are sharply distinguished by distinctly different languages (Ghana Statistical Services, 2012). The Akan languages (Twi, Asante, and Fante) are the most commonly spoken. The of-
ficial language is English (http://www.statsghana.gov.gh/docfiles/2010phc/Census2010_Summary_report_of_final_results.pdf). It must be noted that dialects are often used to distinguish subgroups within ethnicities.

Methodology

Multiple focus groups (Gill et al., 2008) were used to assemble collective views on the definition of meat and to understand participants’ experiences and beliefs in relation to the concept of meat. Four focus groups consisted of academics (8), university students (13), health workers (6), and regulators (4), and the composition of each group spanned different religious backgrounds (Moslem, Christian, and traditionalists) representing nine ethnic subgroups with a range of educational backgrounds (college to advance degrees) as well as age (18–72 yr). Participants were asked to: a) provide examples of meats, b) justify why the listed examples qualify as meat, and c) select key words that will define the term meat. Discussions were moderated, and notes were taken during discussions. The moderator allowed questions to be asked for clarification and to document differences among ethnic groups.

The Ghanaian Concept of Meat

As diverse as the groups were, the concept of meat and the use of the term did not vary across any of the identifiable demographic groups. However, it appeared that, in practice, choice of species was influenced by cultural beliefs. Some ethnic groups did not utilize some mammalian species such as dogs, some rodents (bush rat), or bats as meat sources. For example, most ethnic groups in the northern part of Ghana use dogs as meat sources while most groups in the mid to southern part do not. Interestingly, the converse is true for snails. Furthermore, while the bush rat is a delicacy among the Asante ethnic group, it is shunned among Akuapem ethnicity.

Additionally, some bat species are used extensively as meat sources among the Kwahu ethnicity. The basis of such distinctions is not clear although they may have been shaped by historical events such as a disease outbreak as a result of previous use by ancestors. Additionally, availability/non-availability of a meat source due to geographical conditions/limitations may have influenced such differences. For example, unlike the forest region of the south, vegetation in the northern part of Ghana is classified as guinea savannah with annual rainfall of 1100–2100 mm with an extended dry period between October to April. Snails do not naturally thrive under such conditions, and it is not very clear if the absence of snails, geographically, underscores their non-use by ethnic groups of the northern region. However, regardless of such differences, these species are regarded as sources of meat because of their utilization among other groups.

Two criteria strongly emphasized during discussions of the definition of meat across the groups were “red blood,” implying erythrocytes/hemoglobin and/or myoglobin-associated tissues, and the presence of bone (endoskeleton) for muscle attachment. Such criteria are characteristically shared by vertebrates—a major taxonomic group that includes mammals, birds, reptiles, amphibians, and fishes. Thus, in the Ghanaian sense, a “true meat” species should possess red blood and an endoskeletal structure.

Classification of Meats

A wide diversity of vertebrate species are used as meat sources, and orders (hierarchy) of linguistic classification of meats often used are:

a. Home-grown meat: covers all domesticated animals such as livestock, poultry, and often household pets (dogs and cats).

b. Bush meat: defined as meat derived from wild animals (Bair-Brake et al., 2014) or a term that refers to the use of wild animals, ranging from cane rats to gorillas, for food (Karesh and Noble, 2009). It encompasses a wide diversity of undomesticated mammalian species including bats (Kamins et al., 2011; Kamins et al., 2015) and reptilian species such as snakes, monitor lizards and crocodiles (Magnino et al., 2009), and avian species.

c. Water-body-associated meats: refers mainly to fishes, excluding invertebrates such as crustaceans and mollusks.

Almost all languages/dialects spoken in Ghana permit the use of the source/vertebrate organism to clarify the type of meat. For example, it is...
normal to say cow meat, goat meat, and/or bush meat. However, one cannot say “crab meat” or “snail meat” in normal discussion. Interestingly, the two criteria (red blood and bones) are apparently absent for all invertebrate protein sources, and coincidentally, species names are not appended for any form of clarification as in the case of vertebrates. Unlike the vertebrate-derived meats, ethnic groups in Ghana do not associate meat to any invertebrate sources such as mollusks (snails, bivalves, and squids), crustaceans (crabs, prawns, and shrimps), and insects (palm weevil larvae and termites in nuptial flight).

Blood was convincingly associated with the color “red,” and the concept of invertebrate blood, hemocyanin and hemerythrin responsible for oxygen transport and conferring immunity (Zheng et al., 2016; Coates and Decker, 2017), was a surprise to the focus groups. Most believed that invertebrates simply did not have “blood.” Additionally, exoskeletal structures as observed in most invertebrates were strictly not considered as bones.

‘Lesser Meat’ or ‘Supplemental Meat’ Concept

There appears to be a discrentional stance within all ethnicities that portrays invertebrate protein sources as “lesser” or “supplemental” to actual/true meats. An adage in Akan, the most widely spoken language, discourages and almost admonishes considering crabs when meats are mentioned. Additionally, Ghanaian traditional cooking has evolved in a way that frowns on the use of a singular invertebrate protein source solely in meal preparation. Rather, such invertebrate species will be expected to be combined with other meat sources, particularly a vertebrate. Generally, invertebrate sources of meat such as mollusks, insects, and crustaceans are not slaughtered (bled) but traded alive. It was not clear if that bolsters the rationale to shy away from referring to them as meat. Although used as meats in soups, stews, and sauces, rarely are invertebrate protein sources referred to as meat. It is noteworthy that such invertebrate-derived sources do not possess red blood cells and an endoskeleton; the two strongest criteria emphasized during discussions on defining meat in the Ghanaian sense. By the same token, bone and offal are not spoken of as meat although heavily utilized in the realm of the “supplemental meat” concept.

In the Ghanaian sense, meat refers to tissues associated with endoskeletal structures of vertebrate animals. However, in regard to consumption, the scope is widened to include invertebrate sources, brain tissue, offal, and bone mostly considered as “lesser” or “supplemental” meats.

Conclusion

Meat in Ghana may be defined as vertebrate tissues including muscle, fat, skin, and connective tissue used as food not excluding brain tissue, bone, offal, crustaceans, mollusks, insects, and the influence of ethnicity in the choice of animal species. The definition does not emphasize safety during handling and processing. Meat safety devolves to cooking, which has evolved to utilize extended periods of time.

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