

# **C**ONTRIBUTION OF GAME MEAT IN REDUCING ANIMAL PROTEIN DEFICIENCY IN NIGERIA: A REVIEW

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## **ABSTRACT**

**W**ith escalating demand for animal protein and the high prices associated with such products, many people have become increasingly reliant on the harvest of local wildlife species as animal protein sources. Although humans have hunted wildlife for over 100,000 years, consumption has not increased considerably until recently. Game meat is a known delicacy in many parts of the world including Nigeria. It provides an important source of meat in both rural and urban household diets. It constitutes about 16-20% (North) and more than 80% (South) of total animal protein consumed in Nigeria and up to 90% for most rural West Africans humid regions. Indeed, many Nigerians cannot forget in a hurry its delicious aroma and taste in their native soups. It is usually obtained from free-range animals that grow in the wild. As they grow in natural environments, meat from game animals are usually rich in

## **Introduction:**

When people talk about eating meat, the images that typically come to mind are beef, turkey, chicken, lamb and their likes, forgetting meats from other sources such as game (bush) meat (Patrice, 2005). Game meat is from non-domesticated, free-ranging and farm-raised wild animals and birds that are hunted for personal consumption or reared, slaughtered, and commercially sold for food. One of the greatest challenges facing the human race today is how to feed an ever-increasing population while simultaneously ensuring the sustainable use and

*vitamins and minerals and free from growth hormones, which is the norm in domestic meat and poultry products. They are also low in calories when compared to beef and chicken. Game meat is high in eicosapentaenoic acid, an essential Omega-3 fatty acid that has several cardiovascular benefits. Carcasses of domesticated animals have 25 to 36% fat while the average for wild game animals is 4.3%. Fat from wild game contains a much higher proportion of polyunsaturated fatty acids (good fat) and is low in saturated fat (bad fat). Some game meats are higher in dietary cholesterol than domestic meats, but the combination of more lean body tissues, less saturated fat and significantly higher percentage of cholesterol-reducing polyunsaturated fatty acids makes it a heart-healthy choice. Due to their wild nature, wild animals' meat is truly a natural product free from any residual chemicals. However, as nutritious and tasty as it may be, they can be a likely source of infectious diseases including the deadly Ebola viral disease.*

**Keywords:** *Game meat, Bush meat, Wild life, Ebola*

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**C**onservation of the world's natural resources and biodiversity (Cooper, 1995). It is currently estimated that more than 925 million people across the globe (>13.6%) are chronically undernourished and their severe deficiencies in both protein and energy typically manifest as syndromes such as kwashiorkor and marasmus. It is well established that most of the land available for livestock production has already been exploited, and with the exception of forest clearing (such as in the rain forests), there is little potential for future expansion (Hoffman, 2008). As a result, domestic animal species, on which very high hopes have been placed hitherto; have continued to fail in meeting existing demands for meat, let alone to maintain pace with human population growth. With escalating demand for animal protein and the high prices associated with such products, it has been inevitable that the inhabitants of many regions of the world have become increasingly reliant on the harvest of local wildlife species as source of meat (Redhead and Boelen, 1990; Ntiamao-Baidu, 1997). It has been and still is a major food item (contributing from 20 to 90% of the total animal protein consumed) for most rural West Africans of the humid regions (Ajayi *et al.*, 1974). Meat obtained from the

wild constitutes about 16% of total animal protein consumed in Nigeria (FAO, 2011). Although humans have hunted wildlife for over 100,000 years, consumption has increased considerably over the past few decades (Milner-Gullard and Bennett, 2003). Shortages in supply and costs associated with animal and poultry products are the main problems leading to the persistent protein malnutrition in many parts of the world. Animal protein is one of the most important components of human meals and its consumption varies from country to country. The average per capita annual intake of meat stands at 87kg in developed countries while in the developing countries is 31.6kg (Abubakar and Burra, 2013). It is recommended that a minimum protein intake per caput per day of 70g should be provided to Nigerians with protein of animal origin contributing up to 35g or 50% of the total. In many of the developing countries, the meat consumption is less than 10kg (Abubakar, *et al.*, 2011). Wild game provides an important source of meat in both rural and urban household diets. Failure of the domestic animals to meet the protein demand made it necessary for people to turn attention to the existing alternatives (bush meat). The aim of this review was to evaluate the contribution of game (bush) meat in addressing protein malnutrition and to highlight some of the health benefits on using game meats.

## REVIEW OF LITERATURE

**Table 1: Nutritional content of wild game meats vs domesticated meats**

Specie	Protein%	Fat%	Cholesterol (Mg/100g)	Calories (Kcal/100g)
Antelope	22.5	9	112	144
Beef	22.0	6.5	72	180
Buffalo (Bison)	21.7	1.9	62	138
Chicken	23.6	7	62	135
Duck (Domestic)	19.9	4.25	89	180
Turkey (Domestic)	23.5	1.5	60	148
Turkey (Wild)	25.7	1.1	55	163
Lamb	20.8	5.7	66	167
Squirrel	21.4	3.2	83	149
Moose	22.1	0.5	71	130

Source: GunnersDen.com, (2014)

**Table 2: Proximate composition and pH of Beef, Zebra, Kongoni and Oryx meats**

Sample	Portion	Moisture (%)	CP (%)	EE (%)	Ash (%)	pH
Beef	Loin	77.5	19.4	0.4	1.1	5.5
	Leg	77.2	19.4	0.4	1.1	5.6
Zebra	Loin	75.2	22.8	0.3	1.5	5.7
	Leg	74.8	24.2	0.3	1.1	5.8
Kongoni	Loin	73.4	22.4	1.8	1.2	5.7
	Leg	78.0	19.8	1.0	1.0	5.6
Oryx	Loin	76.6	20.3	0.2	1.1	5.6
	Leg	75.9	20.2	0.3	1.0	5.6

Source: Hoffman and Wiklund (2006)

**Table 3: Proximate composition of whole Guinea pig and Pigeon on dry matter basis**

Guinea pig	Pigeon	Squab	Content (%)		Skinned Roasted	
DM	28.13	31.70	29.13	35.81		
CP	48.78	42.66	46.10	38.41		
EE	17.89	15.68	15.06	48.19		
CF	02.27	02.59	02.78	02.24		
Ash	12.75	16.04	16.32	08.63		
NFE	18.31	23.03	19.74	02.54		
Cholesterol (mg/100g)	62.40		56.00	71.20	55.40	

Source: Hoffman *et al.* (2003)

**Table 4: Carcass characteristics of giant rat**

Parameters	Minimum	Maximum	Mean	CV
Weight (g)	600	1000	766.66	0.22
Bled weight (g)	550	970	696.67	0.28
Blood loss (%)	3	21	9.67	0.83
Warm carcass weight (g)	369.5	757.7	499.93	0.36
Dressing %	52.79	78.1	64.33	0.16

Source: Muhammad and Ibrahim (2006)

## CONCLUSION

A variety of different wildlife species inevitably remain the cheap source of quality protein for many population groups, particularly in the developing world, and as such contribute substantially to food security in these regions. When traded, these resources can further provide revenue where few alternative sources of income exist. In addition, wild animals can also serve as important contributors to national economy through tourism like in Kenya, Tanzania and South Africa and also the sale of wild animal products (Charter, 2004). Game meat has greater health benefits, including being low in fat, cholesterol and kilojoules (Hoffman *et al.*, 2003).

## RECOMMENDATION

Game meat is recommended for its numerous health benefits.

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