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Review article

Native American foods: History, culture, and influence on modern diets

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ABSTRACT

Approximately 12,000–15,000 years ago people from northeast Asia crossed the Bering Land Bridge to enter and inhabit North America beginning in Alaska but rapidly spreading throughout North and South American and the Caribbean islands. These people rapidly adapted to the available food sources and soon developed new foods. It is estimated that about 60% of the current world food supply originated in North America. When Europeans arrived, the Native Americans had already developed new varieties of corn, beans, and squashes and had an abundant supply of nutritious food. The foods of the Native Americans are widely consumed and their culinary skills still enrich the diets of nearly all people of the world today. This article provides only a small sampling of the rich and highly varied Native American food culture that has been passed down to modern civilization.

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1. Introduction

When Christopher Columbus first sailed into the Bahama archipelago he believed that he had reached Asia—thus the name *Indian* for the Native Americans. However, it soon became clear that he had entered a *New World* previously unknown to Europeans with unfamiliar new people, flora, and fauna. Probably the greatest impact on *Old World* culture was the rapid introduction of *New World* ornamental and food plants. Soon orchids from the tropical rainforests of Central and South America were highly sought after additions to the greenhouse collections of wealthy Europeans. Christopher Columbus had sailed to the Caribbean region in search of a route for obtaining spices [1]. However, what he found was not the cinnamon and cloves he sought, but Jamaican allspice [2,3], the dried unripe berries of *Pimenta dulce*, and chili and other peppers of the genus *Capsicum*. It was not long until the new foods from the Americas were introduced around the world and corn, potatoes, new varieties of beans and squashes, peppers and tomatoes, and many other foods were rapidly accepted into the cuisines of the entire world (Table 1) [2–16]. Now, approximately 60% of the food

consumed worldwide originated from the *New World* [17]. However, the introduction of food from Europe and Asia also changed the diets of the Native American people. Today, few if any of the descendants of the early Native American tribes eat diets that closely resemble those of their ancestors, although many indigenous foods are still eaten and Native American foods have been incorporated into the cuisines of almost the entire world. Here we describe the diets and dietary culture of the indigenous North American inhabitants, and discuss the nutritional quality of those diets and the contributions they make to the diets of all people.

2. The origins of Native Americans and their food

It is commonly believed that the first Native Americans crossed from the *Old World* into the *New World* across the Bering Land Bridge that joined Siberia to Alaska at least 15,000 years ago [18], but disappeared shortly thereafter. Although the passage of time renders it impossible to know for certain how, when, or why the Asian ancestors of the Native Americans first appeared in North America, it seems apparent that they either brought no animal or plant foods with them, or that none survived. By the time Christopher Columbus first entered the New World, the Native Americans were relying on foods that were indigenous to the region, although many had been improved by hybridization or selection.

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Table 1
Common foods that Originated in the Americas.*

Name of food [Ref.]	Region of origin	How prepared	Major nutrients provided
Vegetables			
Casava [1]	Brazil	Cooked vegetable or bread	Carbohydrate
Chili & bell peppers	Central America	Cooked, raw, or seasoning	Vitamin C, flavonoids
Jerusalem Artichoke	North America	Raw or cooked	Probiotic fiber, minerals, B vitamins
Lima Beans	South America	Cooked	Protein, B vitamins, minerals
Pole Beans: black turtle, pinto, navy, kidney, & cranberry beans	Probably originated in South America but possibly North & South America	Cooked & used in breads	Protein, minerals, B vitamins, fiber
Potatoes [6]	Peru	Cooked & baked	Carbohydrate, potassium
Pumpkin	North America	Cooked	Vitamins A & C
Squash varieties	North America	Cooked	Variable
Sweet Potatoes [7]	South & Central America	Cooked	Vitamin A, folate, minerals
Tomatoes	South & Central America	Raw & cooked	Vitamins A, C, K, potassium, lycopene
Fruits			
Avocado [8]	Mexico	Raw & sauces	Essential fats, B vitamins & A, E, K, & potassium
Black raspberry	North America	Raw, cooked, juice	Vitamin C, anthocyanins, ellagic acid, manganese
Blueberry	North America	Raw, cooked	Vitamins C & K, manganese, anthocyanins
Cacao, chocolate	Central America & Mexico	Prepared as chocolate	B vitamins, minerals, polyphenols
Cranberry	Northern North America	Cooked, medicinal herb	Vitamins A, E, & K
Guava	Mexico to Northern South America	Raw, cooked, juice	Very high in Vitamin C, & lycopene
Papaya	Mexico to South America	Raw, cooked	Vitamins A, E, & K, potassium, lycopene
Pineapple	South America	Raw, cooked	Vitamin C, folate
Strawberry [9]	Eastern North America	Raw	Vitamin C, fiber, minerals
Grains			
Amaranth [10]	Mexico	Baked breads & cooked	B vitamins, protein, minerals
Corn [11]	Mexico, Central America	Cooked as vegetable & grain, baked & fried grain breads	Protein, B vitamins, fiber, magnesium, potassium
Quinoa	South America, Andes	Cooked cereal	Protein, B vitamins, fiber, minerals
Wild Rice [12]	North America	Cooked cereal	Protein, B vitamins, minerals
Nuts & seeds			
Black Walnut	Eastern North America	Raw, cooked, medicinal extracts	Protein, B vitamins, fiber, minerals, essential fatty acids [13]
Cashew	Brazil	Eaten semi-raw or cooked	Protein, minerals, B vitamins,
Peanut	Argentina	Raw, cooked, roasted	Protein, B vitamins, fatty acids, vitamin E, minerals
Pecan [14]	Southern USA, Mexico	Raw, cooked, baked	Protein, fatty acids, B & E vitamins, minerals
Sunflower	North (most species) & South America	Raw, cooked, roasted	Fatty acids, protein, B & E vitamins, minerals
Meats			
Bison (Buffalo)	North America	Cooked	Protein, B vitamins, iron
Turkey	North America	Cooked	Protein, B vitamins, minerals
Sugar & spices			
Allspice	Caribbean, Mexico, Central America	Seasoning	
Maple Syrup	Northeastern USA	Sweetener	Sugar, minerals
Vanilla	Mexico, Central America	Flavoring	

* Data in the table were obtained from numerous references [2–16]. This is not a comprehensive list of foods consumed by Native Americans, but a list the major foods that originated in the Americas and are still commonly consumed by people throughout the world.

Those foods became important to the entire world, as Samuel Beck said: “The American Indian's greatest contribution to our civilization is, in the eyes of many experts, the patient cultivation from their original wild state of the food plants which are now more than half of our agricultural wealth” [19].

There were numerous regional tribes with distinct diets, customs, and languages throughout the Americas (Fig. 1), but many of the foods spread among the regions due to well-organized trade routes that were facilitated in part by a common hand sign language used by many tribes [20]. Of the staple foods in North America known as the *three sisters* [21] only squash was of North American origin. Corn and beans probably originated in South America, but their use spread throughout North and South America. As is obvious from Table 1, the wealth of foods in North America made possible a balanced and highly palatable diet. Many of the berries that are popular today for their functional properties were also valuable additions to the Native American diet; they would include phytochemical-rich blueberries, elderberries, chokeberries, black raspberries, blackberries, serviceberries, buffalo berries, and cranberries [22,23]. Animal foods were also a major part of the Native American diet. When humans first arrived in North America they appear to have been predominantly hunter-gatherers and

megafauna including mastodons and giant ground sloths were an important part of the diet [15,24]. However, their extinction an estimated 10–12,000 years ago is believed to have resulted in major changes to the flora and fauna of North America. This may have resulted in the transition of many Native American tribes to at least a partial reliance on agriculture as a means of obtaining a stable food supply. Whether the disappearance of the approximately 60 species of megafauna at that time was the result of human activity or rapid climate change that occurred during that period is still unknown [17,24,25]. Although the early food sources are difficult to identify with certainty, it is almost certain that virtually all possible plants and animals were used as foods. One of the best early records of Native American customs and culture was published by James Adair, who spent much time from 1735 until around 1770 working and living with the natives of the area that is now the southeastern USA [26]. In his book, James Adair describes the hunting of deer and bear, and the methods of fishing. The main staple food he mentioned was corn, which was often mixed with beans and chestnuts and baked to make a corn bread (Fig. 2). We know from other sources that small game, turtles, turkeys, and grouse were also commonly eaten by the Eastern Native Americans [27]. Of course, the exact makeup of the Native American diet

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