

Contents lists available at [ScienceDirect](http://www.sciencedirect.com)

Journal of Ethnic Foods

journal homepage: <http://journalofethnicfoods.net>

Original article

Noodles, traditionally and today

Na Zhang^a, Guansheng Ma^{b,*}

^a Institution for Nutrition and Health, Chinese Center for Disease Control and Prevention, Beijing, China

^b Department of Nutrition and Food Hygiene, School of Public Health, Peking University, Beijing, China

ARTICLE INFO

Article history:

Available online xxx

Keywords:

classification
health
industrialization
noodles
nutrition

ABSTRACT

Chinese noodles originated in the Han dynasty, which has more than 4,000 years of history. There are many stories about the origin of noodles. To a certain extent, noodles also reflect the cultural traditions and customs of China, which essentially means “human nature” and “worldly common sense”. There are thousands of varieties of noodles in China, according to the classification of the shape of noodles, seasoning gravy, cooking craft, and so on. Many noodles have local characteristics. Noodles are accepted by people from all over the world. The industrial revolution and the development of the food industry realized the transition from a traditional handicraft industry to mass production using machinery. In addition, the invention of instant noodles and their mass production also greatly changed the noodle industry. In essence, noodles are a kind of cereal food, which is the main body of the traditional Chinese diet. It is the main source of energy for Chinese people and the most economical energy food. Adhering to the principle of “making cereal food the main food”, is to maintain our Chinese good diet tradition, which can avoid the disadvantages of a high energy, high fat, and low carbohydrate diet, and promote health. The importance of the status of noodles in the dietary structure of residents in our country and the health impact should not be ignored.

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1. The origin of noodles

Chinese noodles originated in the Han dynasty (汉代) [1]. At that time, they were collectively referred to as *cake* (饼). When noodles were cooked in soup, it was called *soup cake* (汤饼). There were various kinds of shapes for noodles, such as sheets and strips. Sheets of noodles are cooked by pulling the dough into sheets and cooking in a pot with boiling water. In the Wei (魏), Jin (晋), and Northern and Southern Dynasties (南北朝), the shapes of the noodles gradually increased. Two special kinds of noodles, called *shui yin* (水引) and *bo tuo* (饅头), were included in the book *Qi Min Yao Shu* (齐民要术) in the middle ancient era [2]. *Shui yin* is cooked by pulling the dough into strips as thick as chopsticks, cutting these into segments 30 cm long, soaking in a dish of water, then pressing them into flat noodles shaped as a leek leaf and cooking in a pot with boiling water. *Bo tuo* is especially smooth and delicious. In the Sui, Tang, and Five dynasty periods, there were more varieties of noodles. With the increase of noodle varieties, the methods and

techniques of cooking have been continuously improved. There was a kind of cold noodle with a unique flavor, called *Leng tao* (冷淘), which was appreciated by the great poet Du Fu (杜甫), describing it “as cold as snow when gliding through the teeth (经齿冷于雪)”. There was another kind of noodle with full tenacity, referred to as “one of the seven wonderful health foods”, which has a saying “wet noodles can be used to tie the shoe”. In the Song (宋) and Yuan (元) dynasty period, *fine dried noodles* (挂面) appeared, such as *pig and sheep raw noodles* (猪羊庵生面) and *vegetable raw noodles* (素面) sold in Linan (临安) city during the Southern Song (南宋) period. Until the Ming (明) and Qing (清) Dynasty, there were more varieties of noodles. In the Qing dynasty, *five spicy noodles* (五香面) and *eight treasures noodles* (八珍面) were included in *Xian Qing Ou Ji* (闲情偶寄) by dramatist Li Yu (李渔) [3]. These two kinds of noodles were made of five and eight kinds of animal and plant raw material powder, respectively, and mixed into flour, which were considered as top grade noodles.

2. The stories of noodles

Food is not only a source of human nutrition, it also plays many roles in the aspects of religion and economy, etc. People use special food to celebrate important events and festivals, for instance, we

* Corresponding author. Department of Nutrition and Food Hygiene, School of Public Health, Peking University, 38 Xue Yuan Road, Haidian District, Beijing, 100191, China.

E-mail address: mags@bjmu.edu.cn (G. Ma).

<http://dx.doi.org/10.1016/j.jef.2016.08.003>

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eat sweet dumplings (元宵) in the Lantern Festival (元宵节), we eat traditional Chinese rice-puddings (粽子) in the Dragon Boat Festival (端午节), we eat moon cakes (月饼) in the Mid-Autumn Festival (中秋节), and we eat dumplings (饺子) in Spring Festival (春节).

In the aspect of noodles, Chinese people have lots of customs, which essentially mean “human nature” and “worldly common sense” materialized in the noodles. At birthdays, people eat *longevity noodles* (长寿面); at the time of marriage and moving into a new house people eat noodles with gravy (打卤面), which means flavored life; on the day of lunar February 2 “dragon head (龙抬头)”, people eat *dragon whiskers noodles* (龙须面) to look forward to good weather. We eat different noodles in different seasons and different festivals.

Famous noodles in China have a unique value of traditional culture. *Seafood noodles* (三鲜伊面) are also called *dutiful son's noodle* (孝子面). According to historical records, Yi Yin's (伊尹) mother was perennially sick and bedridden. So he made noodles with eggs and flour, and then steamed and fried these noodles. Even if he was not at home it was convenient for his mother to eat these nonperishable noodles. The noodles were added to a soup made with chicken, pig bones, and seafood. Under the tender care of Yi Yin, his mother soon recovered. This was the reason why *seafood noodles* are also called *dutiful son's noodles*. The processing method of *seafood noodles* in ancient time was very similar to industrialized manufacturing methods of instant noodles in modern times.

Sichuan (四川) *dandan noodles* (担担面) (Fig. 1) are known to every family. In the old days, hawkers sold noodles on the street with a shoulder pole, giving the name *dandan noodles*. There was a pot and stove on the shoulder pole, which made it convenient to cook noodles with full seasoning at any time. The business philosophy of wholehearted customer service is the essence for *dandan noodles* to stay prosperous. Qishan (岐山) *minced noodles* (臊子面) (Fig. 2) with special flavor, also called *ashamed son noodles* (臊子面), also has a story in Shaanxi (陕西). Qishan *minced noodles* were originally called *sister-in-law noodles* (嫂子面). Previously, there was a poor scholar, whose parents died when he was young. He was raised by his elder brother and sister-in-law. In order to let him read books for fame, his sister-in-law made noodles for him. His sister-in-law was not only good at cooking noodles, but also good at making gravy with meat and vegetables. Oil sprinkled over chili was also mixed in noodles to increase appetite. Under the care of his sister-in-law, he passed the provincial civil service examination as expected under the old Chinese examination system. Therefore, it was also called *sister in law noodles*. Later, many people followed



Fig. 2. Qi shan minced noodles.

the example of cooking noodles to seek fame for their children, but repeatedly failed. Feeling shame for their son, the noodles were also called *ashamed son noodles*, which was pronounced as *sào zi* in Chinese. Guangxi (广西) *vinegar-pepper old friend noodles* (老友面) has a story about friendship. Once upon a time, there was a Zhou teahouse where a customer drank tea almost every day. For a few days, the teahouse owner Zhou found the regular customer did not come to tea. Out of concern for an old friend, he went to visit him. He discovered that the old friend was sick. The shopkeeper quickly made a bowl of vinegar-pepper noodle soup with sautéed garlic and fermented black beans and sent the noodles to his friend. The old friend ate the noodles in a sweat and then recovered. So vinegar-pepper noodles have another name *old friend noodles*.

3. The classification of noodles

There are thousands of varieties of noodles in China, according to the classification of the composition of noodles, the shapes of noodles, and the different gravy seasoning. The main compositions of noodles are wheat and rice. Most kinds of noodles are made of flour (the powder made from wheat). There is also another special composition of noodles: rice noodles (米线). Rice noodles are frequently seen in Southern style cooking, such as Yunnan (云南) province: *over-the-bridge rice noodles* (过桥米线) (Fig. 3). In addition, noodles can be classified according to the thickness: they can

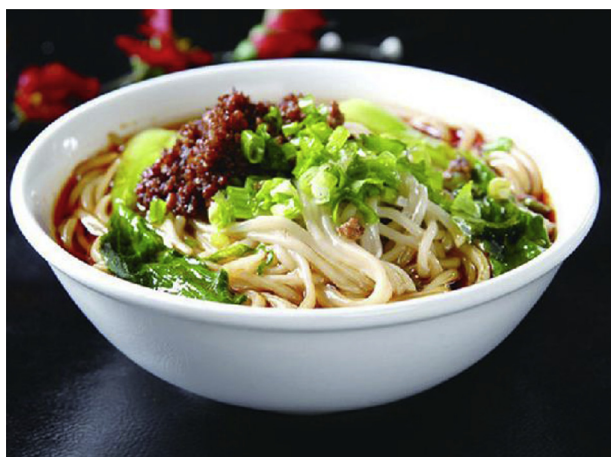


Fig. 1. Sichua dandan noodles.



Fig. 3. Yunnan over-the-bridge rice noodles.

be as thick as chopsticks or as thin as hair, such as the dragon beard noodles. Some can be classified according to the how they are made, such as hand-pulled noodles (拉面), shaved noodles (刀削面), and so on. They can also be classified according to the seasoning, such as Beijing fried bean sauce noodles (北京炸酱面) and Shandong noodles with gravy (山东打卤面). Others are classified according to cooking crafts, such as noodles mixed with scallion, oil, and soy sauce (葱油拌面), noodles with quick-fried eel shreds and shelled shrimps (虾爆鳝面), and so on.

China has vast a territory and abundant resources and mainly can be divided into the following areas: East China (华东地区), Southern China (华南地区), Central China (华中地区), North China (华北地区), Northwest China (西北地区), Southwest China (西南地区), Northeast China (东北地区), Hong Kong (香港), Macao (澳门), and Taiwan areas (台湾地区). There are also some local characteristic noodles. In East China, there are Shanghai noodles in superior soup (上海阳春面), Nanjing small boiled noodles (南京小煮面), Hangzhou Pian Er Chuan noodles (noodles with preserved vegetable, sliced Pork, and bamboo shoots in soup) (杭州片儿川面), Wenzhou vegetable raw noodles (温州素面), Zhenjiang pot noodles (镇江锅盖面), Shandong Fushan hand-pulled noodles (山东福山拉面), Suzhou Su style soup noodles (苏州苏式汤面), Fuzhou line noodles (福州线面), and Anhui flat noodles (安徽板面). In Southern China, there are Guangzhou wonton noodles (广州馄饨面). In Central China, there are Wuhan hot noodles with sesame paste (武汉热干面). In North China, there are Beijing fried bean sauce noodles, Shanxi shaved noodles (山西刀削面) and noodles with braised string bean (焖面), Hebei dragon whiskers noodles (河北龙须面) (saute fine noodles with shredded chicken), fine dried noodles, sesame paste noodles (麻酱面), and Neimenggu braised noodles with string bean (内蒙古焖面). In Northwest China, there are Xinjiang pulled noodles (新疆拉条子), Shanxi oil-splashing noodles (陕西油泼面), Biangbiang noodles (Biangbiang 面), and serofluid noodles (浆水面), Henan stewed noodles (河南烩面), *Hu tu noodles* (糊涂面) steamed noodles (蒸面), and Lanzhou hand-pulled noodles (兰州拉面). In Southwest China, there are Guizhou noodles with pig's blood and internal organs (贵州肠旺面), Sichuan dandan noodles (四川担担面), bean curd pudding noodles (豆花面), zhazha noodles with chili oil hot pepper and pork-bone soup (渣渣面), burninges noodles (燃面), longevity noodles and bedding noodles (铺盖面). In Northeast China, there are Jilin cold noodles (吉林冷面). In Taiwan (台湾), Hong Kong (香港), and Macao (澳门), there are Hong Kong strained noodles (捞面), rickshaw noodles (车仔面) and shrimp roe noodles (虾子面), southern Taiwanese-style noodles (担仔面), and clam noodles (花蛤仔面). Noodles are usually eaten as a staple food

in or to the north of the Yellow River (黄河) Valley, but eaten as breakfast in the southern region.

We will also introduce some kinds of representative noodles. Beijing fried bean sauce noodles (Fig. 4) are a traditional Chinese food, popular in Beijing, Hebei, Tianjin, and other places. Beijing fried bean sauce noodles are cooked in the following way: first prepare the fresh-cut vegetables, blanch and set aside; next, put minced meat stir-fried with scallion, ginger, garlic, and soybean paste in hot oil; then boil the noodles and scoop them up, pour sauce on them; lastly, mix with the vegetables.

Lanzhou hand-pulled noodles (Fig. 5), also known as one of the *top ten Chinese noodles*, are Islamic-style snacks in the Gansu Province. The noodles have special characteristics: "soup clear like mirror, the strong scent of cooked meat, thin noodles". The noodles also have a set of standards: "clear (clear soup), white (white radish), red (red pepper oil), green (green coriander and garlic bolt), and yellow (yellow noodles)". Locally, people named them "beef noodles".

4. The industrialization of noodle production

Since the advent of noodles, although the culture and heritage of the craft are different in various areas, noodles were always processed in a manual way. With the development of the industrial revolution, it realized the transition from a traditional handicraft industry to machine mass production. In the 1850s, machine-made noodles appeared in the market for the first time, and are still in use. At present, China is the world's largest consumer of noodles; the annual consumption and production value are amazing. Data showed that from 2007 to 2012, China's sales value of noodles increased from 8.6 billion yuan to 20.26 billion yuan [4]. In recent decades, it can be said that the advent and development of instant noodles (方便面) brought the greatest impact.

As early as before the invention of instant noodles, in the ancient East and West, there have been similar processing methods: noodles were boiled first, then fried with hot oil, and finally served with soup. In ancient China, there were similar noodles called *Yi noodles* (伊面). According to legend in the Qing Dynasty, Yi bingshou (伊秉绶) gave a banquet to celebrate his mother's birthday at home. There were so many guests that the rushed chef mistakenly put the cooked egg noodles into the boiling pan. Without an alternative solution, the chef scooped up these noodles, then fried them in hot oil, and finally served with soup. Guests unexpectedly praised the noodles, so the cooking craft has been handed down. In the early days, *Yi noodles* was written on the packaging of instant noodles.



Fig. 4. Beijing fried bean sauce noodles.



Fig. 5. Lanzhou hand-pulled noodles.

In 1958, Taiwanese–Japanese Momofuku Ando (安藤百福) invented the instant noodles as fast food, and created a revolution in the world's eating habits [5]. At that time one had to wait in line for a long time to eat a bowl of noodles, so he invented the convenient instant noodles. After the invention, Momofuku Ando also founded Nissin food company (日清公司) to sell *chicken soup hand-pulled noodles* (鸡汤拉面). The initial price was 35 yen. Imitation products immediately appeared which resulted in price competition. Ando soon realized that it was necessary to regulate the market, in order to maintain the reputation of the new products. In 1960, he won the lawsuit about the copyright of instant noodles, and registered the *chicken soup hand-pulled noodles* trademark in the 2nd year. In 1964, Ando founded Japan Hand-Pulled Noodle Industry Association and transferred the patent to the industry. Ando said that the purpose of this move was to expand the industry, so as to provide cheap instant noodles to the residents.

The Nissin food company started looking more actively for opportunities abroad after the invention of instant noodles. In 1963, it first cooperated with South Korea Miyaki food company (三养食品). In 1968, it once again cooperated with the international food company in Taiwan to launch the chicken soup taste instant ramen. At the beginning, the market of instant ramen with Japanese formula was not good. After adjusting the sauce and the noodles, it became the best-selling product in Taiwan. Most customers buy it as snack food.

According to official data of the World Association of instant noodles, since 2009 China's total consumption of instant noodles has been ranked first in the world. In 2013 the total consumption of instant noodles in the world reached a total of about 105.59 billion bags, while China ranked first for the total consumption of 46.22 billion bags, the per capita consumption reached 34 packets [6].

5. Nutritional composition and health of noodles

The basic raw material for making noodles is flour. Therefore, its main nutrients are basically the same as flour, including protein, carbohydrates, minerals, and low fat. Taking the ordinary fine dried noodles found in the market for example, 100 g fine dried noodles contain 10.3 g protein, 75.6 g carbohydrates, just 0.6 g fat, 129 mg potassium, 18.45 mg sodium, 11.8 µg selenium, and so on.

Noodles are classified as cereal foods. Cereal food is the main body of the traditional Chinese diet, the main source of energy for the human body, and also the most economical energy food. With the development of the economy and the improvement of life, Chinese people tend to eat more animal food and oil. An authoritative survey found that in some of the more affluent families, the consumption of animal food has exceeded the consumption of cereal food. Animal food contains more energy and fat, but less dietary fiber, which is not conducive to the prevention and treatment of some chronic diseases. A report on the status of nutrition and chronic diseases of Chinese residents (2015) [7] showed that the daily fat intake of Chinese residents was too much, providing more than 30% of the total dietary energy, while a deficiency of calcium, iron, vitamins A and D, and some other nutrients still existed. Adhering to the principle of “making cereal food the main food”, the purpose is to maintain our Chinese good diet tradition, which can avoid the disadvantages of a high energy, high fat, and

low carbohydrate diet. Therefore, the importance of the status of noodles in the dietary structure of the residents in our country and their health impact should not be ignored.

In the process of making noodles, eggs are added. Therefore, noodles contain the nutritional content of eggs, with the amount of nutritional content depending on the amount of added eggs. Protein amino acid composition of eggs is the closest to the needs of the human body with very high nutritional value. Eggs contain between 10% and ~15% fat with 98% of the fat found in egg yolk; egg white contains very little fat. The fat in egg yolk is easily digested and absorbed and also contains a high content and full range of vitamins, including all the B vitamins, vitamin A, vitamin D, vitamin E, vitamin K, and trace amounts of vitamin C. Therefore, adding eggs can improve the nutritional value of noodles.

Salts are added in the process of making noodles. Excessive salt intake will increase the risk of high blood pressure. A report on the status of nutrition and chronic diseases of Chinese residents (2015) showed that the daily intake of salt was 10.5 g/d in 2012; however, the daily recommended intake of salt is 6 g/d according to Dietary guidelines for Chinese Residents and 5 g according to the World Health Organization. It is worth noting that the prevalent rate of high blood pressure for adults aged ≥18 years was 25.2% in 2012. This is an increase when compared with 2002 (rate was 18.8%). Therefore, food companies should try to reduce the addition of salt as much as possible.

In addition to the health impact of the original nutritional composition of noodles, we should also pay attention to the health impact of the cooking craft and other related factors.

Gravy: in order to improve the taste, people often eat noodles with gravy. Some kinds of gravy contain fat and salt. For example, fried bean sauce noodles contain more fat and salt. In order to avoid an increase in the risk of chronic diseases, we should add less gravy when eating noodles.

Ingredients: when cooking noodles, we can add eggs, vegetables, and other ingredients, so as to make noodles achieve the principle of “food diversification”, and promote health for people.

Instant noodles: the seasoning packet in instant noodles contains more salt, so we should add half a packet of seasoning when eating instant noodles, in order to reduce salt intake.

Conflicts of interest

All authors declare no conflicts of interest.

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