Food, Health and Philosophy in East and West 2017

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Course reports
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1. Introduction

Shopping for healthy and safe food has become a source of great tension and confusion for Chinese consumers. In a market that has seen various dramatic food safety scandals, it is becoming increasingly difficult to determine the safety and healthiness of food products and to find channels to purchase such food. It is in this context of consumer tension and doubt that ‘organic’ or ‘ecological’ farmers’ markets have emerged in China.

However, ecological farmers’ markets in China were not only established in response to China’s urgent food safety issues. The different stakeholders, particularly the organisers of such markets and the customers who come to patronise them, have different interests and visions about what buying food at a farmers’ market should be about. I will first give a short introduction into what farmers’ markets are and outline the context in which farmers’ markets operate in China. I will then turn to two of China’s most well-known farmers’ markets, the capital city’s Beijing Organic Farmers’ Market and Shanghai’s Fangcundi Farmers’ market, and describe them, before I discuss the different visions that organisers of those markets and customers bring to the venue in which they meet.
2. Farmers’ Markets in China’s Urban Centres: Rebuilding Trust

Farmers’ markets are probably one of the oldest forms of selling food and other agricultural products in a market setting. They are physical retail markets in which the producers of agricultural products set up shops to sell their fruits, vegetables, meats, sometimes also processed foods and beverages and other simple agricultural products directly to the consumers of those products. They typically take place outdoors, under tents or pavilions where farmers set up booths or tables that serve as temporary display shelves and selling counters. Farmers’ markets may take place on a regular basis; however, they do not usually operate continuously but only during certain intervals.

Even though farmers’ markets as a form of retail have existed for a long time, their occurrence in China’s urban centres is a modern phenomenon; this is especially true for farmers’ markets which stress ecological food production and the overall sustainability of food systems as amongst their core tenets.

China’s recent history of food retailing has been one of increasing diversification of forms of retail outlets as well as an upgrading in the size of the outlets and the diversity of the food products on offer. Since the reform and opening-up process was initiated in the early 1980s, China’s food retailing has developed away from a situation in which the state tightly controlled and managed all food production and distribution processes to one where the selling of food once again was privately managed: street-side vegetable and fruit stands became a common-place sight, and wet markets, department stores and ultimately large-scale supermarkets emerged in the cities (Croll 2006, Toscano 2015).

However, all these forms of food retail work through mediation; even the small-scale food vendors who peddle their wares in the streets are no longer engaged in food production themselves, but are commonly rural-to-urban migrants who buy their products from large wholesale markets early in the morning (Toscano 2015). The fact that some farmers decide to regularly travel into urban centres to sell their products directly to consumers rather than selling to wholesalers, and that urban consumers would take it upon themselves to travel to a farmers’ market that is sometimes not at all close to the place of their residence, contradicts the general trend, and is therefore something new, a response to newly emerged needs and desires in the field of food consumption.

As outlined above China’s food market is plagued by food safety scandals. Even when food is not contaminated in a way that breaks the law, consumers are increasingly worried
about the potentially harmful effects that substances used in the production and processing of food (chemical fertilisers, pesticides, food additives etc.) could have on their health. It is not easy for Chinese consumers to satisfactorily resolve these concerns as there is no obvious solution. On the one hand side, the state and large-scale supermarkets try to address food safety issues through setting and implementing strict hygienic and regulatory standards. They hope that standardization and transparent quality control processes are the way forward in safeguarding product quality. On the other hand side, consumers might wonder whether small-scale producers and vendors could be the safer option since they might use better practices than companies that operate on an industrial scale (Toscano 2015). Advertisement, news and experts add to the general confusion by giving out contradictory advice (Chang 2016). Consumers are left to their own devices, with no good way to assess the trustworthiness and safety of various channels of food procurement.

In this context, the strategies that consumers use to ensure the safety and healthiness of their food can vary greatly. They might decide that it is too bothersome to worry too much and opt for the convenience and the seemingly modern and hygienic environment of large supermarkets. They might be willing to pay a high premium on organic certified food or imported food. Some might even grow food themselves, or buy from family and friends who live in remote villages and do not use chemicals. And some might go to farmers’ markets in an attempt to directly interact with the farmers’ and thereby ensure the safety and quality of their food.


Ecological Farmers’ Markets have started to spring up in various bigger cities all over China (Chang 2016). Two more well-known examples in China's first tier cities of Beijing and Shanghai are the Beijing Organic Farmers’ Market (北京有机农夫市集, BOFM) and the Fangeundi Farmers’ Market (方寸地农夫市集, FCD) in Shanghai. These two markets share a lot of communalities that are characteristic for many farmers’ markets in China.

Both these markets were from their very beginnings influenced by ideas and values that originally emerged in non-Chinese contexts. BOFM was founded in 2010 by a group of foreign artists and students. Later on, one of the original volunteers became the driving force
behind further developing and expanding the market: Chang Tianle, a Chinese national who studied in the United States and worked for the Institute of Agriculture and Trade Policy and at the time was looking for ways to build alternative food systems (Jiang 2016). FCD was founded in 2013 by Yi Xiaowu, an IT specialist who was a member and volunteer of Friends of Nature (China’s first and largest environmental NGO) and Greenpeace. The founders and organisers of BOFM as well as FCD were influenced by global discourses about broadly-understood sustainability.

Both BOFM and FCD serve as not-for-profit platforms for urban-rural interchange jointly managed and run by farmers, volunteers and full-time staff (Chang 2016, Sunny 2014). They offer small and middle-sized farmers who adhere to ecological farming methods a market in which to promote and sell their products, and encourage direct interaction between consumers and producers to promote relations of mutual trust and support between them. The Farmers’ Markets enable this exchange by using various (participatory) methods to guarantee that the farmers comply with the markets production requirements.

However, both BOFM and FCD try to be more than ‘just markets’, and instead want to act as alternative food systems, namely Community-supported Agriculture (CSA). CSA are networks of the stakeholders in the food production and consumption process (farmers, organisers, consumers) who jointly take responsibility (in terms of finances and labour) for the entirety of the food production and distribution process. CSA requires a greater involvement of the consumers in the food production process than regular food retailing since they are required to become partially responsible (through the input of money and/or labour) for the food production process. Setting up a functional CSA mechanism is one of the challenges of both BOFM (Chang 2016) and FCD (personal communication with Yi Xiaowu).

Whereas FCD by now has found a ‘permanent home’ in Shanghai’s Daxuelu (a busy bar and café street close to two of Shanghai’s biggest universities, Fudan University and Tongji University) where it takes place once a week, BOFM moves to a new location for each of its bi-weekly sessions; it is usually hosted by large department stores or other retailers who like the customer traffic that the market attracts. Both farmers’ markets draw an ever-growing crowd and produce growing revenues.

Interestingly enough, trust in the safety and healthiness of the food products in these farmers’ markets is not constructed through strict, standardised quality control and certification processes, even though just like food products that carry the organic food label,
the food products of these markets derive their claim to safety and innocuousness from the food production process which happens without the use of chemical fertilisers, chemical pesticides, and genetically-modified seeds or animal feed. Obtaining the organic certification is simply not affordable for the small farms that participate in the markets.

Instead, trust is built through direct interaction between farmers and consumers through different channels that involve different levels of active participation. Consumers can just come to the market, chat with the farmers and taste the food which is on offer there; exhibition of food items and food tasting is an integral part of every farmers’ market. Consumers can also interact with the farmers’ through the Chinese social media app WeChat to stay informed about the current state at the farm, or they might visit the farm themselves to learn about the local conditions. This is a particularly prevalent practice if consumers decide to ‘subscribe’ to the farms and have food regularly delivered to their house. The highest level of participation is certainly that of becoming a stakeholder in a CSA scheme and put in financial and labour contributions to build and maintain an alternative food community.

4. What an Organic Farmers’ Market is About: Different interests, different visions

The different levels of active engagement of consumers are also reflective of the different interests that the consumers and the organisers of the farmers’ markets hold as well as their different visions about what a farmers’ market should be and how consumers should engage with the market. I will particularly discuss how these visions are related to ideas of environmental protection.

Consumers, on the one hand side, are motivated by their interest in buying safe and healthy food to go to a farmers’ market. Buying ‘organic’ (or ‘ecological’) food for them means buying healthy and ‘natural’ food (Zhang 2016, personal communication with Ms Christina Ling, Biostime). Chinese consumers associate ‘natural’ food with food that has been produced in a specific kind of nature: a nature of clean water, unpolluted soil, a nature in which happy and health animals can thrive. At least to a certain degree, their understanding of nature seems to be influenced by Daoist beliefs of the unity of, and mutual interrelation between man and nature (Zhang 2016): the healthy, integral nature in which they imagine organic/ecological food production to take place has a direct impact on the integrity and health of their body through the consumption and thereby incorporation of food into the body.
An unbalanced (polluted) nature, on the other hand, will negatively impact the human body.

Chinese consumers at farmers’ markets are therefore not ‘only’ interested in food safety; the environment matters to them. However, the relationship which they envision to have with nature is a passive one: the individual is part of nature, and incorporates nature into the body through food consumption. They do not, however, feel responsible for protecting the environment and safeguarding the integrity of the nature in which food production takes place. This might be one of the reasons why consumers at BOFM and FCD prefer the forms of participation in the market that require relatively low levels of engagement. Organisers of both markets explain that they find it difficult at times to involve the consumers to a degree that they feel would be desirable. What consumers ultimately aim for is rebuilding the trust in the safety and healthiness of food which has been lost in the conventional food market. Through directly interacting the farmers they try to establish such a bond of trust.

The organisers, on the other hand, have a much broader vision of what a farmers’ market should be, and how consumers should get involved with it. For them, farmers’ markets are not simply a business model to create revenue, and the people who attend the markets should not remain passive shoppers. Instead, they stress the overall sustainability of the food systems that farmers’ markets are part of, and thereby use a by now internationalised idea of ‘environmental protection’. Their aim for the food sold at the markets is that it should be produced in an ecologically sustainable way; the farmers who are the caretakers of the environment should be able to make a living from their labour and have a supportive system that enables them to implement the standards of organic food production as best as possible; the interaction between farmers and consumers should strengthen the urban-rural connection and foster the development of rural communities.

In order to realise these ideals, the organisers of both BOFM and FCD want to make the consumers stakeholders in the food production process and the sustainability of that process. Their active engagement with the farmers’ markets and the farmers is encouraged; consumers should take responsibility for helping supervise and safeguard the quality of food production by interacting with the farmers, educating themselves about farming methods and visiting the farms, ideally even helping at the farms as members of CSA schemes. BOFM and FCD try to engage in advocacy of these ideals and consumer education; they distribute informational
material at their shops and markets, engage visitors in conversations and organise various activities like talks, lectures and cooking classes.

The value of this kind of consumer engagement goes beyond rebuilding trust in an environment where such trust has been lost. Instead, the focus is on community building: consumers become part of a community that is characterized by solidarity, openness and participation (Chang 2016, Jiang 2016); they come to understand how healthy, safe and environmentally-friendly food is produced, and support the continuation an new, alternative food network that empowers both consumers and producers. Through this, the consumers get ‘reinserted’ into the food production process from which they have grown estranged.

The vision that the organisers bring to the farmers’ markets is therefore clearly much more transformative on an individual and social level than that of many consumers who come to visit the markets: food in a farmers’ market can become a means through which both individual behaviour and social structures are to be reformed and renewed.

Sources


**Functional Dairy Innovation in China**

**Dairy history in China**

For a long time, people think that Chinese people don’t have a dairy history. It seems that milk drinking and eating is a western and westerner thing. Is it true?

China is a country with thousands of years of history. For stockbreeding, it can be dated back 3000 years ago to Shang dynasty. According to archaeology findings, bones of cow, sheep, pig, etc. have been found in graves indicating the stockbreeding of ancient people. The livestock can not only provide meat, but also dairy. For dairy product, various books have noted down the use of milk. For cow raising, it is mainly in the northern area with the minority groups.

In HAN dynasty, Sima Qian, described the daily life of Xiongnu (A minority nomadic group) with cow as ‘people eat its meat and drink its milk’ in his great work Shiji, which is more than 2000 years ago. After this, dairy has been recorded in various works. In Han Dynasty, milk is separated written as a drink different from milk. Late in Jin Dynasty, Sun Chu, a litterateur, wrote in an article to use dairy product as a dish of sacrifice.

In North Wei Dynasty, in Qimin Yaoshu (齐民要术) written by Jia Sixie had detailed several ways of making dairy products. In Tang Dynasty, dairy has also been used as a medicine. For many tributes to the emperor, dairy products are among them. In 13th century, the Italian travelled Marco Polo wrote in his book about the use of horse milk powder in the army as an important food. During Ming Dynasty, In Bencao Gangmu, cow’s milk is depicted as sweet, little cold, good for the heart and lung, etc. In Qing Dynasty, dairy products have more developed and there are more snackings made of dairy products.

However, as raw milk is difficult to preserve, the yield of local cow is low. Dairy products are not popular among citizens. It is more popular among nomadic groups who have the tradition of rising cow and sheep. For the processing of dairy products, the major method are to dry the milk to make it like fresh curd products.

Nomadic ethnical groups have the tradition of dairy products. They preserve the milk and made them into cheese and cheese-like products in order to extend the life of the products for storage. Therefore they managed to think of
some ways to store the milk. They make Chinese cheese out of spare milk to avoid wasting. In this way, they longer the storage time of milk. Nomadic ethnical groups are not familiar with farming in ancient times. So they didn't have many fruit and vegetables as they have today. The necessary nutrition and minerals they need can be acquired from dairy products.

Figure 1 Major Land Use categories in China
Dairy Products as a functional food

1. Dairy nutrition perception in Western world

The term of functional food is first introduced by the Japanese government in 1980s. The official term of the category is called food for specified health uses (FOSHU). FOSHU refers to foods containing ingredient with functions for health and officially approved to claim its physiological effects on the human body\(^1\). Right now, there are only limited ingredients that are strictly regulated into this category.

In the US, department of Agriculture has defined functional food as designed to have physiological benefits and/or reduce the risk of chronic disease beyond basic nutritional functions, and may be similar in appearance to conventional food and consumed as part of a regular diet\(^2\).

In the last two decades, various researches have been focused on the function part of dairy products. Dairy products are attractive delivery vehicles for

\(^1\) http://www.mhlw.go.jp/english/topics/foodsafety/fhc/02.html  
dietary components that work behind the scenes to help prevent disease, as well as deliver a myriad of purported benefits ranging from anti-aging to inducing satiety. Then amino acids, fatty acids, plant extracts, calcium, vitamin, either added in or contains in dairy itself have elevated the products into the functional product category.

2. Dairy nutrition perception in China

Modern dairy development is relatively a new thing. As mentioned above, although we have some dairy products back in old times, but it is not a popular product. With the development of modern dairy technology, dairy products can be preserved for a longer time. Starting from 1998, the milk consumption started to grow rapidly. In 2000, the government has officially launched the school milk project, aiming that all school students can have milk every day to strengthen the body and have a healthy diet.

Functional Dairy innovation in China

Right now in China, the functional dairy innovation is basically driven by the market demand and needs. For the dairy consumption in China, UHT milk is still in the dominant position with slow growth rate. Therefore, functional dairy innovation is needed in the growing market. And the functional dairy innovation can be categorized as below.

1. Adding in probiotics

Probiotics are regarded as a good thing for the digestion system. Thus yogurt and probiotics drinks often promote the content of probiotics.

Figure 3 Products images

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3 Donna Berry, Functional dairy foods – Beyond basic nutrition, June 14, 2016
However, in recent years, the rise of ambient yogurt has hit the market. For ambient yogurt, it is more the flavour and convenience that matters for the consumer than the functional needs. How to combine the functional needs together with the good taste and flavour will be the next generation of ambient yogurt.

2. **Adding in functional elements**

Adding in functional elements has been widely used in western and eastern dairy products. In baby food, calcium, zinc, metal and other metal elements have been added in as a nutrition supplement. In sports drinks, protein is added in as a source of muscle building. In nourishing category, red dates, walnuts and others are added in the products to provide other functional needs.

![Figure 4 Product Images with functional supplements](image)

Functional elements added in can be very modern scientific approved elements or those from traditional Chinese Medicine. In the future, the combination of both will be a trend.

3. **Specialized dairy products**

Right now, different source of milk are now being researched and is forming another type of functional dairy products.

3.1. **Goat/Yak/Buffalo milk**

The nutrition content of these types of milk is different from the cow’s milk. Due to the low yield of the milk, it also forms a feeling of scarcity. And also the environment required of the animals might be higher standard than cow. For example, yak is fed at a high altitude.
Thus, this type of product is regarded as high in nutrition and different from the normal milk.

3.2. Colostrum
Colostrum refers to the milk within 72 hours after cow give birth to a calf. In nutrition information, it is much different from milk. It is rich in protein, low in fat and lactose. It also contains a large number of immune factors and growth factors. Relevant researches are still going on for the use of colostrum. In 2012 the ministry of health has banned the use of colostrum in IMF products, claiming that it is not a normal milk product and doesn’t have a stable yield. It is not suitable for industrialization. The ministry does not ban the use of colostrum in other uses. In other countries, there are lots of researches regarding the use of colostrum in new born baby. In China to align with the regulation is also very important for dairy innovation.

Conclusion
Although China has the record of dairy eating for a long time, dairy consumption and processing is a modern thing. For functional dairy innovation, domestic companies are far more innovative than foreign companies as they know more about domestic consumers. For dairy development in China, functional innovation is very important in order to catch up with the trend.
Turning tides.
Risk perception related to genetically modified food in China.

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Tine Walravens, PhD Candidate
Faculty of Arts and Philosophy
Department of Languages and Cultures
Ghent University, Belgium
Introduction: Genetic engineering and food

Food has been a contentious topic throughout history, although the grounds for contention have changed over time. Whereas public upheaval used to focus on questions of food supply and prices, controversies about food hazards and food safety have become increasingly pervasive in the second half of the 20th century. In both the industrialized nations as well as countries such as China, which has made a rapid transition from a state-regulated food system to a diversified food supply exposed to global market forces, a period of accelerated globalization and major technological changes has affected the way food travels from the field to the dinner plates, while consumption patterns and dietary habits went through far-reaching changes (Veeck, Yu and Burns 2010). Although in general the significance of food-related risks has been on the rise, particularly the development and use of genetically modified organisms (GMOs) has triggered much debate and controversy.

Through genetic modification, novel traits can be introduced into plants, animals and microorganisms. In particular in agriculture, transgenic crops have been developed that are resistant to insects, disease, environmental stress such as drought or improved quality, yield or weed management (Han et al. 2015). Among the benefits that are associated with genetically modified foods are cost reduction in agriculture, increased productivity and the reduced use of pesticides and chemical substances during the growing process, and crop protection (Grunewald & Bury 2016). However, potential benefits are countered with fears by opponents of biotechnology that include concerns about the acceleration of antibiotic resistance, fears of toxic and allergenic effects, a threat to biodiversity and concerns about the long-term impact of genetically modified organisms on the gastrointestinal flora. Furthermore, the production, distribution and consumption of GM foods is heavily associated with resentments against multinational corporations, in particular Monsanto (in September 2016 bought by Bayer), which controls over 80 percent of genetically modified organisms (Blancke et al. 2017: 185).

Turning towards the Chinese situation, this paper starts with a brief description of the current state of research, cultivation, and legislation of genetically modified crops and products in China. Next, changing Chinese perceptions regarding GM foods are addressed. Some dimensions of this public perception are singled out for discussion, as the report concludes with a brief outlook into the near future.
Current state of research, cultivation and legislation

Already in the 1980s, Chinese scientists devoted great attention to transgenic technology and pointed out the possibilities of genetic modification in boosting agricultural productivity for a country like China, rapidly developing yet faced with limited arable land, food shortages and a huge dependence on agricultural chemicals (Bian 2014). By the beginning of the 1990s, China’s first commercially cultivated crop, tobacco, was planted in huge numbers over the country. Even more successful was the commercialization of Bt (Bacillus thuringiensis) cotton in China (first planted in 1997 and in 2015 accounting for appr. 96% of the Chinese cotton production), a crop developed with extra resistance against specific insect pests (Han et al. 2015; Kang & Chen 2013; ISAAA 2015). With its 3.7 million hectares, the country ranked 6th in the world in terms of crop cultivation area in 2015, mainly growing cotton, papaya and poplar (ISAAA 2015). Besides cultivation, it is further estimated that about 95% of all imported maize, and over 90% of the imported soybean in China are genetically modified (Lucht 2015).

In 1993, regulation on the safety management and public health in the sector of genetic crop engineering was imposed. However, no regulation existed regarding imports of GM food - despite its yearly increases ever since 1996 - until the Regulation on the Administration of the Safety of Agricultural Genetically Modified Products (RASAGMP) in 2001. Under the RASAGMP, the Chinese government addresses the import, export and cultivation of GMO’s, monitoring the safety assessment, labelling and import/export procedures.

Over time, safety measures regarding processing and importing GMO’s have been expanded as well as issues related to GM food hygiene and labeling (Bian 2014). Besides AQSIQ (the General Administration of Quality Supervision, Inspection and Quarantine), the MOA (Ministry of Agriculture) and the MOH (Ministry of Health), other regulatory agencies and technical committees were established for regulatory policy-making, standard-setting and technical coordination regarding environmental and food safety inspection.

As food security is a major concern in China, genetic engineering in agriculture has been recognized by the government for crop and yield improvement. Huge investments have been made in supporting research, and in 2009 both transgenic rice and genetically modified maize were awarded biological security and safety certificates by the
government (Li et al. 2015: 839). However, both lines have not been promoted for commercial production, due to deteriorating public attitudes on GM crops.

**Changing public perceptions**

Not unlike other regions, Chinese public attitudes regarding genetically engineered products have recently shifted towards the negative, parallel with an increasing public awareness of the debate surrounding GM food. The changing perceptions can roughly be divided into three time frames. The period from the first commercialized cultivation in 1997 to the end of the 90s was characterized by ignorance. The 2000s showed a fairly tolerant acceptance among the public, but around 2010, attitudes shifted and an increasingly skeptical consumer base voices its concerns.

**The 1990s: an isolated public through a reporting gap**

Lü and Chen (2016) point out how the Chinese public in the 1990s had little to no knowledge about GM food, due to the fact that the topic or any surrounding debate were entirely absent from newspaper coverage. The first mentioning of GM food in a newspaper only appeared in 2000, and the few, other reports that followed up on the controversy abroad, were mainly local science and technology newspapers. The lack in media reporting is ascribed to the Chinese authorities and their “cautious” handling of the scientific uncertainty of the risks (2016).

**The 2000s: benefits versus risks**

Despite the still widespread ignorance regarding GMOs in the 2000s, the Chinese public’s expectations towards the science and technology and its agricultural applications were high. A scientific optimism, fed by governmental policies in the 90s linking science and technology to economic development, blinded the public’s perception of potential risks. This is also reflected in the mainstream media coverage in the early 2000s, which – while creating a gradual awareness regarding GM technology among the Chinese public, primarily focused on the benefits, while only rarely addressing the associated risks (Lü & Chen 2016). Taking into account the potential political agenda’s of these media outlets, it can be argued that this attitude was to control the Chinese public’s risk perception regarding GM crops in their food supply. Survey results by Han et al. (2015) indicate that in 2010, still a majority of Chinese respondents would not oppose the consumption of GM products, although favouring non-edible goods. This study further pointed out that
most Chinese farmers regarded future GM crop cultivation positively, whereas the majority of experts in China’s top scientific institutes expressed support for further development and large-scale cultivation of GM crops. Interestingly, a comparative study in 2006 showed that the Chinese public has a high perceived control over risk topics, including GM foods (Schmidt & Wei 2006) which could be linked to societal ways of control (as opposed to western notions of individualism).

**The 2010s: awareness and socially amplified risk**

While the 2010s brought more awareness and understanding regarding GMOs among the Chinese public, also anti-biotech non-government organizations (NGOs) became active during that same period, resulting in a dialogue that triggered increased risk perception. Often amplifying the risk related to the consumption of genetically modified food, Chinese mainstream media has taken up an important role in shaping or distorting the public debate and attitudes on this matter. An interesting case in point is the coverage of the Hunan golden rice experiment in 2012, aimed at testing the scientific evidence of “golden rice”, a GM variant with increased Vit. A levels, developed to address malnutrition among children. The web media analysis by Yang et al. (2014) disclosed that although an openly negative attitude towards golden rice and GM foods was manifested in about 1 out of 3 articles, the discursive power of persuasive metaphors and analogies enhanced the audience’s (pre-existing) fear and concerns related to GM crops. The authors further identified conspiracy frames, such as the narrative that “the West” would be using genetic engineering to gain global control over agriculture (Yang et al. 2014). Largely due to negative media reports, the percentage of consumers who perceived GM food as unsafe increased by over 30% between 2002 and 2012, while about half of the consumers had no opinion on this issue (Huang & Peng 2015). The major consumer worry relates to health risk, closely followed by economic risk (as reflected in higher consumer prices as well as medical costs) (Zeng et al. 2015).

Recently, the Chinese government made a clear statement in the No.1 Central Document in 2015: the country needs genetic engineering, and therefore is determined to invest more government support in the development and application of the technology, in particular for crop improvement. As earlier attempts for this move had to be withdrawn in face of public protest (see above), the government now singles out the need for comprehensive research proving the biosafety of GM foods and addresses scientists to increase the public’s awareness about the benefits of agrifood GM technology (Wang
Although the document does not specify any policies or commitments to boost GM cultivation yet, it is still an important and influential signal of the state’s intentions.

**Influencing consumer attitudes**

Although consumers' objective knowledge plays an important role in the formation of consumer attitudes to GM foods in urban China (Zhang & Liu 2015), knowledge and information in itself do not convince consumers of the benefits of GM food. The processing and perceiving of factual information is strongly influenced by attitudes to nature, technology and science, or feelings of alienation from the food supply or market place (Lusk et al. 2014; Frewer et al. 2013; Finucane et al. 2005). China’s extremely rapid development might as such have (had) an impact on the advancement of a critical, reflexive and sceptical worldview, and its position towards “new technologies” in a “risk society” (Beck 1992). Public attitudes are further affected by cultural, religious or moral values and concerns such as an aversion to foreign food cultures, or the opposition between slow and fast food cultures. In particular moral concerns appear to be higher in Asia than in Europe (Lucht 2015). As a last factor, trust should be mentioned. Qiu et al. (2012) showed how Chinese consumers’ trust in the government has a significantly positive effect on their acceptance of genetically modified foods, whereas Lu et al. (2013) highlighted the role of social trust and value similarity in monitoring risk perception.

**Conclusion**

Over the last decade, China’s policy position on agricultural biotechnology has experienced profound changes, from optimistic promotion to forced precaution, and back to determined investment and well-framed regulation. However, despite their enthusiasm about GM technology and well-understood importance for food security, Chinese authorities have so far failed to turn around the public debate about the biosafety of GM agrifood products. In contrast to the rapid acceptance by farmers, experts and the government, the risk perception of GM foods by Chinese consumers proves to be an important factor influencing and even hindering its commercialization. Through the direct involvement, and even responsibilization of Chinese scientists in reversing public scepticism towards GM technology, the central government is clear in its resolution to turn the tide and boost its GM efforts. As scientists take up their broader social duties, popular social media channels such as WeChat or Weibo offer far-reaching ways for two-
way dialogue with the Chinese public. Careful development of the GM debate in China is paramount, particularly in view of the possible authorization of GM rice, but also regarding future acceptance of further genetic engineering developments and new breeding techniques. As consumer attitudes are decided by more than only risk and benefits, also trust and values as well as common goals should be taken up in the discourse and educational efforts in order to enhance the acceptance of GM crops in China.

References


‘Food more than fuels the body’
Meaning and knowledge in food consumption in contemporary China Large

During the course of our study of food, health, and philosophy in Hong Kong, Shenzhen, and Guangzhou, we have encountered various medical, cultural, philosophical, and technological approaches to food and health. Taking outset in anthropological literature, I wish to illuminate food as something that ‘more than what fuels the body’ (Chen 2009) and as ‘system of significance’ (Liu 2000), where your food choices and habits signify who you are and how you navigate in the social world. Perhaps you eat dinner together as a family and the meal signifies the family as a unit. Perhaps you use a napkin to wipe your mouth signifying your manners and social status. Perhaps you changed your lifestyle since you became a parent and maybe let your kid have the most delicious or nutritious food available, signifying values and priorities. Perhaps you are a vegetarian signifying a health ideology or a political stand communicating identity to yourself and the world around you. Perhaps there is a difference between what you eat during the week and what you serve for guests, signifying the manner of your social relations. From the perspectives of a few anthropological scholars of food, I shall in this report point to a few aspects of food meanings and sets of knowledge that Chinese consumers bring to the market and the table in contemporary China large.

Food as medicine
The main perspective throughout our course has evolved around ‘eastern’ perspectives on food as medicine, which correlates with the work of medical anthropologist Nancy Chen, *Food Medicine, and the Quest for Good Health* from 2009. She characterizes Chinese food therapy (食疗) as follows:

> Systematic correspondence of foods with humors or organs is tied to overall body practices that were believed to extend health and life. Foods could restore qi, enhance blood flows, balance yin and yang, and prevent diseases. (Chen 2009, p. 23-24.)

As we saw practiced at Guangzhou Hospital of Traditional Medicine and School of Chinese Medicine at University of Hong Kong, contemporary Chinese medicine incorporates a range of diagnostic and therapeutic methods, including pulse and tongue diagnosis, moxibustion, massage, acupuncture, herbal medicine, and qigong (ibid., p. 20, see also Andrews 2013). In
Daoist practices of *yin yang* foods, we should find a balance ‘warm’ and ‘cold’ qualities, and for the wide use of animal parts in Chinese medicine goes that the “more mythical, rare, or strong the animal was considered to be, the more likely it would affect longevity and virility” (ibid., pp. 23-25). The boundaries between food and medicine are blurred, and this knowledge of alternative food systems that we consider to be *normal* in ‘Western’ food cosmology, should according to Chen give us a different ‘nutritional literacy.’ It gives insights into how we consume on a social scale as “cultural beliefs and practices organize everyday life into meaningful categories” (ibid., pp. 2, 113). She argues that

Food does more than fuel the body; it also defines us as living cultural beings in the world. So, in a sense, food creates and maintains the boundaries of the social being as well as the individual body (ibid., p. 5).

Food as a ‘system of social significance’

Chen is far from alone in analyzing food as a ‘system of social significance’ (Liu 2000, Douglas 1972, Appadurai 1981, Harris 1985, Mintz 1986, Elias 2000 [1939]). In her article “Deciphering a meal” from 1972, anthropologist Mary Douglass holds that food categories encode social relations:

If food is treated as a code, the messages it encodes will be found in the pattern of social relations being expressed. The message is about different degrees of hierarchy, inclusion and exclusion, boundaries and transactions across the boundaries. Like sex, the taking of food has a social component, as well as a biological one. (Douglas 1972, p. 61).

Douglas uses her own family meals as offset to consider the symbolism in food consumption, and combined with empirical examples from studies around the world, she points to cultural
categorization of foodstuffs, meal elements, animals groups, and she sets the stage for an analysis of family eating patterns from the sequence and recurrence of meals during the day, the week, and the year. She notes the properness connected to utensils, seating orders, restrictions of movements and alternative occupations at the table. Douglas is concerned with what commensality expresses in terms of social relationships, intimacy, hierarchies and classes. The dietary rules are not always clearly defined and do not come to exist through a systematic shaping, but according to Douglas, they function as patterns to control disorder, like versification in a poem (ibid., p. 70). Several scholars of contemporary China, have followed her lead, pursuing studies of the social aspects of food consumption (Jing 2000 (ed.), Liu 2000, Farquhar 2002, Yan 2012, Jung, Klein, and Caldwell 2014 (ed.)), but the limits of this report only allows for a brief look at aspects of generational knowledge and social change in Post-Mao China.

Ill. 2 Dinner at Buddhist restaurant, Guangzhou.

**Generational food knowledge in Post-Mao China**

Anthropologist Guo Yuhua (2000) has studied dietary knowledge in relation to food consumption. She regards the consumer practice as shaped by different ‘knowledges’ and is less concerned with the symbolism of social relations (for a debate on symbolism vs. practices in food consumption see Warde 2016). From research in in the mid-1990s’ urban Beijing and rural Jiangsu, she recognizes three categories of generationally marked food knowledges in contemporary China: The ‘traditionalist’, the ‘modernist’ and the ‘consumerist.’ The traditionalist knowledge of the grandparent generation is concerned with the body view of traditional Chinese medicine, organs sorted in yin and yang values, ‘hot’ and ‘cold’ categories of food, and eating ‘naturally,’ avoiding ‘nutritional supplements’ such as vitamin pills and
medicinal tonics (Guo 2000, pp. 97-100). The modernist knowledge of the parent generation is familiar with modern science, which have informed their understandings of diet and health as well as childcare. Many of the parents responded in the structured interviews that they “considered providing a vitamin-rich diet to be a special duty of enlightened parenthood.” Repeatedly, Beijing parents expressed that they were “against buying snacks from street vendors and small neighbourhood stores, fearing that the snack might contain too much artificial sweetening and coloring, or harmful hormone-treated ingredients” (ibid., p. 101). The consumerist knowledge is bound to the appetites of young children, which “have become increasingly influenced by new, imported, and luxury foods, especially snacks and soft drinks introduced by foreign joint-venture companies” (ibid., pp. 102-3). The children are educated about new products through commercials, fascinated by colorful packaging and are under peer pressure to be well-wanders in new popular brands. In the family, they are the take the lead when exploring new products: “As children become full-scale consumers, they are assuming the role of culinary instructors by offering information to influence their elders’

Ill. 3 Children’s birthday party at McDonalds, Hong Kong. From www.mcdonalds.com.hk.

purchasing and dining decisions” (ibid., p. 103, see also Watson 2000).

Values in ‘traditional’ Chinese festivals and the eating ‘special food’ at these celebrations is important for the grandparent generation (see also Liu 2000), but have according to Guo not transmitted to the younger generation without a shift in their ideas of importance. The children find birthday celebrations more important as an annual family event than certain yearly festivals. Other differences in food values and knowledge that is found between the traditionalist and the consumerist generations are the remembrance of famines, especially during the ‘three bad years’ (1959-62) as well as the content of moral education, stressing
“respect for the elderly, courtesy to equals, economic prudence, and respect for food as a product of hard work, and as a medium of communication between the living and the dead” (Guo 2000, p. 106). Worries of the elder generations include that the ‘singeltons’ might be “provided with too much material comfort and are therefore growing up without any discipline or the ability to study and work hard” (ibid., p. 112). Concerning food knowledge as other aspects of lived practices, Gou holds that “[c]ultural knowledge is acquired, and it depends on the transmission of ideas, values, and symbols across generations” (ibid., p.104).

Food campaigns and social change

As we learned from our lectures on public health intervention programs at Sun Yat-sen University and on organic business at Biostime in Guangzhou, rapid social change in Chinese society at large has great impact on how different generations shape attitudes to for example breast feeding and baby formula. Chinese research institutions, government agencies, and companies must continuously analyze changing social structures in society at large as well as trends in practices, motives, meanings, and sets of knowledge among Chinese citizens and consumers in order to direct their educational or commercial campaigns of food and health so that they have impact. This course has opened up for discussions on how knowledge on food and health is shaped with differing interests and limitations, and it has shed light on the bilateral scientific learning aspects of very different traditions of food and health research, both between ‘eastern’ and ‘western’ medicine traditions as well as between the natural and social sciences.

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Organic Food Consumption, Certification and Agriculture

Hao LIU
China Organic Food Certification Center, Ministry of Agriculture P.R.C

Introduction

Organic food is a hot topic and a preferable choice of the consumers nowadays. But when people looks at organic product, what are they thinking? What dynamics drive people to buy and what is the evidence? From the inspiration of the HK FHP course, this report will try to answer these questions by analyzing the organic consumption, certification and comparison with modern agriculture.

Food philosophy in organic consumption

Food philosophy refers to a cluster of values, practices and beliefs that evolves over a long period of time within a particular cultural context. The notion of food philosophy is inspired by the concept of worldview and much of experience. These concepts refer to the cultural backdrop which orientate themselves on questions of what is admirable, valuable and worthwhile.

Organic products, especially the dairy product, get more and more popular in China market. Arla food amba, the largest worldwide organic dairy producer, launched its extraordinary organic products in 2013. This part will have analyses food philosophy behind this product.

Figure 1. Food philosophy of Arla UHT organic milk

Naturalness

Concern for the naturalness of food made the choice of organic comes firstly. With the connection with natural environment, consumers are triggered to the care of beings and nature environment such as fresh air, clear water and green crops. And furthermore, don’t act as a separate entity
but an integral part of nature. Also they become aware of that farmers cultivate their feed grass and more sensitive to the issues of familiarity and geographical vicinity.

**Purity** Since it has become extremely difficult for consumers to evaluate the quality and composition of food, they usually categorized food according to their understanding of purity and or purity related concepts. When shopping, consumers search for raw food and avoid processed food which associates with artificial preservatives and chemical residues. The number of ingredients in a product also serves as an indicator of its purity.

**Heath** The belief that organic food is healthier than conventional fare is a foundational belief of organic food that continues to drive the market today. They believed that nature thus managed would yield more nutritious food. But from scientist’s answer is critical on the question that whether organic food is healthier. Some papers conclude there is no different in nutrient quality between organic and conventional food. Some publications cite organic food is higher in total antioxidants. But nutritional content is not the only factor that interests organic consumers. They have been concerned about pesticide and antibiotic residues. There is no debate that organic produce had lower the residue level as farming using integrated pest and disease management. And the new and potentially hazardous genetic engineering tech is also prohibited in organic production, which diminishes consumer’s frighten to uncertain and unnatural things.

**Trust/Label** An organic label indicates to the consumer that a product was produced using certain production methods legally. In other words, the product is a process claim rather than a just product claim. Milk produced by practices approved for organic production may very well be identical to milk produced under other agricultural management regimes. In terms of integral sensual food quality like taste, appearance and feeling, authenticity and originality are very important. These factors are all covered by organic food which follows the basic organic production principles of limited processing methods and food additives usage and finally collect into organic label.

Finally, engaging with organic food lead consumers themselves into a sense of well-being and happiness. Their enjoyments come when they are in the connection with nature and being a part of nature. Their self-affirmation to health evokes when they found the meaning of purity.

**Organic certification – a bridge of trust between operator and consumer**
Figure 2. Organic certificate of Arla UHT organic milk

Organic certificate and label are issued and permitted by certification bodies according to specific organic regulations. Organic regulation is a large file system no matter in which country. Details are well beyond the scope of this report. Some key elements can help to understand the certification. And the following highlights listed is the general requirements summarized from some mainstream regulations.

**Certification Requirement** All organic producers and handlers (even some ex/importers) must be certified through accredited certifying agents. But for the small farmers, certification is optional if they just sell their products in field or local fares.

**Organic production Plans** Every operators must have a holistic plan (quality management system). It should include but not limit to how the operation will comply with the organic regulation, inputs to be used, environment evaluation, production practices, strategies to prevent contamination and commingling, monitoring sub-contractors and records.

**Records** Detailed documentation of inputs, field activities, milk yields and sales must be kept. These records should reflect the Plan but keep accurately to the practice. Most operators need to develop an internal audit control system to track production, ensure standard compliance and provide essential information in the event of product recall or complain.

Above is the basic requirements for all kind of operators. For livestock production there are additional elements. Taking raw/fresh milk production as an example.

**Origin/introducing of cow** Preference shall be given to organically reared cows. When organic cows are not available, conventionally reared cows may be introduced providing being not more certain weeks old and fed mainly on whole milk and have been fed colostrum with the certain percentage.

**Feed** Organic cow shall be fed by 100% organic feed. Synthetic chemical growth promoters and preservatives are prohibited in organic feed; so are chemically extracted amino acid, non-protein nitrogen
and animal derived products. Synthetic feed supplements and additives are allowed only if they are listed in the standard.

**Living Conditions** Standard reflects the considerable influence the animal welfare. Living conditions must accommodate the natural behavior of cow. Outdoor access, fresh air and sunlight, and space to exercise are required. Shelter must also be provided. It must allow natural maintenance and behavior, must provide protection from temperature extremes, have adequate ventilation and be safe.

**Health Care** Organic cow health care begins with prevention. This includes selection of cow type, nutrition, proper housing and pasture, sanitation, stress reduction and vaccination. There are also restrictions on physical alterations. Natural therapies may be allowed to treat cow sicknesses, such as herbal medicines, acupuncture and homeopathy. Use of antibiotics and chemically synthesized medicines for preventive treatment is prohibited. External parasites and other pests may be controlled using no synthetic means such as traps, botanicals, biologicals and mineral-based materials. Livestock treated with a prohibited substance must be clearly identified and may not be sold, labeled or represented as organically produced.

**Environmental Impacts** Capacity of feed production, health of cows as well as the impacts on the environment shall be taken into full consideration. The number of cows reared shall not exceed the maximum capacity of animals in the range. Measures shall be taken to prevent environmental impacts caused by overgrazing. Manure must be managed and disposed of in a timely manner and utilized properly. The handling of these facilities shall avoid polluting groundwater and surface water. The discharge of pollutants from animal production units shall satisfy the local requirements.

**Why we choose organic agriculture?**

Why organic agriculture is developed is that the reflection on modern agriculture. The basic function of food is to feed people. Since 19th century, the population grows explosively which made great challenge to the yield of the grain. The main problem is that the limitation of manpower efficiency and the soil fertility. Here comes the industrial technology and chemistry science which guide the development of agriculture to modernization. In the early 20th century and after the industrial revolution, the ancient agriculture began to transfer to modern agriculture. At this time in addition to the use of hand tools and animal driving tools, some areas have begun transition to part of the mechanized farming. In the middle and late 20th century, the wheeled tractors with internal combustion engines were becoming the main driving force in agricultural production. The other side, mineral theory is proposed by Justus von Liebig, which give a clear relation model between the soil composition and the crop yield. Taking F. Haber’s nitrogen fertilizer synthesis method as the starter, kinds of single or part mix chemical fertilizer, as well as artificial pesticides, begun to be used in large quantity. The combination of machinery, synthetic fertilizers, pesticides and irrigation, the yield of the crops boosted correspondingly. From 1961 to 1997, the work
population increases from 3.1 billons to 5.8 billons with the growth rate in 90.2%. But the total grain yield increased to 2.4 billion with the amazing growth rate in 130%. The modernization of agriculture kept people from hunger basically.

The high-yield harvest and surplus of food have made modern agriculture in great success. But it seems a misreading of development. Established in the excessive cultivation and extensive use of chemical fertilizers, modern agriculture has paid a heavy ecological cost. Modern agriculture is in the way of crazy extraction of the land, with the performance of a large number of chemical pesticides application, rough use of giant agricultural machinery, continuous farming and implementation of a single variety for cultivation. The land can only be staggering terrain loss, sharp decline in force.

Organic agriculture is a holistic production management system which promotes and enhances agro-ecosystem health, including biodiversity, biological cycles and soil biological activity. Accomplished by using agronomic, biological, and mechanical methods to fulfil any specific function within the system. Practically, organic agriculture is one of several approaches to sustainable agriculture and many of the techniques used like inter-cropping, rotation of crops, double-digging, mulching, integration of crops and livestock are practiced under various agricultural systems. What makes organic agriculture unique, as regulated under laws and certification programs, is that almost all synthetic inputs are prohibited and soil building’ crop rotations are mandated.
Discussion and conclusion

In this report, from organic product consumption to organic agriculture with certification as their connection are discussed. Arla organic UHT gives a good example of commercial organic product package design, which lead us think a lot of positive food philosophy issues. These issues inspire us to buy form the social, humanistic and natural way comprehensively. In these issues, the organic label is the most important one as it’s the legal requirement and objective evidence of organic performance. Furthermore, the reason why organic agriculture developed has been expressed from the reflection of modern agriculture. Link to the course we just took. Modernization on agriculture is the typical west-reductive philosophy practice. Although modern agriculture has lots of negative effects on the eco-system, it keeps billions people away from hunger and still works nowadays. In east- holistic way, organic is a good rethinking of the development model. But organic agriculture also need reductive method to solve practical problems. All in all, thinking, planning and supervising holistically but practice reductively is the best way to develop. It should also be aware that there are lots of inspirations or ideas when consumer can meet organic food. Also, modern and organic agriculture have advantages, disadvantages and interactions. Because of the limited knowledge and literatures, there are some deficiency of the outcomes which need further research.

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USDA NOP: https://www.ams.usda.gov/rules-regulations/organic

Course Report

Food, Health, Philosophy in East and West

2017

Cultural Differences of numbers between Chinese and Western countries

Zeng Xia

Sun Yat-sen University

It is an unforgettable experience for me to join this 10-days PhD course on “Food, Medicine and Philosophy in East and West”. In this course, I have known many new similarities and differences on Chinese and Western cultures, dietary habit, religion and philosophy. Although before I have known a little knowledge about Chinese and Western culture through internet, this systematic course still left a deep impression on me, especially teaching patterns of lectures and practice. At the same time, I made so many friends from all over the world using my poor spoken English. In this course, what impressed me most is cultural differences of number between China and Western countries, which was mentioned by professor Bent.

Background

Number whose original meaning is the same in both English and Chinese, is a special language mark. With the development of history, some numbers, which are used by different nations and affected by the elements, like religion, history and social customs, have different symbolic significances. From these symbolic significances of numbers so many number phrases and number idioms are born.
And the special cultural difference of number is formed.

Nations in Eastern and Western countries have different attitudes to the numbers, because they’re affected by different traditional cultures and other elements. I think the cultural differences of numbers are full of nations’ features. Numbers have various mysterious taboos, auspicious and other symbolic meanings. Hence, this thesis is to discuss the cultural differences of numbers by analyzing some representative numbers in both Chinese and Western countries. By knowing the differences, we can respect each other mutually; reduce the misunderstanding and even conflicts in the intercultural communication.

Examples

1. Lucky Number

1.1 The Same Lucky Numbers in the Two Different Cultures

Different nations have different number cultures. But the culture of number 3 (three) and the culture of number 8 (eight) are the same in Chinese and Western cultures where they share the same meanings of holy, dignity and luck. Both in Eastern and Western countries, people treat number 3 as the lucky number.

In Chinese, the written form of number 3 is “三” . The three horizontal strokes express the relationship among heaven, earth and human beings. It’s the belief of Buddhism. The upper horizontal stroke stands for heaven, the middle one refers to human beings and the last one stands for the earth. In Chinese myth, a superman, named Ne Zha (哪吒), has three heads and six hands. He can be divided into 3 bodies if he wants. At the same time, he gathers the endless power and rights. So in
Chinese culture people impart a positive meaning to number 3 which stands for powerful and mystical.

In Western culture, number 3 is also very popular, because of the Greco-Roman mythology and Christianity. In Greco-Roman mythology, god Jupiter has the super power to control the world. His power comes from the three-pronged thunder-stick in his hand. Neptune, the god of the sea, depends on his three-pronged spear. And Pluto, the god of the underworld, has a dog with three heads. Of course, the world is also dominated by the three gods. So number 3 is given the meaning of being powerful and holy. As we know Christian culture is one main stream of western culture. In Christianity, the trinity refers to the Father (God), the Son (Jesus Christ) and Holy Spirit. People also divide the development of everything into 3 parts in habits in order to catch the lucky sign. The ancient Greek philosopher Pythagoras believed that number 3 is the symbol of god. He said that number 3 is the perfect one. Meanwhile, the ancient Egyptians considered that number 3 stood for father, mother and son. Right now, people always say that they have 3 wishes, people like writing an article of 3 chapters. Number 3 is lucky in general situations, but on one occasion, number 3 is avoided. When English or American smoke, they abstain from number 3.

1.2 Lucky Numbers in Eastern Culture

The number 2(二,er) is a good number in Chinese culture. There is a Chinese saying “good things come in pairs” . It is common to use double symbols in product’s brand names, e.g. double happiness, double elephants, etc. Cantonese speaking
people like the number two because it sounds the same as the word “easy” (易) in Cantonese.

1.3 Lucky Numbers in Western Culture

Number seven is the most mysterious and holy number in Western religion. There are many examples used to prove the fact that seven receives a warm welcome in Western culture. Number 7 is of deep religious colors, penetrating into every aspect of Western society. Christianity divides the heaven into seven parts. The seventh heaven is out of sad and full of happiness. So the phrase “in seventh heaven” is used to express the extremely happy. According to Old Testament, everything on the earth was created by Lord God within seven days. Lord God used the seventh rib of Adam to make the birth of Eve.

2. Taboo Numbers

2.1 Taboo Numbers in Eastern Culture

Number 4 is considered a bad omen, since 4 in the Chinese and the overall Buddhist worldviews refer to the fourth stage of human existence: death (死, si). Besides Chinese culture, Korean, Vietnamese and Japanese cultures also believe that number 4 is an unlucky number. Because it sounds like the word “death” (死, si) in these languages. Due to that, many numbered product lines skip the “4”. Nokia cell phones have no series beginning with 4. In eastern Asia, some buildings do not have the 4th floor. This phenomenon is similar to the situation that there is no 13th floor in the buildings of Western countries.

2.2 Taboo Numbers in Western Culture
Number 13 is traditionally considered to be an unlucky number. Some books even omit chapter 13 and some hotels have no thirteenth floor and offer no Room 13, because no one would like to live in a room associated with the number thirteen. That 13 peoples sitting at the dinner table is also thought to bring bad luck. The origin of this superstition dates back to the Old Norse myth, Christ and the Last Supper. 9 Old Norse myth has a story. Loki, the god of breaking and ghosts, conspires to attend a dinner of 12 gods. With Loki’s coming, Balder, one of the 12 gods, died rapidly. So they though that 13 people have dinner together is unlucky, occurs to Westerners’ mind. And this superstition was confirmed by the last supper of Christ and his disciples. According to The Bible, Christ sat down with his 12 disciples, which made up the number 13; at the last supper Judas, one of the 12 disciples, sold his master for thirty pieces of silver by a kiss of greeting. Lwonardo da Vinci’s works, Last Supper showed this situation. And this painting is the immortal artistic works in the world. People always use “a baker’s dozen” to stand for number thirteen.

Conclusion

The cultural differences of numbers in Eastern and Western countries and the causes of these differences are the theme of this thesis. The causes of cultural differences of numbers are analyzed from the aspects of mythology, religions and social customs. Number is a peculiar kind of language. Numbers vividly reflect the cultural psychology, traditions and characters in different countries. Meanwhile, different cultures have their own different number cultures, the luck culture and the
taboo culture. At the beginning, number is a language sign. But because of the
development of history, religion, mythology, social customs and other factors, the
numbers are conveyed with different symbolic significance. Many people believe in
the numbers. In some sense, I think it’s a superstition in our life. It’s explicit that
there is no direct relationship between numbers and one’s fate or luck. Through
analyzing the cultural differences of numbers between Eastern and Western
countries, we may reduce and even avoid misunderstanding and conflicts caused
by cultural differences during the intercultural communication. My thesis only deals
with the general number cultures in Eastern and Western countries and due to the
limit of time and the length of the thesis, there are surely many other aspects
needing added. With the development of society, culture will be more abundant. So
the number culture will be added with new connotative meanings. And in the
future study, I will continue to pay attention to the number culture in intercultural
communication.
A Thought Experiment on Chinese Social Values—An Evolutionary Perspective

DUAN Xinxing  
School of Biological Sciences, The University of Hong Kong

Abstract:

During the classes, I had many new ideas as well as new questions, for example, why in traditional Chinese culture people pay so much attention to the intangible side of the world, such as “Qi” and the social relationship, I don’t have a conclusion. Here I propose one of my idea that the physical sensitivity of Chinese people might play an important role in building up the Chinese psychology and social structures. All of the discussion in this article was based on the unproven hypothesis that the Chinese might physically have more sensitive sensations. The objective to write this article is to lead the interested students to an ideal imagination that how the Chinese evolved and formed the unique culture and social values. I would like to take this opportunity to invite the readers to temporally stop standard scientific thinking, and imagine and look back the history through the lens of the proposed possibility. Think out of the box and have fun.

1. A Hypothesis

In our classes or beyond, it has been clearly demonstrated that the ancient Chinese developed their own understanding of health and food. The attachment to the nature nurtured the philosophical idea of the Five Elements and the complementary “Yin and Yang”. They considered the human as an open system that constantly interacted with the outside world. In this sense, the ancient Chinese deemed all the food, drinks, and even breath, touch as the maneuver for the human body to communicate and exchange “Qi” with the nature. While most cultures considered food
basically as the energy intake method to resolve hungry feelings, the Chinese ancestors believed food were the naturally offered therapy to restore body homeostasis.

It has been known that herbal therapy was once a popular idea in traditional medicine across many different cultures. Traditional Chinese medicine, was one of them, and also the one that is preserved most intact and still thriving in the modern world. This is because, apart from a variety of the herbal formulae, the Chinese developed and summarized a theoretical system to support the medicine and to guide the therapy. The solid theory and practice method accumulated through the time and underpins the Chinese medicine experience of the Chinese people.

The question that intrigued me a lot is, why was the Chinese, or what was the factor that triggered the Chinese ancestors to see the food beyond the food, to see the nature not only as the view presented substantially, but also as the multidimensional world including a dimension of the intangible “Qi”? As a natural science student, frankly speaking, I have no answer to this question. However, after attending this “Food, Health and Philosophy in East and West” PhD course, I would like to boldly propose a hypothesis to further discuss with my fellow friends.

Supposing that a person’s way of understanding the world comes from his/her experience to the outside world and the Chinese “Qi” does exist, it can be found that the Chinese ancestor paid a lot of attention to the intangible or untouchable mobility of the world, which probably suggest they had quite sharp sensation that entitled them to sense the nuance of the world. Based on this, it might be reasonable to hypothesize that the high physical sensitivity may be one of the reasons that inspired the ancient Chinese to keep noticing the slightly difference in living experience and to invent the body illustration that is based on the relatively subjective spontaneous feelings such as
Meridians. There could be a lot of interpretations of the hypothesized sensitivity, such as the relatively active nervous system of the ancient Chinese people. However, it would be beyond our capacity to discuss this in this article. Because the physical sensitivity is still an unproven hypothesis, we shall not step into its mechanism. In this article, we will assume the hypothesis is true, and see what inference we could further make.

2. The Pursuit of Immortality

High sensitivity, on one hand, empowers a person to capture more tiny changes from the surroundings, and to experience more subjective feelings than others. On the other hand, such sensitive feelings may probably require more energy of the person to response and readjust themselves to the slight changes from time to time. The frequent response could be an energy-consuming stress. A sensitive person may experience more happiness, however high sensitivity also could also make the person feel more pains during his/her lifetime. People might not refuse the feeling of happiness, but certainly might feel uncomfortable had hard to get used to the pain. A group of people with high physical sensitivity are more likely to pay attention to the pains caused by the slightly environmental change and take actions to them.

It is not a new perspective that in psychology, the sensitive personality makes a person prone to the depression and becomes relatively vulnerable. Yielded to such vulnerable living experience, the ancient Chinese people exerted their sensations to build up the traditional Chinese medicine theory. Being a human nature, the pursuit of the longevity uniformly exists in all the cultures with an intact medicine system.
Moreover, having to constantly sense the changes and readjust their own balance frequently, the ancient Chinese might have an urgent desire to pursue the unchanged status. In parallel with the traditional Chinese medicine development, the ancient Chinese showed an inclination of immortality. This pursuit is actively demonstrated in the ancient alchemy stories, many of which typically involved the emperors of ancient China, such as Qin Shihuang, the first emperor of Chinese feudal time, Han Wudi, Ming Chengzu. These stories ranged from Qin dynasty to Qing dynasty, which was almost the whole Chinese feudal time. The Chinese alchemy, which shared similar procedures to the traditional Chinese herb preparations was popular for over 2000 years. This long history of alchemy was an extreme variation of traditional Chinese medicine that showed the fascination of immortality among Chinese people.

3. Personal Trait: Collectivism or Individualism

Imaging that in ancient time, in order to survive the jungle laws, people needed to fight against the wild beasts almost every day. A person with high physical sensitivity probably felt more pains during the fights, and hence suffered more frustration in the case of getting injured. In this condition, the best strategy of such individual persons should be fighting as a group, which could effectively lower the risks of individual injury. Thus, in line with our previous assumptions, compared with the less sensitive people, the ancient Chinese probably enter into the era of social cooperation quite early to resolve the vulnerability associated with high sensitivity. During the cooperation, the Chinese might learn how to work collectively. Hence they might start, at a very early time, to accumulate the experience about how to collaborate more effectively and how to conquer the enemy with a massive population. A typical example is the Chinese
developed the theories of the wars very early as presented in the notable classics, e.g. The Art of Wars by Sun Tzu, Guigu Tzu, and so on. The long experience of fighting with companions together could allow the ancient Chinese to form a stereotype that they tend to unite every individuals around them and be more open-minded, and acceptable for other people.

On the other hand, the people with insensitive sensation of pains might not consider the cooperatively fight as an important factor at the earlier time, as they could ignore the slight pains and fight persistently with the wild beasts. The strength of fighting independently could allow them to live individually in the jungles. Meanwhile, there might be a need for them to guard against the attack from the same species, i.e. the food robbery by other people, or even the killings. The solo fighting could possibly foster a personality of being highly defensive and an inclination of doubting other people. Some may say the western people are better at critical thinking, while the Chinese people tend to accept and bear everything. Maybe this is one of the reasons for that difference.

It is worth noting that in the ancient uncivilized time, fighting together as a group of people always meant the need to divide the work. Some may have to confront with the wild beast directly, others might only need to attack from a lateral side with lower risks. In others words, some might have to take very high risk and even sacrifice their life for the whole group attack. To sacrifice a few individuals in exchange of the victory of the whole group of people, as a thinking pattern might have internalized into the mind of the Chinese people through the long history of group fighting. This might be origin of
the Chinese collectivism. Nowadays, Chinese people still use this strategy to gain social resources and conduct division of labor.

4. Social Structure: Clan, Family, Friends and More?

As discussed above, long and early cooperation might help the Chinese ancient Chinese to build their collective wisdom against the external enemy and also make the individual sacrifice acceptable to the community. Living together, fighting together, and being brave to sacrifice might have been evolved as a Chinese culture. The structure of the Chinese society, ever since the civilized time comes, are still consist of the small communities. Bloodline has their priority to be chosen as the principle to build trust and form the communities. Thus in earlier time, with the relatively small population, Chinese people chose to live with the unit of clan, had a habit to document the family membrane (the tree of the clan, and solve living necessities and gather resources via the relatives within the clan. As the population grew, the clan could become too big to manage and could probably divided into families with smaller population of each family.

Friends, in China, means much more than in other worlds. While some people seeking friends to have fun, the traditional Chinese considered friends as an extension of the family. That’s probably why sometimes the Chinese are more willing to sacrifice their own interests for helping friends get through the troubles. Such behavior were also probably originated from the tradition of collective fighting and their open-mind attitude to the outsiders. The greater the union can be, the more survival rate for the family. Although Chinese have experiencing the modernized society for over 100 years
old, it is very common that the Chinese still hold a very special idea of family, the son or daughter might suffer many conflicts during their grown-up experience, however, when it comes to the big life choices, they would still listen to their parents’ opinion, even not completely agree with them. This interesting phenomenon could probably be a good example of the strong Chinese values that they tend to put the community interests before their individual interest.

5. Discussions and Remarks

In this article we discussed a possibility that the physical sensitivity might be the internal motivation that stimulate the ancient Chinese to develop the unique medicine and the recognition of collectivism. It needs to be point out that this hypothesis is only one of the countless possibilities and not based on the concrete supporting evidence. As an author, I’m well aware that an article without strict definition and systematic evidence goes quite an opposite way to our PhD trainings. As a student of natural science, I understand the importance of being rigorous and cautious when drawing a conclusion. However, day after day, when I searched the biological papers, seeing the enormous information was created simply by applying a same method to different molecules one by one, but without much capability of signaling the whole big pictures, I cannot help asking, will our scientific method end up with the trivial pathways and molecules but without any big picture ? I sometimes doubt, something in my training might limit my thoughts and confine me in the logical cause-effect pursuit of several molecules. However, the conclusion we made from the experiment or the rigorous theories mostly don’t give a solution, or help understand the nature of the world.
Moreover, the conclusions, the papers we read made us more confused of the laws of the nature. Therefore, I guess, sometimes, trying the loose discussion and imagination might not be a ridiculous idea. That’s why I wrote this article in a quite non-scientific style. I have to admit that this article is far from an elegant piece. Besides the lack of a system background review, the writing was not very satisfying from the interpretation and the inference we make, to the language we use here, I expect that in future I may develop an improved version from this original piece with better logic and sophisticated discussions. Personally I had the idea of writing an article like this for a long time, so all of the points were based on the digested information from the books I read during last 2 years. Thus below I listed the books I read that might contribute to this article.

**Reference**

Informed Consent: Differences between Denmark and China in how doctors inform patients.

By Ole Bæk, MD, University of Copenhagen.

Introduction

As a Medical Doctor, I deal with issues of informed consent every time I interact with patients. Informed consent is a concept that has the last 50 years become ingrained in how medicine is being practiced in most of Europe and North America. The basic idea is that a doctor cannot treat a patient without them knowing the full extent of their disease, the consequences of treating it or not and giving their consent to further treatment. During my work, I must always make sure that my patient know the state of their disease and try to guide them to the best treatment. This is something that I have been taught since first day of medical school.
During this PhD course, we visited several Chinese hospitals. During my conversations with the local doctors, it became clear that there seems to be differences in the way doctors inform patients. All doctors told me that they primarily would inform the patient’s family of any serious medical issues. Then they would discuss with the family how much information the patient should receive. As a doctor at a major cancer hospital put it “If the family believes that the patient cannot handle the information, then they can decide not to tell them”. All the doctors agreed though that they would fully inform the patients, if they were asked direct questions from them. However, it seems that the family has a great say in how much information patients receive about their medical condition.

In the following report, I will explore how the concept of informed consent came to about in Denmark and try to compare the differences in legislation between China and Denmark. Lastly, I will try to discuss potential reasons for the differences in practice.

**Informed consent**

The idea of informed consent is very much linked to the idea of autonomy, which is the concept that the individual has choices and a final say in all matters that affect them and that people should be able to decide their own fate. Since the enlightenment in the 18\(^{th}\) century these idea of individuality and autonomy have become central in western thinking and the basis of the modern democracies.

In the medical world, the idea of informed consent was codified after the Second World War. As a part of the Nuremburg trials, several doctors were prosecuted for conducting human experiments on prisoners in concentration camps (1). These experiments were in most cases horrendous and caused harm and death to the participants. A well-known example was a large experiment where people were submerged in freezing water in an effort to study how the humans reacts when the body
temperature is lowered. This resulted in the death of several of the study participants, but added knowledge that is still used today in treating people with hypothermia. After the war, the doctors went on trial, but conviction was not straightforward. There existed no laws regarding human experimentation and the doctors on trial were only indirectly implemented, as they merely had planned and analyzed the experiments and not played a part in their actual execution. Their main defense was that ethically dubious human experimentation on prisoners had occurred in the United States, before and under the war. A famous example was the Minnesota Starvation Experiment where young men were given the choice of serving in the army or joining an experiment where they would undergo 6 months of severe starvation and hard physical labor. The trail concluded that difference between the way experiments were conducted in the USA and Nazi Germany, was that the participants in the US were informed about the nature of the experiment and were given a choice. The doctors on trial were convicted, not so much for causing suffering and death, but for violating the study participant’s autonomy.

**Legislation in Denmark and China**
The current Danish law on informed consent is originally from the 1950’ies and last changed in 1998. It briefly says that all people who are over 15 years old and possess the mental capacities to understand his or her decisions, has to be fully informed about any medical matters regarding them. If these criteria cannot be met then either parents or the most immediate family has receive the information instead (2). The patient also has the right not to be informed, but then he or she has to give prior notice to the doctor.

The Chinese legislature regarding health care is from the 1950’es and was initially modeled after the Soviet legal code. Its primal goal is to protect patients from unnecessary harm, both physical and mental (3). The Chinese law does not directly address informed consent, but since the 1980’ies
several laws have been introduced that deal with it indirectly. For instance, surgeons are required to inform about potential risks of surgery and the law regarding malpractice states that a doctor is liable if a medical treatment goes wrong and the patient was not fully informed of the risks (4).

Discussion
In reviewing the literature it became clear that the impressions I got from visiting Chinese hospitals are not stand-alone incidences. In a study from 2004 that investigated Chinese doctors' views on informing patients, it was found that almost universally doctors would inform family members first when giving serious news (5). In the same study, doctors were asked about their views on informed consent and most of them indicated that they regarded it as a form of protection for themselves or as a legal requirement. None of them mentioned anything about patient autonomy or patient rights. The paper concludes that in China there does not exist a Doctor-Patient relationship, but instead a Doctor-Family-Patient relationship. These views have been corroborated in other papers regarding medical ethics in China, that all find that the family of the patient have a great influence on treatment and often will get information before the patient (3,6,7).

It is clear that there is a difference in practice between Denmark and China. As I can understand them, the Chinese laws do not directly oblige doctors to obtain informed consent from patients. However, there are enough indirect laws that should amount to the same thing.

It is hard to point to one reason for the difference in practice between Denmark and China. But, most likely traditional Chinese thinking plays at least a partial role. In the western philosophical tradition, emphasis was put on establishing universal rules and truths. For example, the 18th century German philosopher Immanuel Kant argues that one should always act as if your actions complied with a universal law. For instance, he reasons that if lying is wrong then one should never lie, no matter the consequences. Confusion tradition on the other hand do not argue for universal rules, but that all situations are unique and require different responses. One can in some cases lie to people
and still be a good person. Some of these views we see blended into Traditional Chinese Medicine, where every patient's condition is considered unique and likewise requires a unique treatment. Equally, traditional Chinese views put more emphasis on family, which could also play a role in the Doctor-Family-Patient relationship.

Lastly, it is important to add that before informed consent became codified into Danish law, doctors would often employ Paternalism towards their patients. Paternalism is a concept where a person of authority decides what is best for someone under his or her influence. Before the laws of informed consent, Danish doctors would often themselves decide what information to give their patients and would often withhold information to patients they deemed too fragile to handle it. So, 30-50 years ago doctors from Denmark and China might have acted in a quite similar way despite the differences in culture.

Conclusion

Doctors employ different practices when informing patients of serious illness in China and Denmark, although the legislation in both countries address the concept of informed consent. It is hard to say if differences in culture can fully explain the difference.

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East meets west: are there room for integration of Traditional Chinese Medicine and Western Medicine within the context of precision medicine?

SHEN Yang, PHD student

Introduction

The visiting to China National GeneBank in Shenzhen gave me insights into big data, sequencing technology, artificial intelligence, genetic and epigenetic variants – all of which are closely associated with precision medicine. In the latest years, precision medicine has received growing recognition from clinicians, health systems, and the pharmaceutical industry, as well as patients and policymakers, which will leave a major impact on the practice of medicine. Interestingly, through the lectures and excursions we learn that traditional Chinese medicine (TCM) provides personalized medical treatment based on the theory of TCM characterized by holistic concept and pattern differentiation. This, to some extent, is similar to the personalized medical treatment of precision medicine. In China, TCM as well as Western medicine (WM) plays an important role in healthcare. Although they employ vastly different strategies, Chinese and Western medical practitioners share common goals – to treat the health and well-being of patients. Can we build the Chinese-style of precision medicine system by combing both TCM and WM? This report discussed the influence of precision medicine on current medical directions, further development of precision medicine, the advantages of TCM in disease treatment, integration practice of TCM and WM in China health system as well as its possible role within the context of precision medicine.

1. Definition of precision medicine and its influence on medical directions

Precision medicine is a cutting edge technology based on data from the Human Genome Project, second-generation sequencing technology and other medical sciences that identify the precise cause and therapeutic target at different stages in the disease process. Subsequently it formulates an optimized treatment plan for the patient, and achieves personalized prevention, treatment, prognosis assessment and health management for specific diseases and specific patients through comparison, analysis, identification and verification of a large number of biological data and biomarkers for specific disease types(Mei T et al., 2016).
At present, precision medicine is commonly used in the treatment of cancer. The widespread application of gene sequencing technology has revealed that some tumors are closely associated with DNA sequence abnormalities, such as gene mutation and over amplification. Precise treatment with specific targeted drugs can significantly improve therapeutic efficacy, providing a major breakthrough in medicine (Liontos et al., 2016, Yan et al., 2016). For example, one of the causes of breast cancer is the over amplification of the human epidermal growth factor receptor 2 (HER2) gene; approximately 20% to 30% of breast cancer patients in China have characteristics of HER2 positivity, including high tumor cell malignancy, rapid disease progression, susceptibility to metastasis and recurrence and poor prognosis. Herceptin is a specific monoclonal antibody for HER2 that can prolong the survival time of patients and reduce mortality when used with chemotherapy (Anderson et al., 2014).

2. **Further development of precision medicine**

With deeper research, more and more researchers have realized that biological activity is not dependent on gene sequence alone; rather, genomics has its limitations and the genetic sequence is only the tip of the iceberg of biological complexity. As stated in the report
Toward Precision Medicine (Council, 2011)—*Building a Knowledge Network for Biomedical Research and a New Taxonomy of Disease*, precision medicine must be based on systems biology with integration of comprehensive information on the human body, rather than a single gene sequence. With only the data from genome sequencing, the promise of precise treatment for specific gene sequence changes bears the mark of “reductionism.” Only through the integrating biological data and knowledge at all levels will new diseases be defined or molecular classification and drug stratification be developed (Yuan, 2016), which can achieve the goal of precise diagnosis and treatment.

3. **Does TCM has any advantage in promoting the development of precision medicine?**

The rise of precision medicine provides new opportunities for taking advantage of TCM, or a combination of TCM and WM. This integration will depend on re-examining TCM theory, as well as its diagnostic and treatment technologies, from the perspective of precision medicine. It will also require the exploration of the characteristics and advantages of TCM within the theory of precision medicine to find a new way for the combination of TCM and WM. At present, precision medicine mostly evaluates diseases on the basis of gene sequencing research, which provides a single, narrow perspective on disease. TCM collects biological information on specific populations through TCM differentiation to verify its regulation and treatment effects. Can we combine the systems biology approach of precision medicine with the holistic concept and pattern differentiation and classification of TCM, to build a disease diagnosis and treatment system with combined features of TCM and WM? To this end, some experts suggest that TCM should be combined with modern molecular technology to build a precision medicine system with Chinese characteristics, which would better promote the development of precision medicine (Luo CS and XJ, 2015).

4. **Integration status of TCM and WM in China**

Since the integration policy of CM and WM proposed by central government in the 1950s, physicians in China have been cross-trained substantially in both disciplines. Western biomedical doctors are required to receive a significant proportion of TCM training as part of their medical education and many TCM schools devote at least one-third of the curriculum to WM. As a result, many doctors in China are facile in the use of both WM and TCM in daily practice, sometimes utilizing both modalities, depending on the patient’s preference or
condition. For example, patients with neck pain may receive diagnostic X-rays, and then treatment with a combination of TCM (e.g. acupuncture) and Western medicine (e.g. nonsteroidal anti-inflammatory drugs) (Wong et al., 2012).

The integration between TCM and WM works not just at the level of individual practitioners, but also at the institutional level. In China, The vast majority of WM hospitals offer TCM services, and virtually all TCM hospitals provide WM services, including high-tech diagnostic testing and modern surgical techniques - Guangdong TCM hospital is a good example. Such integration of clinical practices is common in China, but is still considered unconventional in Western countries.

Figure 3. Integration of TCM and WM for personalized medicine at Guangdong TCM hospital

5. Integration of TCM and WM will play a role in the era of precision medicine

I will discuss the combination of TCM and WM in the era of precision medicine from two perspectives - precise treatment and prevention of diseases.

5.1 Diseases treatment

Precise medical treatment is a highly specific targeted therapy, such as the HER2 monoclonal antibody, Herceptin, for treatment of breast cancer(Anderson et al., 2014). Targeted drugs have the following advantages: a defined target, clear mechanism of action, quick effect, strong action and concise range of effects for evaluation. However, targeted drugs also have
shortcomings. Because the drug target exists in more than one tissue, the functions and metabolism of other normal tissues in the body will be affected and serious side effects can occur if the medicine does not have high tissue specificity or the diseased tissue is not highly sensitive to the drug as a result of abnormal pathologic changes. Compared with targeted therapy, TCM has the advantage of a dispersed application point, slow effect and relative safety, but a complex mechanism of action. Previous study suggests that TCM pattern represents the clinical manifestation of a group of specific epigenetic changes (Hsieh et al., 2011) - in this case, the corresponding TCM pattern differentiation and treatment should be verified through changes in epigenetic factors before and after treatment. In a study of the effect of Shexiang Baoxin pills on coronary heart disease (CHD) with Qi deficiency and blood stasis pattern, the expression levels of 129 differentially expressed genes were reversed (Zhu et al., 2010). The genes with expression changes after treatment were involved in the regulation of energy metabolism, enzyme activity and other signaling pathways that are closely related to the pathogenesis of CHD. These results indicate that pattern differentiation and treatment of TCM can improve the inherent abnormal regulation of genes in patients. Therefore, TCM can be considered as an epigenomic regulation therapy for network structure, compared with targeted therapy. Specific targeted therapy has a very important role in precision medicine. However, as ideal precision medicine is not based on a single sequence change but on systems biology, precision medicine with only single targeted therapy is incomplete and should be combined with epigenomic regulation therapy for network structure to drive further development. The combination of TCM and WM provides a possible way to achieve this.

5.2 Diseases prevention

At present, biological analyses indicate that the abnormal expression of certain noncoding RNAs is closely related to risk of certain diseases and that TCM may have a regulatory effect (Yang et al., 2014). Among the prehypertensive patients (high-risk population for hypertension), miR-505
Peking University Health Science Center, School of Public Health

is significantly upregulated. miR-505 can regulate a variety of target genes, and plays an important role in the pathogenesis of hypertension. In the use of TCM for liver cleaning, kidney tonifying and wind dispersing in the prevention and treatment of prehypertension, miR505 expression is significantly down-regulated, coupled by the significant improvement of blood pressure (Yang et al., 2014).

6. Conclusion

The arrival of the era of precision medicine presents both a challenge and an opportunity for TCM. The development of modern science and technology does not mean abandoning TCM, but rather provides a more advanced theory and a broader view within which we can examine the characteristics and advantages of TCM and nurture new directions, using a combination of TCM and WM. In summary, a combination of TCM and WM helps realize the development of precision medicine with characteristics of Chinese medicine.

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Peking University Health Science Center, School of Public Health
East vs West, which is better?

----Diet Culture

Fan Jiahua

Sun Yat-sen University

There is a saying, “You are what you eat and You eat what you are”. This word reflects the importance of diet in our life, especially healthy diet. On the one hand, a healthy diet may not only effect our physical health, but also effect mental health. On the other hand, healthy diet affected by many factors, including natural science, local custom and culture, social economy, geographical environment and so on.

1. Why do I choose this topic?

The PhD course on “Food, Medicine and Philosophy in East and West” is a very special experience for me. During the course, I have learned a lot knowledge of west and traditional China culture. We have lectures and varied form of activities, such as hiking, climbing, Tai Chi and so on. All the lectures and activities have a deep impressed on me, which inspire me to think more about differences between east and west. According to many research reports and my own experiences during the course, I found that we did have a lot of differences between east and west. As participants in the course comes from 10 different countries, we have different culture, diet habits, religion and so on, which may effects our diet culture a lot. What’s more, research reports said that difference diet culture can cause different physical condition and disease prevalence. However, we all have beautiful smile and full of energy. So, what on earth are the differences between east and west diet culture and which diet style is better?
2. Different diet concept

In China, we have a word called, “Food is the paramount necessity of the people(民以食为天)”, that means diet is the most important thing for Chinese people. What’s more, Chinese people eat food not only to satisfy their physiological needs but also can make them feel happy. Thus, Chinese food always exquisitely prepared and good in color, aroma, taste, shape and taste of dishes. On the one hand, there is a saying in the folk, “food is first priority, while taste comes the first for food(民以食为先, 食以味为先)”, such as Sichuan and Hunan cuisine, which are famous for its spicy. On the other hand, as we can see many Chinese dishes looked like a work of art, for example, people cave vegetables to flowers and kinds of animals or other things that make them look like real. These help Chinese foods famous all over the world and makes food become more delicious and meaningful. However, people focus on the beauty and taste may lead to lacking of nutrition in food.
In the West, however, people pay more attention on the collocation of nutrition and absorption in food, and they often value nutritive value in the food they eat. Thus, when people talk about food or eating, they usually care about the intake of vitamins, calories, protein and some other things useful for their body. They will try their best to keep food at their original taste and do not care much about color, smell, taste and shape of the food. Although the taste of their food is almost the same, they will eat them up. In short, what they eat is nutrition but not the food itself and they don’t spend too much time on cooking food. For example, they often eat sandwich, pizza, steak or other similar food for meal. They hardly combine eating with spiritual enjoyable, they just eat for living.

3. Different cooking methods

China is a vast country, covering an area of 9.6 million square kilometers. Due to its
vast territory, there has several climates, custom, region and so on. As different area has different custom and diet habits, different local dishes have their own typical characteristics. Generally, Chinese food can be roughly divided into eight regional cuisines including Sichuan, Guangdong, Fujian, Jiangsu, Zhejiang, Hunan, Anhui and Shandong cuisine, which has been widely accepted around. And they are different in materials, cooking methods and taste. Chinese cooking methods contain frying, steaming, stewing and many other methods, different cooking methods has different delicious. Besides, the nature of the materials, the degree of heat and timing are also considered when cooking foods.

Western diet emphasizes science and nutrition, the whole process of cooking is accord to scientific standards strictly, for example, how do steak and how long it takes for bread. So, cooking is a career with monotonous mechanical work. Furthermore, people don’t like cooking food with lot of oil and with big fire in western. They would like to taste the original taste of food, but not only the taste of the sauce like eating the raw food.

4. Different diet style
Chinese people like lively, people always sit together around a table, sharing foods, drinking, talking and laughing together. Especially in the Spring Festival, Mid-Autumn festival, the whole family get together have dinner, bless each other, which reflect happiness and harmony. Besides, you can eat as much as you want because there’s no restricted to anyone during the dinner and we don’t distribute food in advance, which is one of the most important part of Chinese traditional diet culture. While westerners tend to be more quietly and tastefully when having dinner. Everyone's food is distribution in advanced and people talk a little. That means westerners respect personal space, emphasize on personal independence, which is opposite to Chinese people’s style.
5. Different diet content

China is an agricultural country and also a populous nation. According to research, there are more than 600 vegetables in Chinese dishes, that is six times more than western countries. Traditional Chinese food are mainly plant food, it has a strong relationship with the Buddha. Buddhism believes that animals are "living beings", we should not kill or eat them. Therefore, Chinese character is considered to be plants and most Chinese people like hot food, they think the cool food loses the original flavor. While in western countries, uphold the nomadic culture lineages, sailing for hunting, breeding, traditional diet custom to animal diets and eat plant food for complementary. In dietary respect, they pay more attention to nutrition absorption, animal protein and fat intake. Due to this kind of diet habits, westerners are credited with animal character. Meanwhile, westerners love cold food often with salad and platter.

6. Different in other diet cultures

The seating arrangement is a significant part both of the Chinese and western dinning etiquette. In China people sitting around the table to have a meal and the seats are arranged in the left and face the east or the door. So, we say a man who’s seat facing the door is the most honorable(面朝大门为尊). While in western, they follow the principle of lady first(女士优先). The art of using chopsticks is also very essential in the Chinese dining etiquette. Before the meal, the chopsticks must be put right the bowl; after the meal, the chopsticks should be put neat up the bowl’s middle. It is not
allowed to place the chopstick in the food at the time of drinking or speaking. Chinese almost always use chopsticks and sometimes the host also use chopsticks taking food to other people to be polite and show respect when someone was offered food, taking it using both hands. If the host is the eldest, always stand while accepting the food with both hands; otherwise remain seated when the food is offered. While in western, when the food is put on everyone’s plate, people just enjoy their own food quietly and usually do not speak on the table. Generally, there are 3 forks on people’s left and 2 spoons and 1 butter knife on people’s right place and they don’t use his tableware help others to take food.

7. Communication and integration between east and west

With the development of world economy and international communication, globalization has become the pronoun of international communication in all fields, as well as in diet filed. As an ancient civilizations country in the world, Chinese diet culture has a long history and tradition. People said: Chinese conquer the world by diet. That is to say diet culture is the way to get into a country’s culture. During the process of historical development, Chinese diet culture has a profound influence in the west countries. At the same time, Chinese and western are learning from each other to improve and update its own diet culture. For example, Chinese people love western fast food for its convenient and many western countries have many Chinese style fast-food restaurants.

8. Summary

There are many differences between east and west diet culture including diet concept, cooking methods, diet style, diet content and many other differences, which is the result of different culture background, geography, religion, philosophy and so on. Nowadays, we are living in a world which has changed a lot and communication between Chinese and western diet culture brought a new trend, “people have more options in food and become to eclecticism”. Such as people can choose Chinese ingredients but adopt western cook methods or they can use Chinese cooking methods
making western food. I think that is a good phenomenon and people have more options to choose diet habit that is more suitable for oneself. In a world, east and west diet culture both have two sides, good or not and we can complement each other to achieve better results. Only in this way can we eat what we are to become more comfortable and healthier.
Malnutrition of Pregnant women in Nepal

Shrinkhala Shrestha
Dhulikhel Hospital, Kathmandu University Hospital
Dhulikhel, Nepal

The nutritional status of women prior to and during pregnancy plays a key role in fetal growth and development. Women’s nutrient needs increase during pregnancy. Adequate nutritional status and proper dietary intake pattern of women improves maternal and child health. Poor nutrition is indicative of greater health risk to both mother and children born to them. During pregnancy all women need more food, a varied diet, and micronutrient supplements.

Consequences of Maternal Malnutrition

Situation of nutritional problem in Pregnant women of Nepal

There has also been a remarkable improvement in nutritional status indicator for hunger in Nepal. Despite of it, malnutrition rates, especially chronic undernutrition in Nepal remains among the highest in the world.

Compared to improvement in macronutrient deficiency status, Nepal is globally recognized in reducing the high rate of micronutrient deficiencies (IDA, IDD and VAD) through its successful community based supplementation programs. Nepal has reduced the prevalence of anaemia among women of reproductive age by almost half from the 1998 level. From 68 percent in 1998 to 35 percent in 2011, Nepal has made a remarkable progress in the reduction of anaemia, however, this reduction has ceased in the last five years. In the same duration, the prevalence of anaemia in the pregnant women has increased by 6 percent.
Despite the above success, chronic malnutrition continues to be a long standing challenge. Progress in reducing general malnutrition among children and women has been relatively slow. The acute and chronic malnutrition in children remains at critical levels.

**Underlying cause of Maternal Malnutrition**

Physiologic changes that occur in pregnancy stimulate some of these homeostatic responses, regardless of the nutritional status of the mother, thereby increasing the supply of nutrients to help meet increased demands. But in Nepal following factor results the under nutrition in pregnant women:

**Immediate causes**

- Insufficient food security
- Inadequate Maternal care
- Insufficient health services
- Unhealthy environment

**Root causes**

- Political, Ideological, Economic structure
- Resource Control and organizational structure

**Underlying causes**

- Disease

**Manifestation**
Inadequate Dietary intake

- Poor dietary diversity and minimal meal frequency
- Inadequate dietary intake (quality, quantity) and frequency of feeding
- Lower pre-pregnancy weight and height
- Erroneous dietary habits from adolescence
- Insufficient intake of micronutrient
- Lower intake of iron rich food

Disease

- Higher prevalence of anemia
- Highest prevalence of malaria (emergence and reemergence) in many district of the country

Underlying causes

Food insecurity

- Some part of the country have problem of food availability and some have food accessibility and utilization.
- Unavailable or inadequate fortified food
- Agriculture is not nutrition sensitive; most of them are focused for income only. Qualities of food produced are not good because of higher use of pesticides and food adulteration.
- People have poor income status leading to poor affordability of nutritious food.
- There is lower food consumption because of lower awareness or ignorance of nutritional value locally available nutritious food.
- There are food taboos that pregnant women or lactating women are not allowed to eat.
- At the same time there are poor quality and lower nutritious junk foods.

Inadequate Care for mother

- Early marriage and early pregnancy are still prevalent.
- The culture that, in family women and daughter-in-law should eat after feeding all other member of family and they should eat whatever is left at the end.
- In-law’s do not perceive the need for special care of women. Pregnancy are also not considered as a special event in the family, limiting support for care, rest and nutritious diet.
- Heavy workload during pregnancy still persists.
- Poor family support for seeking health services like antenatal visits, consumption of Iron Folic acid tablets etc
- Poor education of mother and lower empowerment of mother resulting poor decision making capacity of women even they are aware of care and services.
- Culture that believes that having certain foods such as green vegetable, fish, papaya, orange, and other foods harm pregnant women.

Insufficient health services

- There are poor access of qualified health care provider and facility.
• Lack of adequate nutrition counselling and follow up during ANC and other health service contact points
• Health seeking behavior is also poor leading to no or minimal health care utilization of available health care facilities.

Unhealthy Environment
• Poor sanitation (toilet, hand washing) practices
• Insufficient water supply and lack of clean drinking water
• Poor food and water handling leading to severe communicable diseases

Root causes

Political causes
• Lower priority of nutritional sensitization in leadership level
• Ineffective implementation of legislation

Governance
• Ineffective and insufficient coordination among health, agriculture, education and other responsible sectors
• Lack or no monitoring and supervision of food quality and food security

Conclusion
Adequate nutrition is important for women not only because it helps them be productive members of society but also because of the direct effect maternal nutrition has on the health and development of the next generation. So Nepal has still to work hard to provide proper nutrition to the pregnant. Awareness is very essential to understand the importance of pregnancy as a special event that requires improved/extra diet and care, with emphasis on the consumption of locally available foods and on dietary diversity. Every sector should feel responsible to improve the current situation.

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A new DAO of traditional Chinese medicine
Chen Wenchao, PhD Student
The First Affiliated Hospital of Jinan University, Guangzhou

Background:

With a history of thousands of years, Traditional Chinese Medicine (TCM) has formed a unique system to diagnose and cure illness. The TCM approach is fundamentally different from that of Western medicine. In TCM, the understanding of the human body is based on the holistic understanding of the universe as described in Daoism, and the treatment of illness is based primarily on the diagnosis and differentiation of syndromes.

The philosophical origins of Chinese medicine have grown out of the tenets of Daoism (also known as Taoism). Daoism bases much of its thinking on observing the natural world and manner in which it operates, so it is no surprise to find that the Chinese medical system draws extensively on natural metaphors. In Chinese medicine, the metaphoric views of the human body based on observations of nature are fully articulated in the theory of "Yin-Yang" and the system of Five Elements.
Traditional Chinese medicine faces uncertain future:

In fact, before this course my opinion of TCM is that although it is a kind of amazing traditional technology, but there are some reasons limit the progress of TCM.

1. For a long time in history, starting from the age of the republic of China, the government promoting western medicine, think traditional Chinese medicine is old and backward. The voice of against traditional Chinese medicine never stop. The government of the republic of China in 1929 passed the abolish the old medical case, wants to clamp down on the traditional Chinese medicine. In 1949 PRC government plans to phase out all qualified doctors of traditional Chinese medicine, then through the combination of Chinese and western medicine to combine traditional Chinese medicine gradually became a western medicine doctor of traditional Chinese medicine.
(1929 passed the abolish the old medical case)

2. The sources of medicine. As we know herbs and animals are two main sources of TCM. In ancient times Herbs are growing in nature without pollution, especially some rare medicine like ginseng. But in modern times, it is cultivated to satisfy the excessive demand. These cultivated one of course will not have the same effect as the wild one. And the other important source is from animal like the bear bile. It is also be limited.
3. The safety of traditional Chinese medicine. There have been reports of Chinese herbal products being contaminated with drugs, toxins, or heavy metals or not containing the listed ingredients. Some of the herbs used in Chinese medicine can interact with drugs, have serious side effects, or be unsafe for people with certain medical conditions.

Solution and discussion:

After visit the hospital of traditional Chinese medicine and the Medicine College of TCM. What impressed me is that many people are now working hard to get things change.

In HK university, they use the most advanced laboratory technology and equipments to analysis TCM to make us have more understand of these medicine through a west way. More and mor traditional Chinese medicine formula are made into proprietary Chinese medicine, which is more convenient for use.
In spite of the widespread use of TCM in China, rigorous scientific evidence of its effectiveness is limited. TCM can be difficult for researchers to study because its treatments are often complex and are based on ideas very different from those of modern Western medicine. But in the Chinese traditional medicine hospital they are now try to use some very modern equipment to support or confirm the diagnosis and treatment of TCM. And to use the method of clinical trials to test the efficacy of Chinese medicine, seeks international recognition for TCM treatments.

All these changes looks TCM is no longer the original ancient traditional Chinese medicine, and became a new TCM. The new TCM in using some advanced technology from west to find their own way of life. This makes me think, western medicine also has gradually emerged some similar concepts, such as functional food,
for example coffee are recommend in the food guidelines that can reduce the incidence of diabetes II and cardiovascular disease.

Both east and west each in their own way to find the truth of nature, perhaps one day they will melt into each other, just like the Yin and yang theory.
Fecal microbiota transplantation - a new practical treatment from Traditional Chinese Medicine

PhD course “Food, Medicine and Philosophy in East and West”
PhD student: Xudong Yan
11 April 2017
University of Copenhagen
Background

In this course, it have been showed that the differences between east and west in food, medicine and philosophy. I choose this for my report due to the following reasons. On the one hand, feces, used to treat the gastrointestinal diseases derived from ancient china, is a traditional Chinese medicine (TCM) and administrated universally in West Country. On the other hand, it is related to my PhD studying about establishing piglet model with new probiotic by fecal microbiota transplantation (FMT). In this case, I will try to describe a TCM which links with my own research.

Introduction

Fecal microbiota transplantation or FMT is the transfer of fecal material containing bacteria and natural antibacterials from a healthy individual into a diseased recipient. Previous terms for the procedure include fecal bacteriotherapy, fecal transfusion, fecal transplant, stool transplant, fecal enema, and human probiotic infusion (HPI). Because the procedure involves the complete restoration of the entire fecal microbiota, not just a single agent or combination of agents, these terms have now
been replaced by the new term fecal microbiota transplantation. FMT is an effective treatment strategy for recurrent Clostridium difficile infection (rCDI) that has not responded to standard therapy (fig1). There is interest in using FMT for other gastrointestinal (GI) and non-GI diseases, and multiple studies are under way to determine potential alternative indications.

Figure 1. Mechanisms underlying successful treatment of recurrent CDI with FMT. Improvement in symptoms after FMT has been associated with changes in microbial community structure, such as a decrease in Proteobacteria as well as restoration of microbial diversity, increase in secondary bile acid production, and niche exclusion by other bacteria. Used with permission of Mayo Foundation for Medical Education and Research, all rights reserved.

History

Though new to the Western medical world, FMT has been described 1700 years ago. It was an ancient Chinese researcher of the fourth century, by the name of Ge Hong, who first used what he called ‘yellow soup’ to treat his patients with severe diarrhea.
The ‘soup’ was administered orally, possibly accounting for the failure of the technique to become widely known. 1200 years later Li Shizhen used "yellow soup" which contained fresh, dry or fermented stool to treat abdominal diseases.

Veterinarians have also known of the possibility of using stool as a therapeutic modality, given by oral or rectal means from the 17th century. Camel stool was also used by German soldiers to treat bacterial dysentery during World War II. The technique came to attention this century after it was published by Eiseman et al, in a report on his treatment of patients with antibiotic-associated diarrhea with FMT via retention enemas. The patients recovered promptly and well from the diarrhea. This was in 1958.
There has been considerable interest in FMT over the past decade. There have been multiple case reports and series describing differing FMT protocols, methods of stool administration, and variable patient responses. The highest success rates have been for rCDI with less robust findings, but active investigation, in other GI and non-GI diseases.

**My research and FMT**

Necrotizing enterocolitis (NEC) is the most commonly acquired catastrophic gastrointestinal disease primarily affecting preterm very-low-birth-weight (VLBW: birth weight <1500 g) infants. The incidence of NEC varies from country to country, reportedly affecting 2.6% to 28.0% of preterm VLBW infants with mortality of 16% to 42%. The key risk factors for development of this disease are prematurity, the introduction of enteral feeding, and bacterial colonization. Given that NEC frequently progresses from early signs of intestinal inflammation to extensive necrosis within a matter of hours, it is desperate to develop strategies to prevent NEC rather than relying on treatment strategies alone.
Because the probiotic we are using now might not conquer so many other microflora in the intestine and less diversity as well as intestinal microbial ecology seemed to be an important pathologic phenomenon in NEC, we hypothesize that FMT should be the most effective in preventing feeding intolerance and NEC. In our study (Figure 2), thirty-six preterm piglets are obtained from four litters delivered by cesarean section at 105–107 days of gestation. Immediately after birth, pigs are stratified according to body weight and sex and randomly assigned to three groups defined by Group A: sows breast milk; Group B: combined probiotics and sows breast milk; Group C: fecal microbiota and sows breast milk. At 72 hours, all preterm rats are sacrificed to evaluate different kinds of active molecules for proceeding to the relationship between these changes and FMT.
Conclusion

FMT, which have an origin from Chinese traditional medicine, has become a recommended option in patients who have recurrent Clostridium difficile infection. We hold the belief that it will be administrated to prevent other disease especially in preterm infant to studying.
Main Focuses on Kids Nutrition Research

Joshua Ma

Course report for the PhD course: Food, Health and Philosophy in East and West
2017.4

In recent years, growth level of Chinese kids has been increasing gradually. Kids’ height and weight of urban and rural area in various age groups are both increasing. Height increasing rate of rural area is bigger than that of urban area. Weight increasing rate of urban area is bigger than that of rural area. The growth difference of kids from urban and rural area is decreasing. As for now, Average growth and development level of Chinese kids from urban area has reached, and even surpassed kids growth standard recommended by WHO, getting close to average level in western developed countries.

Kids’ growth and development is a complex process from quantitative change to qualitative change, not only the increase in height, weight, but also the gradual differentiation of organs, function gradually mature.

Meanwhile, kids will experience two growth peaks, two accelerated long weight period, and two accelerated growth period. In the first year after birth, body weight and body length increased rapidly, and the first growth peak appeared. The growth rate of puberty began to accelerate, and there were second growth peaks. The first acceleration period is before the age of 4. The second acceleration period is between 8-10 years old. Children gain weight faster than body length, children look fat.
Between 5-7 years old and 11-15 years old; the height $h$ of the body increases faster than the weight, the children appear to be slender, as shown in Figure 1.

![Figure 1. Continuity and stage](image)

As Liu (2011) indicated, kids’ growth and development have following physical properties.

**Height weight:** Stable growth, height, weight growth. Height increased by 4-6 cm per year, weight increased by 1.5-2 kg. Enter puberty (Boys 12 years old, the girl is 10 years old), physical growth and development rate began to accelerate, length, weight began to burst growth, puberty is known as the peak of the second growth.

**Muscle:** The development of muscle tissue and the improvement of hematopoietic function in preschool children, and the need for iron is higher than that of adults; Adolescent girls need adequate iron.

**Nervous System:** Differentiation of nerve cells has been basically completed, increase the volume of brain cells and myelin sheaths of nerve fibers are still continuing, Central Nervous System functions of continuous improvement, make the leap development of language and behavior.

**Visual Development:** Critical period of visual development, Visual changes in the nervous system to grow rapidly after birth, and gradually become mature, perfect vision developed until age 8.

**Absorption metabolism:** Chewing and digestion function cannot be compared with adults, Digestive organ development is not perfect. Less digestive juices, Digestion is worse than adults, But intestinal absorption ability is stronger than adults.

**Exercise:** Large amount of exercise, need plenty of energy and nutrients.

**Others:** In addition to the reproductive system, Other organs, system in school age stage gradually close to the level of adult, independent activity gradually strengthen, is Most dynamic moments in the life of people.

As shown by a research conducted by Peking University about kids nutrients intake, Among children aged 3-12, only 3 to 5 years old boys and 3-years-old girls daily protein intake to RNIs recommended value, suggests that at least 50% of the rest of
the group are children protein intake below RNIs is recommended.

Fat energy ratio is low (below the AI recommended lower limit) ratio of 29.4, which is too high (above the AI recommend the ceiling) rate of 47.4, energy ratio of girls is similar to boys, prompt children than high intake of fat for energy. But daily direct DHA intake from food only about 40 mg, daily from inadequate intake of dietary DHA. The best vitamin intake is vitamin E, reach RNIs 53-81.3 per cent of the recommended amount of vitamin E. The second is nicotinic acid.

Up to about 30 of the RNI recommended amount. Vitamin A, vitamin C, vitamin B1 and vitamin B2 in each age group children reach RNI recommended ratio are low, hints of vitamin A, vitamin C, vitamin B1 and vitamin B2 intake is poor, the median vitamin D intake 1.9ug/d, inadequate vitamin D intake.

3 to 12 years old children most often taking the nutrient supplement of calcium, zinc and cod liver oil, taking the proportion were 58.1%, 33.0% and 32.2%, followed by a multivitamin, bovine colostrum, probiotics, and vitamin D, taking the proportion of 15.7%, 15.3%, 14.4% and 15.3% respectively. Composite minerals, iron supplement, DHA take ratio are low, compound vitamin, mineral, taking the proportion is 7.4%, 6.9%, 4.8% and 6.9% respectively. Overall, 3 years old children supplements utilization rate is highest, most of the supplements utilization rate decreased with increasing age.

Study on nutritional needs of kids mainly focuses on brain and bone.

To establish healthy brain, there are four main principles to follow,

1. Balance blood sugar.
   - **Sugar is the only energy source for the brain, it takes about 125 to 150 grams of glucose per day,**
   - To ensure that children get the right type and amount of sugar at the right time.
   - Too much' faster' sugar means high blood sugar, hyperthyroidism, difficulty concentrating, also lead to effective ability to form new memories and new information storage function decline.
   - Too little sugar, children may feel tired, irritable and difficult to concentrate, depression and dementia - related (University of California at Los Angeles study results).
   - **Should reduce the intake of added sugar, eat less sugary drinks, appropriate to eat slow sugar** (whole grains, oats, brown rice and rye bread, etc.). Eat or combined with protein, often helps to keep the child's energy and attention, will benefit the development of brain function.

2. To ensure essential fatty acids.
   - Randomized double-blind controlled trials have shown that intake of essential
Fatty acids can improve cognitive ability, improve children's learning ability and memory. Ensuring sufficient unsaturated fatty acids are important for brain function and development.

- Eat more foods rich in Omega-3, such as fish (salmon), Chia seeds, flax seeds, krill, kiwi fruit, walnut oil, walnut and so on. The conversion rate of 3-5% for ALA converted to DHA in the body.
- Direct supplementary DHA. ConnyeN. Kuratko, the study found that direct DHA supplementation has a promoting effect to learning and behavior development in healthy children.
- Dose, the experiment of DHA daily dose range from 88 to 1200 milligrams a day, see the children's DHA supplementation on cognition and behavior results of clinical trials.

3. Vitamin and mineral substance.
   - Vitamin and mineral substance are significance nutrients for brain to keep the normal operation of brain. Studies have shown that vitamin and minerals to keep the brain best performance and improve the kid's IQ.
   - Eat more foods rich in vitamins and minerals.
   - Vitamins and minerals can be directly added as supplements.

4. Avoid anti-nutrients or “rubbish foods”.
   - Anti-nutrients or “rubbish food” mainly includes the high content saturated fat and sugar.
   - The study of Greenwood, C. E shows that high content saturated fat and sugar diet affects cognitive development.
   - Evaluate the effect of “rubbish food” by mouse model. The result displayed that the high content saturated fat and sugar make cognition and the hippocampus nerve nutrition factor mediating synaptic plasticity level decrease.
   - So, the intake of high content saturated fat and sugar diet should be avoided or reduced.

Regarding bone health, there are several main nutrients to focus, as shown in Figure 2.
<table>
<thead>
<tr>
<th>Nutrient</th>
<th>Effects on bone</th>
<th>Food sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ca</td>
<td>One of the most abundant mineral in bone. When calcium intake is insufficient, the calcium in bone will release into the blood. To maintain the blood calcium, bone mineral density becomes lower and lower, more and more loose of bone and degenerative bone hyperplasia.</td>
<td>Milk and dairy product—best calcium source for kids. Spinach and collard.</td>
</tr>
<tr>
<td>P</td>
<td>Main substance in bone. The ratio of calcium and phosphorus is 2:1, bone can grow healthy, and accords with the internationally accepted optimal proportion for calcium absorption.</td>
<td>Widely exist in all animals and plants.</td>
</tr>
<tr>
<td>Mg</td>
<td>Keep strong bone, promote calcium absorption and join some biochemical reaction concerned with bone metabolism. The golden ratio of the requirement of calcium and magnesium is 2:1 for human. Once lack of magnesium, bones will become fragile and more likely to fracture.</td>
<td>Seed, grain, vegetables, beans, nut.</td>
</tr>
<tr>
<td>VD3</td>
<td>Promote the calcium in intestinal tract. Studies have shown that kids' bone nutrition levels are closely related to the intake of VD. If lack of VD, bone hardness will reduce and form &quot;cartilage disease&quot;.</td>
<td>Grain, marine fish, animal liver, lean.</td>
</tr>
<tr>
<td>VC</td>
<td>Increase the bone growth efficiency. VC is a necessary component of VD metabolic to form VD3 and the required components for ossein hydroxylation.</td>
<td>Vegetables and fruits, wild edible amaranth, alfalfa, redkrah, rose, sea-buckthorn, wild jujube.</td>
</tr>
<tr>
<td>VK</td>
<td>Healthy bone mineralization and enough integrity depend on the appropriate level of vitamin K. A lack of vitamin K can lead to osteoporosis fracture. VK could stimulate bone formation, inhibit bone absorption and prevent osteoporosis.</td>
<td>Green vegetables, soybean oil, mustard oil of low erucic acid, olive oil.</td>
</tr>
</tbody>
</table>

Figure 2. Main factors affecting bone health
Use of human donor milk for preterm infants in China versus Denmark
- A course report in *Food, Health and Philosophy in East and West*
Introduction

Human milk is the ideal nutrition for newborn infants; it provides all the energy and nutrients the healthy and mature infant needs for the first months of its life. It promotes sensory and cognitive development and protects the infant against infections and chronic diseases. However, for preterm infants born between week 23 and 37 of pregnancy, it can be a difficult task for the mothers to produce breast milk because the pregnancy is interrupted before the breast tissue have fully maturated to produce milk, and the infants might be too immature or ill to suck at the breast to stimulate the production. To initiate and maintain milk production during this period, the mothers must use a breast pump to express the milk, which will be given to the infants through a tube from the nose to the stomach. As long as the mother’s own milk is insufficient in amount or absent, neonatal units at hospitals around the world, provide human donor milk or infant formula as the enteral nutrition. For more than 100 years human donor milk has been used as an alternative to mother’s milk, and for many years, scientists have discussed whether human donor milk is a better alternative than infant formulas. The Committee on Nutrition of the European Society for Pediatric Gastroenterology, Hepatology, and Nutrition (ESPGHAN) recommends the use of human donor milk for preterm infants in neonatal intensive care units [1]. Studies have found that human donor milk seems to reduce neonatal infections [2] and decrease the incidence of a devastating intestinal disease called *necrotizing enterocolitis* [3-6] compared with infant formula among preterm infants. However, infant formula is more commonly used as an alternative to mother’s milk at many hospitals worldwide, especially in China where only very few hospitals provide donor milk compared to hospitals in Denmark were all preterm infants receive it.

The aim of this report is to highlight different aspects regarding the use of donor milk in China versus Denmark. Does the differences in “east and west mentalities” we have learned about during the PhD-course have an influence on the different approaches? Is so – why?

Donor milk banks in China

The first donor milk bank in China was established in Guangzhou at the Guangzhou Women and Children’s Medical Center in 2013. Now four years later there are approximately ten donor milk
banks in China. Women who have excess breast milk give their milk to the donor milk banks voluntarily. The women go to the donor milk banks to express their milk, which they donate free. 1.1 million preterm infants are born in China every year and about 85 percent of their mothers are unable to breastfeed them. Donor milk is a shortage; only ten percent of all preterm infants born in China receives it, even at hospitals who provide donor milk cannot meet the demands [7].

Donor milk banks in Denmark
The first human donor milk bank in Denmark was established in year 1943 [8], today two well established human milk banks provide donor milk to all neonatal units in Denmark. Infant formula is not given to the smallest preterm infants. Women who donate their breast milk can express their milk at home and the milk is then collected by staff from the donor milk banks. The milk donors are paid approximately 180 DKR per liter milk. The donor milk banks in Denmark do not face the same challenges as in China. In Denmark, it is not difficult to find milk donors and the smallets preterm infants all receive donor milk instead of infant formula, in average 4.600 preterm infants are born per year in Denmark.

Duration of maternity leave and breastfeeding in China and Denmark
The average length of maternity leave in China is around three months with full salary, for some professions such as medical doctors, maternity leave is only one month with the possibility to go home one hour every day after lunch to breastfeed until their infants turn one year old. In Sizhuan provins (in 2012), breastfeeding rates were 30.1% when the infant were 4 months [9], however the breastfeeding rates vary in the different provinces in China [7]. In Denmark, the average maternity leave is approximately nine months, must commonly the women receive full salary for six months and receive “maternity daily allowances” from the government during the last period. 95% of Danish women breastfeed their infants just after birth and 59.8% continue with full breastfeeding until the infants are 4 months old.

Discussion
A fundamental part of becoming a human milk donor and to establish a donor milk bank is that women breastfeed in general. Breastfeeding rates in China are among the lowest in the world
[10]. The short length of maternity leave in China is a big consequence. A three months old baby needs milk approximately every three hours per day, which probably makes it too time consuming for the mothers to express that much milk while being a work. Understandably, formula is a more convenient choice.

For many years, formula has been the first choice of nutrients for newborn infants in China instead of breast milk and the infant formula marketing have been massively. For many years, the government also recommended infant formula over breast-feeding. However, in year 2008, a formula scandal occurred where melamine was added to the formula to falsely increase the amount of protein levels and make the product more attractive on the marked. This resulted in six infants dying of kidney damage. The scandal made many Chinese rethink the use of infant formula instead of breast milk and the recommendations from the governmental health board changed to use breast milk over formula. Compared to Denmark, commercial marketing on infant formula has been regulated since 1981 and infant formula may not be equated with mother’s own milk [11].

The scandal in 2008 also created distrust in the population to both companies in China and amongst people. This distrust can perhaps also explain the reason why women who want to donate breast milk need to go to the hospitals to express the milk and do it free of charge. To go to the hospital to donate milk for free is very time consuming and inconvenient, when taking care of a newborn baby at home and must be an big obstacle to motivate women to donate their milk. When the first donor milk bank was established, a survey showed that only 25 percent of the 300 respondent women were willing to donate their excess breast milk, and just 18 percent were willing to feed their infants donated milk.

When preterm infants and ill mature infants are hospitalized at a neonatal unit in China, the parents are not allowed in the unit to be with their infants. If the mothers want to breast-feed their infants, the mothers must express the milk with a pump at home and bring it to the hospital, so the nurses can give the milk to the infants. The doctors and nurses do motivate the mothers to do so. However, one could imagine how difficult it must be to relate to the infants needs besides treatment and medication provided by the hospital staff. This must be difficult to picture and relate to for both the parents of hospitalized infants and for the Chinese people in general. Why the motivation to donate human milk is not stimulated?
In Denmark parents and close relatives are invited to stay/visit the neonatal units and the media are invited to highlight the needs and obstacles that are related to have a preterm infant hospitalized, therefore is must be easier for breast feeding mothers to be motivated to donate their milk.

East versus West

The idea of given human milk to humans instead for bovine milk (formula) is for many in the western countries considered the most natural and obvious choice. The benefits from donor milk compared to infant formula is however an ongoing debate and have been researched many times. The conclusions varies and are to some extent inconclusive in turns of scientific validation. However, over all the scientific ballast has a strong voice in many decision-makings in the “west”. In the “east” – the scientific ballast has a less degree of influence on decision-making, one is not focusing on the evidens-based results, more in the experience-based results, which also is a common term with in Tradition Chinese Medicine. Traditions are more high-valued, and it is a tradition to introduce complementary food early to infants in China, this can be traced back as far as the Sui Dynasty (581 – 618AD) [10] and during the last 50 years it has been common to use infant formula over/just as much as breast milk.

Donor milk as a functional food

The scientific evidence whether donor milk is a better alternative to infant formula is, as already mentioned an on-going discussion, however donor milk can be described as a functional food because it has a potentially positive effect on health beyond basic nutrition. Proponents of functional foods say they promote optimal health and help reduce the risk of diseases, which also is the case for donor milk for preterm infants.

Conclusion

Donor milk is a commonly used alternative for mother’s own milk for preterm infants in neonatal units around the world, however is varies from country to country especially from Denmark to China. This relates back to the countries breast-feeding rates and the general attitudes in society towards breast-feeding. Donor milk banks is a recent establishment in China and they have a hard
time motivating women to donate breast milk compared to in Denmark. This probably causes the lack of awareness about the critical benefits of breast-feeding in China in general; however, it is my impression that time is changing and there is more focus on this matter.


Homology of Medicine and Food?

——Active Ingredients in Traditional Chinese Functional Food

食药同源？——食品中的活性成分

Tik Muk, PhD student, Comparative Pediatrics and Nutrition,
University of Copenhagen, Copenhagen, Denmark

The PhD course “Food Health Philosophy in East and West” has provided us a great opportunity to promote understanding in food, philosophy between East and West. I have gained a great and special experience during this 10-days course, especially some knowledge about traditional Chinese culture and history. We have been through a lot of lectures and field works during this course, what impressed me the most is the homology between medicine and food in china. My research fields are involved in proteomics and metabolomics, which makes me really interested in the active ingredients in the traditional Chinese functional food and the connection between the active ingredients and health.

Traditional Chinese Functional Food

As for the food, the primary role is to satisfy hunger and provide necessary nutrients, while for traditional Chinese eating and health habits, foods or phytochemical compounds from edible plants and animals are used to prevent nutrition-related diseases and to increase physical and
mental well-being of people. These kind of food are called traditional Chinese functional food, which have been used for several decades and developed rapidly in recent years. It also have been accepted by many countries because of the demand for healthier lifestyles. However, there is no clear definition for functional foods so far in general at global level (Menrad, 2003; Kaushik and Kaushik, 2010). The legislation for functional foods was first implemented as “Foods for Special Health Use (FOSHU)” in 1991 (Arai et al., 2001). According to FOSHU, functional foods refer to natural or formulated foods containing ingredients that aid specific body functions in addition to being nutritious. Functional foods consist of food-and drink-based formulations.

Figure 1. Functional food in different forms.

**Active Ingredient**

Active ingredient usually indicates the ingredient in a pharmaceutical drug that is biologically active. For some of the medical products, there is more than one kind of active ingredient. Usually, the pharmaceutical active ingredients are artificially synthesized. However, in the functional
food, the active ingredients are from nature and there is always more than one kind of active ingredients works together to generate combined effect, which makes the effect complicated and long-term.

**Chinese traditional functional food**

Chinese medicated diet has a long history in Chinese culture. Dietotherapy is a kind of therapy to cure and prevent disease with curative effects food, which is one of the parts of science of health preserving of TCM. In China, the history of dietotherapy can be dated back to the Shang Dynasty 3,500 B. C (Chunyan Yao et al., 2012). For the traditional functional food, it can be prepared either from Chinese herbs alone, or from Chinese herbs and food according to certain prescriptions with different proportion, by different processing and cooking ways.
The active ingredients in traditional Chinese functional food

Nowadays, the major active ingredients of functional food is including functional oligosaccharides, active polysaccharides, microbial oils, taurine, l-carnitine, melatonin, saponin, flavonoid, lycopene, procyanidine, probiotics and so on. Some of them can be found in the medicines. The physiological function of functional oligosaccharides is to modify gut microbiota and inhibit pathogen as it has low calorie and is indigestibility. Functional oligosaccharides are rich in banana, honey, garlic, tomato, asparagus and grains, which is considered to be good for skin and losing weight. In China, there is always combination effect of several kinds of food with similar effect works together. For example, in China, there is a tea made with honey, date, ginger and brown sugar which is considered to be good for woman especially for physical period, because for the date and brown sugar, they are enriched with iron, as for the honey is rich in functional oligosaccharide and the ginger has a lot of rhizoma curcumae.
longae which can dispel cold and promoting blood circulation to remove blood stasis. The combined effect of drinking them together will be very good for woman.

![Figure 3. Traditional Chinese Siwu Tea.](image)

**Conclusion**

In conclusion, functional food plays a very important role in Chinese eating habit and nourishing of life, some of the prescription have gone round in China for thousands of years. For an old Chinese saying, there is always some homology between medicine and food. The main element of these health effects is abundant active ingredients in the functional food.

**References**


The way of treatment in traditional Eastern vs. Western medicine.

For me as a western educated doctor, it was interesting to observe how the differences are between east and west when it comes to diagnosing and treatment of different illnesses. It was the first time I realized how big the field of Traditional Chinese medicine (TCM) was, and in this report, I would focus on why TCM is not used more in western medicine.

TCM originated in ancient China and has evolved over thousands of years. In China, TCM and WM have coexisted for more than 200 years, and both types of medication are licensed as patent medicine and are widely available at pharmacies, hospitals and other outlets. TCM is an essential part of the healthcare system in several Asian countries.

To diagnose a condition or disease using Western medicine, the patient’s history (subjective), physical findings (objective examination), and test results (ex. blood samples, scans and biopsies) are used, and treatment is devised according to the patient’s symptoms or the root cause of the problem.

TCM establishes a diagnosis of the individual rather than the disease, and uses a process called 'syndrome identification', whereby the practitioner makes a dynamic conceptualization of the individual's situation and comes up with a 'pathophysiologic status' (the type of disharmony) for the individual; this status is called 'zheng' or 'syndrome'. The therapeutics used to restore the harmony within the host and between the host and their environment are determined by the identified 'syndrome'. They don't use scans or biopsies as in western medicine.

In Chinese medicine, they understand the world and the human body in terms of five essential elements:

- Wood
- Fire
- Earth
- Metal
- Water

These substances are aspects of the qi, or chi — or the life force energy — that flows within the body. They believe each person is made up of a unique balance of these elements, which are each associated with different seasons, colors and organs in the body. When the elements become unbalanced, health problems occur.
The following table shows the categorization of phenomena according to the five elements:

<table>
<thead>
<tr>
<th>Element</th>
<th>Wood</th>
<th>Fire</th>
<th>Earth</th>
<th>Metal</th>
<th>Water</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flavors</td>
<td>sour</td>
<td>bitter</td>
<td>Sweet</td>
<td>pungent</td>
<td>salty</td>
</tr>
<tr>
<td>Zang</td>
<td>liver</td>
<td>heart</td>
<td>Spleen</td>
<td>Lung</td>
<td>kidney</td>
</tr>
<tr>
<td>Fu</td>
<td>gall bladder</td>
<td>small intestine</td>
<td>Stomach</td>
<td>Colon</td>
<td>urinary</td>
</tr>
<tr>
<td>Senses</td>
<td>eye</td>
<td>tongue</td>
<td>Mouth</td>
<td>Nose</td>
<td>ear</td>
</tr>
<tr>
<td>Tissue</td>
<td>tendon</td>
<td>vessel</td>
<td>Muscle</td>
<td>hair/skin</td>
<td>bone</td>
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In western medicine, we use diagnostic methods, as for example scans if it has an evidence-based meaning, because then we know if it doesn’t help the patient. The best diagnostic methods are thus carefully chosen, based on the conviction that evidence is best.

When we look at the theory of TCM diagnosis, it has not really been elucidated in Western scientific terms, but the TCM ‘syndrome identification’ process seems to work. On the visit to the TCM school
of medicine, I got the impression that a lot of people in China choose the TCM as first choice to find out why they have different symptoms from the body.

To understand the issues surrounding the use of TCM, it is essential to realize that it is a comprehensive conceptual system, which is very different from the Western reductionist and mechanistic approach to diseases. TCM works around five solid organs; heart, liver, spleen, lung, and kidney and six hollow viscera: Colon, small intestine, urinary bladder, stomach and gall bladder. These structures are connected by vessels with “qi” (energy) and blood circulating through them. This system is a concept of how the body functions, and the “structures” are not actual anatomical structures as in Western medicine. TCM is a holistic approach, and emphasizes the importance of keeping all the structures functioning harmoniously. A person is considered to be in good health if every “structure” is functioning in harmony with the other “structures” in the body and with the surrounding environment.

And when it comes to treatment, Chinese medicine relies more on natural substances while western medicine often relies on pharmaceutical therapies to address health issues.

Some of the methods that Chinese medicine uses to correct imbalances and create harmony are:

- Diet therapy
- Acupuncture
- Massage
- Herbal remedies
- Chinese exercise
- Meditation

From that perspective, TCM is mostly classified as alternative medicine in the West, but more and more people are using it, and integration of the traditional Chinese and Western systems of medicine has begun in multiple medical centers internationally. The number of studies with evidence that several herbs and combinations of herbs used in TCM have important pharmacological effects, is increasing. It seems to me, that it is not the users of TCM in China, but the continued popularity of herbal remedies worldwide, that inquire evidence-based research. But how to evidence base TCM?

In Western medicine, randomized, controlled trials are the gold standard in clinical research, and they are designed to determine the efficacy of treatments, where end points can be reduced to one or a few objectives. The randomized, controlled trial design, however, has distinct limitations especially when applied to TCM, because TCM is holistic and conceptual, and it identifies and treats “syndromes”
rather than diseases. Assessment of the efficacy of TCM tends to use multiple, interactive measures, and its outcomes tend to depend on whether harmony is restored or not, which also makes measurement difficult.

To establish whether or not TCM has an impact on patients is difficult, so I do understand the skeptical approach that Western medicine hospitals has to this field. Ideally, all medicine should be rigorously tested, and we see more and more that alternative medicine is tested in clinical trials, like acupuncture used for delivery pain given birth. I politely suggest that clinical trials should be carried out to establish the efficacy of TCM, and earlier literature suggest that these differences between Western medicine and TCM indicate that alternative strategies must be developed for the evaluation of TCM.

Western classifications of diseases do not correspond with TCM classifications, and the measures of efficacy derived from Western views of disease do not assess the goals of TCM. So if it should be good research, it is important to incorporate the concepts of both Western medicine and TCM into research protocols, find and develop special ways to define and measure the effect of TCM. It will clearly be different from the methods we use in the West, but it is not impossible.

Establishing collaboration between Western medicine and TCM is a major challenge, but I think we need to remember it is not so different from each other. In Western medicine we also use extracts from plants, as in 1835 the German chemist Karl Jacob Löwig isolated extracts from the plant Spiraea ulmaria which gave rise to the highly used salicylic acid, that western medicine is using for pain-relief. Another drug, digoxin, used for arhythmiasis are extracted from the plant L. digitalis purpurea.

The number of databases and compilations of herbs, herbal formulations, phytochemical constituents and molecular targets is increasing, primarily because of the widespread use of TCM in combination
with Western drugs. I see one of the reasons for the skeptical approach as due to lack of knowledge about side effects, and as well as information regarding the potential efficacy and safety of phytochemical constituents in herbs and TCM formulations, are essential information, particularly when TCM is used in combination with other drugs. When I was taken the course I spoke with many of the western educated Chinese doctors and it seems like they are much more open-minded and discuss with TCM doctors what treatment to choose if the patient want a combination with TCM and western medicine. I think Western medicine could be more open-minded for alternative medicine.

References:

Compare of Colostrum and Bioactive factors -between East and West

The West is deductive, from the universal to the particular; the East is inductive, from the particular to the universal.

——Ji Xianlin (2006)

This course “Food, Medicine and Philosophy in East and West” gave us a chance to understand from different perspectives of natural sciences, social sciences and humanities, which gave me a lot of inspiration for my study. Here I will try to talk about colostrum and bioactive factor which related with my own research about fetal nutrition.

Introduction

Colostrum

Colostrum also called “first milk” is a form of milk produced by the mammary glands of mammals in late pregnancy. Most species will generate colostrum just prior to giving birth. In
general, protein concentration in colostrum is substantially higher than in normal milk.

In clinical setting, colostrum is crucial for newborns. Newborns have very immature and large digestive systems, and colostrum delivers its nutrients in a very concentrated low-volume form. Certain effects of colostrum may be species specific, whereas other effects may be shared across species [1.2]. Hence, the unique nutritional and biological activities of bovine colostrum that benefit neonatal calves may also benefit specific groups of humans. Many hospitals use bovine colostrum to feed infants when mother’s milk is not sufficiently.

Nowadays, we already regard bovine colostrum as functional food in different ways in Chinese. As listed below:

1. Improve elder people immune defense and delay the organs function decline.
2. Promote tissue repair and trauma recovery of patients who experienced post-operative recovery.
3. Regulate intestinal flora, promote gastrointestinal tissue development and wound healing for the patients with gastrointestinal disorders.
4. Enhance the mothers’ pregnancy constitution, reduce the external pathogen, protect the fetus and mothers’ health, through the placenta
and milk to the fetus and keep away from postpartum depression and prenatal trouble.

Colostrum as an integrity and functional food has many characteristics like traditional Chinese Medicine. For example, individualized, natural agents, behavior of the system as a whole, works to maintain health and so on [3]. In Chinese idioms” food and medicine homologous”. Colostrum is not focus on one point to cure, but has extensive role to improve the general level of health.

Bioactive Factors

Milk contains numerous bioactive factors which have anti-microbial, anti-inflammatory or other biological effects. These bioactive substances including Immunoglobulin (Ig), cytokines, enzymes, growth factors and so on. Characterization of the biological effect of such components is important for optimal production of infant milk formulas to be used when mother’s milk is not available [4]. There are differences of the content and type among species. Different ingredients have different roles, for example:
1. Growth Factors. Colostrum contains numerous growth factors that have wide-ranging effects on the intestinal tract, vasculature, nervous system, and endocrine system. Intestinal maturation, and repair: Epidermal growth factor (EGF) is critical to the maturation and healing of the intestinal mucosa. Growth and development of the enteral nervous system: Neuronal growth factors. The immaturity of the newborn intestine extends to the enteral nervous system, which requires brain-derived neurotrophic factor (BDNF) and glial cell-line derived neurotrophic factor (GDNF) for its development. Tissue growth and intestinal atrophy: The insulin-like growth factor (IGF) superfamily. Regulation of the vascular system: Vascular endothelial growth factor (VEGF).[5]

2. Immunological Factors. Transfer of living protection and programming: Cells of human milk. In early lactation, the breastfed infant may consume as many as $10^{10}$ maternal leukocytes per day. The relative quantity of these cells differs among mothers and is reported to differ in the milk of infants who develop allergy. Communication between cells: Cytokines and chemokines. Cytokines are multi-functional peptides that act in autocrine/paracrine fashion. Chemokines are a special class of chemotactic cytokines that induce movement of other cells. Human milk cytokines can cross the intestinal barrier, where they “communicate” with cells to influence immune activity. While many cytokines and chemokines have
multiple functions, milk-borne cytokines may be grouped broadly into those that enhance inflammation or defend against infection, and those that reduce inflammation.

Furthermore, these compounds could be particularly important for nutrition of sensitive newborns, such as preterm infants. Every ingredient has special effect that could add into formula to treat a particular group of people.

Conclusion

Colostrum is a natural agent containing nutrients and bioactive factors needed for infant health and development. It works to maintain health as an inductive way. Bioactive factors have western medicine characteristics like analytical, result of laboratory experimentations, pure chemical or biological compounds and so on. It works to manage disease as a reductive way.

We use colostrum to feed infant as a daily food, also like we eat vegetables and meat. In my opinion, these natural food can’t be replaced and we need them to keep health. Scientists investigated composition of everything to know which particular function of them and how to realize them to understand the whole world. Nevertheless, knowledge of colostrum composition is increasing, leading to greater understanding of the role of colostrum in infant health and development. We need
combine thought of East(inductive) and West(reductive) to make the world better.

Reference:


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Functional food. One of the first ideas Per and Bent introduced to our class was that of functional food, particularly in the context of the question: is food medicine? I racked my brain—and came to the conclusion I was unfamiliar with the concept. Should I know it? I consider myself ‘in-tune’ with food issues in the United States (US). As a sociologist, I study food and health, in a mostly US context, and I worked in the natural food industry before starting graduate school. When I returned to New York City, I visited with my advisor, and over coffee introduced her what I learned during our time in China. Before we could take our first sips, she asked: What is functional food? In the past week, I’ve had several conversations with peers, all who were as perplexed as I was with this terminology – to be honest, the only person who even knew the word was a family friend who told me she sought out a functional medical doctor in Florida. In spite of my lack of familiarity with the concept, functional food and its meanings stuck with me—specifically because it helps bridge a Western ideology that has divorced food from medicine/medical care. It is precisely functional foods’ connection with medical, scientific, and regulatory regimes that has helped to expand my dissertation work on the food-health-medical care relationship. In the rest of this essay, I will briefly trace the history of functional food in the ‘East’ and then connect it to China’s growing health food industry, people’s pursuit of optimal health, and the commodification of ‘healthy’ foodstuffs.

What is functional food? From a scientific perspective, functional foods are foods that provide health or therapeutic benefits beyond their basic nutritional value (Sanglid 2014). Authorities in Japan coined the term ‘functional food’ in the 1980s, using it to categorize foods with specific health benefits (Siró et al. 2008). In order to commodify this classification, Japan’s Ministry of Health, Labour, and Welfare introduced, Food for Specified Health Uses (FOSHU) in 1991. The Japanese government uses FOSHU to regulate the health and nutritional claims companies can use to market their food in Japan—such as if eating a specific food or dish will lower blood pressure or reduce blood cholesterol levels (Patel et al. 2008). FOSHU is akin to other food
regulatory systems—like Good Manufacturing Practices (GMP) that ensure that products are produced according to quality standards and organic and GMO laws that regulate how food is grown. When thinking about functional food and its meanings, we must keep in mind that if/when food is defined as functional depends on its locations within specific socio-cultural, political, and economic contexts.

The food-health relationship is embedded in Chinese culture—meaning that functional food did not just ‘show up’ in Japan in the 1980s via a regulatory mechanism. For example, functional food is rooted in medical practices, like Traditional Chinese Medicine (TCM). In Chinese culture, a belief that ‘foods can improve health states, prevent disease, help in treating disease, and facilitate rehabilitation’ persists (Jennifer Wan, HKU lecture). TCM is a fertile space to explore the question: ‘can we eat ourselves to a healthier body?’ Based on the idea that food is people and people can use foodstuffs to heal their bodies, TCM challenges the idea that food is only sustenance. On the contrary, TCM doctors prescribe foodstuffs, herbs, tea, and even complete dishes because they contain therapeutic properties—which often confound natural scientists as they cannot always quantify the nutrients in these foods. TCM doctors believe we need to maintain a flow of ‘good qi, or vital energy, in our bodies, and by doing this we will maintain good health. What we eat, among other practices, impacts the flow of qi, hence their focus on the food-health relationship. What’s interesting about TCM is that the practice was reinvented in the mid-20th century to focus on what could be proven by Western science, so what we presently call Chinese Medicine is far removed from its ‘traditional’ roots.

In present-day China, functional foods are not only embedded in biomedical practices, like TCM, and other cultural practices; they have also become a key part of a rapidly-developing health food industry. Industry standards categorize functional foods as ‘health foods’ where health foods are “‘any foodstuff claiming to have specific health functions, or to supplement nutrition with vitamins for a specific a specific functional purpose’ (O’Brien 2015).” This makes sense, as there’s evidence—scientific and otherwise—that functional foods contribute to ‘good’ health. This insertion of functional foods into China’s health food industry—what I call the commodification of qi—works for several reasons. First, folks who want to create ‘healthier’
bodies may already align with TCM ideologies that privilege food, and associated dietary modifications, as part of medical treatments. Second, re-categorizing functional food as a health food brings knowledge of the food-medicine relationship outside the realm of TCM—potentially with positive health effects. And third, this move destabilizes the category of health food, all the while challenging cultural assumptions of what is healthy, and what is not.

Like other countries, China boasts a growing middle class and an aging population. With increased purchasing power, middle-class folks can buy ‘health’ or ‘healthy lifestyles’ via the purchase of health food, supplements, and health and fitness memberships. This shift toward health follows Nikolas Rose’s (2007) concept of ‘biological citizenship’ where ‘biology is not destiny, but opportunity’ and people modify their bodies, often through dietary changes, in order to create the ‘best’ possible bodies (51). The rise of China’s fast-food market primes the country for an ‘explosion’ of diet-related diseases, with the country accounting for one-third of diabetes patients and more than 27 percent of cancer deaths worldwide (Wimberly and Zhou 2017). The rise of a consumer class may place Chinese with economic and cultural capital in positions to take increased control of their health and wellness—not only through consuming health foods, but also by the driving their demand. This transition into the health food market prompted me to question: how are functional foods (or this pursuit of qi) commodified in the Chinese food industry?

During our visits to the TCM hospital in Guangzhou and the School of Chinese medicine at The University of Hong Kong (HKU), we experienced what I would call ‘traditional’ functional food: practitioners packaging bags of plants, animals, and minerals (which correlate with TCM’s three categories of medicine); specially-brewed tea for a cancer patient in Guangzhou; and a video about the bear bile video industry at HKU. In Guangzhou, we visited Qingping Market, a mainly wholesale market, where we observed barrels of dried flowers, mushrooms, roots, berries, herbs, and beans, among other goods. Red dates (jujubes) were everywhere – what I found interesting was the two ways in which they were marketed: dried and in bulk, presumably to put in tea, soups, or other remedies, and in snack packs where the fruit is stuffed with walnuts. Presumably, companies market these small packs of stuffed dates as a convenient, health snack
(on-the-go functional food)—but are consumers aware of the potential health benefits of what they are eating?

At the Sichuan restaurant in Guangzhou, we drank Chinese flower tea-chrysanthemum tea with goji berry while at the vegetarian restaurant in Guangxiao Temple, we sipped red date tea. And at a vegetarian restaurant around the corner from our hotel in Guangzhou, our table ordered hot pot where we chose the medicinal/‘functional’ broth that included herbs (burdock root), goji berries, and red dates. At the Tesco supermarket in Guangzhou, I found tea similar to what we tasted at the Sichuan restaurant, with a clear label (in English): Chinese Health Tea. Again, what’s here is pre-packaged and convenient—and, as the package tell us, healthy and natural.
The first thing I noticed when I walked into China National GeneBank’s (sic) (CNGB) lobby, besides the giant woolly mammoth, was the café. The café wasn’t open, due to the celebration of Qingming Festival (Tomb-sweeping Day), but presumably the case would have been filled with sweets or other portable snacks, if it had. Signage boasts a variety of drinks, including tea, which could be considered a ‘functional’ or ‘health’ food. And on the case—decals that tell consumers that purchasing these items may help them achieve ‘good’ health. While tea, without added sugar and milk, is often considered healthy, I’m not sure a Caramel Macchiato fits any doctor’s idea of health.

Functional food is alive and well in Chinese society—not only in its ‘traditional’ forms, but also in shape of health food. As part of China’s booming health food industry, functional food proves it can exist outside the practice of Chinese Medicine. Companies market functional foods as snack packs and on-the-go drinks to consumers with aspirations of optional health and biological citizenship—including a growing class of middle-class consumers. In effect, this new market allows for more Chinese consumers to access qi (or the practice of food as medicine), even those who may scoff at the idea of seeing a TCM practitioner or drinking a cup of tienchi ginseng tea to get well.
References


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