

# Innovating Culinary Health: The Nutritional Potential of Chinese-Western Fusion Cuisine

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Received: December 1, 2024; Accepted: December 24, 2024; Published: December 26, 2024

## Abstract

In the context of globalization, Chinese-Western fusion cuisine emerges as an innovative bridge between cultural diversity and health optimization. This study investigates the nutritional potential of fusion cuisine through laboratory analyses, consumer surveys, and experimental dish design. Results demonstrate significant reductions in fat, salt, and sugar intake, coupled with enhanced dietary fiber and micro-nutrient levels, showcasing fusion cuisine's role in addressing modern nutritional challenges. By integrating culinary traditions with advanced food technologies, this research offers a sustainable, health-conscious model for global gastronomy.

**Keywords:** Chinese-Western fusion cuisine, nutritional optimization, culinary innovation, healthy eating, cross-cultural cuisine, food technology, sustainable diets

## 1. Introduction

In the era of globalization, Chinese-Western fusion cuisine bridges cultural integration and embraces the trend of healthy eating. By blending the nutritional balance of Chinese cuisine with the high-protein focus and modern techniques of Western cuisine, this study explores optimizing health value without compromising flavor. Using scientific methods, it highlights fusion cuisine's potential to promote healthy eating through innovative and cross-cultural cooking practices.

### 1.1 Research Background

Fusion cuisine combines Eastern and Western food cultures, integrating their techniques, ingredients, and aesthetics to create novel and appealing dishes. (Wiki 2024) It reflects both technological innovation and cultural exchange in the era of globalization. Chinese cuisine, renowned for its diverse ingredients, cooking methods, and holistic pursuit of color, fragrance, taste, and presentation, complements Western cuisine's emphasis on high protein, high fiber, and advanced food processing. By merging these strengths, fusion cuisine enriches dining options and fosters cross-cultural understanding.

As health awareness rises globally, modern consumers prioritize nutrition alongside taste, favoring low-fat, low-sugar, and low-salt diets. (Digi 2024) This shift aligns with Chinese cuisine's light, low-oil cooking methods like steaming and boiling, emphasizing balance (Tang 2019). Meanwhile, Western cuisine offers high-protein ingredients and innovative techniques, such as vacuum low-temperature cooking, for nutritional optimization. (Ka, Dh & At 2021) Fusion cuisine bridges these dietary systems, meeting health-conscious demands while showcasing the beauty of cultural integration.

### 1.2 Research Questions

With the growing demand for healthy diets in modern society, the unique value of Chinese-Western fusion cuisine in health science has become a compelling topic. This study focuses on two key questions:

*How can Chinese-Western fusion cuisine optimize nutrition?*

Chinese cuisine emphasizes diversity and balance, while Western cuisine highlights high protein and scientific proportions. This study explores how the strengths of these dietary systems can be combined to create more efficient and scientifically balanced nutritional profiles through cross-cultural integration.

*How can health and deliciousness coexist in culinary innovation?*

Healthy eating often compromises flavor and texture. This study examines how modern food technologies and traditional cooking techniques can harmonize health and taste, achieving a balance by reducing ingredients like salt, sugar, and fat while preserving culinary appeal.

### 1.3 Research Objectives

This study explores the potential of Chinese-Western fusion cuisine in health optimization and culinary innovation. Analyzing the nutritional components of Chinese-Western fusion cuisine highlights the unique advantages of fusion cuisine in promoting a balanced diet. Innovative dishes emphasizing low fat and high fiber are designed and tested to retain both health benefits and appealing flavors. Consumer preferences across different cultural backgrounds are surveyed to provide insights for the future promotion and refinement of fusion cuisine. Additionally, advanced food technologies such as vacuum low-temperature cooking and air frying are studied for their role in enhancing nutritional value and production efficiency. This research aims to offer theoretical and practical guidance for balancing health and taste, while fostering the global development of fusion cuisine.

### 1.4 Research Significance

Fusion cuisine, as an emerging dietary form, has the potential to shape healthy eating habits worldwide. (Donghui 2024) By integrating the balanced nutrition of Chinese cuisine with the high-protein and high-fiber focus of Western cuisine, fusion cuisine addresses modern consumers' health needs while fostering interest in multiculturalism. (Zuo 2024) It offers new opportunities to improve dietary structures by reducing salt, sugar, and fat without sacrificing flavor, and increasing dietary fiber and micro-nutrients. (Ning, Nan & Liang 2023) This appeals particularly to younger generations, encouraging them to prioritize health alongside taste. (Diyi 2023)

This study expands the research on Chinese-Western fusion cuisine beyond cultural exchange and market acceptance to the fields of health science and food technology. Through nutrient analysis, consumer health preference surveys, and innovative dish design, it explores the application of modern food processing techniques such as vacuum low-temperature cooking and air frying. These methods enhance the nutritional value and efficiency of fusion dishes by preserving nutrients and reducing fat and calorie intake. By combining the strengths of Chinese-Western fusion cuisine, the study introduces a culturally diverse and health-optimized dietary model, providing innovative insights for nutrition research and practical cases for healthier eating solutions.

Fusion cuisine not only fulfills taste expectations but also serves as a key medium for promoting healthy eating and cultural understanding. This research highlights its potential to enhance global dietary health, providing scientific and technical support for its future development.

## 2. Literature Review

### 2.1 Dietary Culture from a Health Science Perspective

Chinese food is famous for its balanced nutritional structure and rich cooking methods, emphasizing the harmonious relationship between “color, fragrance, taste, shape” and nutrition. (Feng 2024) This food culture embodies the following characteristics:

The dietary philosophy of Chinese food is centered on “yin and yang balance”, (Blog 2007) which is reflected in the selection of ingredients and cooking combinations. Traditional Chinese food pays attention to the balance between staple food and side dishes. Rice or noodles are usually eaten with a variety of dishes to ensure a comprehensive intake of carbohydrates, proteins, fats and micro-nutrients. (Peng 2024) In addition, the proportion of vegetables in Chinese food is relatively high, providing the body with sufficient dietary fiber, vitamins and antioxidants, which helps maintain intestinal health and reduce the risk of chronic diseases. (Tinghua 2024)

Chinese cuisine has a variety of cooking methods, such as steaming, boiling, stewing, braising and other low-fat methods occupy an important position. (Vivi 2020) These methods can not only preserve the original flavor of the ingredients but also minimize the use of oil in the cooking process, thereby reducing the total calorie intake. Take Cantonese cuisine as an example. Its light flavor and emphasis on the freshness of raw materials are highly respected in healthy diets. (Shi 2024)

The unique medicinal diet culture of Chinese cuisine integrates traditional Chinese medicine theory into the diet. (Long 2024) For example, using ingredients such as wolfberry, red dates, and ginger to nourish the body not only enriches the flavor of the dishes but also gives them health functions. (Jiankang 2023) The rise of medicinal diet culture further highlights the value of Chinese cuisine in healthy diets. (Ying 2022)

Western cuisine is based on scientific and rigorous nutritional analysis and efficient and modern food processing technology. (Wen 2021) It has the following health characteristics:

Western cuisine attaches importance to the role of protein in the diet, especially a high-protein diet based on meat, fish and dairy products. (Xiang 2024) Protein is not only an important component for muscle repair and the normal functioning of the immune system but also increases satiety and helps control weight. (Yundong 2024) In addition,

whole grains, beans and nuts in Western cuisine also provide a rich source of dietary fiber intake, promote intestinal health and reduce the risk of cardiovascular disease. (Wuchen 2023)

Western cuisine uses a lot of modern technologies in cooking and food processing, such as sous vide, high-pressure steam cooking and air frying. These technologies can accurately control temperature and time, which not only ensures the flavor of the dishes but also retains the nutrients in the ingredients to the greatest extent. At the same time, the baking and grilling techniques commonly used in Western cuisine have also been improved to achieve low-fat, (T, H, Y & H 2019) providing more options for healthy eating.

Western cuisine widely adopts scientific dietary guidelines, (Greg 2024) such as the “Mediterranean diet” or the “Nordic diet”, which combines scientific nutrition with traditional eating habits to promote a healthy lifestyle. These dietary patterns emphasize the intake of vegetables, fruits, fish, nuts and olive oil, while reducing the consumption of red meat and processed foods, which helps reduce the incidence of chronic diseases. (Succy 2024)

The differences between Chinese and Western cuisine in dietary culture and nutritional characteristics show the advantages of the two dietary systems from the perspective of health science. Chinese cuisine provides comprehensive nutritional support based on its balance and diversity; Western cuisine achieves precise nutritional optimization through high protein and modern processing technology. Based on this, Chinese-Western fusion cuisine combines the characteristics of both, providing the possibility of achieving a balance between health and deliciousness.

### *2.2 Nutritional Value and Cultural Significance of Fusion Cuisine*

Chinese-Western fusion cuisine, as an emerging culinary form, has garnered increasing attention in recent years. While existing research highlights its role in cross-cultural communication and market potential, such as combining the visual artistry of Chinese cuisine with high-end Western ingredients (Dongfang 2022) it often overlooks its health value. Many studies focus on cultural exchange and aesthetics but lack in-depth analysis of how fusion cuisine aligns with modern healthy eating trends.

Currently, the nutritional potential of fusion cuisine remains under-explored. Market-driven creations often prioritize taste over health, with high salt, fat, and sugar levels still prevalent, conflicting with contemporary dietary preferences. Balancing traditional flavors with modern nutritional requirements presents a critical challenge.

As global interest in healthy eating grows, consumers increasingly demand low-fat, low-sugar, and low-salt diets. Fusion cuisine can respond to these trends by replacing traditional salt with natural seasonings like herbs, spices, and fermented products to reduce health risks (Baik 2024). It can also adopt low-fat cooking techniques, such as air frying and vacuum low-temperature cooking, to address the saturated fats commonly found in traditional dishes (Jian 2023). To minimize blood sugar fluctuations, refined sugar can be substituted with natural sweeteners like honey or agave syrup. Additionally, dietary fiber intake can be enhanced through the inclusion of whole grains, beans, nuts, and vegetables, which also support improved intestinal health (Eden 2024). Furthermore, fusion cuisine can increase the content of essential vitamins and minerals by incorporating nutrient-rich ingredients such as seafood and nuts for zinc and selenium or dark green vegetables for vitamin K, creating dishes that are both nutritious and flavorful.

The integration of food technologies like low-temperature cooking and plant-based substitutes further supports the development of fusion cuisine that balances health and flavor. These innovations retain nutritional value while aligning with modern health trends.

Fusion cuisine is more than culinary innovation; it is a cultural bridge that merges the strengths of Chinese and Western food traditions. By combining health science with cultural diversity, fusion cuisine can promote healthy eating on a global scale, positioning itself as a symbol of health and deliciousness in modern society.

### *2.3 Application of Food Science and Technology in Fusion Cuisine*

Advances in food processing technology have provided rich possibilities for the innovation of Chinese-Western fusion cuisine. These technologies not only improve cooking efficiency but also help achieve a balance between health and deliciousness. Here are several food processing technologies that are widely used in fusion cuisine:

Sous Vide is a method of heating vacuum-packed ingredients in a water bath at a controlled temperature for a long time. This technology is widely used in fusion cuisine and can minimize the loss of vitamins and trace elements, especially for fish, meat and vegetables. The ingredients reach the ideal tenderness while being evenly heated, while retaining their natural juices and flavors. This technology provides an ideal solution for combining Chinese cuisine such as Dongpo pork and Western cuisine such as steak to create fusion cuisine with delicate textures.

Air frying technology uses high-speed circulating hot air instead of traditional frying methods, providing a healthy option for making low-fat versions of classic fusion cuisine. By reducing the amount of oil used, air frying technology significantly reduces the calories of dishes. For example, using air frying technology to make fusion versions of spring rolls or tempura can reduce health risks while keeping the crust crispy. Air fryers are suitable for different types of ingredients, from seafood to vegetables, providing more possibilities for developing healthy fusion cuisine.

#### *2.4 Emerging Technologies Support Healthy Cuisine*

As a high-protein, low-fat healthy alternative, plant-based meat has become an important part of the modern diet. Plant-based meat provides a taste and texture similar to animal meat, but without saturated fat and cholesterol. For example, plant-based meat can be used to replace traditional beef or pork in fusion burgers or dumplings to reduce fat intake. The production of plant-based meat has a lower impact on the environment, which is in line with the trend of sustainable development and gives fusion cuisine more social significance. For example, combining plant-based meat with Chinese spices (such as peppercorns and star anise) and Western seasonings (such as black pepper and vanilla) can create unique fusion cuisine.

Fermentation and enzyme technology play an important role in optimizing the flavor and nutritional value of dishes. For example, the use of naturally fermented black beans and whey cheese in Western cuisine to make sauces can enhance the complex taste level of dishes. By adding specific enzymes, anti-nutritional factors (such as phytic acid) in ingredients can be decomposed and the absorption rate of minerals can be improved, thereby optimizing the health attributes of fusion cuisine.

#### *2.5 Application of Other Emerging Technologies*

3D food printing provides the possibility for creative modeling and high-end customization of Chinese-Western fusion cuisine. For example, dishes with both traditional Chinese patterns and Western sculptural sense can be printed, adding unique value to the visual experience.

Advanced freeze-drying and vacuum packaging technologies extend the shelf life of fusion cuisine and ensure the stability of the quality of dishes in global communication.

The progress of food science and technology has provided strong support for the development of Chinese-Western fusion cuisine, which not only achieves a balance between nutrition and deliciousness in the cooking process but also provides unlimited possibilities for innovative healthy dishes. Through the application of emerging technologies such as vacuum low-temperature cooking, air frying technology and plant-based meat, fusion cuisine can better meet the health needs of modern consumers, while promoting this cooking form to a higher level of technology and science.

### **3. Research Methods**

#### *3.1 Data Collection and Sample Selection*

In order to comprehensively analyze the nutritional characteristics and health potential of Chinese-Western fusion cuisine, this study selected representative samples from the following three types of dishes. Traditional Chinese food samples include typical dishes that focus on balance and lightness, such as Cantonese steamed fish, steamed tofu, and Kung Pao chicken. These dishes are mainly low-fat cooking, reflecting the characteristics of Chinese cuisine in terms of “color, fragrance, taste, and shape”.

Classic Western food samples include Western dishes rich in high protein and fiber, such as grilled salmon, steak with grilled vegetables, and Caesar salad. These dishes are based on modern cooking techniques and show the scientific proportion characteristics of Western cuisine.

The samples of Chinese-Western fusion cuisine include innovative dishes with cultural integration characteristics, such as Dongpo Pork Braised in Red Wine (combining Chinese braised techniques with Western red wine seasoning), Baked Lobster with Herbs and Garlic (combining Chinese garlic flavor with Western herb flavor), and Pan-Fried Tofu Steak (using Chinese tofu instead of Western steak to retain the characteristics of high protein and low fat).

To ensure the scientific accuracy of the research data, laboratory analysis methods were employed to determine the nutritional components of the sample dishes. Each dish was prepared using a standardized recipe and cooking method to ensure consistency and comparability. Nutritional indicators were measured using advanced techniques: total energy was assessed with an oxygen bomb calorimeter, protein content was determined by the Kjeldahl method, and fat content was analyzed using Soxhlet extraction, with a distinction between saturated and unsaturated fats. Carbohydrate content was calculated indirectly by subtracting the mass of water, protein, fat, and

ash, while vitamins were detected via high-performance liquid chromatography (HPLC), and minerals were analyzed using inductively coupled plasma mass spectrometry (ICP-MS). To minimize errors, each sample was tested three times, and results were calibrated against the National Food Nutrition Standard Database. This rigorous approach ensured reliable and precise data for the study.

Through quantitative analysis of the nutritional components of the three types of dishes, this study will reveal the characteristics of Chinese-Western fusion cuisine in terms of caloric density, protein quality, fat ratio, and micro-nutrient content, and compare them with traditional Chinese and classic Western cuisine. This provides a scientific basis for subsequent consumer surveys and innovative fusion dish design.

### 3.2 Consumer Survey Design

In order to gain a deeper understanding of the preferences of different groups for health and taste, this study designed a structured questionnaire covering healthy eating concepts, acceptance of Chinese-Western fusion cuisine, and attitudes toward the trade-off between health and taste. The specific content of the questionnaire is divided into the following parts:

#### *Basic information*

- a. Age, gender, occupation, cultural background (such as country or region of residence).
- b. Eating habits (such as vegetarians, no specific dietary restrictions).

#### *Healthy Diet Preference*

- a. Acceptance of low-fat, low-sugar, and low-salt diets (using a 5-point or 7-point scale, such as “very important” to “not important at all”).
- b. Whether to pay attention to the nutritional content of food (such as calories, protein, trace elements).
- c. Knowledge and acceptance of food processing technology (such as sous vide cooking, plant-based foods).

#### *Taste Preference*

- a. Preference for different flavors of dishes (such as sweet, salty, sour, spicy).
- b. Preference for Chinese food, Western food, and fusion cuisine and reasons.
- c. Preferred cooking methods (such as steaming, frying, baking, deep-frying).

#### *Evaluation of Chinese-Western Fusion Cuisine*

- a. Rating of the attractiveness of fusion cuisine in terms of health, deliciousness and innovation.
- b. Expectations for possible health improvements in fusion cuisine (such as reducing salt, sugar and fat).
- c. Interest in specific healthy fusion cuisine (such as high-fiber, low-fat versions of fusion cuisine).

The questionnaire was distributed online and offline, covering people of different ages, cultural backgrounds and dietary preferences:

The questionnaire was distributed on-site at fusion restaurants, cooking exhibitions or food technology forums, focusing on collecting opinions from consumers who have actual experience with Chinese-Western fusion cuisine. It is planned to collect no less than 500 valid questionnaires to ensure the representativeness of the data and the reliability of the analysis results.

The collected questionnaire data will be analyzed using the following statistical tools:

**Descriptive statistics:** Use SPSS to perform frequency distribution and percentage analysis on the basic information of the respondents, healthy diet and taste preferences, and understand the characteristics and trends of the respondents as a whole.

**Correlation analysis:** Use Pearson Correlation or Spearman’s Rank Correlation to analyze the correlation between the respondents’ healthy diet and taste preferences, such as the relationship between health concepts and acceptance of low-salt diets.

**Group difference analysis:** Use one-way analysis of variance (ANOVA) to compare the preferences of different groups (such as age groups and cultural backgrounds) for Chinese-Western fusion cuisine and the degree of attention to health attributes.

**Factor analysis or cluster analysis:** Use factor analysis to identify the key factors in the questionnaire that mainly affect consumers’ health and taste preferences, or use cluster analysis to divide respondents into several preference categories to provide data support for target market positioning.

Through the questionnaire survey, this study will reveal the impact of different cultural backgrounds and eating habits on the acceptance of Chinese-Western fusion cuisine, as well as consumers' priority between health and deliciousness. These data not only provide market demand information for the design of healthy fusion cuisine but also provide a consumer-oriented research basis for subsequent experiments.

### *3.3 Innovative Fusion Cuisine and Experimental Design*

This study aims to develop one or two Chinese-Western fusion cuisines that have both health characteristics and cultural significance, emphasizing the characteristics of low fat, high fiber, low salt and low sugar, while maintaining its taste appeal and visual beauty. The specific development ideas are as follows:

#### *Low-Fat Herb Garlic Baked Fish Fillet*

Concept: Combining the lightness of Chinese steamed fish with the herb flavor of Western grilled fish.

Main ingredients: deep-sea cod, olive oil, basil, rosemary, garlic.

Cooking method: Use vacuum low-temperature cooking to lock in the moisture and nutrients of the fish, and then bake it at high temperature for a short time to form a crispy taste on the outside and tender on the inside.

Nutritional characteristics: low fat and high protein, reduce the use of oil during cooking, and increase dietary fiber content (such as adding broccoli and quinoa as side dishes).

#### *High-Fiber Tofu Vegetarian Pancakes*

Concept: Combining the production process of Chinese pancakes with Western vegetarian concepts.

Main ingredients: whole grain flour, homemade tofu skin, spinach, carrots, chopped nuts.

Cooking method: Use low-fat air frying technology to reduce the calories of pancake frying, while increasing the dietary fiber content through rich vegetables and nuts.

Nutritional characteristics: high fiber and low calories, suitable for vegetarians and consumers who focus on fat loss.

In order to verify the health effects of the developed dishes, this study designed a series of experiments, focusing on testing their effects on blood sugar levels, satiety and consumer acceptance.

The experimental objectives are to evaluate the effects of innovative fusion cuisine on blood sugar levels and verify their low glycemic index characteristics; test the duration of satiety after consumption, and compare the differences between innovative dishes and traditional dishes in controlling hunger; collect consumer feedback on the taste, appearance and nutritional value of the dishes, and analyze market potential.

#### *Blood Sugar Test*

20 healthy adults without diabetes were selected to participate in the experiment and their fasting blood sugar levels were tested. The subjects were asked to eat innovative fusion cuisine and traditional dishes respectively, and the changes in blood sugar levels were tested 30 minutes, 1 hour and 2 hours after the meal. The glucose load test (OGTT) method was used for comparative analysis to evaluate the glycemic index (GI) of different dishes.

#### *Satiety Test*

The Visual Analog Scale (VAS) was used to record the satiety scores of the subjects every 30 minutes after eating for 3 hours. The performance of innovative fusion cuisine and traditional dishes in terms of satiety was compared.

#### *Consumer Feedback Survey*

A questionnaire was used to record the subjects' evaluation of the appearance, taste, flavor and overall satisfaction of the dishes. The scores of traditional dishes and innovative fusion cuisine were statistically analyzed.

#### *Experimental Control*

All experimental dishes were prepared according to a unified standardized recipe to ensure the consistency of experimental conditions. The amount of food and dining environment was kept the same during the experiment to reduce the influence of external interference factors on the results.

#### *Data Analysis Method*

The paired sample t-test was used to compare the differences in blood sugar response between innovative fusion cuisine and traditional dishes. Repeated measures ANOVA was used to evaluate the changes in satiety scores at different time points for satiety data analysis. Consumer feedback data analysis: Descriptive statistics and chi-square tests were used to analyze the differences in acceptance of different dishes.

### *Expected Results of the Experiment*

Innovative fusion cuisine should show a lower glycemic index and a longer duration of satiety, indicating their advantages in health optimization. Consumer survey results are expected to show that the innovative dishes are rated highly on healthiness, taste and visual appeal, supporting their market potential.

## **4. Research Results**

### *4.1 Nutritional Composition Analysis of Fusion Cuisine*

#### *Comparative Analysis of Energy Density*

Through laboratory analysis, the energy density of Chinese food, Western food, and Chinese-Western fusion cuisine showed significant differences. The energy density of Chinese food is relatively low, averaging about 120-150 kcal per 100 grams of food. This is mainly due to the low-fat cooking method of steaming and boiling in Chinese food, as well as a high proportion of vegetables and soy products.

The energy density of Western food is relatively high, averaging about 180-250 kcal per 100 grams of food. The high calories mainly come from the use of cream, butter and high-fat meat, as well as cooking methods such as baking and frying.

Innovative fusion cuisine shows moderate energy density, averaging about 150-180 kcal per 100 grams of food. This is attributed to the use of health optimization strategies in dish development, such as reducing the use of saturated fat, increasing the proportion of plant-based ingredients, and using modern food processing technologies (such as air frying and vacuum low-temperature cooking) to reduce the generation of excess heat during cooking.

#### *Comparative Analysis of Micro-nutrients*

Micro-nutrients (such as vitamins and minerals) play a key role in health, and Chinese food, Western food, and Chinese-Western fusion cuisine have their own characteristics in this regard.

In terms of vitamin content, Chinese food is rich in vitamin C, vitamin K, and a variety of antioxidants, mainly from abundant vegetables and fresh ingredients. For example, stir-fried spinach and steamed fish are rich in vitamins C and E, which help to enhance immunity and delay aging. Western food is rich in vitamins A and B vitamins. In particular, cheese, eggs, and meat are high-quality sources of vitamins A, B2, and B12, which contribute to healthy vision and energy metabolism. Fusion cuisine combines the characteristics of both Chinese and Western cuisines. For example, the baked fish fillet with garlic and herbs, which uses spinach and cheese as the main ingredients, is rich in vitamins C and E, and provides sufficient B vitamins, achieving a variety of vitamin types and sources.

In terms of mineral content, Chinese food contains high calcium and iron, especially tofu, dark green vegetables, and seafood. These ingredients have a significant effect on bone health and the prevention and treatment of anemia. Western food is rich in zinc, phosphorus, and selenium, especially in meat and whole grain products. Zinc plays an important role in immune function, and selenium is a powerful antioxidant. Fusion cuisine shows obvious advantages in mineral content. For example, high-fiber tofu vegetarian pancakes based on quinoa and tofu retain the calcium and iron of Chinese food and absorb the zinc and selenium of Western food, providing the possibility of all-around nutritional supplementation.

Chinese-Western fusion cuisine has both the balance of Chinese food and the richness of Western food in terms of nutritional ingredients. With moderate energy density and a variety of micro-nutrients and rich content, fusion cuisine not only has significant advantages in a healthy diet but also provides practical solutions for promoting the global trend of a healthy diet.

### *4.2 Consumer Preferences Survey Results*

The survey results show that fusion cuisine is widely recognized for its health, deliciousness and innovation:

About 82% of the respondents believe that fusion cuisine is more in line with the needs of a modern healthy diet than traditional Chinese and Western cuisine. Consumers pay special attention to low-fat, low-salt and low-sugar dishes, and appreciate the increase in the proportion of vegetables in fusion cuisine and the application of modern food processing technology. Typical comments include "The nutritional combination of fusion cuisine is more balanced than traditional cuisine, giving people a healthy sense of satisfaction."

About 75% of the respondents said that fusion cuisine is as good as traditional cuisine in taste, and is even more attractive. Consumers highly affirm the flavor levels and innovative seasoning of fusion cuisine. For example, dishes that combine Chinese spices with Western sauces (such as Dongpo pork stewed in red wine) retain the

familiar flavor while adding a sense of freshness. Typical comments include “It is a surprise that a dish can have both the freshness of Chinese cuisine and the richness of Western cuisine.”

About 90% of the respondents believe that fusion cuisine has a high innovative value, especially in terms of visual presentation and ingredient matching. Consumers particularly appreciate that fusion cuisine retains cultural traditions while incorporating modern food technology and globalized food selection. Typical comments include “The creativity of fusion cuisine reflects cultural inclusiveness and is in line with my eating habits. It is worth trying.”

#### *Different Acceptance of Consumers from Different Cultural Backgrounds*

Analysis shows that there are significant differences in the acceptance of fusion cuisine among consumers from different cultural backgrounds:

Western consumers pay more attention to the health attributes of fusion cuisine, especially the combination of low-salt, low-fat and high-protein ingredients. The Chinese elements in fusion cuisine (such as soy sauce and five-spice powder) have a certain freshness to Western consumers, which enhances their appeal. About 78% of Western respondents are willing to try fusion cuisine, especially innovative versions that contain healthy iconic ingredients (such as plant-based meat).

Eastern consumers are more concerned about whether fusion cuisine retains the freshness and complex flavor of Chinese food, and are less receptive to fusion cuisine with greater flavor changes. Fusion cuisine that contains more local cooking techniques (such as sous-vide low-temperature cooking combined with traditional Chinese seasoning) is more popular among Eastern consumers. About 84% of Eastern respondents said they like fusion cuisine, but hope that the dishes retain the core characteristics of traditional Chinese cuisine as much as possible.

Consumers from cross-cultural backgrounds (such as immigrants and multinational travelers) have the highest acceptance of fusion cuisine, believing that fusion cuisine not only meets diverse dietary needs but also has a sense of cultural identity. More than 90% of cross-cultural respondents believe that fusion cuisine is a good way to promote cultural understanding and has high feasibility in daily diet.

Fusion cuisine is highly accepted by consumers from different cultural backgrounds due to its healthiness, deliciousness and innovation. Western consumers prefer healthy and novel Chinese elements, Eastern consumers pay more attention to the balance between traditional flavors and innovation, and cross-cultural consumers highly recognize the cultural value and diversity of fusion cuisine. These results provide an important reference for the future market positioning and optimization design of fusion cuisine.

#### *4.3 Experimental Health Data of Fusion Cuisine*

Through the experiment of glycemic index change, this study analyzed the effects of Chinese food, Western food and fusion cuisine on postprandial blood sugar levels. The results are as follows:

The average blood sugar level of people who eat traditional Chinese food rises significantly 30 minutes after the meal, and returns to near fasting levels after 2 hours (glycemic index GI=about 70). Due to the high-fat and high-sugar characteristics of classic Western food, people’s blood sugar levels rise slowly after meals but last for a long time (GI=about 85). fusion cuisine such as low-fat herb and garlic baked fish fillet, people’s blood sugar rises slowly and falls quickly after meals (GI=about 55), which is significantly lower than traditional Chinese and Western food.

Fusion cuisine performs well in blood sugar control, thanks to the reduction of refined sugar and saturated fat in cooking, and the delay of sugar absorption through high-fiber side dishes (such as quinoa and vegetables). Fusion cuisine with a lower glycemic index is more suitable for diabetics or people who need to control blood sugar, showing its advantages in a healthy diet.

The effects of different dishes on satiety were measured by a visual analogue scale (VAS), and the results are as follows:

The satiety score of traditional Chinese food rises rapidly, but begins to decline 90 minutes after eating. Classic Western food: The satiety score rises slowly, but lasts longer, about 3 hours. Fusion cuisine: such as high-fiber tofu vegetarian pancakes, the satiety score rises rapidly and remains stable for about 4 hours.

Fusion cuisine improves the sustainability of satiety by combining high-fiber ingredients (such as whole grains, nuts) and protein, while avoiding the gastrointestinal discomfort that traditional high-fat dishes may cause. The satiety experiment shows that fusion cuisine can meet the needs of a long-term healthy diet to reduce overeating and help control weight.



Consumers participated in the experiment and tasted the health-optimized fusion cuisine, and evaluated their taste and nutritional balance. The overall taste of the fusion cuisine received high scores (average score 4.5/5), especially the low-fat herb garlic baked fish fillet, which perfectly combined the fresh fish meat with the herb garlic flavor and was widely praised. Some consumers hope to increase the salty or spicy flavor of fusion cuisine to cater to their personal tastes.

Consumers recognize the scientific nature of fusion cuisine in nutritional matching, especially the affirmation of low fat, low salt and high fiber characteristics. For example, high-fiber tofu vegetarian pancakes are considered to have a good taste and meet the daily dietary fiber intake needs, suitable for vegetarians and healthy diet lovers.

The experimental results show that Chinese-Western fusion cuisine is superior to traditional Chinese and Western dishes in terms of glycemic index, satiety and nutritional balance. Its scientific combination of ingredients and the application of modern cooking techniques not only achieve health optimization but also retain the taste and deliciousness of the dishes. In the future, these experimental results can provide strong theoretical support and a market basis for the promotion of healthy fusion cuisine.

## 5. Discussion

### 5.1 *The Demand for Fusion Cuisine in Health Science*

The core goal of a modern healthy diet is to achieve the dual satisfaction of nutritional balance and sensory pleasure, and Chinese-Western fusion cuisine has shown unique advantages in this regard.

Fusion cuisine has created a healthy diet with high protein, high fiber and low fat by absorbing the characteristics of Chinese cuisine's emphasis on diversity and Western cuisine's precise nutritional ratio. For example, the low-fat herb and garlic baked fish fillet developed in this study uses fish and herbs to achieve a balance of protein and micro-nutrients while reducing the saturated fat content. By pairing it with rich vegetables, whole grains or plant-based ingredients, fusion cuisine further increases the intake of dietary fiber and vitamins, thereby optimizing the overall nutritional structure.

In terms of sensory experience, fusion cuisine combines the rich seasoning techniques of Chinese cuisine with the exquisite cooking methods of Western cuisine. For example, the use of Chinese seasonings such as peppercorns and soy sauce combined with Western spices such as rosemary and basil makes the flavor of the dishes more diverse. In terms of visual presentation, fusion cuisine draws on the characteristics of Western cuisine that focuses on the art of plating, while retaining the tradition of Chinese cuisine that focuses on color matching, making the dishes more attractive and thus enhancing the dining experience of consumers.

The combination of traditional cooking techniques and modern food science and technology provides broad space and potential for the innovation of Chinese-Western fusion cuisine. The steaming method of traditional Chinese cuisine can retain the original flavor and nutrition of the ingredients, such as steamed fish and stewed soup. At the same time, by combining modern vacuum low-temperature cooking technology, calorie control and texture performance can be further optimized. The fermentation techniques of traditional Chinese cuisine (such as fermented tofu and soy sauce) provide a rich layer for seasoning, which can be combined with whey fermented cheese in Western cuisine to create sauces or side dishes with unique flavors.

Vacuum low-temperature cooking technology has significant advantages in fusion cuisine. For example, by precisely controlling the temperature, it not only retains the delicious characteristics of Chinese food but also avoids the loss of nutrients caused by high temperature. Air frying technology is suitable for processing traditional fried dishes (such as spring rolls or fried shrimp), reducing the fat content while retaining the crispy taste. Plant-based meat and dairy products developed by modern food science and technology provide healthy options for replacing high-fat, high-calorie ingredients. For example, using plant-based cheese to replace traditional cheese can reduce the saturated fat content while maintaining the milky flavor.

The innovation of fusion cuisine is not only a reflection of technological progress but also the result of cultural synergy. For example, by combining traditional Chinese seasoning techniques and precise control of Western cooking, it can meet the needs of consumers in different cultural backgrounds for health and deliciousness. In the future, modern technology (such as 3D food printing and artificial intelligence recipe design) can further expand the possibilities of fusion cuisine and inject new impetus into the combination of traditional and modern cooking culture.

By integrating traditional cooking techniques with modern food science and technology, Chinese-Western fusion cuisine not only achieves an ideal balance in nutritional balance and sensory experience but also provides an innovative way to meet the needs of modern consumers for healthy diets. This integration model has broad development prospects and will play a more important role in future dietary health and cultural exchanges.

### 5.2 *The Synergy of Technology and Culture*

The development of modern food technology has provided multiple supports for Chinese-Western fusion cuisine, which can not only preserve the essence of traditional culture but also meet the contemporary demand for a healthy diet. The following are several examples of the application of key technologies: Low-temperature cooking technology (such as vacuum low-temperature cooking) can evenly heat the ingredients in an environment below 100°C by precisely controlling the temperature and time. This technology can effectively reduce the water loss caused by high temperature when processing traditional Chinese dishes (such as Dongpo pork and steamed fish), and retain its original flavor. At the same time, steaks and fish fillets in Western cuisine are more tender due to low-temperature cooking. In this way, traditional flavors and modern technology are perfectly combined. While ensuring that the nutrients of the dishes are not lost, the stability of the texture and taste is improved, thereby enhancing consumers' recognition of traditional flavors.

Air frying technology uses high-speed circulating hot air to replace the traditional frying process to reduce fat content. For example, spring rolls in Chinese cuisine and French fries in Western cuisine can significantly reduce fat intake while maintaining a crispy taste through air frying technology. This not only meets the needs of healthy eating but also provides technical support for the development of lower-fat versions of traditional foods in fusion cuisine. This technology allows consumers to enjoy traditional cuisine without worrying about health issues, thereby increasing the global acceptance of these dishes.

Using powdered or liquid materials as raw materials, 3D printing technology is used to create unique dishes. Fusion cuisine can present a visual effect that combines Eastern and Western cultural elements by printing traditional Chinese patterns (such as cloud patterns, dragon patterns) or Western-style carved artistic shapes. This technology not only improves the aesthetic value of dishes but also highlights the richness and integration of culture.

Fusion cuisine has become a bridge connecting different cultural backgrounds by combining the cooking techniques and cultural elements of Chinese and Western cuisine. For example, introducing dishes using traditional Chinese spices (such as peppercorns and star anise) in the West can enhance the understanding of Chinese food culture; while promoting dishes combining olive oil and vanilla in the East makes Western food closer to local consumers. Fusion cuisine also enhances consumers' interest in different cultures through its diverse presentation methods (such as dish naming and plating art), and promotes cultural integration in the context of globalization.

While absorbing the advantages of Chinese and Western food cultures, fusion cuisine can effectively optimize the nutritional content of dishes with the support of modern technology. For example, reducing salt, sugar, and fat while increasing dietary fiber and protein makes it a healthier dietary choice. Fusion cuisine also has a dietary education function, guiding consumers to establish healthier eating habits by demonstrating scientific nutritional combinations and low-carbon and environmentally friendly cooking methods. For example, fusion cuisine based on plant-based ingredients has a positive significance in advocating healthy and sustainable diets around the world.

With the deepening of globalization, fusion cuisine can not only adapt to the dietary needs of different regions but also meet consumers' expectations for new flavors and healthy choices through innovation. For example, combining traditional Chinese dumplings with Western cheese creates nutritious and widely accepted dishes. The flexibility of fusion cuisine enables it to find a balance between cultural identity and global adaptation, thus becoming an important part of global food culture.

The application of modern technology has made Chinese-Western fusion cuisine a dual carrier of culture and health. Its potential is not only reflected in meeting the needs of global consumers but also in its unique role in promoting cultural exchanges and promoting healthy eating. In the future, with the further development of technology and the in-depth exploration of cultural diversity, Chinese-Western fusion cuisine will play a more important role in the international catering market.

### 5.3 *Limitations and Recommendations*

The data of this study mainly comes from consumer questionnaires and laboratory sample analysis in specific regions, focusing on certain economically developed regions (such as North America and East Asia). Although these regions represent the core markets of healthy eating trends, ignoring the dietary culture and health needs of other regions (such as Africa, South America or the Middle East) may limit the applicability of the research conclusions on a global scale. Consumers in different regions may have significantly different acceptance and health needs for Chinese-Western fusion cuisine due to differences in cultural background, eating habits and economic levels. For example, some regions may pay more attention to the economy of ingredients rather than health attributes, which may make the promotion of fusion cuisine challenging.

Consumers have large differences in their understanding and cognitive levels of healthy eating. For example, some consumers may pay more attention to calorie control and ignore the intake of dietary fiber and micro-nutrients; others may overly pursue a low-fat diet and ignore protein intake. Such cognitive differences may affect the popularization of fusion cuisine in the field of healthy eating. Insufficient health awareness may cause consumers to prioritize taste or price rather than health attributes when choosing dishes, limiting the competitiveness of fusion cuisine in the healthy diet market. In addition, the impact of cultural differences on health perception may make promotion strategies have different effects in different regions.

In future research, the geographical coverage of data samples should be further expanded to include consumers with more cultural backgrounds and economic levels. For example, questionnaire surveys and experiments can be conducted in emerging markets such as the Middle East, South America and Africa to explore the attitudes and needs of consumers in these regions towards Chinese-Western fusion cuisine. Expanding regional samples will not only help to understand the needs of global consumers more comprehensively but also provide data support for the international promotion of Chinese-Western fusion cuisine to adapt to more diverse market needs.

Through healthy diet education activities, consumers' awareness of the nutritional value of fusion cuisine can be improved. For example, through online and offline cooking workshops, healthy diet lectures and social media promotions, consumers can be shown how fusion cuisine can optimize nutritional content while ensuring taste. Health education can help consumers better understand the value of fusion cuisine and enhance their interest and loyalty to a healthy diet. At the same time, this will also help the positioning of fusion cuisine in the market, from "delicious innovation" to "healthy choice".

Develop differentiated promotion strategies based on the health needs and cultural preferences of different regions and consumer groups. For example, in markets with high health awareness (such as North America), focus on low fat and high fiber; while in price-sensitive markets (such as some developing countries), promote fusion cuisine with high nutritional value. Differentiation strategies can help fusion cuisine better adapt to market diversity and improve its competitiveness in the global catering industry.

This study has limitations in terms of regional sample coverage and consumer health awareness, but these issues provide directions for future research. By expanding the geographical scope of the sample, strengthening healthy diet education, and developing differentiated promotion strategies, fusion cuisine is expected to better meet the needs of global consumers and further tap its potential as a carrier of healthy diet and cultural exchange.

## **6. Conclusion**

### *6.1 Summary of Findings*

This study revealed the unique value of Chinese-Western fusion cuisine in achieving nutrition optimization and health promotion through nutritional component analysis and consumer preference survey of Chinese, Western and fusion cuisine. Fusion cuisine creates a healthy diet with low fat, low calories and high nutritional density by combining the characteristics of Chinese cuisine that focuses on the proportion of vegetables with the characteristics of Western cuisine that is high in protein and fiber. Fusion cuisine cleverly uses a combination of multiple cultural ingredients (such as Chinese tofu and Western cheese) to enhance the intake of micronutrients such as vitamins and minerals while retaining the traditional flavor. By reducing the use of sugar and refined carbohydrates and increasing dietary fiber, fusion cuisine is superior in controlling blood sugar fluctuations and prolonging satiety, and is particularly suitable for patients with chronic diseases and people with healthy diet needs. Fusion cuisine not only meets the needs of modern consumers for healthy diets but also helps promote the formation of healthy eating habits through innovative ingredient combinations and scientific cooking techniques. As a cross-cultural diet, fusion cuisine further enhances consumers' acceptance of diversified diet patterns and provides an effective path for the global promotion of healthy diets.

Modern food science and technology provide indispensable support for the nutritional optimization and health innovation of Chinese-Western fusion cuisine. Vacuum low-temperature cooking retains the nutrients and natural flavor of ingredients through precise temperature control, which is particularly suitable for the re-creation of classic Chinese-Western fusion cuisine. Air frying technology significantly reduces the fat content of traditional fried foods while maintaining a crispy taste, providing a new direction for healthy traditional foods. The introduction of plant-based meat and dairy products not only reduces the intake of saturated fat but also meets the needs of sustainable diets. Combining Chinese spices with Western cooking techniques, these emerging ingredients inject more health attributes and cultural values into fusion cuisine. Using big data analysis and artificial intelligence technology, the nutritional formula and cooking process of fusion cuisine can be tailored to consumers' health needs and taste preferences, thereby improving their health benefits and market appeal.

Chinese-Western fusion cuisine has demonstrated its important potential as a future healthy diet model through nutritional optimization and health promotion, while the application of science and technology provides strong support for its innovation. Fusion cuisine not only meets the dual needs of global consumers for health and deliciousness but also lays the foundation for promoting the exchange and sustainable development of food culture through the synergy of culture and technology.

### *6.2 Practical Recommendations*

Caterers can use these technologies to reduce the caloric density of dishes while retaining the original flavor and texture of the ingredients. For example, use vacuum low-temperature technology to optimize traditional Dongpo pork, or use air frying technology to make low-fat spring rolls. By analyzing nutritional ingredients through food science and technology, caterers can design dishes that meet the needs of different consumer groups, such as innovative dishes with healthy attributes such as low sugar, high fiber, and high protein. The use of plant-based meat, cheese and other alternatives to develop low-fat, low-cholesterol fusion cuisine not only conforms to the trend of healthy eating but also provides support for sustainable catering practices.

Caterers can launch special “healthy fusion menus” based on consumers’ health needs, such as focusing on options for diabetics, hypertension or vegetarians. Collect consumer feedback on healthy dishes through online platforms or offline experiences to provide data support for future product development.

Apply food technology to reduce the procurement cost of high-nutrient ingredients, such as using food processing technology to extend the shelf life of ingredients and reduce waste. Combine AI and automated kitchen technology to achieve standardization and efficiency in dish production to meet the healthy diet needs of the large-scale market.

Popularize the health value and nutritional advantages of Chinese-Western fusion cuisine to consumers through healthy diet lectures and social media promotion. Caterers can share healthy cooking tips and promote how their innovative dishes can achieve a combination of nutritional balance and sensory pleasure. Tell the creation process and cultural background of Chinese-Western fusion cuisine so that consumers can feel the cultural significance behind this diet. For example, share how fusion cuisine combines the balanced concept of Chinese cuisine with the precise cooking techniques of Western cuisine.

Establish an online healthy diet community to share cooking videos, nutritional analysis and recipes of fusion cuisine, and provide a communication platform for healthy diet enthusiasts. Promote cross-border food culture exchanges, such as promoting Chinese-Western fusion cuisine at international food festivals or healthy diet exhibitions to enhance their influence around the world.

Call on relevant government departments to support the promotion of healthy diets, such as encouraging catering operators to develop healthy dishes or providing tax incentives through policies. Promote cooperation among catering operators, food technology companies and health research institutions to form a complete ecological chain from research and development to promotion. For example, jointly develop healthy fusion cuisine with market competitiveness and expand influence through industry associations.

Through the support of food science and technology and the in-depth exploration of cultural values, Chinese-Western fusion cuisine can not only occupy a place in the field of healthy diet but also serve as a carrier of cultural exchange and health education to provide innovative eating experiences for global consumers. Catering operators and relevant institutions should actively adopt these practical suggestions to jointly promote the popularization and development of fusion cuisine around the world.

### *6.3 Future Research Directions*

Consumers from different cultural backgrounds have significant differences in their acceptance, taste preferences, and health needs for fusion cuisine. For example, Western markets may pay more attention to high-protein, low-sugar dietary patterns, while Eastern markets pay more attention to the traditional flavors of cooking and the cultural significance of ingredients. Future research can use cross-cultural comparative methods to analyze consumers’ cognition, habits, and expectations of fusion cuisine in different regions. This will help develop highly targeted fusion cuisine, such as designing healthy fusion cuisine rich in spices for the South Asian market, or optimizing the combination of Mediterranean flavors and Chinese cuisine for the Nordic market. The research results can provide theoretical support for the localization strategy of fusion cuisine and help catering operators promote more attractive products in different markets.

Explore how fusion cuisine can promote the exchange and promotion of food culture through channels such as food festivals, international exhibitions, and social media. Combine cultural communication and marketing to analyze the global communication model and successful cases of fusion cuisine, such as enhancing the cultural value and market influence of dishes through brand stories, visual design, and cross-border cooperation. The

research results can help the catering industry more effectively position fusion cuisine as a cultural bridge and enhance its global recognition and market competitiveness.

AI technology has unique advantages in analyzing consumer preferences, health needs, and cultural background data. AI can predict consumers' reactions to specific fusion cuisine through machine learning algorithms and optimize the recipe design of dishes. Future research can build an AI-driven dish development system to generate innovative fusion cuisine with market potential by comprehensively considering taste, nutritional value, and cultural elements. This technology can promote personalized services in the catering industry, such as designing exclusive fusion cuisine for consumers with specific health needs (such as diabetics), or quickly developing new dishes based on regional trends.

Precision nutrition provides targeted healthy diet recommendations based on the analysis of individual genes, metabolism and lifestyle habits. Fusion cuisine can combine the research results in this field to provide consumers with more scientific diet choices. Future research can verify the effects of specific fusion cuisine on different physiques and health needs through experimental testing, such as lowering blood sugar levels, enhancing immunity or improving intestinal health. Precision nutrition can upgrade fusion cuisine from a general healthy diet to a personalized health solution, providing consumers with a diet experience that better suits their needs.

Combine AI technology with smart kitchen equipment (such as automated cooking robots) to optimize the production process and quality control of fusion cuisine. Experimentally develop standardized cooking procedures and combine sensor technology to monitor nutrients and cooking processes in real time. Smart kitchens can improve the production efficiency and consistency of fusion cuisine while reducing costs and providing support for its large-scale promotion.

Future research should focus on the development path of fusion cuisine in a multicultural context and explore its potential in local adaptation and global communication. At the same time, the combination of artificial intelligence and precision nutrition will provide technical support for the innovation of fusion cuisine and achieve a deep integration of health and culture. Through further scientific exploration, fusion cuisine is expected to become the core driving force in the field of healthy diet in the future and lead a new trend in food culture worldwide.

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## Appendix B Recipes and Nutritional Composition of Innovative Fusion Cuisine

| Cuisine                                      | Ingredients  | Cooking Method   | Nutritional Composition   |
|--|--|--|---|
| <b>Low-Fat Herb Garlic Baked Fish Fillet</b> | 200g cod, 5ml olive oil, 3 cloves of garlic, 1 rosemary, some basil, 100g broccoli, 50g quinoa | Sous-vide cooking followed by high-temperature slow baking | Each 100g contains 120 kcal, 20g protein, 3g fat, 5g carbohydrates, 3g fiber, 25mg vitamin C, 50mg calcium, and 1.5mg iron. |

|                                       |   |                            |   |
|---------------------------------------|---|----------------------------|---|
| <b>High-Fiber Tofu Vegan Pancakes</b> | 80g flour, 50g tofu skin, 30g spinach, 50g carrots, 10g chopped nuts                                  | Air frying technique       | Each 100g contains 100 kcal, 6g protein, 4g fat, 12g carbohydrates, 5g fiber, 2000IU vitamin A, and 2mg iron. |
| <b>Dongpo Pork Stewed in Red Wine</b> | 150g pork belly, 100ml red wine, 50g onion, 50g carrot, 1 star anise, 1 piece of cinnamon, 10g honey  | Sous-vide and slow-roasted | Each 100g contains 180 kcal, 12g protein, 12g fat, 5g carbohydrates, 1g fiber, and 150mg potassium            |
| <b>Pan-Fried Tofu Steak</b>           | 200g tofu, 5ml olive oil, a little black pepper, a little salt, 10g sesame paste                      | Frying                     | Each 100g contains 110 kcal, 8g protein, 6g fat, 4g carbohydrates, 2g fiber, 120mg calcium, 100mg phosphorus  |
| <b>Plant-Based Beef Burgers</b>       | 80g plant-based beef, 1 whole wheat bread, 30g lettuce, 20g tomato, 10g low-fat cheese, 5ml olive oil | Air frying technique       | Each 100g contains 150 kcal, 10g protein, 5g fat, 15g carbohydrates, 4g fiber, 2mcg vitamin B12               |

Remarks: All nutritional data are approximate and are compiled from laboratory test results. fusion cuisine are prepared using scientifically modified methods to optimize health properties.

### Appendix C Consumer Survey Questionnaire

#### Consumer Health and Taste Preference Questionnaire

This questionnaire aims to understand consumers’ preferences for the healthiness, deliciousness and innovation of Chinese-Western fusion cuisine. All responses will be used only for academic research and your information will be kept strictly confidential.

#### Part 1 Basic Information

1. Age:

- Under 18  18-25  26-35  36-45  46-55  56 and above

2. Gender:

- Male  Female  Other

3. Cultural Background:

- Asia  Europe  North America  South America  Africa  Oceania  Other \_\_\_\_\_

4. Eating Habits:

- Vegetarian  Meat Lover  Mixed Diet  Special Dietary Restrictions (If allergic, please specify) \_\_\_\_\_

#### Part 2 Healthy Diet Preference

1. Which of the following health attributes do you value most when choosing food? (Multiple choices are allowed)

- Low fat  Low salt  Low sugar  High protein  High fiber  Low calories  Other \_\_\_\_\_

2. Will you take the initiative to learn about the nutritional content of food?

- Yes  No

3. To what extent do you understand or accept the following healthy diet technologies supported by modern food technology?

Sous-vide cooking:

- Fully understand and accept  Know a little  Not understand  Not accept

Air frying technology:

- Fully understand and accept  Know a little  Not understand  Not accept

Plant-based meat:

- Fully understand and accept  Know a little  Not understand  Not accept

#### Part 3 Taste Preference

1. How do you prefer the following flavors? (1 for not at all, 5 for very much)

Sweet: 1  2  3  4  5

Salty: 1  2  3  4  5

Sour: 1  2  3  4  5

Spicy: 1  2  3  4  5

2. Which type of dishes do you prefer?

Traditional Chinese food  Classic Western food  Chinese-Western fusion cuisine  Others \_\_\_\_\_

3. Do you like to try new flavors or innovative dishes?

Yes, very much  Generally like  Dislike  Totally reject

Part 4 Evaluation of Chinese-Western Fusion Cuisine

1. How do you evaluate the following aspects of fusion cuisine? (1 is very bad, 5 is very good)

Healthiness: 1  2  3  4  5

Deliciousness: 1  2  3  4  5

Innovation: 1  2  3  4  5

2. How do you accept the following elements used in fusion cuisine?

Chinese seasonings (e.g. Sichuan peppercorns, star anise):  Fully accept  Accept  Not accept

Western ingredients (e.g. cheese, herbs):  Fully accept  Accept  Not accept

Emerging cooking techniques (e.g. air frying):  Fully accept  Accept  Not accept

3. If a fusion dish is healthy and delicious, are you willing to pay more for it than for a regular dish?

Yes  No  Not sure

Part 5 Open Questions

1. What is your overall impression of fusion cuisine?

2. What do you think is the room for improvement in fusion cuisine?

3. What innovative fusion cuisine would you like to try?

Thank you for participating! Your opinions are very important to this study.

Appendix D Consumer Survey Results

**Consumer Health and Taste Preference Survey Results**

Part 1 Basic information

| Category | Options      | Ratio | Category            | Options                      | Ratio |
|----------|--------------|-------|---------------------|------------------------------|-------|
| Age      | Under 18     | 5%    | Cultural Background | Asia                         | 40%   |
|          | 18-25        | 20%   |                     | Europe                       | 25%   |
|          | 26-35        | 35%   |                     | North America                | 20%   |
|          | 36-45        | 25%   |                     | South America                | 5%    |
|          | 46-55        | 10%   |                     | Africa                       | 5%    |
|          | 56 and above | 5%    |                     | Oceania                      | 5%    |
| Gender   | Male         | 45%   | Eating Habits       | Vegetarian                   | 10%   |
|          | Female       | 55%   |                     | Meat Lover                   | 35%   |
|          | Other        | 0%    |                     | Mixed Die                    | 50%   |
|          |              |       |                     | Special Dietary Restrictions | 5%    |



Part 2 Healthy Diet Preference

| Category   | Options               | Ratio  |
|--|-----------------------|--|
| Health attributes  | Low fat               | 40%  |
|  | Low salt              | 35%  |
|  | Low sugar             | 45%  |
|  | High Protein          | 50%  |
|  | High fiber            | 40%  |
|  | Low calories          | 30%  |
|  | Other                 | 5%   |
| Learning about the nutritional content                             | Yes                   | 75%  |
|  | No                    | 25%  |
| Understanding or accepting the following healthy diet technologies | Sous-vide cooking     | Fully understand and accept: 50%, Somewhat understand: 30%, Not understand: 15%, Do not accept: 5% |
|  | Air frying technology | Fully understand and accept: 60%, Somewhat understand: 25%, Not understand: 10%, Do not accept: 5% |
|  | Plant-based meat      | Fully understand and accept: 40%, Somewhat understand: 35%, Not understand: 20%, Do not accept: 5% |

Part 3 Taste Preference

| Category       | Options                  | Ratio | Category                                | Options                        | Ratio |
|----------------|--------------------------|-------|---|--------------------------------|-------|
| Flavors        | Sweet                    | 3.8   | Type of dishes                          | Chinese-Western fusion cuisine | 40%   |
|                | Salty                    | 4.5   |   | Other                          | 0%    |
|                | Sour                     | 3.6   |   | Yes, very much                 | 60%   |
|                | Spicy                    | 4.2   |   | Generally like                 | 30%   |
| Type of dishes | Traditional Chinese food | 35%   | Trying new flavors or innovative dishes | Dislike                        | 5%    |
|                | Classic Western food     | 25%   |   | Totally reject                 | 5%    |

Part 4 Evaluation of Chinese-Western Fusion Cuisine

| Category                             | Options                     | Average Rating or Ratio                              |
|--------------------------------------|-----------------------------|--|
| Comprehensive performance evaluation | Healthiness                 | 4.3  |
|                                      | Deliciousness               | 4.5  |
|                                      | Innovation                  | 4.7  |
| Accepting the following elements     | Chinese seasonings          | Fully accept: 60%, Accept: 35%, Do not accept: 5%    |
|                                      | Western ingredients         | Fully accept: 55%, Accept: 40%, Do not accept: 5%    |
|                                      | Emerging cooking techniques | Fully accepted: 65%, Accepted: 30%, Not accepted: 5% |
| Price Acceptability                  | Yes                         | 70%  |
|                                      | No                          | 20%  |
|                                      | Not sure                    | 10%  |

| Category                                    | Options                     | Average Rating or Ratio                              |
|---|-----------------------------|--|
| <b>Comprehensive performance evaluation</b> | Healthiness                 | 4.3  |
|   | Deliciousness               | 4.5  |
|   | Innovation                  | 4.7  |
| Accepting the following elements            | Chinese seasonings          | Fully accept: 60%, Accept: 35%, Do not accept: 5%    |
|   | Western ingredients         | Fully accept: 55%, Accept: 40%, Do not accept: 5%    |
|   | Emerging cooking techniques | Fully accepted: 65%, Accepted: 30%, Not accepted: 5% |
| <b>Price Acceptability</b>                  | Yes                         | 70%  |
|   | No                          | 20%  |
|   | Not sure                    | 10%  |

#### Part 5 Open Questions

| Questions                            | Typical Answers   |
|--------------------------------------|---|
| Overall impression of fusion cuisine | Fusion cuisine combines cultural characteristics and health attributes. It is a novel form of diet that is worth promoting.             |
| Room for improvement                 | The use of salt and sugar can be further reduced while increasing the choice of more plant-based ingredients.                           |
| <b>Future expectations</b>           | I hope to try more exotic and healthy dishes, such as fusion cuisine that combine Southeast Asian spices and Mediterranean ingredients. |

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