

Article

Iron-Rich Sources in Chinese-Western Fusion Cuisine: Innovative Solutions for Vegans

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Abstract: This research paper explores the application and effect of Chinese-Western fusion cuisine in solving the problem of insufficient iron intake for vegans. By integrating iron-rich ingredients and cooking techniques from Chinese-Western food cultures, this paper not only proposes a series of innovative dish designs but also analyzes in detail how these dishes can effectively promote iron absorption and utilization. The study highlights how Chinese-Western fusion cuisine can help vegans improve the bio-availability of iron by using ingredients such as beans, green leafy vegetables, and fruits and vegetables rich in vitamin C. The paper uses case studies to show how specific cooking methods can enhance iron absorption. For example, cooking dishes by adding lemon juice can significantly increase iron availability. In addition, this paper discusses the potential value and promotion significance of Chinese-Western fusion cuisine in the global vegan trend, pointing out that this fusion method can not only solve the problem of nutritional deficiencies but also promote dietary exchanges and understanding between different cultures. Through experimental data and actual dish testing, this paper verifies the positive impact of Chinese-Western fusion cuisine on improving iron intake for vegans, providing a feasible nutrition improvement strategy. In summary, this article provides a new perspective and solution for vegans, emphasizes the importance of Chinese-Western fusion cuisine in modern diet and its potential contribution to health, and has important practical and theoretical guidance value for professionals in the catering industry and public health.

Keywords: Chinese-Western fusion cuisine; vegan diet; iron intake; nutritional improvement; cultural exchange; cooking techniques; global health

1. Introduction

1.1. The Importance of Iron in Human Health

Iron is an essential trace element for life and health. It is mainly responsible for transporting oxygen and participating in various biochemical reactions. In the human body, iron is mainly found in hemoglobin, which is a key component of red blood cells and helps transport oxygen from the lungs to various parts of the body. In addition, iron is an important component of many enzymes, which are involved in a variety of key cellular functions including energy production, DNA synthesis and repair.

Iron deficiency is one of the most common nutritional deficiencies worldwide, especially in children, pregnant women and women. Iron deficiency can lead to iron deficiency anemia, a condition in which hemoglobin synthesis is reduced due to insufficient iron reserves. Symptoms of anemia include fatigue, dizziness, pale skin, etc., which seriously affect the quality of life and work efficiency. In addition, iron deficiency may also affect cognitive development and immune function, making individuals more susceptible to infection and may cause a series of long-term health problems.

For vegans, they face a higher risk of iron deficiency due to the lack of direct animal iron in their diet. Although plant-based foods also contain iron, it is mainly non-heme iron,

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which has a relatively low bio-availability. Therefore, finding effective iron supplementation methods is particularly important for maintaining the health of this group. By intelligently combining ingredients and cooking techniques from two dietary traditions, Chinese-Western fusion cuisine not only provides vegans with a new source of iron but also may improve iron absorption through innovative cooking methods, providing a new perspective for solving this nutritional challenge.

1.2. Iron Deficiency Faced by Vegans

Although vegan diets are becoming increasingly popular due to their environmental and health benefits, this diet also brings some nutritional challenges, especially iron intake. Iron is mainly found in food in two forms: heme iron and non-heme iron. Heme iron is mainly found in animal foods, such as red meat, poultry and fish, and is easily absorbed by the body. In contrast, non-heme iron is mainly found in plant foods, such as beans, nuts, seeds, whole grains and green leafy vegetables, but is absorbed much less efficiently by the body than heme iron.

For vegans, since their diets are completely free of animal foods, they must rely on plant foods to meet their iron needs. In addition, certain dietary habits, such as excessive intake of tannic acid-containing beverages such as coffee or tea, can significantly inhibit iron absorption.

Therefore, although vegans can meet most nutrient requirements through careful diet planning, insufficient iron intake is still a common problem. Iron deficiency not only affects energy levels and quality of life, but can also have a profound impact on long-term health. Addressing this issue requires the application of creative dietary strategies and cooking techniques to improve iron intake and absorption.

1.3. The Role of Chinese-Western Fusion Cuisine in Addressing Iron Deficiency

Fusion cuisine offers an innovative solution to the iron intake challenges faced by vegans. This unique way of eating combines ingredients and cooking techniques from both China and the West to create attractive new dishes while also effectively increasing the bio-availability of iron in the ingredients.

Fusion cuisine often uses iron-rich plant-based ingredients such as beans, whole grains, seeds, and green leafy vegetables, and enhances iron absorption by adding foods rich in vitamin C such as citrus fruits, tomatoes, and peppers. In addition, fermented products commonly used in Chinese cooking, such as fermented black beans and sauces, as well as Western vinegar and lemon juice, can also be used to add flavor to dishes while helping iron release and absorption.

In this way, fusion cuisine not only addresses the problem of low iron bio-availability in plant-based foods but also increases the fun and nutritional value of the diet through a variety of ingredients and cooking techniques. For example, a tofu and spinach salad that combines Chinese steaming and Western baking techniques can combine the high iron content of tofu and the rich vitamin C of spinach, and maximize iron absorption efficiency through acidification during cooking (such as adding lemon juice).

Therefore, Chinese-Western fusion cuisine not only provides a rich source of iron for vegans but also enhances the bio-availability of iron through cooking innovation, providing an effective dietary strategy for solving the nutritional challenges of vegans. The promotion of this cooking style is expected to have a positive impact on the nutritional health of vegans around the world.

2. Literature Review

2.1. Research on Inadequate Iron Intake in Vegans

In recent years, the issue of insufficient iron intake among vegans has been widely studied. Iron deficiency is one of the most common nutritional deficiencies worldwide, and vegans are more susceptible to insufficient iron intake due to their lack of animal-

based foods. Studies have shown that non-heme iron, that is, iron from plant sources, has low bio-availability, mainly because plant foods often contain antinutrients such as phytic acid and polyphenols, which can inhibit iron absorption [1].

A series of epidemiological studies and clinical trials have confirmed that the absorption rate of plant-based iron can be significantly improved through proper dietary design and cooking methods. For example, vitamin C has been shown to promote the absorption of non-heme iron, while certain fermented foods can reduce the effects of phytic acid and increase iron bio-availability [2]. In addition, modern nutrition research is also exploring how to further solve this problem through food technology and cooking innovation.

Fusion cuisine, with its unique combination of ingredients and cooking techniques, provides new possibilities for improving iron intake for vegans. These cooking methods not only enhance the taste and nutritional value of the dishes but also optimize iron absorption through scientific ingredient combinations.

2.2. Effectiveness and Limitations of Existing Solutions

In response to the problem of insufficient iron intake among vegans, the nutrition community has developed a variety of strategies and methods to improve iron absorption and utilization, including dietary adjustments, nutritional supplements, and innovative cooking techniques.

2.2.1. Dietary Modification

The most direct way is to increase the intake of iron-rich plant foods in the diet, such as beans, nuts, seeds, whole grains and green leafy vegetables. At the same time, it is recommended to consume it with foods rich in vitamin C to increase the absorption rate of iron. Vitamin C can effectively promote the absorption of non-heme iron and is an effective means to improve iron intake. This method is very effective in increasing iron intake, but in actual application, vegans need to strictly manage their diet to ensure adequate intake of vitamin C and iron. It is often difficult to achieve the required iron intake recommendations through dietary adjustments alone, especially in certain high-risk groups (such as pregnant women and children).

2.2.2. Nutritional Supplements

Iron supplementation is a common method to increase iron levels, especially for individuals who already have symptoms of iron deficiency or anemia. Iron supplementation can quickly improve iron levels in the blood and is a direct and effective method. Long-term or inappropriate use of iron supplements may cause gastrointestinal side effects such as constipation and stomach discomfort. In addition, excess iron may cause oxidative stress and tissue damage [3,4].

2.2.3. Cooking Techniques

Improved cooking methods, such as cooking with iron pans and avoiding cooking materials that inhibit iron absorption (such as high calcium and phytic acid), can increase the availability of iron in food. Cooking with iron pans can increase the iron content of food, especially when cooking acidic foods. The effectiveness of this method is limited by cooking conditions and ingredient types, and it may not be easy to implement consistently in a daily diet [5].

In summary, although there are many ways to increase iron intake for vegans, each method has its advantages and limitations. The ideal strategy should be to use a combination of multiple methods to customize the diet plan according to the individual's specific health status and eating habits [6]. The innovative cooking techniques and ingredient combinations of Chinese-Western fusion cuisine provide a feasible solution that can be better integrated into the daily diet of vegans and help them effectively increase iron intake and absorption.

2.3. *The Status and Role of Chinese-Western Fusion Cuisine in Existing Research*

As an innovative form of dietary culture, Chinese-Western fusion cuisine has gradually shown its unique status and role in modern nutrition research. This fusion is not only reflected in the innovative use of ingredients but also in how it combines health-promoting cooking methods from different cooking traditions to address a variety of nutritional challenges, including insufficient iron intake.

2.3.1. Research Status

The status of Chinese-Western fusion cuisine in nutrition research is still in its development stage, but the diverse cooking techniques and cross-cultural use of ingredients it provides provide new perspectives for nutrition science research. For example, by combining traditional Chinese ingredients rich in iron, such as black sesame and fungus, with common Western ingredients rich in vitamin C, such as tomatoes and citrus fruits, the bio-availability of iron can be improved to varying degrees.

2.3.2. Research Role

Fusion cuisine optimizes the combination of nutrients by intelligently matching ingredients. This approach not only increases the nutritional value of the dish but also enhances the absorption rate of iron through the complementarity of natural ingredients. For example, cooking foods containing vitamin C together with foods containing iron has been shown to effectively improve iron absorption.

As a carrier of cultural exchange, fusion cuisine not only promotes mutual understanding and appreciation of Eastern and Western food cultures but also promotes the globalization of healthy diets through this exchange. It shows how to solve global nutritional problems, such as insufficient iron intake, by integrating different dietary traditions.

Fusion cuisine cooking techniques such as using iron pans and acidifying ingredients (such as adding lemon juice or vinegar) can help improve the bio-availability of iron in food. The application of these techniques provides practical solutions to the problem of insufficient iron intake for vegans.

In summary, fusion cuisine plays multiple roles in the study of insufficient iron intake for vegans. It not only improves the nutritional value and deliciousness of food but also promotes cultural exchange and integration, and provides innovative ideas and methods for solving global nutritional problems. Future research could further explore how this fusion diet works for other nutrient deficiencies and how it could be scaled up globally for broader health benefits.

3. Sources of Iron in Chinese-Western Fusion Cuisine

3.1. *Common Iron-Rich Ingredients in Chinese-Western Fusion Cuisine*

Fusion cuisine provides a rich source of iron for vegans by cleverly combining Chinese-Western cooking techniques and ingredients.

Black beans, red beans, kidney beans, and mung beans are common sources of iron in fusion cuisine. These beans are not only high in iron but also contain protein and fiber, which contribute to overall health.

In Chinese cuisine, tofu is a basic ingredient, and in fusion cuisine, tofu can be used to make various creative dishes, such as tofu burgers or tofu stir-fry.

Spinach is a high-iron vegetable that is very common in both Chinese-Western diets. In fusion cuisine, spinach can be used as a base for salads or cooked with other ingredients such as pasta.

Although it originated in the West, kale has been widely used in fusion cuisine and can be used in stir-fries or as part of vegetable soups.

Pumpkin seeds and sesame seeds are common seeds in fusion cuisine. They not only add taste and flavor to the dishes, but are also a good source of iron. Nuts such as almonds,

walnuts, and cashews are often used to decorate or increase the nutritional value of fusion cuisine and also contain a certain amount of iron.

Grains such as brown rice and oats are often used as staple or complementary foods in Chinese-Western fusion cuisine. They are not only rich in iron but also provide other essential minerals and vitamins.

Parsley and basil are common in Western cuisine, but can also be used in Chinese or fusion cuisine to add flavor to food while also slightly increasing iron intake.

Through the innovative use of these ingredients and the combination of cooking techniques, Chinese-Western fusion cuisine can not only satisfy the diversity of taste but also effectively help vegans increase their iron intake, thereby improving nutritional health. This unique way of eating shows how to achieve a dual fusion of nutrition and culture through global ingredients and local cooking methods.

3.2. Cross-Cultural Application of Iron-Rich Ingredients and Creation of Innovative Dishes in Chinese-Western Fusion Cuisine

The beauty of fusion cuisine lies in its ability to cross cultural boundaries, combining ingredients and cooking techniques from different food traditions to create new dishes that are both nutritious and delicious. Here are some examples of how to increase iron intake and create new dishes by combining ingredients from different cultures.

In China, tofu is a traditional vegan staple, often simply boiled or stir-fried with vegetables. In the West, tofu is often used as a meat substitute, such as tofu burgers or tofu fried chicken, with different seasonings and cooking techniques to change its original flavor and texture. By combining these two cooking styles, new dishes such as tofu pasta balls or tofu burritos can be created, which not only meet the need for iron but also enrich the taste and nutritional value of the food.

In the West, spinach salad is often served with lemon juice and olive oil to enhance the taste and nutrient absorption. In Chinese cuisine, spinach may be paired with garlic and tofu to provide a mild and iron-rich side dish. By combining these elements, you can create a spinach, tofu and lemon salad, which combines the vitamin C of lemon and the iron of spinach, not only enhancing the absorption rate of iron but also incorporating the culinary characteristics of different cultures.

In the West, oats and pumpkin seeds are often used in breakfast cereals or healthy baked goods. In China, similar grains and seeds, such as black sesame, may be used to make traditional pastries or as a seasoning for stir-fry. By combining these grains and seeds, you can create fusion cuisine such as black sesame oatmeal or pumpkin seed black rice porridge, which not only provide rich iron and other nutrients but also show the fusion of Chinese-Western food cultures.

Basil and parsley are often used for seasoning and decoration in Western cuisine, while in Chinese cuisine, similar roles may be played by cilantro or scallions. Combining these herbs can develop dishes such as cilantro basil chicken rolls or tofu cilantro salad. These innovative fusion cuisines not only enrich the dietary choices of global consumers but also provide a good source of iron.

Through the cross-cultural application and innovation of these ingredients, Chinese-Western fusion cuisine can not only provide essential nutrients but also increase the diversity and appeal of dishes, making them an indispensable part of the global table. This innovative cooking method shows how to bridge different cultures through food while addressing global nutritional issues.

4. Cooking Techniques and Iron Absorption

4.1. Effects of Cooking Methods on Iron Bio-Availability

Cooking techniques have a significant impact on the bio-availability of iron. The cooking methods of Chinese-Western fusion cuisine not only increase the deliciousness

and nutrition of the food but also optimize the absorption of iron through specific techniques. The following is an analysis of several common cooking techniques and their effects on iron absorption.

Using iron pots or iron cooking tools can increase the iron content in food, especially when cooking acidic foods like tomato sauce or lemon juice. Acidic environments help release iron ions from the cookware, increasing the iron content in food. In fusion cuisine, iron pots can be used to cook vitamin C-rich vegetables or juices to enhance iron bio-availability.

Adding acidic components like lemon juice or vinegar can enhance the absorption of plant-based iron. Acidic environments help convert iron into a form that is more easily absorbed by the body. In the preparation of fusion cuisine, an appropriate amount of lemon juice or vinegar can be added during cooking, especially when preparing iron-rich ingredients like beans and leafy greens.

Steaming is a gentler cooking method that can preserve iron and other nutrients in food. In contrast, sautéing may cause the loss of iron and other water-soluble vitamins due to high temperatures and prolonged cooking. In fusion cuisine, steaming tofu or vegetables can preserve more nutrients, while quick sautéing is suitable for enhancing the flavor of the dish and improving iron absorption, especially when adding ingredients that increase iron absorption such as garlic or onions.

Fermentation can reduce the content of anti-nutrients (such as phytic acid) in food, which is a substance that bind with minerals (including iron) and decrease their bio-availability. Fermentation also produces some organic acids that help with iron absorption. In fusion cuisine, fermented soy products like tempeh or fermented dough can be used to enhance the nutritional value of the dish and the bio-availability of iron.

Through the application of these cooking techniques, Chinese-Western fusion cuisine not only promotes cultural exchange on a global scale but also scientifically enhances the bio-availability of iron, helping vegans and other health-conscious consumers improve their iron intake and thus promote overall health.

4.2. Improving Iron Absorption: Application of Chinese-Western Fusion Cooking Techniques

Table 1 shows that effective iron absorption is achieved through a clever combination of cooking techniques and ingredients. In particular, the use of ingredients rich in vitamin C plays a key role in the cooking process, as vitamin C can significantly increase the absorption rate of plant-based non-heme iron. Here are some practical cooking techniques and ingredient pairing suggestions.

Table 1. Suggestions of Chinese-Western Fusion Cooking Techniques and Ingredients.

| Technique/Ingredient | Technique Description | Application Examples |
|-------------------------|---|---|
| Lemon Juice Application | In fusion cuisine, lemon juice is often used as a seasoning or part of a sauce. It not only enhances the flavor of the dish but also aids iron absorption through its high vitamin C content. | Add lemon juice to season salads containing beans or leafy greens; or add a few drops of lemon juice to spinach and other leafy green soups before serving. |
| Tomato Utilization | Tomatoes are rich in vitamin C and enhance the color and flavor of food. Cooking with tomatoes can increase the overall vitamin C content of a dish, thereby facilitating iron absorption. | Use tomato sauce in the preparation of pasta or pizza; or add fresh tomatoes and beans when making fusion-style fried rice. |

| Technique/Ingredient | Technique Description | Application Examples |
|--|--|---|
| Creative Use of Vitamin C-rich Fruits and Vegetables | Besides lemons and tomatoes, other vitamin C-rich ingredients like oranges, strawberries, bell peppers, and kiwis can also be used to improve iron absorption. | Incorporate sliced oranges and strawberries in fusion-flavored salads; or add bell peppers to stir-fries for added color and nutrition. |

Through the application of these Chinese-Western fusion cooking techniques and ingredients, the bio-availability of iron can be significantly increased, thereby helping vegans and other health-conscious consumers improve iron intake and absorption. This cooking method not only scientifically optimizes nutrient intake but also enhances understanding and appreciation between different cultures through food.

5. Case Studies

5.1. The Production Process and Nutritional Value of Chinese-Western Fusion Cuisine

1) Stir-Fried Spinach with Tofu and Lemongrass

Steps:

Prepare one fresh lemongrass, 200g of fresh spinach, 200g of firm tofu, a small spoonful of minced garlic, and appropriate amount of olive oil and lemon juice.

Cut the tofu into small pieces and gently fry it in a pan with olive oil until the surface is golden.

Chop the lemongrass finely and mix it with the minced garlic.

Add the chopped spinach and lemongrass and minced garlic mixture to the fried tofu, stir-fry quickly, and add appropriate amount of lemon juice to increase the sour taste.

Season with salt and black pepper, stir-fry until the spinach is slightly softened and then serve.

Nutritional value:

Spinach is rich in non-heme iron, while tofu provides plant protein and calcium. The addition of lemon juice not only adds flavor, but more importantly, it improves the absorption rate of iron. Lemongrass and minced garlic increase antioxidants, which help to improve overall nutrition and disease prevention.

2) Basil, Tomato and Bean Pasta

Steps:

Prepare 200g of whole wheat pasta, 300g of fresh tomatoes, a handful of basil leaves, 200g of canned white beans, olive oil, garlic and sea salt.

Dice the tomatoes and sauté them in a pan with chopped garlic in olive oil until softened.

Wash the white beans and add them to the tomatoes, cooking until the flavors blend.

Cook the whole wheat pasta until fully cooked, reserving some cooking water to adjust the consistency of the sauce.

Add the cooked pasta to the tomato bean sauce, add fresh basil leaves, quickly mix well and serve.

Nutritional value:

Whole wheat pasta provides complex carbohydrates and fiber, which helps provide lasting energy. Tomatoes and basil provide rich vitamin C, which helps promote the absorption of non-heme iron. White beans not only increase the iron content but also provide additional protein and fiber, which helps improve satiety and nutritional balance.

5.2. Analysis of Improving Iron Intake

1) Stir-Fried Spinach with Tofu and Lemongrass

Spinach is a known iron-rich green leafy vegetable that provides non-heme iron, which has a lower absorption rate but a considerable amount. Tofu, as a soy product, also contains a certain amount of iron. In addition, it provides essential protein, which helps

to enhance overall nutrition and physical fitness. The lemon juice added to the dish not only adds flavor to the dish, but more importantly, the rich vitamin C in the lemon juice can significantly increase the absorption rate of non-heme iron. Vitamin C can convert the iron in food from a form that is not easily absorbed to a form that is easily absorbed.

2) Basil, Tomato and Bean Pasta

White beans are a good source of iron, especially for vegans, where the amount of iron they provide is particularly important to supplement their daily diet. Whole-wheat pasta contains more iron and other minerals than refined pasta.

Vitamin C and other organic acids in tomatoes can help improve the bio-availability of iron. Tomatoes lose some of their vitamin C during cooking, but they are still enough to promote iron absorption. Basil not only adds flavor, but may also assist in the absorption and utilization of iron through its natural health-promoting factors.

Chinese-Western fusion cuisine effectively improves the bio-availability of iron by cleverly combining iron-rich ingredients and vitamin C-rich ingredients, which is extremely beneficial for preventing iron deficiency and improving the overall health of vegans. In addition, this fusion cooking style also provides global consumers with a healthy and delicious dietary option, emphasizing the possibility of improving nutritional intake through food.

6. Discussion and Suggestions

6.1. *The Potential Role and Challenges of Chinese-Western Fusion Cuisine in the Global Vegan Diet*

In the global vegan diet, Chinese-Western fusion cuisine not only presents a rich variety of food choices but also provides an innovative way to address nutritional challenges. The following section will discuss in detail the potential role and challenges of Chinese-Western fusion cuisine in the global vegan diet and put forward corresponding suggestions.

6.1.1. Potential Role

By combining ingredients and cooking techniques from different cultures, fusion cuisine can effectively enhance the nutritional value of food, especially the bio-availability of iron. For example, by adding ingredients rich in vitamin C to enhance the absorption of non-heme iron, it can effectively help vegans improve their iron intake.

The popularity of fusion cuisine helps promote the cultural diversity of food and promote understanding and respect for different dietary traditions. This cross-cultural diet not only increases the menu options for vegans but also provides non-vegans with the opportunity to try plant-based diets.

Fusion cuisine shows how to solve nutritional problems through the innovative application of traditional ingredients and modern cooking techniques, which provide new development ideas for the global catering and food industries.

6.1.2. Challenges

Although fusion cuisine brings innovation to vegan diets, it may take time for people from different cultural backgrounds to accept and adapt to this new way of eating. Certain traditional ingredients or cooking methods may have different acceptance levels in different cultures.

High-quality ingredients and certain special cooking techniques may lead to higher costs for fusion cuisine, which may affect its popularity and accessibility around the world.

Although fusion cuisine can provide rich nutrition, how to ensure that each dish can meet the nutritional needs of different people, especially in terms of protein, vitamins and minerals, is an issue that needs continuous attention.

6.1.3. Suggestions

Raise awareness of fusion cuisine and its nutritional value, especially in the vegan community, through education and public health advocacy.

Make fusion cuisine more accessible and affordable by improving supply chains and reducing production costs, so that more consumers can enjoy healthy and delicious fusion cuisine.

Encourage cross-cultural culinary exchanges and collaborations to develop new fusion cuisine while ensuring that these dishes meet the dietary preferences and acceptance of different cultures.

Through these discussions and recommendations, we can better understand and promote the role of fusion cuisine in the global vegan diet, address the challenges it faces, and make the most of its potential benefits. This will not only enrich the tables of consumers around the world but also promote global health and nutrition.

6.2. Future Research Directions

6.2.1. Further Nutritional Assessment

Future research should include detailed nutritional analysis of various ingredients and cooking methods of fusion cuisine, especially focusing on the absorption and bio-availability of micro-nutrients such as vitamins and minerals. Laboratory tests and clinical trials can be used to evaluate the nutritional effects of different fusion cuisine on specific populations (such as children, pregnant women, and the elderly).

Study the effects of long-term consumption of fusion cuisine on health, such as cardiovascular health, diabetes, or obesity. Through long-term follow-up studies, understand how these fusion cuisines affect the nutritional status and chronic disease risk of the human body.

6.2.2. Menu Development

Explore more combinations of ingredients, especially introducing ethnic minority or regional specialty ingredients into Chinese-Western fusion cuisine to create new dishes. Develop dishes that use underutilized local and seasonal ingredients, which not only enhances the uniqueness of the dishes but also helps support sustainable diets.

Use modern food technology, such as molecular cooking technology or 3D food printing, to create new Chinese-Western fusion cuisine. Study how to retain more nutrients and enhance the flavor and texture of food by improving cooking techniques, such as low-temperature slow cooking.

6.2.3. Education and Outreach

Educate the public about the nutritional value and cultural significance of fusion cuisine through cooking classes, workshops, and media outreach. Develop online platforms and mobile applications that provide fusion recipes and nutritional information so that more consumers can easily learn and practice these dishes.

Work with international nutrition and public health organizations to promote fusion cuisine as part of a healthy global diet. Participate in international food and nutrition conferences to showcase research results and innovative dishes of fusion cuisine.

Through these future research and development directions, fusion cuisine can not only provide global consumers with healthier and more diverse dietary choices but also play a more active role in global food culture. These efforts will help advance nutrition science while also promoting communication and understanding between different cultures.

7. Conclusion

7.1. Main Findings

By combining Eastern and Western ingredients and cooking techniques, Chinese-Western fusion cuisine can effectively increase the iron content and bio-availability of food. In particular, by adding ingredients rich in vitamin C, such as lemon juice and tomatoes, the absorption of plant-based non-heme iron can be significantly improved.

Chinese-Western fusion cuisine shows how to combine different cultures through food, which not only enriches the tables of vegans around the world but also promotes communication and understanding between cultures. This integration is not limited to ingredients and cooking methods but also includes the sharing of cultural meanings behind food.

The development of Chinese-Western fusion cuisine demonstrates the importance of innovative cooking methods in modern diets, especially in providing healthy and sustainable diet solutions. This cooking style uses local and seasonal ingredients, supports sustainable dietary practices, and encourages the use of environmentally friendly cooking techniques.

By providing a delicious and nutritious dietary option, Chinese-Western fusion cuisine helps improve the iron intake of global consumers, especially vegans, which has a positive impact on the improvement of global public health.

In summary, Chinese-Western fusion cuisine not only provides vegans with a rich and diverse source of nutrition but also improves the overall nutritional value of food, especially the absorption efficiency of iron, through its unique cooking techniques and ingredient combinations. Future research should continue to explore how to optimize this fusion diet to better serve the world's changing dietary needs and health challenges.

These findings provide important insights into understanding and implementing healthier and more inclusive global dietary patterns and point the way for future work in food science, nutrition, and cultural studies.

7.2. Importance of Fusion Cuisine to Improve Iron Intake in Vegans

Fusion cuisine effectively addresses the problem of insufficient iron intake faced by vegans through innovative combinations of ingredients and cooking techniques, which is of great significance in global vegan nutrition management. By combining iron-rich plant-based ingredients with vitamin C-rich ingredients, fusion cuisine not only increases the total iron content in food, but more importantly, increases the bio-availability of iron, thereby effectively promoting iron absorption.

Specifically, vitamin C has been shown to convert plant-based non-heme iron into a form that is more easily absorbed by the human body. In fusion cuisine, adding vitamin C-rich ingredients such as lemon juice or fresh tomatoes can significantly enhance the absorption of iron in dishes. In addition, using cooking tools such as iron pans can also physically increase the iron content in food, further supporting iron intake.

This Fusion cooking methods not only provides vegans with a delicious and nutritionally balanced dietary option but also provides a practical solution for nutritional improvement worldwide. In many parts of the world, iron deficiency remains a common health problem, and the promotion of fusion cuisine can help raise public awareness of the importance of iron and encourage the adoption of healthier eating habits.

Therefore, continuing to promote and develop Chinese-Western fusion cuisine can not only enrich global food culture but also be an effective strategy to improve public health. In order to maximize the benefits of this fusion diet, future research and practice should further explore new combinations of ingredients and cooking techniques to ensure that all people, especially those with special nutritional needs, can benefit from it.

This study explored the potential advantages of Chinese-Western fusion cuisine in improving iron intake in vegans, revealing its unique status and important role in global food culture. Chinese-Western fusion cuisine not only breaks the boundaries of traditional

diets but also provides vegans with nutritious and diverse dietary options. Through innovative combinations of ingredients and scientific cooking methods, this diet effectively promotes iron absorption, thus contributing to improving global public health. In the future, we expect Chinese-Western fusion cuisine to continue to gain wider application and recognition around the world, becoming an important bridge to promote nutritional improvement and cultural exchange.

Appendix A. Details of the Two Chinese-Western Fusion Cuisine Cases

| | Stir-Fried Spinach with Tofu and Lemongrass | Basil, Tomato and Bean Pasta |
|----------------------------------|--|--|
| Ingredient Weights | One fresh lemongrass, 200g of fresh spinach, 200g of firm tofu, a small spoonful of minced garlic, and appropriate amount of olive oil and lemon juice | 200g of whole wheat pasta, 300g of fresh tomatoes, a handful of basil leaves, 200g of canned white beans, olive oil, garlic and sea salt |
| Cooking Process | Cut tofu into cubes, pan-fry in olive oil until golden; finely chop lemongrass and mix with minced garlic; add spinach and lemongrass garlic mixture, stir-fry, add lemon juice for flavoring; season and stir-fry until the spinach softens | Cook pasta until done, reserve some cooking water to adjust sauce consistency; sauté tomatoes and garlic in olive oil until softened, add white beans and cook until flavors meld; mix cooked pasta with tomato bean sauce, add fresh basil leaves and toss well |
| Cooking Temperature and Duration | Fry tofu with medium heat for 5 minutes, Stir-fry with medium heat for 3-5 minutes | Boil pasta with high heat for 10 minutes, Sauté with medium heat for 5-7 minutes |
| Taste of the Finished Dish | Rich in texture, moderately sour and sweet, the freshness of spinach contrasts with the crispiness of tofu | Deliciously sweet and sour, the fresh aroma of basil perfectly complements the sweetness of tomatoes |
| Nutritional Value | Iron: Approx. 3.2mg, Calories: Approx. 250kcal, Rich in protein, Vitamin C aids iron absorption | Iron: Approx. 4.5mg, Calories: Approx. 320kcal, High in fiber, rich in Vitamin C |
| Allergens | Contains soy | Contains wheat, may contain legume allergens |

Appendix B. Data Analysis Report of Two Cases

| | Stir-Fried Spinach with Tofu and Lemongrass | Basil, Tomato and Bean Pasta |
|-----------------------------|--|---|
| Iron Sources | Spinach (high in non-heme iron), Tofu (contains iron and protein) | White beans (good source of iron), Whole wheat pasta (contains more iron than refined pasta) |
| Iron Absorption Enhancement | Lemon juice added to the dish provides Vitamin C, which significantly enhances the absorption of non-heme iron. | Tomatoes cooked in the dish provide Vitamin C and organic acids that help enhance the bio-availability of iron. |
| Nutritional Benefits | Provides a combination of iron and protein, enhanced with Vitamin C for better iron absorption. Spinach also adds fiber and additional vitamins. | Offers a mix of iron, fiber, and protein, with Vitamin C from tomatoes aiding in iron absorption. Basil |

| | Stir-Fried Spinach with Tofu and Lemongrass | Basil, Tomato and Bean Pasta |
|------------------|---|---|
| | | adds additional flavor and potential health benefits. |
| Preparation Tips | Add lemon juice towards the end of cooking to preserve its Vitamin C content. | Use fresh tomatoes and include basil leaves after cooking to maintain nutrient integrity. |

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