

## The Future of Functional Medicine in Personalized and Integrative Healthcare

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### Abstract

Functional medicine is a holistic medical approach that rejects organ-focused approaches and instead focuses entirely on systems-oriented approaches to identifying the underlying causes of diseases and aiming to correct and heal the root problem. It emphasizes the functionality of the body and the interactions between systems in promoting an individual's health and well-being. Functional medicine, which prioritizes treating the symptoms of diseases, aims to identify and treat the root causes of diseases. It considers a person's genetic, environmental, and lifestyle factors and their impact on health. With this approach, functional medicine focuses on understanding how the body's systems interact, how metabolism functions, and how genetic factors influence these systems. Practitioners of functional medicine often use a wide range of laboratory tests to assess patients' health status, including hormone levels, food intolerances, immune function, and digestive health. The main goal of functional medicine is to prevent diseases by enhancing the body's natural healing capacity.

Functional medicine adopts a completely personalized treatment approach, developing a plan tailored to an individual's unique health needs. This plan typically includes customized nutrition programs, appropriate exercises, supplements, stress management, and other lifestyle factors.

**Keywords:** *Functional Medicine, Health Care, Forecasting*

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### Kişiselleştirilmiş ve Entegre Sağlık Hizmetlerinde Fonksiyonel Tıbbın Geleceği

#### Özet

Fonksiyonel tıp, organ odaklı yaklaşımları reddeden ve bunun yerine hastalıkların altında yatan nedenleri belirlemeye ve bu temel sorunu düzeltip iyileştirmeye yönelik tamamen sistem odaklı yaklaşımlara odaklanan bütünsel bir tıbbi yaklaşımdır. Bu yaklaşım, bireyin sağlık ve refahını desteklemek için vücudun işlevselliğine ve sistemler arasındaki etkileşimlere vurgu yapar. Hastalıkların semptomlarını tedavi etmeye öncelik veren fonksiyonel tıp, hastalıkların kök nedenlerini belirlemeye ve tedavi etmeye çalışır. Bir kişinin genetik, çevresel ve yaşam tarzı faktörlerini ve bunların sağlık üzerindeki etkilerini dikkate alır. Bu yaklaşımla, fonksiyonel tıp, vücudun sistemlerinin nasıl etkileşimde bulunduğunu, metabolizmanın nasıl çalıştığını ve genetik faktörlerin bu sistemleri nasıl etkilediğini anlamaya odaklanır. Fonksiyonel tıp uygulayıcıları, hormon seviyeleri, gıda intoleransları, bağışıklık fonksiyonu ve sindirim sağlığı gibi hastaların sağlık durumunu değerlendirmek için geniş bir yelpazede laboratuvar testleri kullanırlar. Fonksiyonel tıbbın ana hedefi, vücudun doğal iyileşme kapasitesini artırarak hastalıkları önlemektir.

Fonksiyonel tıp, tamamen kişiselleştirilmiş bir tedavi yaklaşımı benimser ve bireyin benzersiz sağlık ihtiyaçlarına uygun bir plan geliştirir. Bu plan genellikle kişiye özel beslenme programları, uygun egzersizler, takviyeler, stres yönetimi ve diğer yaşam tarzı faktörlerini içerir.

**Anahtar Kelimeler:** *Fonksiyonel Tıp, Sağlık Hizmeti, Gelecek*

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## INTRODUCTION

Functional medicine is a holistic medical approach that rejects organ-focused approaches and instead focuses entirely on systems-oriented approaches to identifying the underlying causes of diseases and aiming to correct and heal the root problem (Figure 1) (6). It emphasizes the functionality of the body and the interactions between systems in promoting an individual's health and well-being (1).

Functional medicine, which prioritizes treating the symptoms of diseases, aims to identify and treat the root causes of diseases. It considers a person's genetic, environmental, and lifestyle factors and their impact on health. With this approach, functional medicine focuses on understanding how the body's systems interact,

how metabolism functions, and how genetic factors influence these systems. Practitioners of functional medicine often use a wide range of laboratory tests to assess patients' health status, including hormone levels, food intolerances, immune function, and digestive health. The main goal of functional medicine is to prevent diseases by enhancing the body's natural healing capacity (1-3, 4-9).

Functional medicine adopts a completely personalized treatment approach, developing a plan tailored to an individual's unique health needs (Figure 1) (6). This plan typically includes customized nutrition programs, appropriate exercises, supplements, stress management, and other lifestyle factors (1-5).



**Figure 1:** Functional Medicine Tree

## Conditions of Health

The various factors that support individuals in leading a healthy life, when properly provided, contribute to being and staying healthy. These conditions encompass a range of elements that influence physical, mental, and social well-being. They include:

1. Nutrition: Balanced and healthy nutrition, comprising adequate amounts of vitamins, minerals, protein, carbohydrates, and fats, is crucial for a healthy life.
2. Exercise: Engaging in regular exercise strengthens muscles, enhances cardiovascular health, and reduces stress. It is recommended to engage in at least 150 minutes of moderate-intensity exercise per week.
3. Sleep: Sufficient and quality sleep allows the body to renew itself, strengthens the immune system, and supports mental health. Adults generally need to sleep for at least 7 hours per day.
4. Stress management: Developing coping skills for stress is particularly important for maintaining mental health and positively influencing physical health. Techniques such as meditation, breathing exercises, and yoga can help reduce stress.
5. Clean environment: Clean air, water, and soil are essential for a healthy life. Clean environmental conditions are necessary for preventing the spread of diseases.
6. Social relationships: Establishing healthy social relationships supports emotional and mental well-being. Interaction with family, friends, and the community provides a social support network that helps prevent isolation.
7. Education: Having knowledge enables individuals to make informed health decisions, increases access to health services, and can influence health outcomes.

Ensuring and preserving these conditions is crucial for leading a healthy life. Since each individual's lifestyle and needs vary, adopting a personalized approach and balancing different aspects of health is highly important in functional medicine (3-11).

## Functional Medicine Five Rs Approach

Functional medicine aims to improve patients' health by considering an approach called the "five Rs." This "five Rs" approach includes specific steps to restore the body's balance and functionality (1-9).

The "five Rs" principles in functional medicine are as follows:

1. Remove: This step involves identifying and eliminating factors or agents that harm the body. These may include toxins, allergens, poor dietary habits, or infections. Identifying and removing these factors that contribute to health issues can help initiate the body's healing process.
2. Replace: In this step, the goal is to replace essential nutrients that are deficient or low. For example, when vitamin or mineral deficiencies are identified, they can be replenished with appropriate supplements or foods.
3. Reinoculate: This aims to rebalance the gut flora and promote the proliferation of healthy bacteria. By using supportive substances such as probiotics or prebiotics, the healthy microbial balance in the digestive system can be restored.
4. Repair: This step targets the repair of damaged tissues and organs. Supportive nutrients or supplements can be used to repair intestinal wall damage or correct other inflammatory processes in the body.
5. Rebalance: Lifestyle changes and supportive measures are taken to restore the body's balance and return to optimal health levels. This step may include transitioning to a healthy diet, regular exercise, stress management, and sleep regulation.

These five R principles are essential components of the comprehensive approach used by functional medicine practitioners to improve patients' health. Each step is crucial and can be customized based on an individual's health status and needs (1,3-5,7-13).

## Functional Medicine and Proper Nutrition

In functional medicine, proper nutrition is a crucial component for improving health and

preventing diseases. Proper nutrition should be personalized, taking into account individual genetic, biochemical, and lifestyle factors. Functional medicine has some basic principles regarding proper nutrition (1,5,14-15,19-20).

These include:

1. Variety and Balance of Nutrients: A healthy eating plan should include a variety of foods from different food groups. A balanced diet is recommended, consisting of fruits, vegetables, whole grains, protein sources (such as fish, chicken, tofu, legumes), healthy fats (such as olive oil, avocado), and healthy snacks.
2. Food Quality: Opting for organic, natural, and unprocessed foods is important. Avoiding processed foods, additives, and chemical preservatives is crucial for maintaining health.
3. Food Sensitivities and Intolerances: In functional medicine, food sensitivities and intolerances are frequently evaluated. It's important to understand how the body reacts to certain foods individually. If necessary, methods such as food sensitivity tests or elimination diets can be used to identify these sensitivities and create a personalized treatment plan.
4. Nutritional Supplements: Depending on an individual's nutritional needs and health status, nutritional supplements may be used. For example, vitamin D supplements may be recommended for someone with a vitamin D deficiency, or fish oil supplements may be recommended to support omega-3 fatty acids. However, it's crucial to take these supplements under the recommendation of a professional healthcare provider.
5. Portion Sizes and Portion Control: Monitoring food quantities and portion sizes is important. Excessive calorie intake can lead to health issues such as obesity and metabolic syndrome. Therefore, determining the amount of calories you need based on your age, gender, physical activity level, and health status is important.

6. Continuous Monitoring and Adjustments: After creating a healthy eating plan, it's important to continuously monitor your health status and adjust your nutrition plan according to your needs. Keeping your nutrition plan up to date considering factors such as changing needs in the body, lifestyle factors, and health status is important.

These principles form the basis of proper nutrition in functional medicine and play a significant role in improving and maintaining individuals' health (1-9).

### **Assessment of an Individual from the Perspective of Functional Medicine**

To evaluate an individual from the perspective of functional medicine, a comprehensive approach is adopted to understand their health status and create a personalized treatment plan. Here is the assessment process of an individual from the perspective of functional medicine:

1. Comprehensive Medical History Taking: It is important to gather detailed information about the individual's medical history, current symptoms, lifestyle habits, dietary habits, sleep patterns, stress levels, physical activity level, and overall health status.
2. Laboratory Tests and Assessments: Functional medicine practitioners may use extensive laboratory tests to assess the individual's biochemical balance, hormone levels, food intolerances, immune function, digestive health, and other important health indicators. These tests provide detailed information about the individual's health status and help in personalizing the treatment plan.
3. Functional Assessment: The functionality of the individual's body, metabolism, energy levels, stress response, sleep quality, and other physiological processes are evaluated from the perspective of functional medicine. This assessment allows for a comprehensive understanding of the individual's health status and helps in adjusting the treatment plan accordingly.
4. Nutrition Assessment: The individual's dietary habits and food intolerances are evaluated. Food intolerances can contribute to



health issues such as inflammation and digestive problems. Therefore, reviewing the individual's dietary habits and identifying food intolerances when necessary are important steps in the assessment process.

5. *Evaluation of Lifestyle Factors:* The individual's stress management, physical activity level, sleep quality, relationships, and other lifestyle factors are also assessed. These factors can impact the individual's health status and should be addressed as part of the personalized treatment plan.

This assessment process allows for a comprehensive understanding of the individual's health status and enables the customization of the treatment plan. Functional medicine recognizes that diseases can arise from the interaction of multiple factors rather than a single determinant, and therefore, focuses on addressing the root causes of health issues. This approach provides an effective way to improve and maintain the individual's health and well-being (1-3,5-7,18-20).

### **The Future of Functional Medicine in Personalized and Integrative Healthcare**

Individualized and holistic healthcare is gaining increasing importance in modern medical practices. Functional medicine constitutes a significant part of this approach because it acknowledges that diseases can arise not from a single determinant factor but from the interaction of multiple factors. Functional medicine aims to address and treat the root causes of illnesses rather than simply suppressing symptoms with symptom-focused treatments. Therefore, functional medicine utilizes various tests, evaluations, and specialized treatment protocols to better understand individuals' health needs and to create personalized treatment plans (1-3,9-15).

The future of functional medicine may encompass several significant areas, as outlined below:

1. *Scientific Research and Development:* Functional medicine is supported by ongoing scientific research and advancements. Advanced technology and biomedical research can help us better understand the

complex mechanisms underlying diseases and achieve personal health goals.

2. *Technological Advances:* Evolving technology allows functional medicine practitioners to better assess and monitor patients' health conditions. Tools such as genomic analyses, biomarkers, advanced imaging techniques, and personal health monitoring devices can help individuals understand their health profile in more detail.
3. *Integrative Approaches:* Functional medicine integrates complementary and alternative medicine modalities alongside traditional medicine. These may include acupuncture, cupping therapy, osteopathy, chiropractic care, combined with tailored nutrition, exercise, and lifestyle changes.
4. *Education and Awareness:* In the future, there may be increased education and awareness about functional medicine. It is important for both healthcare professionals and individuals to gain more knowledge about the principles of functional medicine and understand its potential impact on health outcomes.
5. *Integration into the Healthcare System:* Functional medicine can be further integrated into traditional healthcare systems. This may occur through healthcare providers and medical education institutions embracing functional medicine principles and incorporating this approach into healthcare services.

The future of functional medicine will emphasize the importance of personalized and holistic healthcare, encouraging individuals to adopt more effective and holistic approaches to health and well-being. This could create new opportunities to improve health outcomes and prevent diseases (6-7,16-20).

### **Conflict of interest**

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

### **Author contributions**

Idea/Concept – DİY; Design – DİY; Supervision – DİY, YÇ; Data collection and/or pro-

cessing – DİY; Literature search – DİY; Writing – DİY; Critical review; – DİY, YÇ.

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