

SAMPLE REPORT

GUT MICROBIOTA TEST

Institution **Hospital A**
Name **Jason Doe**
Application No. **-**
Collected date **2021-10-28**

Registration No. **20211101-971-2102**
Age/Sex **61 / M**
Specimen Type **Stool**
Accepted/Reported **2021-11-01 / 2021-11-15**



01. RESULT



Tested by : Myeong-Geun Lee M.T(20058) *MKLee*

Confirmed by : Ju-sun Song M.D(997) *Song Ja Sun* Sae-Mi Lee M.D(1067) *SMLee*

※ Greenbiome GUT provides information only about the composition of the examinee's gut microbiota, and is not intended for the diagnosis of diseases or health conditions.

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Jason Doe's final result

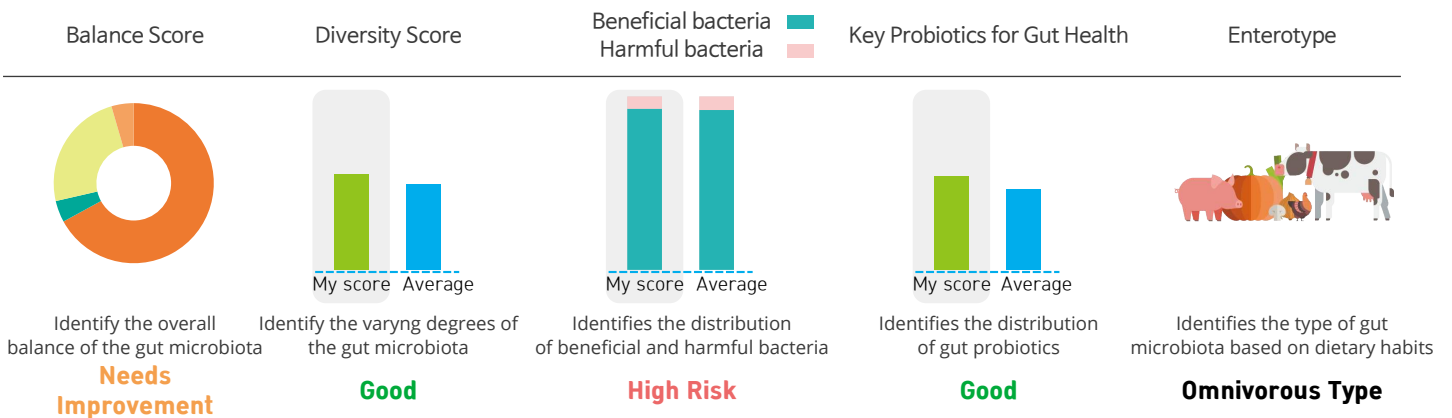
The overall result consists of 5 steps as follows according to the total score of each of the 14 categories.

B

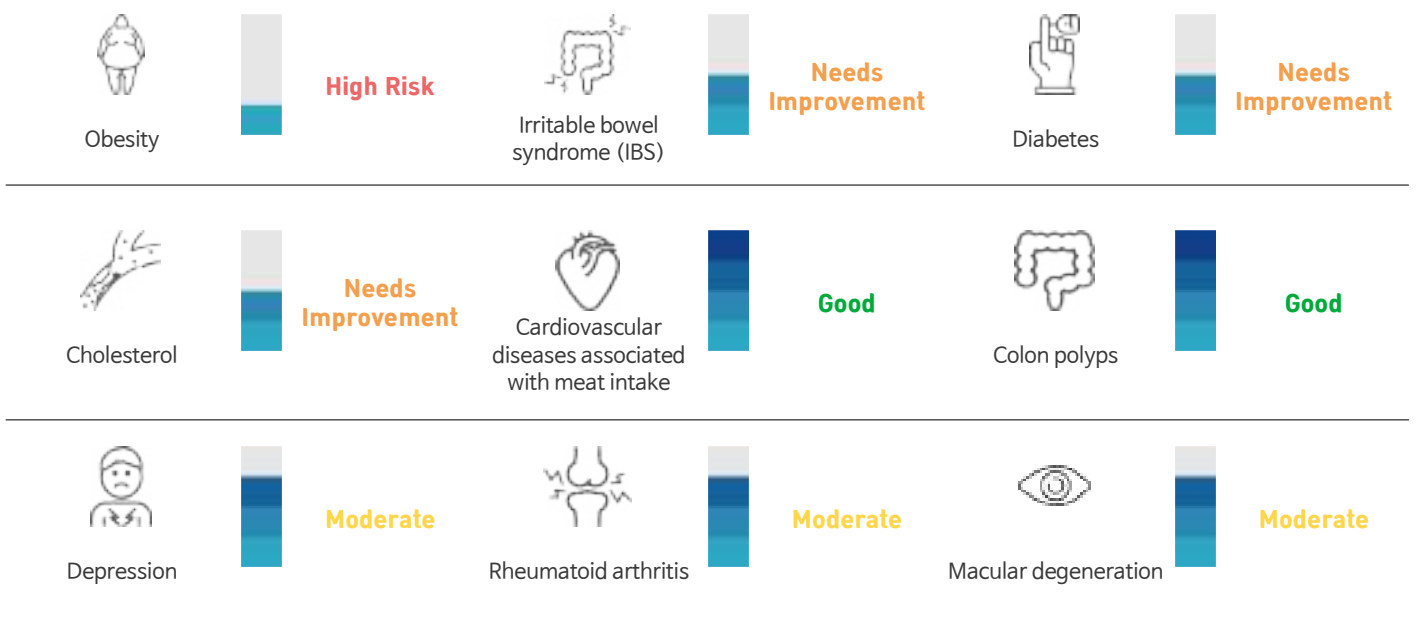
42/64

Final result	S	A	B	C	F
Score	64-50	49-45	44-40	39-35	34-16

Jason Doe's gut microbiota balance score(5 categories, maximum 4 points per category)



Jason Doe's disease prevention score according to the gut microbiota(9 categories, maximum 4 points per category)



Methods of scoring

How to calculate the score

- As a final result, Good, Moderate, Needs Improvement and High Risk result is converted into the following scores.
 - Good (4 points), Moderate (3 points), Needs Improvement (2 points), High Risk (1 point)
- The implications in health are different depending on the content, more weight are applied to some contents when calculating the score.
 - Diversity (3 points), Balance, Beneficial/Harmful bacteria (2 points), etc. (1 point)
 - Key probiotics for gut health is a sub-concept of the beneficial/harmful bacteria content and are not included in the scoring.
 - The examinee's enterotype is classified according to his/her dietary habits and is not included in the scoring.
- The total score is calculated by summing the multiplied value of the examinee's final result and the weight of each content.

[Scoring Example]

No.	Contents	Score by final result				Weight of each content	Scoring method	Scoring
		Good	Moderate	Needs Improvement	High Risk			
1	Gut microbiota balance	4	3	2	1	2	Score by final result X Weight of each content	8
2	Gut microbiota diversity	4	3	2	1	3		9
3	Beneficial / Harmful bacteria	4	3	2	1	2		6
4	Key probiotics for gut health	Probiotics are included in gut beneficial bacteria. (Excluded in scoring.)						-
5	Enterotype	It simply reports the enterotype. (Excluded in scoring.)						-
6	Obesity	4	3	2	1	1		4
7	Irritable bowel syndrome (IBS)	4	3	2	1	1		2
8	Diabetes	4	3	2	1	1		2
9	Cholesterol	4	3	2	1	1		2
10	Cardiovascular disease associated with meat intake	4	3	2	1	1		1
11	Colon polyps	4	3	2	1	1		1
12	Depression	4	3	2	1	1		2
13	Rheumatoid arthritis	4	3	2	1	1		3
14	Macular degeneration	4	3	2	1	1		4
Total score								44(B)

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Check the gut microbiota result again after following the customized health care guideline.

Diet Guidelines



A frequent intake of spicy, salty or strong-tasting food stress the intestine, causing microbial imbalance in the gut. This leads to weakened immunity, and therefore the gut is more easily exposed to various diseases. It is advised to reduce the consumption of foods that are high in fat and carbohydrates, such as instant foods and meat. Diets including white meat, such as chicken, or fish are suggested instead for a balanced bacteriological ecosystem. Also, food rich in fiber, polyphenols, antioxidants such as beta-carotene, calcium and vitamins are recommended.

Supplement Guidelines



The intake of inadequate probiotics (beneficial bacteria) along with prebiotics, which act as food for beneficial bacteria, can help prevent enteric diseases and colorectal cancer by inhibiting the growth of harmful bacteria while strengthening immunity and gut function. Probiotics is also known to be effective for depression, allergies, cardiovascular diseases etc.

Check the gut microbiota balance contents for advice on how to select the right probiotic product for yourself.

Lifestyle



The International Association for the Study of Dreams (IASD) recommends 6–8 hours of sleep for adults. The gut of adults with regular and desirable sleep habits allows the microbes to get enough rest and is less stressed, maintaining a healthy gut environment compared to the gut of adults with irregular and poor sleep.

Regular exercise 3 to 5 times a week for at least 30 minutes a day strengthens the immunity of the gut and suppresses the growth of harmful bacteria in the gut. In addition, it helps the growth of beneficial bacteria, which helps to increase the gut microbiota diversity score.

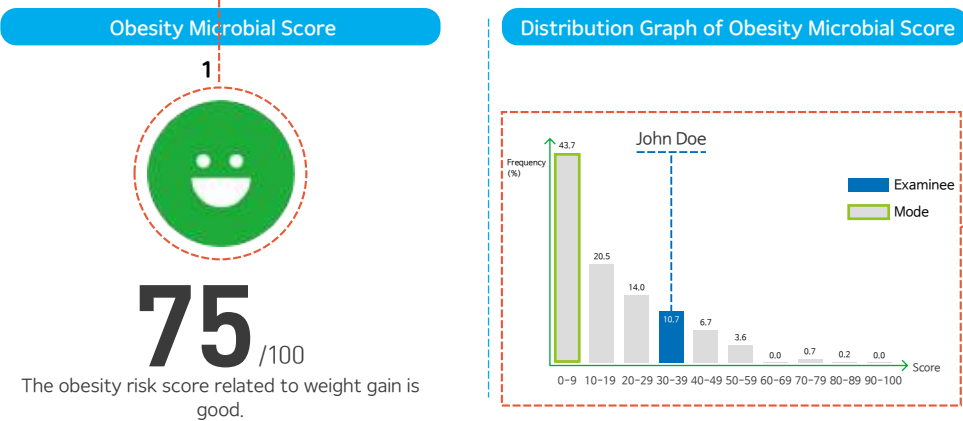
GUT MICROBIOTA TEST

How to Interpret Results

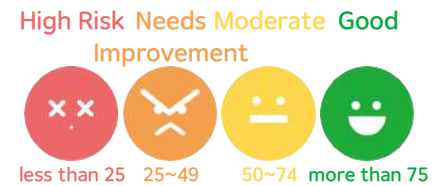
*It's easy to understand if you read it through in the order of number 1 to 5.

OBESITY(Sample)

Anti-obesity bacteria strengthens the intestinal wall and prevents obesity by regulating inflammation and metabolism. In particular, 'Christensenellaceae' is involved in re-modeling of the gut microbiota. This bacteria prevents visceral fat, hyperlipidemia, metabolic syndromes, obesity, diabetes, and is typically found in constitutionally slim people. The number of 'Akkermansia muciniphila' can be increased by polyphenol intake or intermittent fasting. High molecular weight polysaccharide, one of the substances in aloe, helps increase 'Parabacteroides goldsteinii'. This test only tests for bacteria that have anti-obesity effects.



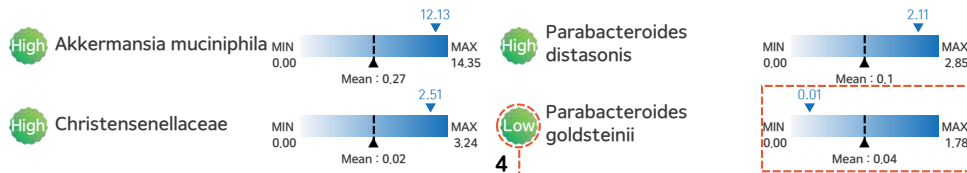
1 The overall score for the test category is presented in the following four stages. The score of each stage is given below.



2 Distribution by each score can be checked. For some strains, the detection amount does not follow a normal distribution. Therefore, the sum of the scores according to the detection amount may not follow the normal distribution.

*Mode: The most observed score band.

4 microbes related to obesity in John Doe's gut microbiota were analyzed.



3 The average value of internal gut microbiome data is shown below, and the result of the examinee is shown above. (unit:%)

Obesity prevention guidelines for John Doe

Avoid processed meats, convenience foods and alcohol for a healthy gut.

Dietary guidelines recommended by health/exercise specialists and medical nutrition managers.



4 It means that the examinee's own microbes are high or low.

5 Customized dietary guidelines for examinees by specialists in medical nutrition and health exercise are provided.

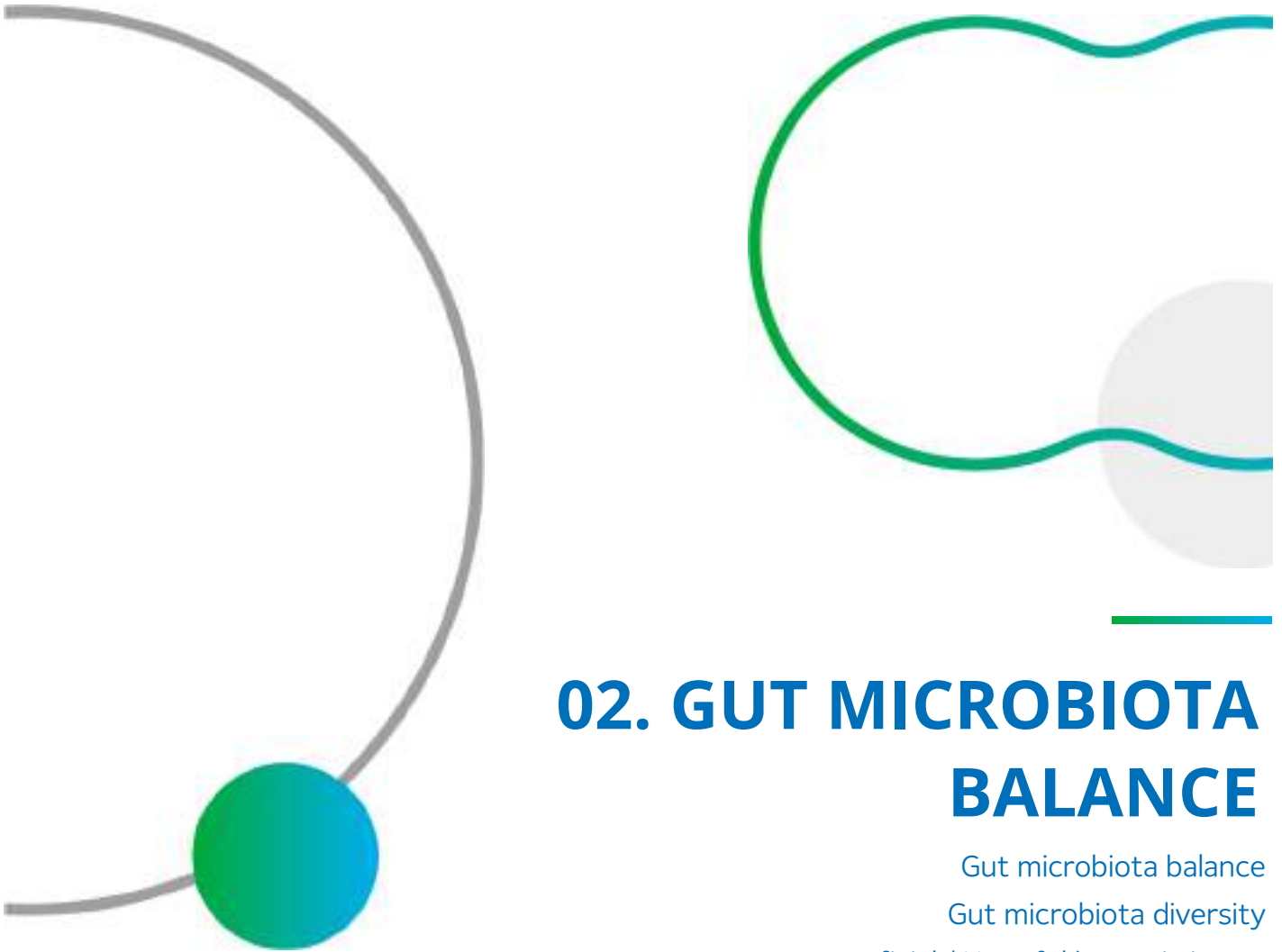
Beneficial bacteria
Good bacteria which have a favorable effect on our body.

Harmful bacteria
Bad bacteria which have an unfavorable effect on our body.

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02. GUT MICROBIOTA BALANCE

Gut microbiota balance
Gut microbiota diversity
Beneficial / Harmful bacteria in gut
Key probiotics for gut health
Enterotype



This chapter provides information about the gut environment of the examinee. The results will enable the examinee to check their distribution of beneficial and harmful bacteria, and also find out their enterotype based on dietary habits.

GUT MICROBIOTA BALANCE

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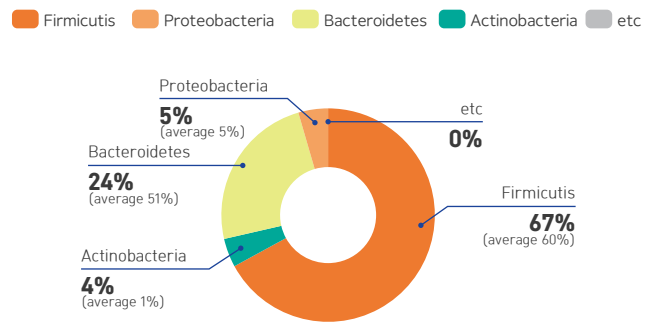
'Proteobacteria' includes numerous pathogenic, gut-inflammatory microbes. Therefore, a large number of this bacteria indicates an imbalanced gut microbiota. On the other hand, 'Actinobacteria' includes the well-known beneficial bacteria, especially, 'Bifidobacterium', which are vital for gut homeostatis.

Balance Score



The gut microbiota balance needs improvement.

Graph of gut microbiota balance



▲ Jason Doe's gut microbiota balance
The Korean average gut microbiota balance

The 2 categories of microbiota balance score were calculated by examining Jason Doe's whole gut microbiota.



The higher the proportion of Proteobacteria, the higher the risk of metabolic diseases such as irritable bowel syndrome (IBS), obesity and diabetes. High-fat, high-calorie meals or lack of dietary fiber increases the number of proteobacteria even further.



Actinobacteria are involved in strengthening the gut mucosa, improving immunity and metabolic function, and controlling brain function.

Dietary Guidelines for Jason Doe's Gut Microbiota Balance Score

Consume **low carbohydrate, low fat food** along with the **antioxidant polyphenol**, and food rich in **fiber** to improve weak gut.

Dietary guidelines recommended by health/exercise specialists and medical nutrition managers.



Raspberry

Broccoli

Chicken breast

GUT MICROBIOTA DIVERSITY

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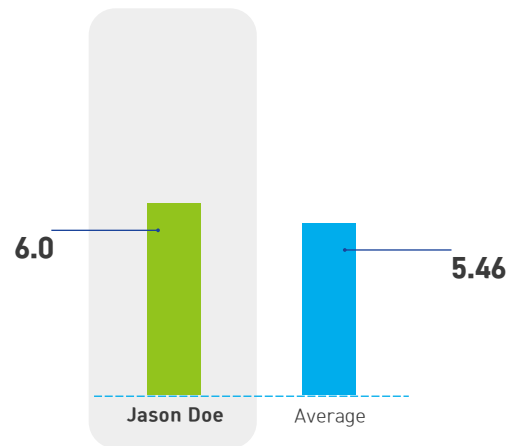
The score for gut microbiota diversity shows the diversity and distribution of gut microbes, and can be used as an index to check gut health. Chronic diseases, such as obesity, hypertension and diabetes or other disorders such as inflammatory diseases are related to low diversity of the gut microbiota. Frequent intake of various vegetables and fruit can help enhance gut microbial diversity.

Diversity Score



The gut microbiota diversity is good.

Graph of gut microbiota diversity



The diversity score was calculated by examining Jason Doe's entire gut microbiota.

● What is the diversity score?

- It refers to the functional diversity and balance of the gut microbiota.
- A high diversity score indicates that more of functionally related microbes complement each other, making the gut stronger against diseases and environmental changes.

● What if the diversity score is low?

- The risks of bowel disease, metabolic disease, immune disease, and inflammatory disease are increased.
- Compared to people with a high diversity score, those with low score are more likely to gain weight and are less effective in losing weight.

Guidelines for Jason Doe's Gut Microbial Diversity Score

Dietary guidelines recommended by health/exercise specialists and medical nutrition managers.

Avoid high-fat, high-carbohydrate, high-sugar diets and excessive drinking for a healthy gut.



Sugar



Snack



Alcoholic drink

BENEFICIAL / HARMFUL BACTERIA IN GUT

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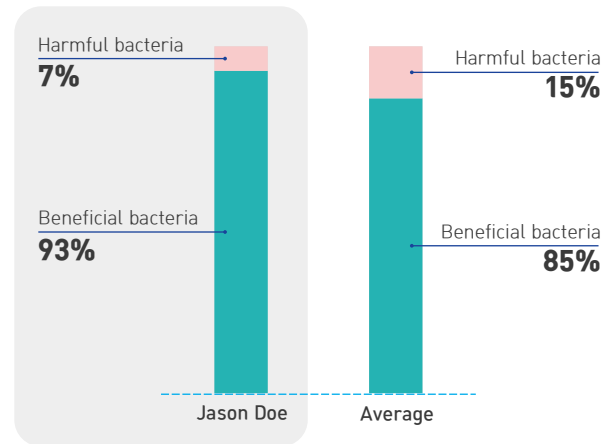
Beneficial bacteria include representative lactic acid bacteria such as 'Bifidobacteria' and 'Lactobacillus', and microorganism group that produces butyrate that plays a representative role in anti-inflammatory and immune enhancement. And the 'Akkermansia muciniphila' which helps in weight loss and diabetes prevention. The state contains 'Akkermansia muciniphila'. In particular, the butyrate-producing microorganisms use dietary fiber as food to produce butyrate, so intake of various types of dietary fiber is recommended. Harmful bacteria include 'Fusobacterium' and 'Clostridium group XI' associated with colorectal cancer, and 'Enterobacteriaceae' that can cause chronic inflammatory bowel disease.

Score of beneficial / harmful bacteria ratio



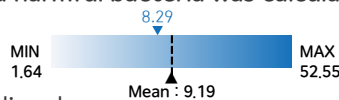
The beneficial/harmful bacteria ratio is in high risk.

Graph of beneficial / harmful bacteria ratio



The ratio score of beneficial and harmful bacteria was calculated by examining Jason Doe's entire gut microbiota.

Low Beneficial bacteria

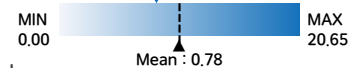


- Prevents numerous intestinal disorders
- Maintains gut homeostatis with excellent anti-inflammatory action
- Protects the gut from harmful bacteria

- Examined beneficial bacteria

Clostridium cluster XIVa, Clostridium cluster IV, Akkermansia muciniphila, Bifidobacterium, Lactobacillus

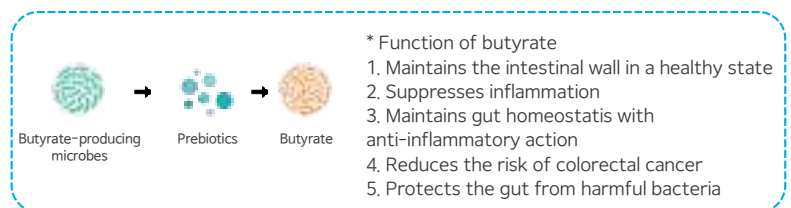
Low Harmful bacteria



- Causes gut inflammation and cancer
- Reduces immunity, inducing dysbiosis (microbial imbalance)

- Examined harmful bacteria

Clostridium cluster XI, Enterobacteriaceae, Fusobacterium



Guidelines according to Jason Doe's beneficial / harmful bacteria ratio

Consume **low FODMAP food**, which can act as nutrients for beneficial bacteria, and also food rich in **polyphenols**.

*FODMAP (Fermentable Oligosaccharides Disaccharides Monosaccharides Polyols) It refers to oligosaccharides / disaccharides / monosaccharides / polyols that are easy to ferment. High-FODMAP foods are not easily absorbed by the small and large intestine. This can cause accumulation of gas, leading to abdominal distension, pain and diarrhea.

Dietary guidelines recommended by health/exercise specialists and medical nutrition managers.



KEY PROBIOTICS FOR GUT HEALTH

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Check the distribution of Lactobacillus and Bifidobacterium, the main probiotics (beneficial bacteria) in your gut, and select a probiotic product that contains ingredients that you lack. Beneficial bacteria can help with immunity and digestion and improve gut function, helping to solve abdominal bloating, constipation, diarrhea, and irritable bowel syndrome.

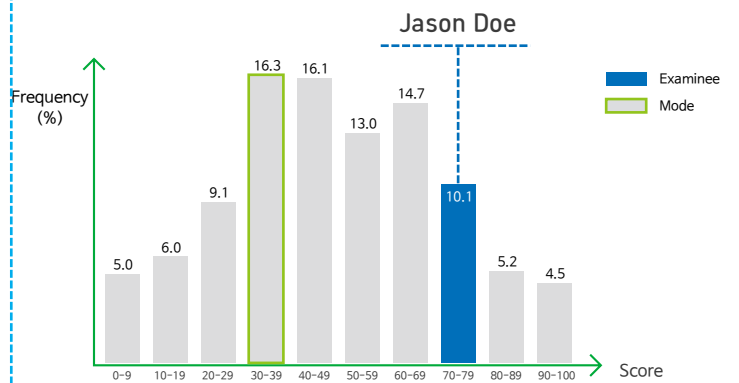
Probiotics Score



78 /100

Distribution of major probiotics in the gut is good.

Graph of probiotic score distribution



The balance score of main probiotics is calculated by examining Jason Doe's entire gut microbiota.



How to select the right probiotics!

1. Remember the type of bacteria that I need.



2. Check the ingredients and content of the probiotics when buying. Check the back of the product!



3. Choose a product in which the main ingredient is beneficial bacteria that I lack.



ENTEROTYPE

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Enterotype can be classified into 3 groups depending on dietary habits—Meatarian type/Vegetarian type/Omnivorous type. Compared to the vegetarian type, meatarian and omnivorous types usually have higher risks of alcoholic fatty liver disease, decline in immunity, colorectal cancer, inflammations, cardiovascular diseases and type 2 diabetes. Your enterotype can be changed by reducing intake of greasy food and adopting a mediterranean or oriental diet.



Omnivorous Type

(Ruminococcus)

Luminococcus enterotype that is associated not only with meat consumption but also with carbohydrate and vegetarian intake.

The enterotype has been determined by examining Jason Doe's whole gut microbiota.

● Omnivorous Type

(Ruminococcus)

- This type is affected by both meat and vegetarian diets.
- Specialized in the breakdown of complex carbohydrates such as cellulose and resistant starch that are found in vegetable foods.
- Easily absorbs sugars. Therefore the risk of obesity increases even with a small amount of sugar intake.
- Vulnerable to type 2 diabetes due to heavy reliance on processed meat or meat for protein intake.
- Cardiovascular diseases can be prevented through maintaining a vegetarian diet for over a year.

Guidelines for Jason Doe's gut microbiota enterotype

Dietary guidelines recommended by health/exercise specialists and medical nutrition managers.

Consume **fish, poultry, whole grains** and **organic food** for a healthy gut.



Salmon



Lettuce

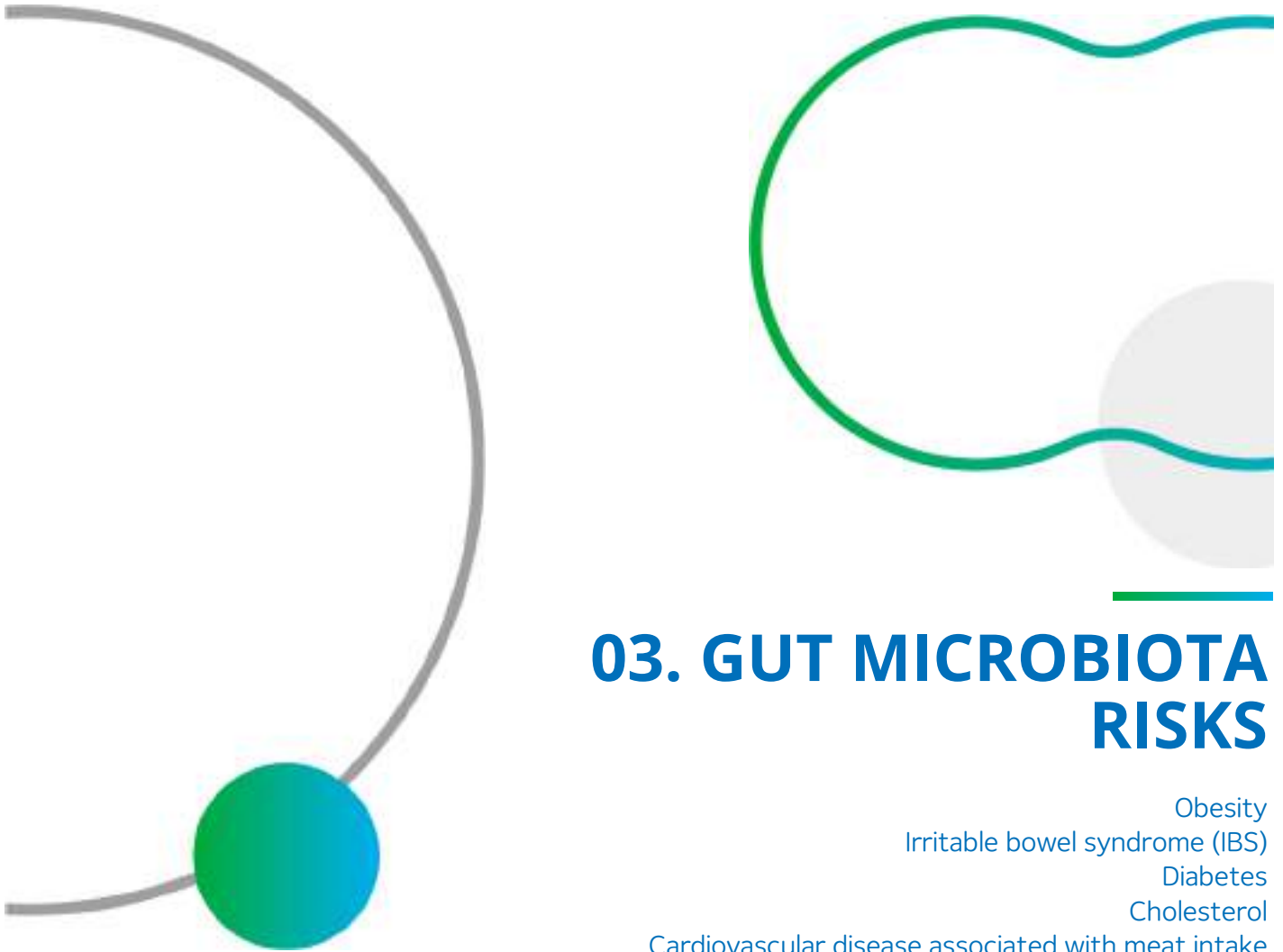


Carrots

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03. GUT MICROBIOTA RISKS

Obesity
Irritable bowel syndrome (IBS)
Diabetes
Cholesterol
Cardiovascular disease associated with meat intake
Colon polyps
Depression
Rheumatoid arthritis
Macular degeneration



The gut microbiota is known to be related to numerous types of diseases. This chapter provides information about gut microbes associated with common disorders for modern day people such as obesity, irritable bowel syndrome (IBS), and depression. Information on 9 different diseases will enable the examinee to broaden their range of healthcare.

The disease risk analysis result of this test was calculated by analyzing the gut microbiota selected by GC Genome based on the literature studied so far. Therefore additional effects could not be excluded due to other gut microbiota that have not been included in the analysis or have not yet been identified. And the risk of disease may vary depending on the results of subsequent studies.

Also, please consider that various factors, such as lifestyle, genetic factors, and environment, can affect the risk and occurrence of diseases in addition to the gut microbiota.

OBESITY

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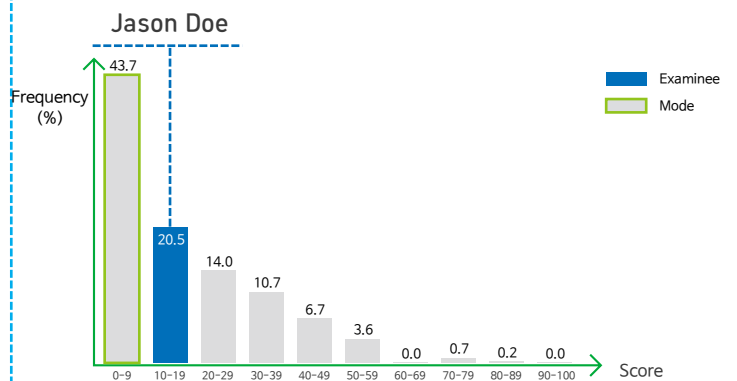
Anti-obesity bacteria strengthens the intestinal wall and prevents obesity by regulating inflammation and metabolism. In particular, 'Christensenellaceae' is involved in re-modeling of the gut microbiota. This bacteria prevents visceral fat, hyperlipidemia, metabolic syndromes, obesity, diabetes, and is typically found in constitutionally slim people. The number of 'Akkermansia muciniphila' can be increased by polyphenol intake or intermittent fasting. High molecular weight polysaccharide, one of the substances in aloe, helps increase 'Parabacteroides goldsteinii'. This test only tests for bacteria that have anti-obesity effects.

Obesity Microbial Score

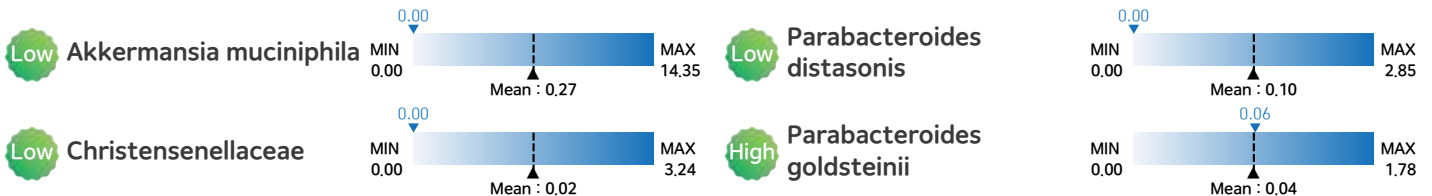


The obesity risk score related to weight gain is in high risk.

Distribution Graph of Obesity Microbial Score



4 microbes related to obesity in Jason Doe's gut microbiota were analyzed.



Obesity prevention guidelines for Jason Doe

Consume fish, dietary fiber, and food rich in polyphenol which is an antioxidant, to improve weakened gut.

Dietary guidelines recommended by health/exercise specialists and medical nutrition managers.



IRRITABLE BOWEL SYNDROME (IBS)

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'Enterobacteriaceae' includes many harmful bacteria that are related to gut infections. Therefore an increase in the number of this bacteria may indicates an previous infection within the gut. 'Lactobacillus' included in 'Lactobacillaceae' produces organic acid through disaccharide fermentation, which can cause stomach aches and bloating. 'Bacteroides' is commonly found in people with irritable bowel syndrome particularly having diarrhea. 'Faecalibacterium' and 'Bifidobacterium' inhibit irritable bowel syndrome. The intake of dietary fiber and lactic acid bacteria can help the increase these bacteria.

Irritable Bowel Syndrome Microbial Score

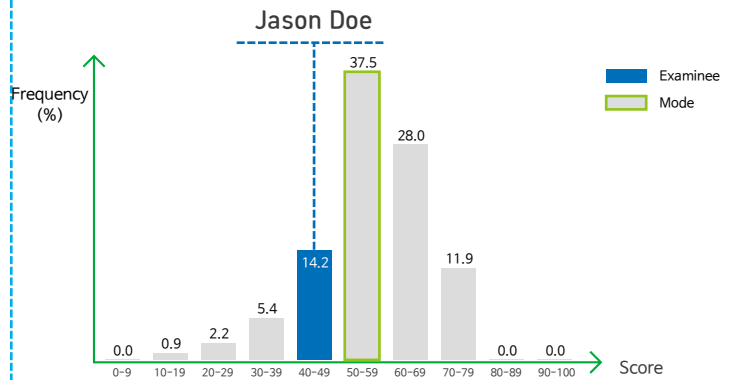


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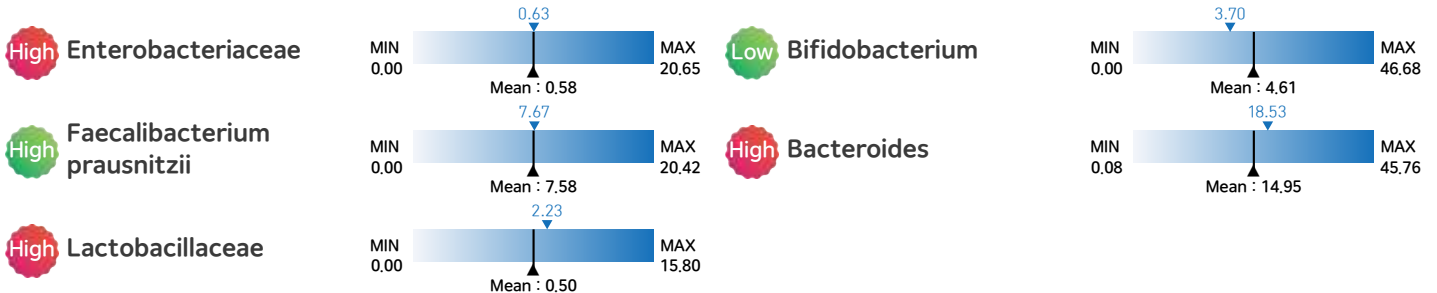
/100

The microbiota gut related to irritable bowel syndrome needs improvement.

Distribution Graph of Irritable Bowel Syndrome Microbial Score



5 microbes related to irritable bowel syndrome in Jason Doe's gut microbiota were analyzed.



Irritable bowel syndrome prevention guidelines for Jason Doe

Consume **low FODMAP food**, which can act as nutrients for beneficial bacteria, to improve weakened gut.

Dietary guidelines recommended by health/exercise specialists and medical nutrition managers.



DIABETES

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These gut microbes participate in the development and inhibition of diabetes. They are known to influence inflammation, gastrointestinal leaks, sugar and fat metabolism, and insulin sensitivity. Diabetes medications controls sugar metabolism, as well as influencing to the gut microbiota. When treating diabetes, taking prebiotics(source of food for your gut's healthy bacteria) along with probiotics can enhance the efficacy of the medication.

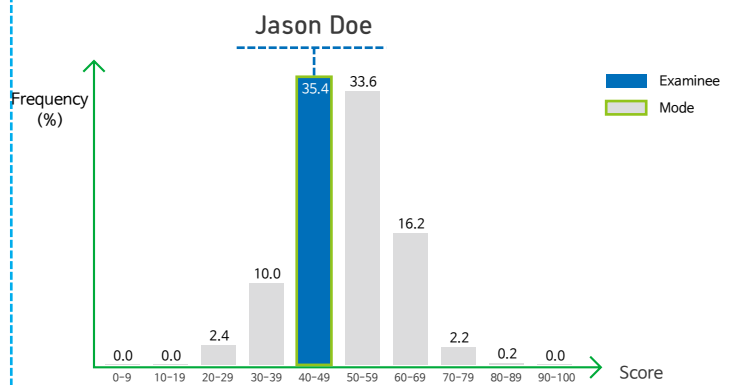
Diabetes Microbial Score



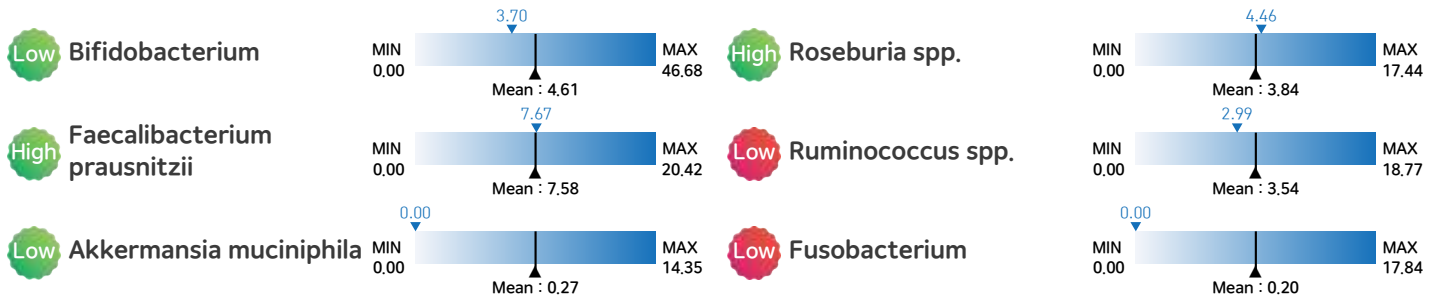
49 /100

The composition of the gut microbiota related to diabetes needs improvement.

Distribution of Diabetes Microbial Score



6 microbes related to diabetes in Jason Doe's gut microbiota were analyzed.



Diabetes prevention guidelines for Jason Doe

Dietary guidelines recommended by health/exercise specialists and medical nutrition managers.

Consume foods high in **nuts, low sugar,** and **fiber** to improve your weakened gut.



Black beans

Carrots

Sunflower seeds

CHOLESTEROL

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High blood cholesterol is highly associated with the risk of arteriosclerosis and cardiovascular disease. 'Eubacterium coprostanoligenes' lowers blood cholesterol levels by breaking down cholesterol that comes through food or is produced from bile acids. Therefore, if the ratio of this bacteria is high, blood cholesterol levels will be lower even if we eat the same food compared to people with low ratios, but if the ratio of this bacteria is low, it is more likely that the blood cholesterol level is high, so it is recommended to reduce high-cholesterol foods.

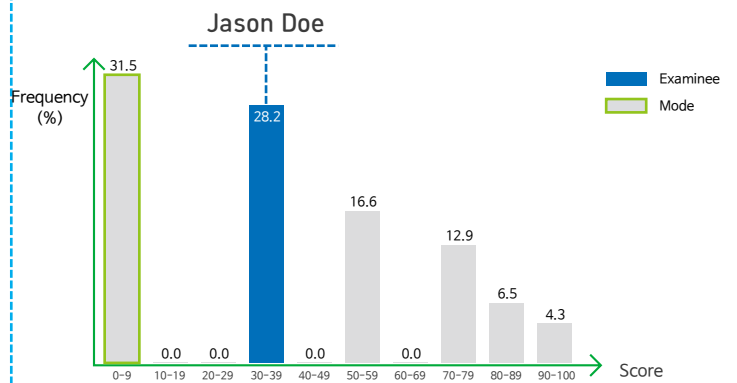
Cholesterol Microbial Score



30 /100

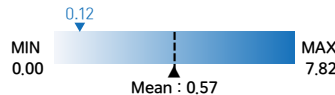
The gut microbiota related to cholesterol needs improvement.

Distribution Graph of Cholesterol Microbial Score



1 microbe related to cholesterol in Jason Doe's gut microbiota was analyzed.

Low Eubacterium coprostanoligenes



Cholesterol prevention guidelines for Jason Doe

Consume foods rich in **beta-carotene** and **vitamin from seaweed** and **green leafy vegetables** to prevent high blood cholesterol.

Dietary guidelines recommended by health/exercise specialists and medical nutrition managers.



Carrots



Seaweed



Bell peppers

CVD ASSOCIATED WITH MEAT INTAKE

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Trimethylamine N-oxide(TMAO) is an important metabolite that is associated with atherosclerosis and cardiovascular diseases. Carnitine and choline are substances found in animal foods such as red meat, eggs, and dairy products. These substances are broken down to TMAO by certain gut microbes, and in turn, consuming animal foods increase the number of microbes related to the production of TMAO. People with a large number of 'Bifidobacterium' tends to have a low concentration of TMAO. However, the number of 'Bifidobacterium' is usually low in people with a diet based on animal foods.

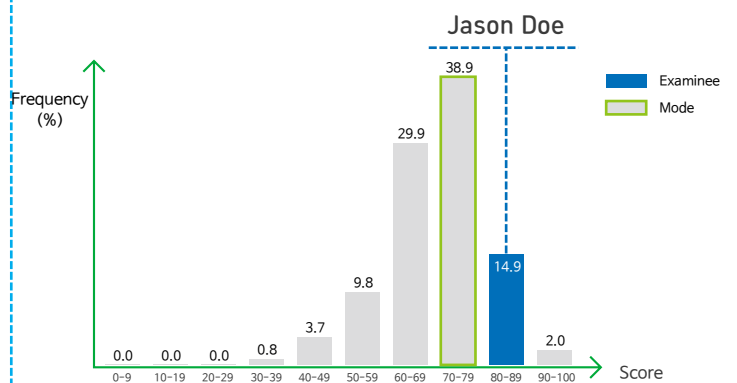
Microbial Score of Cardiovascular Disease caused by Meat Intake



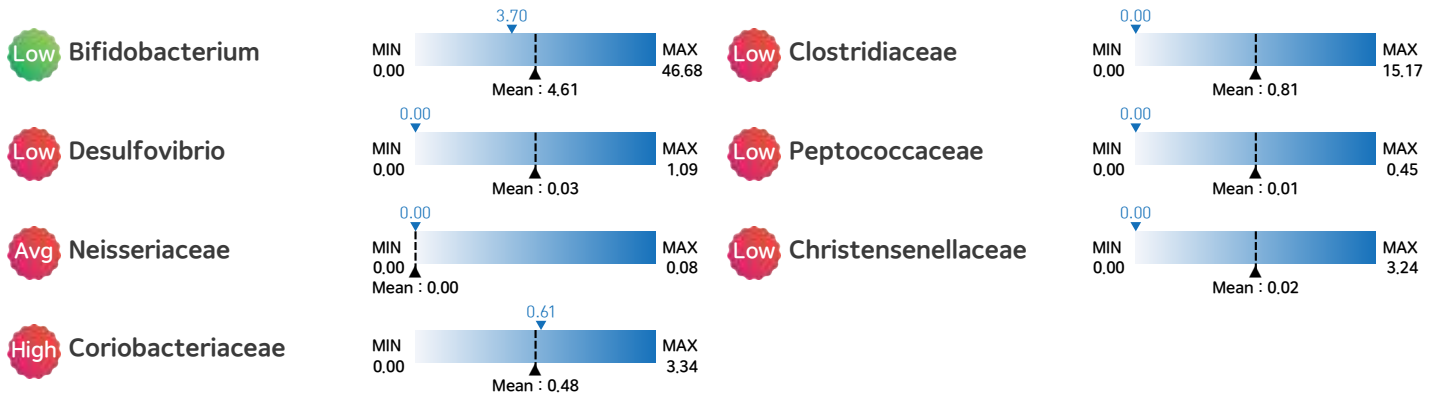
80/100

The gut microbiota related to cardiovascular disease risk associated with meat intake is good.

Distribution Graph of Microbial Score of Cardiovascular Disease caused by Meat Intake



7 microbes related to cardiovascular disease caused by meat intake in Jason Doe's gut microbiota were analyzed.



Cardiovascular disease prevention guidelines for Jason Doe

Avoid red meat and high-fat dairy products to prevent cardiovascular diseases.

Dietary guidelines recommended by health/exercise specialists and medical nutrition managers.



COLON POLYPS

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Application No.	-	Specimen Type	Stool
Collected date	2021-10-28	Accepted/Reported	2021-11-01 / 2021-11-15

'Fusobacterium nucleatum' promotes the generation of polyps and malignant cells by inhibiting cell proliferation and NK cells that kill cancer cells. 'Desulfovibrio' and 'Bilophila' generate hydrogen sulfide (H₂S) and induce gene mutation, which causes inflammation and even promotes the formation of malignant cells. In particular, they are known to be increased in animal protein, such as high-fat, red meat. 'Parvimonas micra' and 'Peptostreptococcus stomatis' may not be directly involved in the development of cancer, but rather settle well in the environment where malignant cells exist and may be indicators of colon polyps.

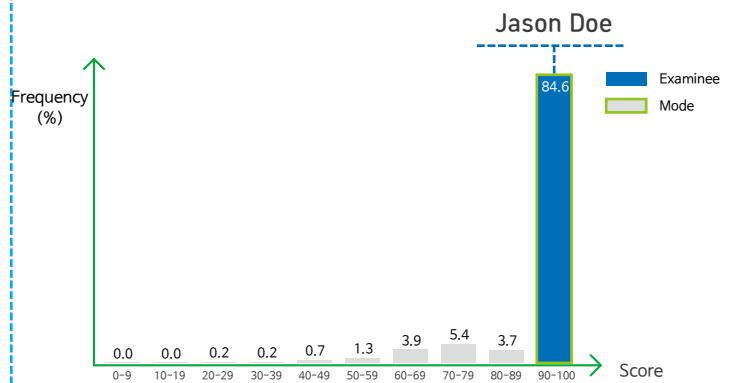
Colon Polyp Microbial Score



91 /100

The gut microbiota related to colon polyp is good.

Distribution Graph Colon Polyp Microbial Score



5 microbes related to colon polyps in Jason Doe's gut microbiota were analyzed.

Avg **Fusobacterium nucleatum**



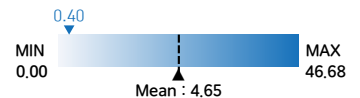
Avg **Parvimonas micra**



Avg **Peptostreptococcus stomatis**



Low **Desulfovibrio + Bilophila**



Colon polyp prevention guidelines for Jason Doe

Avoid **high-fat, high-carbohydrate, high-sugar, strong-tasting foods**, and **alcohol** for a healthy gut.

Dietary guidelines recommended by health/exercise specialists and medical nutrition managers.



Red meat



Spicy food



Alcoholic drink

DEPRESSION

Institution	Hospital A	Registration No.	20211101-971-2102
Name	Jason Doe	Age/Sex	61 / M
Application No.	-	Specimen Type	Stool
Collected date	2021-10-28	Accepted/Reported	2021-11-01 / 2021-11-15

Gut microbes related to depression participate in the production or reduction of neuroactive molecules and analogues, or involve in chronic inflammations in the body. In particular, 'Faecalibacterium' is one of the representative anti-inflammatory bacteria, and they are scarcely found in people with depression.

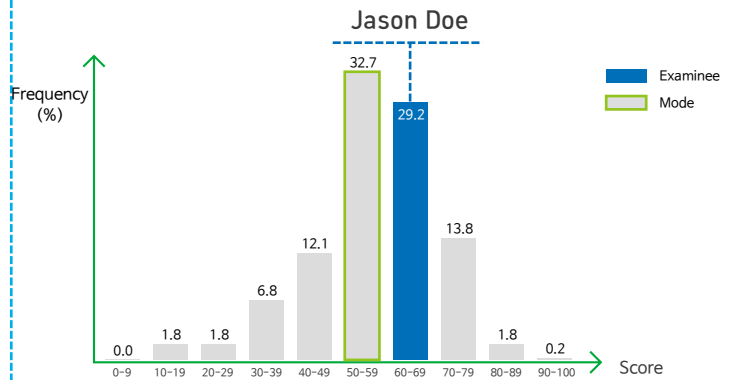
Depression Microbial Score



64 /100

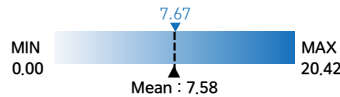
The gut microbiota related to depression is moderate.

Distribution Graph of Depression Microbial Score

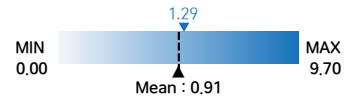


4 microbes related to depression in Jason Doe's gut microbiota were analyzed.

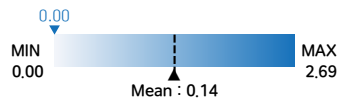
High Faecalibacterium prausnitzii



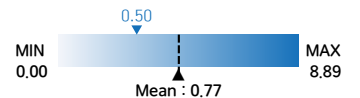
High Alistipes



Low Flavonifractor



Low Oscillibacter



Depression prevention guidelines for Jason Doe

Avoid **high-caffeine**, **saturated fatty acids** from animal fat, and **high-cholesterol** foods to prevent depression

Dietary guidelines recommended by health/exercise specialists and medical nutrition managers.



Coffee (high caffeine)



Black tea



Hamburger

RHEUMATOID ARTHRITIS

Institution: Hospital A
 Name: Jason Doe
 Application No.: -
 Collected date: 2021-10-28

Registration No.: 20211101-971-2102
 Age/Sex: 61 / M
 Specimen Type: Stool
 Accepted/Reported: 2021-11-01 / 2021-11-15

The outbreak and development of rheumatoid arthritis is associated with imbalance in the immune system. These gut microbes excessively activate the immune system, which may contribute to rheumatoid arthritis.

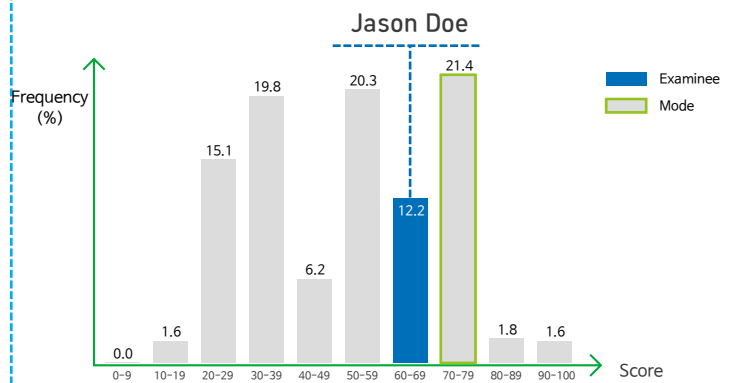
Rheumatoid Arthritis Microbial Score



64 / 100

The gut microbiota related to rheumatoid arthritis is moderate.

Distribution Graph of Rheumatoid Arthritis Microbial Score



2 microbes related to rheumatoid arthritis in Jason Doe's gut microbiota were analyzed.



Rheumatoid arthritis prevention guidelines for Jason Doe

Avoid meat, instant food, and drinking alcohol to prevent rheumatoid arthritis.

Dietary guidelines recommended by health/exercise specialists and medical nutrition managers.



Red meat

Alcoholic drink

Instant food

MACULAR DEGENERATION

Institution: Hospital A
 Name: Jason Doe
 Application No.: -
 Collected date: 2021-10-28

Registration No.: 20211101-971-2102
 Age/Sex: 61 / M
 Specimen Type: Stool
 Accepted/Reported: 2021-11-01 / 2021-11-15

Macular degeneration is the most common cause of decreased eyesight related to aging. Blue light coming from smart phones and other electronic devices also have a bad influence on eye health. Alterations in the gut microbiota promotes the forming of new blood vessels on the choroid, thereby increasing the risk of macular degeneration.

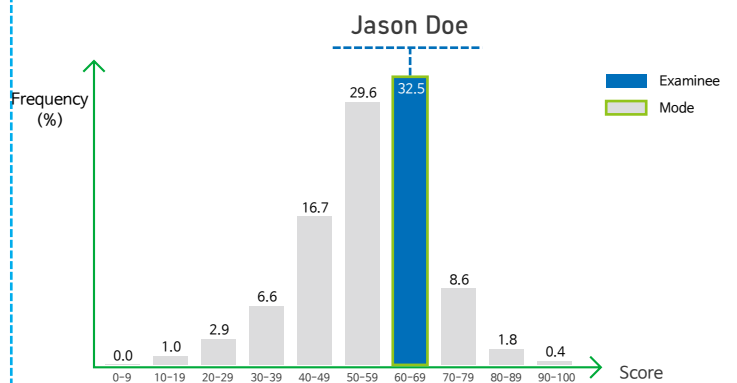
Macular Degeneration Microbial Score



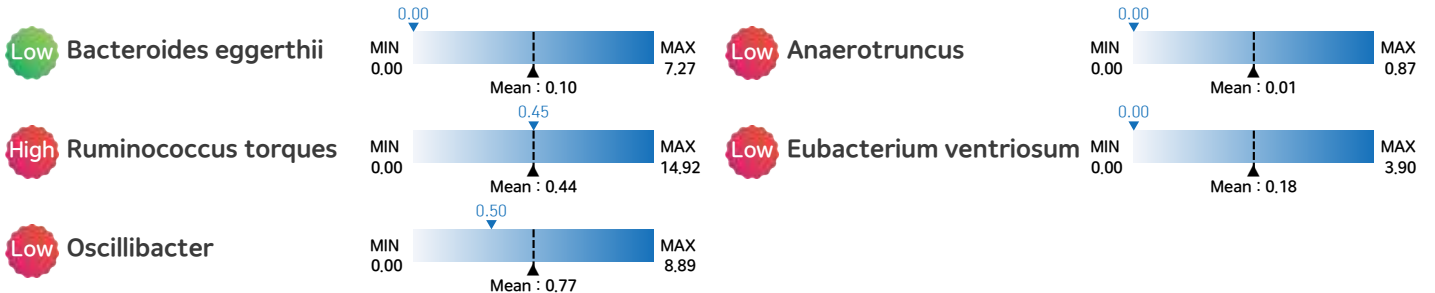
64/100

The gut microbiota related to macular degeneration is moderate.

Distribution Graph of Macular Degeneration Microbial Score



5 microbes related to macular degeneration were analyzed in Jason Doe's gut microbiota.



Macular degeneration prevention guidelines for Jason Doe

Avoid spicy, salty, greasy foods to prevent age-related macular degeneration.

Dietary guidelines recommended by health/exercise specialists and medical nutrition managers.



GUT MICROBIOTA TEST



APPENDIX

Main bacteria by content
Gut microbiota and diet
References

MAIN BACTERIA BY CONTENT

Greenbiome Gut identifies a variety of gut microbiota.

● **Beneficial bacteria Good** bacteria which have a favorable effect on our body. ● **Harmful bacteria Bad** bacteria which have an unfavorable effect on our body.

No.	Contents	Main Analytical Bacteria	Classification of fungi
1	Gut microbiota balance	Proteobacteria	Harmful bacteria
		Actinobacteria	Beneficial bacteria
2	Gut microbiota diversity	Hundreds of examined gut microbe species	
3	Beneficial bacteria / Harmful bacteria	Bifidobacterium	Beneficial bacteria
		Lactobacillus	Beneficial bacteria
		Akkermansia muciniphila	Beneficial bacteria
		Clostridium cluster XIVa	Beneficial bacteria
		Clostridium cluster IV	Beneficial bacteria
		Clostridium cluster XI	Harmful bacteria
		Fusobacterium	Harmful bacteria
		Enterobacteriaceae	Harmful bacteria
4	Probiotics	Lactobacillus	Beneficial bacteria
		Bifidobacterium	Beneficial bacteria
5	Enterotype	Prevotella	Vegetarian
		Ruminococcus spp.	Omnivorous
		Bacteroides	Meatarian
6	Obesity	Akkermansia muciniphila	Beneficial bacteria
		Parabacteroides distasonis	Beneficial bacteria
		Parabacteroides goldsteinii	Beneficial bacteria
		Christensenellaceae	Beneficial bacteria
7	Irritable Bowel Syndrome	Enterobacteriaceae	Harmful bacteria
		Bifidobacterium	Beneficial bacteria
		Faecalibacterium prausnitzii	Beneficial bacteria
		Bacteroides	Harmful bacteria
		Lactobacillaceae	Harmful bacteria
8	Diabetes	Bifidobacterium	Beneficial bacteria
		Faecalibacterium prausnitzii	Beneficial bacteria
		Akkermansia muciniphila	Beneficial bacteria

MAIN BACTERIA BY CONTENT

Greenbiome Gut identifies a variety of gut microbiota.

●  **Beneficial bacteria Good** bacteria which have a favorable effect on our body. ●  **Harmful bacteria Bad** bacteria which have an unfavorable effect on our body.

No.	Contents	Main Analytical Bacteria	Classification of fungi
8	Diabetes	Roseburia spp.	Beneficial bacteria
		Ruminococcus spp.	Harmful bacteria
		Fusobacterium	Harmful bacteria
9	Cholesterol	Eubacterium coprostanoligenes	Beneficial bacteria
10	Cardiovascular diseases associated with meat intake	Bifidobacterium	Beneficial bacteria
		Desulfovibrio	Harmful bacteria
		Neisseriaceae	Harmful bacteria
		Coriobacteriaceae	Harmful bacteria
		Clostridiaceae	Harmful bacteria
		Peptococcaceae	Harmful bacteria
11	Colon polyps	Christensenellaceae	Harmful bacteria
		Fusobacterium nucleatum	Harmful bacteria
		Parvimonas micra	Harmful bacteria
		Peptostreptococcus stomatis	Harmful bacteria
		Desulfovibrio	Harmful bacteria
12	Depression	Bilophila	Harmful bacteria
		Faecalibacterium prausnitzii	Beneficial bacteria
		Alistipes	Harmful bacteria
		Flavonifractor	Harmful bacteria
13	Rheumatoid arthritis	Oscillibacter	Harmful bacteria
		Prevotella copri	Harmful bacteria
14	Macular degeneration	Collinsella	Harmful bacteria
		Bacteroides eggerthii	Beneficial bacteria
		Ruminococcus torques	Harmful bacteria
		Oscillibacter	Harmful bacteria
		Anaerotruncus	Harmful bacteria
		Eubacterium ventriosum	Harmful bacteria

GUT MICROBIOTA and DIET

Biotics



Prebiotics

It is a source of nutrition for beneficial bacteria, i.e., food that promotes proliferation and activity of beneficial bacteria in guts. Dietary fibers are the most well-known prebiotics, which are neither digested nor absorbed in esophagus, stomach, or duodenum, but fermented in colon. Since metabolic reactions vary depending on which gut microbiome individuals possess, prebiotics are actually utilized very differently in one another. MAC(microbiota-accessible carbohydrates) is an alternative concept for these prebiotics and now more widely used, which substantially affects gut microbiome environment rather than simply benefiting gut microbiomes.

Probiotics

Probiotics refers to all microorganisms that have beneficial effects on body when present in an appropriate amount. It also protects against harmful bacteria entering the body, and is involved in digestion, nutrient absorption, vitamin synthesis, inflammation suppression, and immune enhancement. You can intake lactobacillus via various fermented food, but it is difficult to figure out exactly which type and amount are in it. Lactobacillus and Bifidobacterium are now mainly used as supplements, and many other species are in research.

Postbiotics

Postbiotics are all by-products produced by probiotics in vivo. SCFA(Short Chain Fatty Acids) is one of the best known, and it plays an important role in immunity and prevention of various diseases such as cancers.

FODMAP



FODMAP

FODMAP is an abbreviation for Fermentable, Oligosaccharides, Disaccharides, Monosaccharides and Polyols. These FODMAP-rich sugars are not absorbed well in guts and are fermented by microorganisms to cause gas, which can cause abdominal bloating, pain and diarrhea. LOW-FODMAP is a meal therapy avoiding HIGH-FODMAP foods to improve symptoms in patients with IBS(Irritable Bowel Syndrome).

Diet type

Gut Microbiota

Related Health Issues



FODMAP

LOW

HIGH

Vegetables	eggplant, green beans, bokchoy, red pepper, carrot, cucumber, lettuce, potato, tomato, green pumpkin	artichoke, asparagus, cauliflower, garlic, green peas, leek, mushroom, onion, pickle
Fruits	melon, grapes, kiwi, tangerine, pineapple, strawberry	apple, cherry, mango, peach, pear, plum, watermelon
Dairies	almond milk, brie cheese, camembert cheese, feta cheese, hard cheese, lactose-free milk, soy milk	milk, custard, condensed milk, ice cream, soy milk(full bean-processed), yogurt
Proteins	egg dishes, tofu dishes, meat, seafood, poultry, soybean fermented food	soybeans, seasoned meat, seafood, poultry, processed meat
Bread and cereals	corn cereal, oat cereal, quinoa cereal, rice cake, yeast breads	whole-wheat bread, rye bread, barley bread, sugar cereal, chocolate cereal, biscuits
Sugars	dark chocolate, maple, rice malt syrup, plain sugar	corn syrup, honey, snacks
Nuts	macadamia, peanut, pumpkin seeds, walnut	cashnut, pistachio

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