



## Thrills and Spills: An Exciting Climb and Healing Hot Springs

Explore hot springs,  
discover Misasa

# The Radiumelier's Pocket-Size Guide to Misasa Onsen



Modern **Hot Springs** Therapy

Misasa Onsen



# Japan Heritage

100 Japan  
Heritage  
stories



By comprehensively packaging a region's cultural assets and local industries, i.e., its value, based on a story, the Japan Heritage program enables regions to widely share their value. The story of Misasa Town, Thrills and Spills: *An Exciting Climb and Healing Hot Springs*, was recognized by the Agency for Cultural Affairs on April 24, 2015 as one of the 100 Japan Heritage stories to be shared with the world.

## Japan Heritage

**Utilize and promote a region's cultural properties collectively**



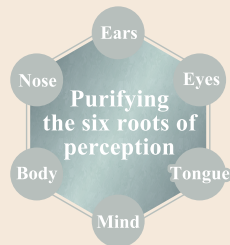
**Focused on  
utilization**



Collectively promote a packaged group of cultural properties  
Facilitate regional branding and the reaffirmation of regional identity

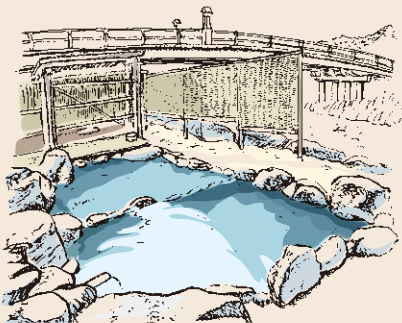
## Purify Your Six Roots of Perception and Heal Your Six Senses in Misasa Onsen

Since the old days, people have come to Misasa to purify their six roots of perception (eyes, ears, nose, tongue, body, and mind) by immersing themselves in nature and praying to gods and deities at Mount Mitoku. Visitors have also healed their six senses (sight, hearing, smell, taste, touch, and spirit) by dipping into Misasa Onsen, the base for climbing Mount Mitoku, and receiving the blessings of nature. According to the Misasa Way, visitors must purify themselves in Misasa Onsen before climbing Mount Mitoku for worship and then heal themselves in the hot springs after returning from the climb. Put together by Misasa radium spring bath sommeliers, or "radiume-liers", to help you follow the Misasa Way.



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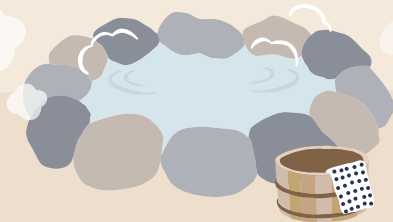


## 1 The Basics of Onsen

### The Definition of a Hot Spring (Onsen)

The temperature of the water, steam, and/or gases emerging from underground is 25°C or higher.

The water contains at least the specified amount of one or more of the 19 components specified by Japan's Hot Springs Act.



### Components specified by the Hot Springs Act

Carbon dioxide, radon, sulfur, sodium bicarbonate, iron, hydrogen ions, iodine ions, etc.

# 1 The Basics of Onsen

## 🌋 The Properties of Misasa Onsen

**High-temperature, pH-neutral,  
mild, chloride spring, radioactive**

### 🌋 Temperature-Based Classification

42°C and higher High-temperature springs
34°C to below 42°C Hot springs
25°C to below 34°C Warm springs
Below 25°C Low-temperature mineral springs

### 🌋 pH-Based Classification

8.5 and above Alkaline springs
7.5 to below 8.5 Weak alkaline springs
6 to below 7.5 Neutral springs
3 to below 6 Weak acidic springs
Below 3 Acidic springs

## 🌋 Description of the Hot Springs Components Label

### Components-Based Classification

- Mild springs
- Chloride springs
- Hydrogen carbonate springs
- Sulfate springs
- Carbonated springs
- Iron-containing springs
- Acidic springs
- Copper-and-iron-containing springs
- Aluminum-containing springs
- Sulfur springs
- Radioactive springs

In Japan, hot springs are classified into 11 categories and their subcategories.

### Hot Springs Components Label (sample)

Name	Misasa Town-Owned Mixed Tank No.1 Spring
Properties	Chloride spring containing low-level radioactive sodium
Components	○○○○○○○○○○
Contraindications	○○○○○○○○○○○○○○
Indications	○○○○○○○○
Cautions	○○○○○○○○○○○○○○○○

- ① Name..... The hot springs area name based on the address and the hot springs name according to the owner's registration data.
- ② Contraindications...  
If you have any of the listed diseases or symptoms, avoid drinking or bathing in the hot spring.
- ③ Indications... Drinking or bathing in the hot spring is beneficial for the listed diseases and symptoms.

## 2 The Effects of Onsen

### The 3 Physical Effects

#### Warmth

The warmth of the spring water accelerates metabolism, helps to release waste products, and alleviates muscle and joint pain. To relieve fatigue, bathe in a lukewarm spring for about 20 minutes.

#### Water pressure

Your body is massaged by the water pressure of the hot springs, improving your blood circulation. In addition to relieving leg fatigue, the water pressure increases your respiratory rate, improving respiratory excursion and heart functions.

#### Buoyancy

The buoyancy of the water makes it easier for you to exercise. Doing gentle aquatic exercises is effective for rehabilitation and building muscles.

### Other Effects...

#### Chemical Effects

The chemical components of hot springs help condition your body. They produce pharmacological effects after being absorbed through the skin by bathing and through the stomach, intestines, and other digestive organs by drinking the water.

#### The Effects of the Natural Environment and Being in a New Environment

The location, topography, weather, etc. of the hot springs area have a variety of beneficial effects on your body. In many cases, the secretion of various hormones is stimulated and stress is relieved just by being in a new environment.

#### Synergistic Effects

Hot springs help condition your body. Long-term regular bathing enhances your intrinsic healing abilities through the synergy of the hot spring's physical and chemical effects, as well as the beneficial effects of the area's natural environment and being in a new environment.

### 3 The Properties and Benefits of Misasa Onsen

#### Misasa's hot springs are beneficial for:

bronchial asthma, lung diseases,  
respiratory diseases

rheumatoid arthritis, joint pain, stiff shoulders,  
back pain, neuralgia

post-surgery rehabilitation

hypertension, diabetes, gout, arteriosclerosis

chronic digestive diseases, chronic skin  
diseases, chronic female-specific  
health problems

poor circulation, fatigue relief, stress relief

accelerating metabolism and strengthening  
the immune system by intaking a small  
appropriate amount of radon  
(the hormesis effect)

#### Radon Hot Springs and the Hormesis Effect

Studies have shown that the human body is physiologically stimulated and cells are activated when exposed to extremely low doses of low-level radiation from radon and other sources. This is called the radiation hormesis effect. The benefits of radon hot springs are due to this hormesis effect.

Recent studies have suggested that exposure to low-dose radiation may prevent or alleviate symptoms of lifestyle diseases and aging. It was found that the immune system may be strengthened and a strong antioxidant effect may be obtained when an enzyme called superoxide dismutase, which breaks down active oxygen in the body, is activated by low-dose radiation exposure.

### 3 The Properties and Benefits of Misasa Onsen

#### Symptoms of Lifestyle Diseases and Aging May Be Prevented or Alleviated

**By exposure to low-dose radiation, which leads to the following conditions:**

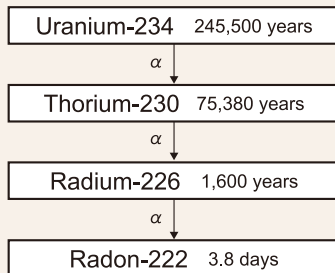
- ☐ Increased antioxidant function
- ☐ Increased immune system (regulatory) function
- ☐ Increased damage repair function
- ☐ Increase in self-destruction of mutant cells
- ☐ Enhanced anti-inflammatory activity
- ☐ Improved circulation and accelerated cellular metabolism
- ☐ Enhanced hormone secretion
- ☐ Enhanced production of heat shock proteins, etc.



### 4 The Basics of Radon

Radon is one of the noble gas elements, with an atomic symbol of Rn and an atomic number of 86. Radon (gas) is produced by the alpha decay of radium-226 (solid), which is produced by the decay chain of uranium. Existing as a gas under normal conditions, radon is a colorless, tasteless, odorless inert element (exists stably as radon) with a half-life\* of about 3.8 days.

\* The time required by a radioactive substance to reduce to half of its original amount.



## 4 The Basics of Radon

Intaking radon through inhalation by bathing in a radon hot spring or by drinking the water stimulates and activates cells due to the hormesis effect.

We recommend staying in Misasa Onsen for several days or even weeks as the spring water helps to accelerate metabolism, strengthen the immune system, and enhance healing abilities.



### Is it true that a stay in Misasa Onsen has the same benefits as laughing?

Yes. In addition to the beneficial effects of radon from Misasa Onsen, the area's natural environment also helps you maintain and improve your health. During your stay at Misasa, your daily stress will be relieved by every aspect of its rich natural environment, including the scenery, sounds, aromas, and food. In particular, with its Oshika Valley, a national Place of Scenic Beauty, and Baba Falls, Misasa is a perfect place for *shinrin-yoku*, or forest bathing. This Japanese practice has been attracting global attention in recent years for its relaxing effects. In addition to forest bathing, you can also expect the synergy of

beneficial effects from the natural environment and radon just by strolling through the town. In other words, since you experience healing effects wherever you are in the Misasa Onsen area, the more rejuvenated you become the longer you stay!





## 4 The Basics of Radon

### ☼ Is It True That a Stay at Misasa Onsen Is Equivalent to Spending Time Laughing?

**Yes. This is what happens to your body.**

The 3 key effects/benefits of Misasa Onsen:

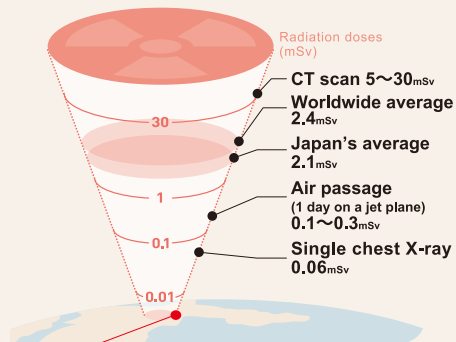
- 1 Bathing in a radon hot spring leads to a high-level release of beta-endorphins, relieving pain.
- 2 As natural killer cells are activated, cancers may be prevented.
- 3 The parasympathetic nervous system is activated, resulting in relaxing effects.

It is said that laughing has these same effects. When you consider that a stay in Misasa Onsen is equivalent to spending your time laughing, that in itself is rejuvenating, right?



## 5 Radiation Dose Levels of Misasa Onsen

### ☼ Comparison of Radiation Doses



Bathing in Misasa Onsen once

Approx. 0.001 mSv

A single chest X-ray

0.06 mSv (approx. 60 times the dose of bathing)

Japan's annual average

2.1 mSv

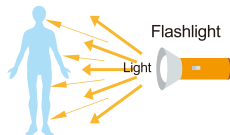
**Misasa Onsen (1 soak) 0.001 mSv**

## 5 Radiation Dose Levels of Misasa Onsen

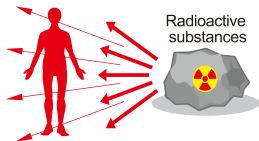
### ☼ Radiation and Radioactive Substances

Radioactive substances emit radiation.  
The term "radiation" is collectively used for all types of radiation emitted by radioactive substances.

Source: The Federation of Electric Power Companies of Japan



- The property of emitting light
- The unit of luminous intensity: candela (cd)
- The unit of illuminance: lux (lx)



- The property of spontaneously emitting radiation (radioactivity)
- The unit of radioactivity levels: becquerel (Bq)
- The unit of dose equivalent (the biological effect of radiation): sievert (Sv)

## 6 Intaking Radon

### ☼ Three Ways of Intaking Radon

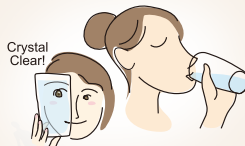


#### Inhale

Sit in a sauna heated with a hot spring's heat and filled with radon-containing mist to warm your body and inhale radon by taking deep breaths.

#### Bathe

A relaxing soak in a radon hot spring naturally leads to inhaling radon-containing steam.

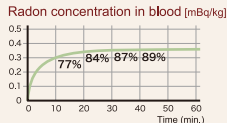


#### Drink

Drink clear, colorless radon-containing hot spring water rich in minerals.

### Changes in radon concentrations in blood

Most of the radon you intake exits your body as it is an inert gas but a very small amount remains in your blood.



### 1 Start with rinsing

Rehydrate yourself first.

Using a washbowl, rinse yourself with the hot spring water to clean your body and get used to the water temperature. Start from your feet, and gradually go up. You can also use a shower to rinse your body.



### 2 Get in the bath slowly

Submerge only half of your body first. Then gradually submerge your whole body. This helps you get used to the water temperature and prevents your blood pressure from rising suddenly.

People with high blood pressure, arteriosclerosis, diabetes, etc. should especially take time to submerge their body gradually.

### 3 Wash your body

Once your body warms up, get out of the bath and wash your body. As dead skin cells soften and pores open up, you get a deeper cleaning effect when you wash your body after warming it up. Remove your makeup before bathing as it will prevent the pores from opening up.

### 4 Don't bathe for too long

Soak in the bath until your forehead or face starts sweating slightly. Don't stay in the bath to a point where sweat starts pouring down your face or you start having heart palpitations.

**The strain on your heart/body increases when you stay for too long in a bath with a temperature of 42°C or higher. The ideal bathing duration for baths in that temperature range is 2 to 3 minutes. We recommend bathing in a hot bath for a short time in the morning and relaxing in a lukewarm bath for a longer time at night.**

### 5 After getting out the bath

Avoid rinsing your body with a shower as the effectiveness of the hot spring's medicinal components will be reduced.

**If your skin is easily irritated, rinse your body with warm tap water.**



### 6 After leaving the bath

The water in your body has been lost by sweating. It's important to rehydrate yourself as your blood has become more concentrated. Drink water, tea, a sports drink, etc. Also, rest for about 30 minutes until your condition stabilizes since bathing may deplete your energy and/or cause fluctuation in your blood pressure.



## 8 Bathing Temperature and Duration



### Full-body bath

1 to 4 min. at 40 to 43°C

Rest for 3 min.

Stretch and move the joints of your feet, back, knees, wrists, etc. to make the soak more effective.

1 to 4 min. at 40 to 43°C



**Caution:** Bathing at this temperature range for too long may cause arrhythmia, dizziness, stroke, etc.

#### Bathing Tips

- Avoid drinking alcohol before taking a bath. Avoid taking a bath immediately after eating a meal.
- Keep your shoulders above the water.  
(If that makes you cold, put a towel around your neck and shoulders.)
- Don't stay in the bath for too long as your blood pressure may rise.  
(It's better to soak for a short duration multiple times while resting in between.)
- Rehydrate yourself before and after taking a bath.
- Don't stand up abruptly.

### Foot bath

10 to 30 min. at 39 to 43°C

or

until your body feels warm



### Hand bath

5 min. at 42°C or until your hands get warm



### Sauna

Bathe for 30 min. once or twice a day



### Ondol bath and stone sauna

The key is to warm up your body gradually. Since the strain on the body is less than that of other bath types, the ideal duration per day is 30 minutes. Get out when you start feeling good and your body feels hot. When staying in for a long duration, rehydrate yourself and, if you feel like it, do some yoga or light stretching.



## 9 Basic Bathing Types

### 1 Full-body bath



The most common way of bathing is to soak in the bath up to your shoulders. As the heart is strained and you can get dizzy from the heat easily, a full-body bath must be kept short, making it less likely for you to benefit from the water's pharmacological effects. Bathe for short durations and take rests in between the soaks.

### 2 Half-body bath



Applying the traditional health practice of cooling the head and warming the feet, this is an ideal bathing style. It reduces the strain on the heart while allowing the hot spring components to permeate the body from the lower half of the body. Submerge your body up to the pit of your stomach. Blood circulation will be improved, accelerating sweating. If you feel cold, soak up to your shoulders for a short moment, place a dry towel on your shoulders, or pour the bath water over your shoulders.

### 3 Lying in the bath



You lie down in a shallow bath and soak up to your shoulders. This is another ideal bathing style as it feels good like taking a full-body bath but it's less strenuous on the heart. Nevertheless, don't stay in for too long.

### 4 Partially floating in the bath



You partially float in the bath by putting your head on the edge, bending your knees, and placing your feet on the bottom of the bath. This style makes it easier to soak in the water up to your shoulders as the strain of water pressure is reduced because your heart is close to the water surface.

### 5 Foot bath



One of the partial bathing types, foot baths allow you to experience beneficial effects by warming your body without straining it. This style is also useful when you can't take a bath because of an injury or illness. When taking a foot bath at home, repeat the following routine 3 to 5 times: soak your feet for 3 minutes and then soak them in cold water for 1 minute (or about 20 sec.). By doing so, your blood circulation will improve and lactic acid, a fatigue-causing substance, will be excreted, relieving your fatigue.

### 6 Hand bath



The common way of taking a hand bath is to place your hands and lower arms in a basin. You will experience beneficial effects by soaking your hands and arms for 5 minutes in hot water at about 42°C.

### Calories Burned by Bathing

A full-body bath for 10 min. at 40°C .....	40 kcal
Somewhat fast-paced walking for 10 min. ....	40 kcal
A full-body bath for 10 min. at 42°C .....	80 kcal
Running for 10 min. ....	80 kcal
A bowl of cooked rice .....	160 kcal

## 10 The Stories of Misasa Onsen

### The Legend of the White Wolf: The Origin of Misasa Onsen

The legend goes that about 850 years ago, Ōkubo Samanosuke, a retainer of a Heian period general Minamoto no Yoshitomo (father of Minamoto no Yoritomo), visited this area to pray at Mount Mitoku. During this visit, he was given a hot spring for bathing from the Bodhisattva Myōken, as a token of gratitude for helping an old white wolf escape.

Used as a public bath called Kabuyu, this hot spring is popular today as a place where people can heal their six senses. The spring water is available for drinking and the facility offers foot baths as well.



### Yakushi-dō (The Hall of Yakushi Nyorai)

Located at the center of the hot springs resort, Yakushi-do enshrines the statue of Yakushi Nyorai known as the “Medicine Buddha” and the protector of hot springs. Originally built at Mount Mitoku, the hall has been lovingly called by casual nicknames by locals since being moved to the current location. Visit to pray for good health and to express your gratitude for hot springs.



### Tsuenashi Jizō

Praying to this statue of Jizō Bodhisattva is said to strengthen your legs, improve your health, and prolong your life. It used to be that when people walking with a cane recovered after bathing in Misasa Onsen's hot spring and praying to Tsuenashi Jizō, or "Cane-Ridding Jizō", they would dedicate their no-longer-needed walking staffs to him.

