## **Matsunoyama Onsen's Curative Properties**

Matsunoyama Onsen's baths are fed by one of Japan's "Three Great Curative Springs" and have reportedly been known for their healing properties since the fourteenth century. Their effectiveness is attributed to the high concentrations of diverse minerals found in the water.

Under Japanese law, spring water must have a sufficient concentration of at least 1 out of 19 therapeutic minerals to qualify as a hot spring. Matsunoyama Onsen's springs meet the thresholds for eight, including the highest levels of antifungal and antibacterial boric acid of any spring in Japan. They also contain minerals such as lithium, strontium, bromine, iodine, fluoride, metaboric acid, and metasilicic acid that are reported to be beneficial for treating skin ailments.

The springs are also hypertonic, meaning that the concentration of dissolved minerals is higher in the water than it is in the body. The natural process of osmosis therefore helps absorb the beneficial minerals through the skin. It can also cause dehydration, however, so bathers are encouraged to drink plenty of water.

Unlike most Japanese hot springs, which are fed by geothermally heated groundwater, Matsunoyama Onsen's reservoir is filled with seawater that was trapped underground by tectonic activity approximately 12 million years ago. Today, the water's high salinity creates a buoyant feeling in the baths and is reported to help the body retain heat afterward—an added benefit in Tokamachi's cold winters.