# Molecular Hydrogen For Skin

## **MOLECULAR HYDROGEN IN WATER IS GREAT FOR SKIN**

# 2 the revolution of new youth

The desire to have healthy, elastic, wrinkle-free, and young looking skin dates back to primeval times.<sup>1</sup> One of the ways (which is still used today) to try and accomplish this is the ancient practice of bathing in springs and mineral waters.<sup>2</sup> However, unlike most conventional practices of lotions, creams, oils, powders and other cosmetics that may not help and/or even have negative side effects,<sup>3-10</sup> bathing in <u>specific waters</u> that have reductive characteristics seems to have great therapeutic application.<sup>11</sup>One study<sup>12</sup> tested a mineral water with reductive



characteristics (most likely due to dissolved molecular hydrogen) and a prepared water containing molecular hydrogen. The results revealed that bathing in both of these waters decreased the <u>oxidation-reduction potential</u> (ORP) of human skin.<sup>12</sup> This is an important observation because healthy skin has reductive characteristics,<sup>13</sup> and the ORP of the skin increases by oxidative damage (from sun exposure) and also by aging (as measured by lipid-peroxide levels). <sup>14</sup> This relationship between redox potentials of the skin and aging has been investigated in more detail and shows that reductive waters lower the oxidation of the skin.<sup>15,16</sup> Bathing in hydrogen water not only reduced the ORP of skin,<sup>17</sup> but also improved its elasticity. Moreover, treating bleached hair with

this water gave an improvement in fluency and gloss.<sup>17</sup>

### **MOLECULAR HYDROGEN & SUNBURNS**



One group of researchers<sup>18</sup> gave hairless mice sunburns. They bathed one group in tap water and the other in hydrogen water. The skin of the mice bathed in hydrogen water showed significantly lower indices of skin injury and lower inflammatory cytokine levels.<sup>18</sup> Another group of researchers performed a similar study<sup>19</sup> and found that bathing mice in hydrogen water reduced the level of skin damage, increased activity of the antioxidant glutathione peroxidase, lowered inflammatory cytokines, and

prevented ultrastructure changes of the skin, suggesting hydrogen water can protect against UV-induced skin cell damage.<sup>19</sup>

This was further validated in another article<sup>20</sup> where hydrogen water was shown to be very beneficial for UV induced skin cell damage. The study showed that Type-1 collagen was synthesized about two-fold more in the cells treated with hydrogen water. It also prevented DNA damage, cell death, and decreased levels of intracellular free radicals. The study also reveals that in human subjects, bathing in hydrogen water for three months significantly improved wrinkles in the skin. The authors concluded that hydrogen water might serve as a daily skin care to repress UVA-induced skin damage by scavenging free radicals and promoting type-1 collagen synthesis.<sup>20</sup>

Hydrogen water was also seen to prevent arsenic-impaired calcium signaling (which is involved in skin cancer) in keratinocytes (predominate cell type in skin) through both its antioxidant and non-antioxidant cell signaling effects.<sup>21</sup> In other words, hydrogen not only exerts protection and benefits on the skin because it's an antioxidant,<sup>22</sup> but also as a cell signaling molecule.<sup>23</sup>

#### **IONIZED WATER: IMPORTANT RECOMMENDATION**

Somewhat ironically, proponents of ionized water advocate using the oxidizing acidic water from the anode,<sup>24</sup> as opposed to the reducing water with molecular hydrogen from the cathode. As discussed here, this acidic water is touted as being an astringent for the skin and often referred to as "beauty water".<sup>25</sup> The idea is that because the skin pH is slightly acidic<sup>26</sup> then the logical choice would be to use slightly acidic water for the skin. There may be some valid research for this concept to some extent<sup>27</sup> simply because high pH water can have negative effects on the skin.

The main problem in using this acidic water from an ionizer is that it generally contains hypochlorous acid (<u>click here for how</u>), which is a strong oxidizer.<sup>28</sup> Obviously, this is not the best choice for youthful, young-looking skin.<sup>29</sup>

The problem with using the reducing (alkaline) water is that its high pH is not good for your skin.<sup>27</sup> However, this can easily be overcome by adding a few drops of lemon juice (or other organic acids) to the alkaline water. This gives you the acidic pH and the benefits of molecular hydrogen. The lemon juice itself may also exert beneficial effects.<sup>30</sup>

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