

Antioxidant Activity of Hydrogen Water Mask Pack Composed of Gel-Type Emulsion and Hydrogen Generation Powder

What was this study about?

Researchers in South Korea (2020) wanted to solve a known problem with hydrogen face mask packs: hydrogen gas tends to disappear or become scarce the moment you open the packaging. So they designed a new type of mask where hydrogen is generated on the spot – by mixing a special powder with a gel right before applying it to your face.

The two-part study: This study had a lab/chemistry part and a human clinical part.

Part 1 – Making the hydrogen-generating powder:

Lab tests confirmed the powders had genuine antioxidant activity – they could neutralise harmful free radicals (particularly the damaging hydroxyl radical, $\cdot\text{OH}$), performing comparably to or better than a commercial Japanese hydrogen powder product.

Part 2 – The human skin trial: Who was in it? Twenty participants were selected for the clinical test after a safety patch test on the arm. This is still a small number but notably larger than the previous studies we've looked at.

What did they do? Participants washed their face each morning and applied the hydrogen mask pack to one side of the face, and a commercial product to the other side, for 4 weeks. Skin moisture, oil (sebum), and skin density (firmness/thickness) were measured before the test and after 2 and 4 weeks.

What they found:

- 💧 Skin moisture – In the hydrogen mask group, moisture increased by 19.21% after 2 weeks and 34.63% after 4 weeks. The commercial product group saw increases of 8.94% and 16.51% respectively. So roughly double the hydration improvement.
- 🌿 Skin oil (sebum) – Oil levels in the hydrogen mask group decreased by 8.41% after 2 weeks and 24.06% after 4 weeks, compared to only 9.55% in the commercial product group after 4 weeks. Less excess oil is generally considered a positive for skin health.
- 💪 Skin density (firmness) – Skin density improved by 18.41% in the hydrogen mask group after 4 weeks, compared to 9.93% in the commercial product group. The researchers believe the hydrogen helped repair and firm up the outer skin layer.

Bottom line: This is a more carefully designed study, with a larger group, a real comparison product, and measurements on both sides of the face. The results suggest a hydrogen-generating mask pack may outperform a standard commercial mask for moisturizing, reducing oiliness, and firming skin – but it's still early-stage evidence and larger trials are needed.

To Read The Full Study

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