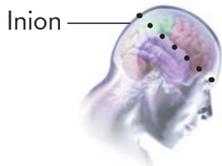


HydroCel Geodesic Sensor Net Quick Start



This placard provides an overview of how to apply the HydroCel GSN properly. The instructions and illustrations should be read by both **experienced** and novice GSN users alike because there are some small but *significant differences between application procedures for the HydroCel GSN and GSN 200 that must be heeded to ensure subject/patient comfort and EEG data quality.* For the full instructions, please consult the *Geodesic Sensor Net Technical Manual; references to the manual in this placard are to the November 17, 2004, version of the Geodesic Sensor Net Technical Manual.*

Step 1: Prepare the subject/patient (see pp. 57–62 of the manual)



- Prepare fresh electrolyte.
- Measure the subject's head circumference, from the brow bone to 2.5 cm. (1 in.) above the inion, back to the brow bone (picture). The circumference determines the Net size (see sizing chart).
- Locate and mark the vertex:
 1. Run the measuring tape from the nasion over the top of the head to the inion (photo A); mark the halfway point with a china marker.
 2. Run the measuring tape from one preauricular point over the head to the other preauricular point (photo B); mark the halfway point, where it crosses the first mark—this is the vertex.

Step 2: Prepare the Net (see pp. 62–64 of the manual)



- Soak the Net's sensor end in electrolyte—**keep Hypertronics connector dry**—for at least 5 minutes (photo).
- Give the subject a towel to catch electrolyte drips and drape another towel over the subject's shoulders.
- Lift the Net out of the electrolyte and shake off the excess electrolyte back into its container. **Do not pat the Net dry.**
- Ask the subject to hold the connector.

Step 3: Position your hands properly (see pp. 65–66 of the manual)



- Place your hands underneath the face straps.
- Locate the nasion sensor and count two sensors out on each side along the multistring **perimeter band** (photo); hook your thumbs under the band between the second and third sensors (for a 256-channel Net, count **three** sensors out).
- Hook your little fingers into the perimeter band at the back of the Net.
- Stretch the Net's perimeter band with your thumbs and little fingers.
- Gently flip the Net upright, for applying it to the subject's head.

Step 4: Apply the Net (see pp. 67–68 of the manual)



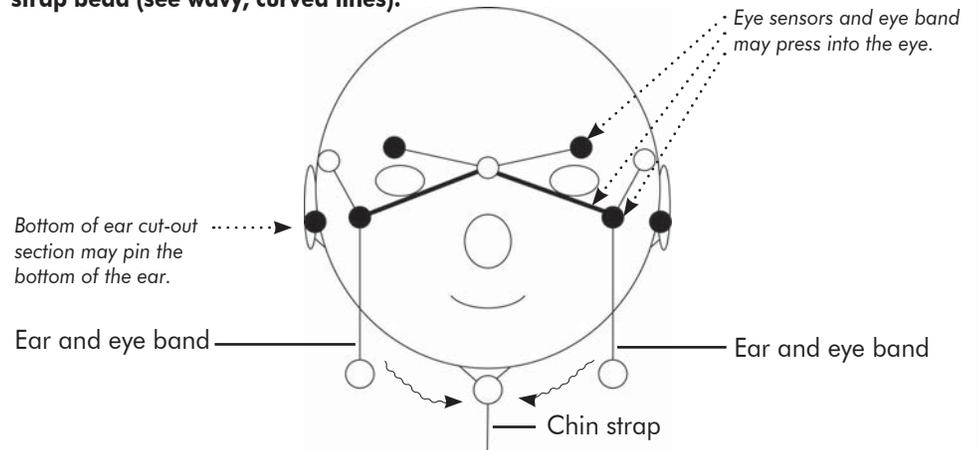
- Stand directly in front of the subject.
- Ask the subject to keep his or her eyes closed until told to open them.
- Stretch the perimeter band slightly larger than the subject's head (photo A).
- Set the Net on the subject's head, with the vertex sensor on the vertex.
- Slowly pull the Net straight downward with your thumbs and little fingers, keeping the vertex and nasion sensors aligned with their skull landmarks (photo B).
- Check the positioning of the Net and disengage your hands.
- Verify that the subject's eyes are still closed, and secure the chin strap.

Step 5: Adjust the Net—very important step for subject safety! (see pp. 69–71 of the manual)

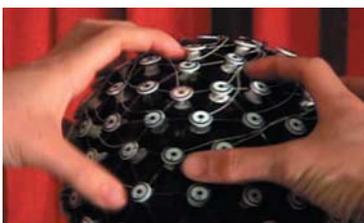


- Make sure the eyes are not poked by sensors; use the eye bands to adjust (photo A).
- Make sure the ears are not caught in the ear cut-out sections; if needed, relieve pressure on the ear using the ear bands (photos B–D).
- Adjust the ear and eye band beads so they do not rest on the jaw bone.
- Upright tilted sensors (common on the back of the head).
- Check placement of vertex and nasion sensors, and for symmetry of all sensors; if needed, grab large groups of sensors on both sides of the head and shift .
- Subject can open eyes when sensors or straps pose no danger to the eyes.
- Ask the subject to look straight ahead so that you can adjust the eye bands to allow the infraorbital sensors to sit below the eyes.

Potentially sensitive spots (in black): sensors directly above and below the eyes, bottoms of the ear cut-out sections, bands from nasion to sensors below the eyes. To fix, direct tension downward by adjusting the chin strap and the ear and eye bands; proper adjustment typically results in the ear and eye beads being close to the chin strap bead (see wavy, curved lines).

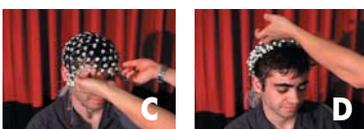
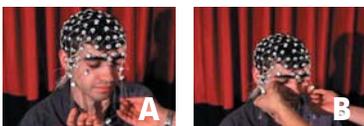


Step 6: Verify sensor positioning (see pp. 71–74 of the manual)



- Check the placement of the vertex, nasion, and mastoid sensors.
- Check that a straight line of electrodes marks the center of the back of the head.
- If needed, grab large groups of sensors on both sides of the head and shift (photo).
- Briskly scrub each sensor side to side on the scalp for 1–2 seconds to part the hair and to ensure good contact with the scalp.

Step 7: Remove the Net (see pp. 76–78 of the manual)



- Ask the subject to keep his or her eyes closed until told to open them.
- Loosen the chin strap; pinch the cord lock and slide the bead down (photo A).
- Free the ears from the ear cut-out sections.
- Carefully lift the chin strap up and way from the face and peel the Net away from the face gently, making sure that you:
 - (1) grab the chin strap to prevent it catching on the nose;
 - (2) grab the eye electrodes as you lift the Net (photo B);
 - (3) grab the front band over the forehead (photo C).
- Subject can open eyes when sensors or straps pose no danger to the eyes (photo D).
- After the Net is removed, let the sensor end drop free while you hold the connector.
- Clean and disinfect per the instructions on the Rinse/Disinfect placard.