

# Electrode Placement Quick Reference

## Peak Brain Institute - 10-20 System Guide

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### Anatomical Landmarks

#### Nasion

**Location:** Bridge of nose where it meets forehead

**Landmark for:** Front reference point (0%)

#### Inion

**Location:** Bump at base of skull (back of head)

**Landmark for:** Back reference point (100%)

#### Preauricular Notch

**Location:** Small indentation just in front of ear canal

**Landmark for:** Side reference points (left/right 0%)

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### Rope Method - Front to Back

#### Nasion → Inion measurement

1. **Place rope** from nasion to inion over top of head
  2. **Mark 5 positions:**
    - 0% = Nasion (start)
    - 10% = Fpz
    - 20% = AFz
    - 30% = Fz ← **Most common training site**
    - 40% = FCz
    - 50% = Cz ← **Most common training site**
    - 60% = CPz
    - 70% = Pz ← **Common training site**
    - 80% = POz ← **Common training site**
    - 90% = Oz
    - 100% = Inion (end)
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### Rope Method - Ear to Ear

#### Left preauricular notch → Right preauricular notch

1. **Place rope** from left to right ear over top of head
2. **Cz is at 50%** (vertex, top of head)

### 3. Mark positions:

- Left 50% = T3/T7
  - Left 40% = C5
  - Left 30% = C3 ← Most common training site
  - Left 20% = FC3
  - Left 10% = FC1
  - Center (50%) = Cz ← Most common training site
  - Right 10% = FC2
  - Right 20% = FC4
  - Right 30% = C4 ← Most common training site
  - Right 40% = C6
  - Right 50% = T4/T8
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## Most Common Training Sites

### C4 (Right Motor Cortex)

**Location:** 30% from right ear on ear-to-ear line

**Common protocols:** SMR (12-15 Hz), sensorimotor rhythm

**Used for:** Focus, motor control, calm alertness

### C3 (Left Motor Cortex)

**Location:** 30% from left ear on ear-to-ear line

**Common protocols:** SMR (12-15 Hz), sensorimotor rhythm

**Used for:** Focus, motor control, calm alertness

### Cz (Central/Vertex)

**Location:** Top of head, 50% on both ropes

**Common protocols:** SMR, alpha-theta

**Used for:** Grounding, sensorimotor regulation

### Fz (Frontal Midline)

**Location:** 30% from nasion on front-to-back line

**Common protocols:** Executive function, theta/beta ratio

**Used for:** ADHD protocols, executive function

### Pz (Parietal Midline)

**Location:** 70% from nasion on front-to-back line

**Common protocols:** Alpha training, quiet mind

**Used for:** Relaxation, creativity, meditation

### POz (Parietal-Occipital)

**Location:** 80% from nasion on front-to-back line

**Common protocols:** Alpha training, visual processing

Used for: Relaxation, visual calm

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## Electrode Application

### Preparation

1. **Part hair** at electrode site
2. **Optional:** Clean skin with NuPrep (light scrub)
3. **Wipe clean** with tissue

### Application

1. **Apply Ten20 paste** to electrode
  - Pea-sized amount
  - Avoid air bubbles
2. **Press to scalp** firmly but gently
3. **Circular motion** to work gel through hair to skin
  - Should feel slight scratching sensation
  - This is normal and helps contact
4. **Check signal** before starting

### Good Contact Indicators

Signal looks thin and jagged

Impedance reading in green

Can see clear waveforms

Feedback responds to mental state

### Poor Contact Indicators

Signal looks thick and fuzzy

Impedance reading in yellow/red

Excessive noise (60 Hz hum)

Feedback not responding

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## Reference Electrodes (Ear Clips)

### Placement

1. **Wipe earlobes** with tissue (remove oils)
2. **Clip to bottom of earlobe**
  - Both ears for linked-ears reference
  - One ear for single reference
3. **Ensure good contact** (shouldn't be loose)

## Troubleshooting

**High impedance on ear clips:** - Wipe earlobes again (remove oils/dead skin) - Add tiny bit of gel to ear clip pad - Reposition clip

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## Common Mistakes to Avoid

**Too much gel** → Electrodes can bridge, causing crosstalk

**Too little gel** → Poor signal, high impedance

**Gel in hair not on scalp** → No contact with skin

**Not parting hair well** → Gel can't reach scalp

**Dirty electrodes** → Poor contact, inconsistent signal

**Loose ear clips** → Intermittent reference, signal drops

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## Quick Troubleshooting

### Signal is Fuzzy/Thick

→ More gel, better contact, clean electrodes

### Signal Keeps Dropping

→ Check cable connections, reseal electrode

### Can't Get Good Signal

→ Part hair better, add more gel, clean skin

### Headache During/After

→ Reduce gel amount (pressure), check electrode not too tight

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## Measurement Tips

### For Accurate Placement

- **Use a measuring tape** (flexible fabric tape works best)
- **Measure total distance first** before marking percentages
- **Mark with water-soluble pen** (washes off easily)
- **Double-check measurements** before applying electrodes
- **Photo your setup** for consistency across sessions

### Alternative to Rope Method

- **Use your fingers** (approximate, less precise)
- **Pre-marked caps** (for QEEG, not typically for training)
- **EEG cap** (standardized positions)

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## Cleanup After Session

1. **Remove electrodes gently**
  2. **Wipe gel from hair** with tissue or damp cloth
  3. **Clean electrodes immediately**
    - Wipe paste off with tissue
    - Use damp cloth if needed
    - Let air dry
  4. **Store in clean, dry place**
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## Key Reminders

**Consistency matters** - Use same sites each time unless protocol changes

**Check your protocol** - Verify placement before each session

**Ask questions** - When in doubt, check with your coach

**Photo your placement** - Helps with consistency

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## Questions?

**Remote clients:** Post in your Slack channel

**In-office clients:** Ask your coach at your location

**Full guide:** See comprehensive electrode placement documentation online

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