The first time I treated a professional violinist for jaw pain, she described a grinding ache that crept up while she practiced, tightened her temples, and stole her focus by the second set. She had tried bite guards, physical therapy, and magnesium. What finally quieted the pain was not a sedative or a splint, but ten carefully placed units of onabotulinumtoxinA into her masseters, staged over two sessions and guided by muscle testing. Her performance improved, and the headaches that used to appear every Friday faded to rare visitors. That outcome is not luck. It comes from understanding how Botox behaves in living muscle, and how to tailor it for comfort as much as for cosmetics.

This guide walks through therapeutic Botox planning for facial pain and tension, and the trade-offs that separate a good result from a great one. The focus stays clinical: dosing strategy, injection depth, diffusion control, and the habits that make results predictable across different faces.

What pain are we actually treating?

Facial pain rarely has a single cause. In practice, three patterns recur.

Temporomandibular disorders and bruxism dominate. The masseter and temporalis muscles hypertrophy with years of clenching and grinding. Patients report morning jaw stiffness, temple headaches, tooth wear, and sometimes a widening lower face. Palpation often reveals trigger points in the masseter’s superficial bellies and tenderness at the temporalis anterior fan.

Frontal tension headaches arise from hyperactive frontalis and corrugator activity. People who lift their brows to “hold their eyes open” because of eyelid heaviness, long screen time, or habitual surprise end up with a tight forehead by late afternoon. These are the patients whose tension eases when the forehead is allowed to rest, but only if glabellar depressors are balanced, or the frontalis overcompensates and worsens the headache.

Myofascial neck contribution matters more than most expect. Platysmal bands, tight sternocleidomastoids, and suboccipital tension change jaw mechanics and drive compensatory chewing muscle activity. Treating the face without acknowledging the neck can blunt results, especially in patients who carry stress in the platysma.

A detailed history and hands-on exam drive the plan. I ask about grinding, gum chewing, gum shield usage, migraines, sinus issues, and posture. I watch how the face moves during speech, smiling, and chewing. Then I map tenderness and dominant muscle lines with a washable pencil. Subtle asymmetries, like a stronger right masseter in a right-handed person who habitually chews on that side, often explain why pain sits a notch higher on one cheek.

Choosing the right tool: product, units, and conversion

OnabotulinumtoxinA (Botox) has the deepest evidence base, but abobotulinumtoxinA (Dysport) works well when larger diffusion is helpful, such as broad forehead or platysma patterns. The unit conversion is not 1:1. In practice, a 2.5 to 3 to 1 Dysport to Botox conversion is a reasonable range when translating experience, while remembering each product has its own diffusion profile. Small areas near the orbit prefer Botox for tighter spread. Larger, planar muscles like masseter can tolerate either, adjusted for units and dilution.

Storage matters. Reconstituted vials keep potency best when refrigerated at 2 to 8°C, and most clinics prefer using within a few weeks. I mark the reconstitution date and the dilution ratio on the vial label every time. A consistent cold chain and standard reconstitution prevent the quiet potency drift that makes outcomes unpredictable.

Dilution and diffusion: how the fluid behaves dictates the result

Dilution is not just a math exercise. It controls spread and tactile feel during injection.

A common dilution for facial work is 2.5 to 4 units per 0.1 mL for Botox. For precise points near the orbital and periorbital area, I prefer slightly more concentrated solutions, for example 4 units per 0.1 mL, to keep the bleb small and diffusion tightly controlled. For broader muscles such as masseter and temporalis, a more dilute mix, like 2.5 units per 0.1 mL, allows a smoother fan without creating a large pool at one point. In the platysma, a dilute solution helps create evenly spaced microdepots along the band to minimize lumping and uneven weakness.

Needle choice pairs with dilution. I reach for a 30G half-inch needle for most facial points. In the masseter, a 30G half-inch is often adequate if you angle perpendicular and palpate well, though in very thick masseters a 1-inch length encourages consistent intramuscular placement. For delicate perioral work, a 32G short needle makes the injection gentle and accurate at the superficial plane.

Depth, angle, and spacing: why placement trumps the number on the syringe

The frontalis sits superficially. Injections should be intramuscular but shallow, often just a few millimeters, and placed high enough to preserve brow support. The corrugator and procerus sit deeper. A two-plane approach for the corrugator helps: a deep hit near the periosteum at the medial brow tail and a superficial touch as the muscle ascends. That strategy balances vertical frown release without unnecessary spread toward the levator palpebrae that risks eyelid ptosis.

The masseter has a superficial and deep portion. Most symptomatic clenching stems from the bulk in the lower two-thirds, near the mandibular angle. I ask the patient to clench, then pinch and mark three to five points in a grid that avoids the top third, where diffusion risks spreading toward the zygomaticus. Depth here is truly intramuscular. Inject perpendicular, feel for resistance change as you enter muscle, and aspirate if you are close to the facial artery anteriorly. Spacing each point by about 1.0 to 1.5 cm works for even distribution.

Temporalis dosing benefits from anatomical respect. The anterior temporalis drives much of the clench moment. I treat in a fan pattern above the lateral brow and hairline, staying superficial to mid-depth and avoiding the sentinel vein area. Pain control here can be dramatic for temple headaches, but over-treatment may cause chewing fatigue. Conservative starts are wise.

Diffusion control is partly technique. Move slowly. Small volumes minimize unintended spread. Do not massage the area afterward. If there is a concern for vascular botox specialists NC proximity, change the angle, not the force.

Dosing strategy for pain and tension

I start at the low end if a patient is new to neuromodulators, then calibrate by response and muscle strength testing. Measuring bite force is impractical in the office, but you can grade masseter strength through resisted clench and palpation.

- A masseter bruxism plan often begins at 15 to 25 units per side of Botox, divided into three to five points, depending on jaw size and tenderness mapping. Strong jaws or repeat treatments can reach 30 to 40 units per side when needed, staged over two sessions to watch function.
- Temporalis dosing ranges from 5 to 15 units per side, split into two to three points, with focus on the anterior portion. Severe temple headaches with clear temporalis hypertrophy may need more, but chewing fatigue becomes a real risk if you exceed comfort too quickly.
- Frontal tension and glabellar contribution require balance. Typical glabellar patterns use 15 to 25 units spread across corrugators and procerus. If the patient relies on frontalis to keep the eyes open, lift the brows with a lateral frontalis touch and avoid heavy central dosing.
- Platysmal bands for neck-related tension and downward pull respond to 10 to 30 units per side in microdepots along the bands. Keep doses small per point, stay superficial, and avoid the posterior triangle where diffusion toward deeper structures is unwelcome.

Pain relief usually begins within 5 to 10 days and continues to improve over two weeks. Longevity sits between 3 and 6 months for most, but strong muscles and fast metabolisms trend shorter. Endurance athletes who train daily often metabolize faster, and a patient who chews gum for hours can burn through benefit early. Building a maintenance plan matters as much as the first session.

Mapping the forehead and glabellar lines without creating a new problem

Eyebrow heaviness or eyelid ptosis is the fear that keeps clinicians cautious. Safety margins near the orbital area are non-negotiable. Stay at least 1 cm above the bony supraorbital rim for frontalis points. In the glabella, avoid drifting laterally over the levator palpebrae path. A standard five-point glabellar map gives even spread, but faces are not standard. If one medial brow descends more with scowling, add a touch to that corrugator while keeping total units reasonable.

Unit mapping that I find predictable: 4 to 5 units per corrugator head and 3 to 5 units to procerus for a typical glabellar pattern. For the forehead, lighter passes of 1 to 2 units per point in a high line, spaced by 1 to 1.5 cm, prevent brow drop. Men usually need 20 to 40 percent more units because of thicker frontalis and dominant corrugators, and their brow shape differs, so be careful not to feminize the arch.

Patients with expressive personalities often need microdosing strategies to preserve movement while reducing tension. Light, more frequent touch-ups can calm the pain drivers without making the face feel unfamiliar.

Managing asymmetry and hyperactivity patterns

Facial dominance is common. A right corrugator might pull harder, lifting the left brow and deepening the right crease. An asymmetrical jawline often traces back to stronger masseter activity on one side. Treat unequal muscles unequally. If the right masseter grades a full point stronger on palpation, give it 5 to 10 extra units compared with the left. For brow asymmetry, place a 1 to 2 unit lateral frontalis “lift” on the heavier side to balance. Small corrections create smoother harmony and avoid the see-saw effect that demands chasing later with filler.

In patients with hyperactive facial expressions, microdosing and more conservative intervals prevent flatness. Think of these sessions as retraining. Over several cycles, the nervous system dampens the habit loops. The long-term benefit is not only less pain, but less need for high doses later because muscle atrophy and learned relaxation reduce demand.

The migraine overlap: mapping beyond the face

Chronic migraine treatment has its own protocol, but practitioners treating facial pain should know the overlap. The PREEMPT injection pattern distributes 155 to 195 units across head and neck zones, including corrugator, procerus, frontalis, temporalis, occipitalis, cervical paraspinals, and trapezius. For patients who present with masseter and temporalis pain plus frequent headaches, the PREEMPT framework, tailored to tenderness, often gives durable relief. It is a different scale of dosing and requires careful candidacy screening, but the shared mechanism, reduced neurotransmitter release at the neuromuscular junction and nociceptive pathways, can calm both clench and headache.

Safety with structure: vascular, neural, and periorbital considerations

The face hides hazards under thin skin. Near the periorbital area, keep injections superficial enough to avoid the orbital septum. In the glabella, respect the supratrochlear vessels. In the nasalis and bunny line area, work lightly and medially to avoid the levator labii superioris alaeque nasi that helps lift the upper lip. For the DAO and mouth corner work, tiny doses reduce the “sad” pull without making speech feel odd. Stay lateral and slightly superficial to avoid spreading into depressor labii or mentalis unintentionally.

In the neck, the platysma is thin and superficial, which is forgiving. Problems arise when injections drift posteriorly or too deep, especially near the sternocleidomastoid or when close to neurovascular bundles. Map bands with a pen, keep the needle angled shallow, and use small volumes per point.

Contraindications are not theoretical. Patients with neuromuscular disorders such as myasthenia gravis or Lambert-Eaton syndrome, or those on aminoglycoside antibiotics, need deferral or specialist coordination. Pregnancy and breastfeeding remain off-label zones. If a patient has a history of dysphagia, be cautious with platysmal or submental work.

Resistance and why results vary

True biological resistance, usually antibody mediated, is uncommon but real. It tends to occur in people who received high cumulative doses at short intervals, often in therapeutic settings for spasticity. If a patient reports that Botox “stopped working,” tease apart technique, product handling, and interval compression before concluding resistance. Try a different botulinum toxin formulation if needed, and allow a longer washout. Another source of variation is muscle fiber type and habitual activation. Type II dominant muscles can respond and regress faster. Stronger jaws, male anatomy, and younger high-movement faces generally need more units or shorter intervals than fine, static-wrinkle prone faces.

Dilution errors and storage lapses blunt potency. Keep a log of vial lot numbers, reconstitution details, and patient outcomes. Patterns show up. I learned to adjust for endurance athletes and frequent sauna users who report shorter duration. High heat, vigorous facial exercise, and intense chewing can shave weeks off the benefit.

Touch-ups and maintenance without overdoing it

Two-week reviews catch undercorrection and early imbalances. Most touch-ups are small, often 2 to 6 units at targeted points. Resist the urge to “fix everything” at once. Pain relief often continues to improve through week three as muscles soften. For bruxism, I schedule maintenance at 3 to 4 months initially, then stretch to 4 to 6 months if function remains comfortable and clenching habits ease.

Preventative use in high-movement zones is not only about looks. A patient who routinely clenches during workouts, or a coder furrowing through a release cycle, benefits from tiny prophylactic doses that keep tension from escalating.

Microdosing strategies, like 0.5 to 1 unit per point in a light spread, preserve natural expression but narrow the peaks of overactivity.

Special areas with pain dividends

Bunny lines and nasal flare can feed upper nose tension and bridge headaches. Small, careful dosing medially in the nasalis can relax scrunching without flattening midface expression. The DAO and mouth corners are relevant in patients who develop jaw tension linked with a habitual downturned resting mouth. A few units per side, more lateral than deep, can reduce the bitter pull that feeds clench and neck strain. The mentalis, when hyperactive, creates chin dimpling and a tight lower lip set that aggravates jaw tension; 2 to 6 units split bilaterally can soften this without interfering with speech.

For gummy smile correction, targeting the elevator muscles near the alar base must be conservative to avoid affecting pronunciation and eating. When done carefully, relaxing excessive upper lip elevation also cuts the cycle of upper lip strain that some patients describe as a “tight mustache line” headache.

Skin texture, oil, and swelling: the side benefits and the myths

Patients often notice smoother skin where muscles rest more. That is not collagen in a vial. Reduced creasing gives the dermis a break, and over months the etched-in lines soften as collagen remodeling catches up. Some report less oil and smaller-looking pores in the T-zone with microdosing; this likely relates to reduced movement and incidental impact on sympathetic tone rather than a direct sebaceous effect. Lymphatic drainage patterns can shift slightly as muscles relax, sometimes leading to transient puffiness in the periocular area when crow’s feet are treated. It usually settles as microcirculation adapts.

Sequencing and combination therapy when pain meets volume loss

For tension-driven lines with concurrent volume loss, order matters. Calm the muscle first, then reassess the crease. If a glabellar groove persists after balanced neuromodulation, a soft, low G’ filler or biostimulator can be considered. In the lower face, masseter reduction may reveal a hollow at the angle in lean patients. Discuss that trade-off before treatment and, if needed, stage contouring later. For neck contour and platysmal bands, combine neuromodulation with skin tightening or collagen-stimulating treatments if laxity is dominant.

Male anatomy and expressive careers

Men often have heavier frontalis and corrugators and wider masseters. Unit mapping needs to respect that without erasing character. Actors, presenters, and teachers depend on facial nuance. The solution is not to avoid treatment, but to microdose with intent. Treat the pain centers while leaving movement channels open. For example, reduce corrugator spasm but spare lateral frontalis lift. In the jaw, slim functionally without collapsing the lower face width that reads masculine; spread units across more points and stay modest on early sessions.

Preventing ptosis and other complications

Most eyelid ptosis cases trace back to injections that drift into the levator palpebrae pathway from the corrugator or central frontalis. Keep corrugator injections a fingerbreadth above the orbital rim and slightly medial. Aim deeper medially, more superficial as you move laterally. Avoid massaging the area post-injection. If mild brow heaviness occurs, small corrective lateral frontalis touches can restore lift. True eyelid ptosis can be supported with apraclonidine drops while it resolves over weeks.

Bruising risk increases in patients on anticoagulants or with fragile skin. Ice briefly before and after. For thin skin around the eyes, halve the dose per point and spread across more points to reduce pooling. If asymmetry appears at day ten, think in terms of 1 to 2 unit adjustments rather than big corrections. Precision beats volume when balancing expression.

Building a plan that holds up over time

Pain often ebbs in cycles. Early in treatment, shorter intervals and slightly higher doses may be needed. Over repeat sessions, muscles atrophy modestly. That is a benefit for symptoms and jaw slimming goals, but too much atrophy can change facial proportion and bite feel. I aim for function, not paralysis. If chewing fatigue arises, back off the dose next round or shift units from masseter to temporalis, depending on the pain map.

Exercise intensity, stress, and sleep all influence longevity. Patients who pick up a new high-intensity training program often report shorter duration. I discuss lifestyle upfront and suggest timing treatments around predictable stress peaks, like touring schedules or product launches, to keep pain in check when it matters.

Two compact checklists to keep results consistent

Pre-injection mapping checklist:

- Observe at rest, speech, full smile, clench, and brow raise, then mark dominant lines.
- Palpate for trigger points and muscle thickness; compare sides.
- Identify safety zones and landmarks, especially near the orbit and facial artery.
- Decide dilution, needle, depth by muscle and desired diffusion.
- Set a conservative starting dose if first-time, with a two-week review.

Touch-up and maintenance rules of thumb:

- Wait at least 10 to 14 days before judging undercorrection.
- Correct asymmetry with 1 to 2 unit tweaks targeted to function, not just lines.
- Space treatments 3 to 6 months, lengthening intervals as habits improve.
- Adjust for metabolism and muscle mass; heavy clenchers and athletes may need more.
- Document maps and outcomes to refine unit mapping over time.

What success feels like to the patient

Patients often describe less morning jaw stiffness, easier chewing, and fewer “temple band” headaches by week two. Snapping or grinding noises may persist if joint degeneration exists, but discomfort drops. Sleep partners notice less clenching and fewer nocturnal jaw movements. In the forehead, a calmer, less tense feeling arrives without the sense of being frozen if the plan respects expression.

The most persuasive moment comes months later, when a patient realizes they no longer default to clenching during stress. Muscles have learned a different baseline. That change is the real therapeutic win.

A final word on judgment

Every face is a negotiation among pain relief, muscle balance, and expression. Numbers help, but hands, eyes, and conversation guide the outcome. Respect the safety margins near the orbital region. Let anatomy, not routine, dictate depth and spacing. Calibrate for metabolism and muscle strength. Use microdosing and touch-ups to polish rather than overwhelm. Over time, the map you draw on day one becomes unnecessary because you know how that person’s face plays its own music, and how to lighten the notes that hurt without quieting the ones they need.