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Melasma

Best practice in pre-treatment, treatment and long-term management

A summary of published international consensus guidance, compiled for practitioners.

In short

This is a protocol for best practice. It pulls a large body of published research and international consensus guidance together into one place, so that you have it as a working reference rather than having to trawl the journals yourself. It is not medical advice and it is not a prescribing guide. Every source is listed in full in Section Four, so you can read the original material and form your own view.

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Four sections, plus the terms of use at the back.

Section One: The Foundations

What melasma actually is, and why it behaves the way it does. Covers the chronic and relapsing nature of the condition, the vascular and inflammatory components, prevalence across Fitzpatrick types I to VI, the hormonal drivers including pregnancy, contraception, HRT and thyroid disease, and the full list of what to restrict. Relevant to every practitioner, medical or not.

Section Two: The Medical Standard of Care

What the published international consensus and the leading American dermatology literature describe as standard practice, and how closely the two agree. Covers the prescription agents, the pre-treat, treat and post-treat protocol, and the cycling structure known as the hydroquinone holiday. Included so that non-prescribing practitioners understand the wider clinical context and know when and why to refer.

Section Three: The Non-Prescriber Protocol

For beauty therapists, advanced skincare therapists and non-medical skin professionals working in Ireland. Covers the regulatory position under EU cosmetic law, the four pillars of an effective cosmetic protocol, how long to pre-treat, what is safe in clinic and what is not, when to refer, and a glossary of terms.

Section Four: Sources and Further Reading

Every source behind this document, with live links, split into American expert sources, international consensus statements and reviews, and patient-friendly resources you can share directly with clients. Suitable for QR codes in a presentation.

Section Five: Important Notice and Terms of Use

The terms on which this document is provided, including the fact that it is educational material rather than medical advice, and that the author is not a medical practitioner or prescriber. Please read it before using anything in this document.

> **A note on the phrase international consensus guidance**
>
> It means a position formally agreed by a panel of specialists, usually through a structured voting process, and published in a peer-reviewed journal. It is not one clinician's opinion and it is not manufacturer material. Where this document says something is the gold standard or reached high consensus, that is what is being referred to.

SECTION ONE

The Foundations

Relevant to every practitioner, medical or not.

1.1 What melasma actually is

Melasma is not a surface pigment problem. Treating it as one is the single most common reason protocols fail.

- **It is chronic and relapsing.** It cannot be cured. It is managed. Every consensus document says the same thing: ongoing maintenance therapy is required even after clinical remission.
- **It is inflammatory and vascular, not just pigmentary.** Lesional skin shows increased vascularity as well as increased pigment, confirmed by confocal microscopy. A systematic review published in Dermatologic Surgery examined the vascular component specifically and the antivascular agents used to target it. Anything that dilates vessels or drives inflammation drives melasma.
- **It is a photoaging condition of the dermis.** Solar elastosis, basement membrane damage, fibroblast senescence and pigmentary incontinence all sit underneath the visible patch. Melanocyte numbers are not increased. The melanocytes present are larger, with more prominent dendrites, and are simply working harder.
- **It is genetically loaded.** In a global survey of 324 women, 48 per cent had a family history, and among those, 97 per cent had a first-degree relative affected.
- **It carries a real psychological burden.** American work led by Pandya at UT Southwestern includes a pilot study on the effect of melasma on self-esteem, and validated quality of life instruments exist specifically for this condition. Recent Chinese data examines depression and anxiety rates in melasma patients. This is not vanity, and it should not be treated as such in consultation.

> **The one line to use in consultation**
>
> Melasma is a long-term condition, like eczema or rosacea. We are going to get it quiet and then we are going to keep it quiet. Anyone who promises to clear it permanently is either misinformed or selling you something.

1.2 Who gets it: prevalence by Fitzpatrick type

The pattern is consistent across every major epidemiological study. Melasma clusters in the intermediate phototypes and is genuinely uncommon at both extremes. The American expert panel writing in the Journal of the American Academy of Dermatology puts global prevalence at approximately 1 per cent of the world population, predominantly affecting women, and more prevalent in skin of colour.

Type	Risk	What the data shows
I	Low	Rare. Type I cannot mount a tanning response, so the melanogenic machinery is not there to be over-driven. When pigment does appear in Type I it is more often lentigines or post-inflammatory change, not true melasma.
II	Low to moderate	Uncommon but it does occur, and is increasingly seen in Celtic skin where a hormonal trigger combines with holiday sun. Family history is less pronounced in Types II and III

Type	Risk	What the data shows
		than in darker types.
III	High	One of the two dominant groups. Brazilian series report 34 to 36 per cent of melasma patients as Type III. In some cohorts Types III and IV together account for as much as 90 per cent of all cases.
IV	Highest	The single largest group in most series, at roughly 38 to 40 per cent. Also the group where procedural treatment carries the highest risk of making things worse.
V	High	Around 10 to 16 per cent in Brazilian data, but as high as 40 per cent in a Tunisian cohort of 188 women. Geography and cumulative UV load shift these numbers considerably.
VI	Low	Uncommon. Constitutive pigmentation is stable and already maximal, so there is less facultative range to be triggered. Where pigment disorders occur in Type VI they are more commonly post-inflammatory.

Read this before quoting a number

There is no single reliable global prevalence figure for melasma. Rates vary enormously by geography, ancestry and whether a study was clinic-based or community-based. Reported figures range from under 9 per cent in a Latino population in Texas to 39.5 per cent in a study of 855 Iranian women. Quote the pattern, not a headline percentage.

1.3 Hormones: the trigger practitioners underestimate

Hormones are not a background factor. For a large proportion of clients they are the actual driver, and no topical regimen will hold if the hormonal input is still running unchecked.

- **Pregnancy.** The classic trigger. Up to 50 per cent of women may be affected during pregnancy. Recurrence and aggravation in subsequent pregnancies is common. Rising oestrogen, progesterone and melanocyte-stimulating hormone in the third trimester are the presumed mechanism.
- **Combined oral contraceptives.** A case-control study of 207 melasma patients against 207 controls found combined oral contraceptives increased risk, with an odds ratio of 1.23.
- **HRT and oestrogen or progesterone therapy.** Patients with a history of oestrogen or progesterone therapy were twice as likely to develop melasma. This is directly relevant to the perimenopausal and menopausal client, which is a large slice of the Irish aesthetics client base.
- **Thyroid disease and thyroid autoimmunity.** Consistently associated. In one classic study, 70 per cent of women who developed melasma during pregnancy or on the pill had thyroid abnormalities, compared with 39.4 per cent of those with idiopathic melasma and 12.5 per cent of controls.
- **Mechanism.** Oestrogen and progesterone modulate melanogenesis through both genomic and non-genomic signalling, acting on the key enzymes and transcription factors of pigment synthesis, with crosstalk between the cascades that compounds the effect.

> **Practical consultation questions**
>
> Are you pregnant, planning a pregnancy, or breastfeeding? What contraception are you using, and has it changed recently? Are you on HRT, and did the pigmentation appear or worsen after starting it? Have you ever been told you have a thyroid problem, or had thyroid bloods taken? Did this start after a pregnancy? Does anyone in your family have it?

1.4 Heat, light and lifestyle: what to actually restrict

This is where the advice has moved furthest in the last decade, and where most practitioners are still giving outdated guidance. Sunscreen alone is not the answer. Heat is an independent trigger.

Trigger	Advice
UV radiation	The primary driver. UVA and UVB act directly on melanocytes. Without UV, hormonal melasma is usually far less pronounced. Year-round and life-long protection is required, not seasonal.
Visible light and HEV	Independently activates melasma, particularly in Types III and above. This is why iron oxides matter. A conventional untinted chemical sunscreen offers effectively no visible-light protection. American work on personalised photoprotection, including a JAAD commentary by Shetty, Taylor and Lim, has pushed this point hard in recent years.
Heat, direct	Heat stimulates melanocyte activity independently of UV, and increases blood flow and skin temperature, which drives the vascular and inflammatory component. This includes hot showers, standing over a hob, working in a kitchen, and hot cars.
Saunas and steam	Advise against during any active clearance phase. Traditional sauna and steam are

Trigger	Advice
rooms	recognised triggers and the effect occurs with no sun exposure at all.
Infrared saunas	Flag these specifically. They are extremely popular and are widely assumed to be skin-positive. Infrared runs at a lower air temperature but penetrates more deeply, and still raises skin temperature. The trigger is heat and inflammation, not one particular type of heat.
Hot yoga and intense exercise	Not a reason to stop exercising, and it would be wrong to advise that. It is a reason to modify: cooler rooms, a cold flannel or facial mist during and after, a proper cool down, and avoiding hot yoga specifically during a clearance phase.
Alcohol	Causes vasodilation and a heat response in the skin. A low-grade but real aggravator with regular use.
Screens	Relevant for visible-light-sensitive melasma. Worth mentioning to the client working long hours at a monitor, though it sits well below UV and heat in importance.
Waxing	Avoid over affected areas. Inflammation from waxing worsens melasma. Offer an alternative hair removal route.
Irritating products and fragrance	Anything that irritates worsens it. Fragrance is phototoxic in some formulations. This includes over-aggressive acids and high-strength retinoids introduced too fast.

How to deliver this without losing the client

Do not hand someone a list of everything they must give up. Frame it as a clearance phase and a maintenance phase. Strict for twelve to sixteen weeks while the pigment comes down, then sensible and sustainable for life. People will accept a temporary restriction they would refuse as a permanent one.

SECTION TWO

The Medical Standard of Care

What the published international consensus describes as standard practice. Included so that non-prescribing practitioners understand the wider clinical context and know when and why to refer.

> **Before you read this section**
>
> Several agents described below are prescription-only medicines. They are set out here as a factual summary of what the published clinical literature reports, not as a recommendation, and not as guidance on how to obtain or use them. Prescribing decisions belong to registered prescribers who have assessed the individual patient. If this section is relevant to a client of yours, the action it should prompt is a referral.

2.1 Cross-referencing the American and international literature

The guidance below is not one committee opinion. Two large bodies of work, one American and one international, arrive at essentially the same conclusions. Notably, several of the leading American pigmentation specialists sit on both.

The American expert view

- **Best practices in the treatment of melasma with a focus on patients with skin of color.** Published in the Journal of the American Academy of Dermatology in 2023 by Desai, Alexis, Elbuluk, Grimes, Weiss, Hamzavi and Taylor. This is the reference document from the American skin-of-colour specialists. It sets out a flexible treatment algorithm that explicitly separates a treatment period from a maintenance period, and it reports strong histologic evidence supporting retinoids for epidermal melasma and microneedling for dermal melasma.
- **Melasma Treatment: An Evidence-Based Review.** McKesey, Tovar-Garza and Pandya, University of Texas Southwestern, published in the American Journal of Clinical Dermatology in 2020. A systematic review of 113 studies covering 6,897 participants. Its conclusions are worth stating precisely, because they are blunter than most marketing in this sector: hydroquinone monotherapy and triple combination cream are the most effective and best studied treatments; chemical peels and laser and light-based therapies are equal or inferior to topicals while carrying a higher risk of adverse effects; and oral tranexamic acid may be a safe systemic adjunct, though longer-term data is still needed.
- **Amit Pandya developed the measurement tool.** The Melasma Area and Severity Index and its modified version were validated by Pandya and colleagues, with a later JAMA Dermatology paper by Rodrigues and Pandya on how to interpret the modified score. If you are using mMASI to track a client, you are using an American-validated instrument.
- **Pearl Grimes has published extensively on newer agents** including new oral and topical approaches to melasma, and on hydroquinone safety specifically. Seemal Desai led a separate expert consensus on optimising melasma management with topical tranexamic acid.

Where they converge with the international consensus

The 2025 international Delphi consensus, published in the Journal of the European Academy of Dermatology and Venereology, included Seemal Desai, Susan Taylor, Nada Elbuluk and Henry Lim among its panel. It reached high consensus on essentially the same positions: photoprotection as essential, supervised hydroquinone-based triple combination as the gold standard, azelaic acid, kojic acid and oral tranexamic acid as alternatives, procedures as adjuncts rather than monotherapy, and lasers reserved for refractory cases.

> **The single most useful line for your talk**
>
> The American systematic review concluded that laser and light-based therapies are equal or inferior to topical treatment for melasma, and carry a higher risk of adverse effects. That is not a cautious European opinion. That is the conclusion of a review of 113 controlled studies out of UT Southwestern. If a device is being sold to a melasma client as the answer, the evidence is not on that side of the table.

2.2 The prescription arsenal

A factual summary of what the literature reports. Prescribing decisions rest with a registered prescriber.

Agent	Role	What the literature reports
Triple combination cream	First line, clearance	Hydroquinone, tretinoin and a mild corticosteroid. Named as the gold standard by the 2025 international Delphi consensus and the 2025 Latin American consensus, both with the explicit caveat of medical supervision. Grade A evidence. The American evidence-based review reached the same conclusion independently.
Hydroquinone	Clearance	Effective, but cycled use only. Reported risks include exogenous ochronosis, contact dermatitis, vitiligo-like depigmentation and rebound. Regulatory note: hydroquinone is prohibited in cosmetic products across the EU under Regulation (EC) No 1223/2009, Annex II. In Ireland it is available only through a prescriber.
Tretinoin	Clearance and maintenance	Promotes cell renewal, improves penetration of companion agents, and addresses the photoaging component. Slower alone. The American panel reports strong histologic support for retinoids specifically in epidermal melasma.
Oral tranexamic acid	Adjunct or alternative	The most significant addition to standard practice in the last decade. Consensus dosing reported as 250mg twice daily, most commonly for six months, with roughly a six month interval before repeating. One randomised trial of 50 patients found oral and 5 per cent topical tranexamic acid reduced pigmentation by 59 and 51 per cent respectively at twelve weeks. Requires screening for thromboembolic risk. Contraindicated in pregnancy.
Azelaic acid	Alternative	Endorsed where hydroquinone is contraindicated, unavailable, or for maintenance. Safe in pregnancy, which makes it the workhorse for the pregnant or breastfeeding client.
Topical tranexamic acid	Maintenance	Lower irritation rate than topical hydroquinone in the literature. Available cosmetically as well as through prescription formulations. Subject of a dedicated American expert consensus led by Desai.
Chemical peels	Adjunct	Glycolic acid peels reached high consensus as an acceptable adjunct. The American review is more cautious, placing peels as equal or inferior to topicals with higher adverse-effect risk. Adjunctive, never

Agent	Role	What the literature reports
		monotherapy.
Microneedling and RF microneedling	Adjunct and maintenance	High consensus as an acceptable option, with strong histologic support reported specifically for dermal melasma. A controlled study using oral tranexamic acid plus triple combination for two months, then monthly RF microneedling on a randomly assigned half face for six months, tested the dermal-targeting maintenance model directly.
Lasers and energy devices	Refractory cases only	Reserved for refractory cases across every recent consensus. Low fluence Q-switched Nd:YAG has high consensus specifically for refractory disease. High recurrence across all laser modalities and risk of post-inflammatory pigmentary change, especially in skin of colour. Never monotherapy.

2.3 The protocol: pre-treat, treat, post-treat

Worked for a Fitzpatrick III with moderate melasma. Adjust conservatively upward in caution for Types IV and V.

Phase one: prime, eight weeks minimum

Priming is not optional and it is not a formality. Consensus guidance is explicit that for patients at high risk of post-inflammatory hyperpigmentation, it is highly recommended to prime the skin with lightening agents before any procedural therapy.

- Wood lamp examination at baseline to determine whether pigment is epidermal, dermal or mixed. Dermal and mixed melasma responds far less well, and the client needs to be told that at the start, not at week twelve.
- Baseline photography under standardised lighting, plus a modified MASI score. Without a number you are relying on the client memory, which is unreliable in both directions.
- Topical suppression nightly. Tinted broad-spectrum SPF 50 with iron oxides every morning, reapplied.
- Systemic adjunct considered where appropriate, prescribed and screened by the prescriber.
- Full trigger review completed and agreed in writing. Heat, hormones, waxing, product irritants.
- Reassess at week 8 with repeat mMASI. Consensus practice is periodic reassessment every 8 to 12 weeks with adjustment if targets are not met.

> **The decision point at week eight**
>
> Greater than 30 per cent mMASI improvement: continue as established, and a device may now be considered. Less than 30 per cent improvement: do not escalate to a device. Intensify medical therapy and re-review. A device applied to uncontrolled melasma is the fastest route to an outcome worse than the starting point.

Phase two: in clinic

If, and only if, the melasma is suppressed and the client has demonstrated compliance.

- Wash out: stop tretinoin 7 days before, hydroquinone 5 to 7 days before, on the prescriber instruction. Continue SPF throughout.
- Conservative parameters. Low energy, low density or coverage, single pass, no stacking, no bulk heating.
- Active cooling throughout. Contact cooling, chilled air or a chiller through the pass. Heat is a trigger in its own right, so the goal is to deliver the effect with the minimum possible thermal load.
- Combining tranexamic acid with laser or light therapy reached high consensus as an acceptable approach, which supports keeping a systemic course running across the device phase where one has been prescribed.
- Interval of 4 to 6 weeks between sessions. Do not proceed to a second pass if the first produced any rebound pigmentation.
- Two to three sessions is a sensible ceiling. Judge on response, not on a pre-sold package. Selling melasma in packages is a commercial trap that pushes practitioners into treating when they should be waiting.

Phase three: post-treatment

- Barrier repair only for the first 5 to 7 days. Bland, non-fragranced, occlusive if needed.
- Absolute heat avoidance for 7 to 10 days. No sauna, no steam, no hot yoga, no hot showers on the face.

- Resume actives on the prescriber schedule, and only once erythema has fully settled. Residual redness at day 10 means resuming later, not on schedule.
- Tinted SPF 50 from day one, without exception.
- Review at 4 weeks with photography before any decision on a further session.

2.4 The hydroquinone holiday, explained

> **To be completely clear about the term**
>
> A hydroquinone holiday means a planned break from hydroquinone. It has nothing to do with a sun holiday. It is the deliberate off phase in a cycled protocol, and it exists to reduce the risk of exogenous ochronosis, contact sensitisation and rebound pigmentation from continuous long-term use.

Hydroquinone is a clearance agent, not a maintenance agent. Run continuously it accumulates risk without accumulating benefit. The American expert algorithm makes the same structural point by separating a treatment period from a maintenance period. The table below is how the on and off phases rotate.

Phase	Duration	What runs	Purpose
Clearance	8 to 16 weeks	Triple combination nightly. Tinted SPF 50 daily. Systemic adjunct where prescribed.	Suppress the melanocyte and bring the mMASI down. Sixteen weeks is the outside limit, not a target.
Holiday	3 to 6 months	Stop hydroquinone. Switch to a non-hydroquinone suppressor: cysteamine, thiamidol, azelaic acid, topical tranexamic acid, niacinamide, arbutin. Keep a retinoid running if tolerated. Tinted SPF 50 continues without a break.	Hold the result without hydroquinone exposure. This is the phase most protocols skip, and it is where most relapses happen.
Reassessment	Every 8 to 12 weeks throughout	Photography and mMASI.	Objective data. Decide on the evidence, not on how the client feels about it that day.
Re-treatment	Only if mMASI climbs	Repeat the clearance cycle. Consensus suggests roughly a six month interval before repeating an oral tranexamic acid course.	Treat the flare, then return to maintenance. Do not drift back into continuous hydroquinone.
Constant	Life-long	Tinted broad-spectrum SPF 50 with iron oxides, reapplied. Heat awareness. Trigger management.	This is the variable that actually predicts relapse. Everything else is negotiable. This is not.

> **Know your worth on this one**
>
> A melasma client is not a course of six. They are a long-term management relationship, reviewed quarterly, for years. Price and structure the offer accordingly. The clinic that sells a package of laser and sends them away is the clinic they leave. The clinic that manages them properly keeps them for a decade and gets every friend they have.

SECTION THREE

The Non-Prescriber Protocol

For beauty therapists, advanced skincare therapists and non-medical skin professionals working in Ireland. What is available to you, what is not, and how to get an excellent result inside those limits.

3.1 The regulatory reality in Ireland

Know exactly where the line sits before building a protocol around it.

- **Hydroquinone is off the table.** Prohibited in cosmetic products across the EU under Regulation (EC) No 1223/2009, Annex II, entry 1339. There is no rinse-off or leave-on exception. Products found on the EU market are seized or recalled through the Safety Gate system. It is available in Ireland only through a prescriber.
- **Tretinoin is prescription only.** Non-prescribers work with cosmetic retinoids: retinol, retinaldehyde, retinyl esters, and hydroxypinacolone retinoate.
- **Oral tranexamic acid is prescription only.** Topical tranexamic acid is available cosmetically and is a genuinely useful tool.
- **Know the EU concentration caps.** Under amendment (EU) 2024/996, in force from 1 February 2025 for new products and 1 November 2025 for existing stock: alpha-arbutin is capped at 2 per cent in face creams and 0.5 per cent in body lotions, arbutin at 7 per cent in face creams, and kojic acid at 1 per cent in face and hand products. Niacinamide is permitted at 2 to 5 per cent in leave-on products. If a supplier is selling you something above these limits, that is a compliance problem, and it is your name over the door.
- **Be careful how you talk about prescription agents publicly.** In Ireland, the Medicinal Products (Control of Advertising) Regulations 2007 prohibit the advertising of prescription-only medicines to the general public, and that prohibition applies to everyone, not only to pharmaceutical companies. It covers websites and social media. Discussing prescription options with an individual client in a private consultation, in order to refer them, is a different matter from promoting those options publicly.

> **This is not a weaker protocol. It is a different one.**
>
> The prescription route gets there faster. The cosmetic route, run properly and given enough time, gets to a similar place and carries less risk of ochronosis, rebound and sensitisation. What it demands is patience and compliance, from you and from your client. Your job is to sell that patience convincingly.

3.2 The four pillars

Pillar one: tinted mineral SPF with iron oxides

This is not an add-on sale. This is the treatment. Everything else is secondary. The American literature is unambiguous that sunscreens are essential in the management of melasma, and recent American work on personalised photoprotection has focused specifically on visible light and near-visible light.

- SPF 50, broad spectrum, containing iron oxides. Iron oxides are what block visible light, and visible light drives melasma independently of UV.
- Tinted beats untinted. An untinted mineral sunscreen is significantly less effective here than a tinted one, and a conventional chemical sunscreen offers effectively nothing against visible light.

- Year-round and life-long, not seasonal. Irish clients treat sunscreen as a summer product and a holiday product. That is the exact belief to dismantle at consultation.
- Reapplication is where compliance dies. Give them a format they will actually use at eleven and at two. A compact, a cushion, a powder. The best sunscreen is the one that gets reapplied.
- **Money wasted.** Every euro spent on serums while wearing the wrong sunscreen is wasted, and you should say so plainly. It is not rude. It is the most useful thing you will say to that client.

Pillar two: a tyrosinase inhibitor

Tyrosinase is the rate-limiting enzyme in melanin synthesis. Inhibiting it is the mechanism hydroquinone uses, and there are cosmetic agents that act on the same enzyme. This is the pillar most non-prescriber protocols leave out, and leaving it out is why those protocols fail.

Agent	Notes
Azelaic acid	Endorsed in consensus guidance as an alternative where hydroquinone is contraindicated or unavailable, and for maintenance. Safe in pregnancy and breastfeeding, which matters enormously in this client group. Cosmetic strengths sit around 10 per cent; higher strengths are prescription in Ireland.
Thiamidol	One of the more potent human tyrosinase inhibitors developed for cosmetic use. Strong recent data. Available through specific ranges.
Cysteamine	Non-hydroquinone, well studied, and a genuine maintenance workhorse. The odour is a real compliance issue, so warn the client honestly at the point of sale rather than letting them discover it at home and abandon it.
Topical tranexamic acid	Acts on the plasminogen pathway rather than directly on tyrosinase, and addresses the vascular and inflammatory element. Lower irritation rate than topical hydroquinone in the literature.
Alpha-arbutin and arbutin	Hydroquinone derivatives with a gentler profile. Note the EU caps: 2 per cent alpha-arbutin and 7 per cent arbutin in face creams, with hydroquinone not to exceed unavoidable trace levels in these formulations.
Kojic acid	Effective adjunct, and named in consensus guidance. Capped at 1 per cent in face and hand products under current EU regulation.
Niacinamide	Works further down the pathway by blocking melanosome transfer rather than inhibiting tyrosinase. Excellent tolerability, good barrier support, and combines with everything. Permitted at 2 to 5 per cent in leave-on products.
Vitamin C	Antioxidant and mild tyrosinase inhibitor. Named in consensus guidance as a supplement to an individualised regimen. Best used as support alongside a primary inhibitor rather than as the primary agent.

Pillar three: a cosmetic retinoid

- Retinol, retinaldehyde or hydroxypinacolone retinoate. Retinaldehyde is a useful middle ground: closer to tretinoin in potency than retinol, and better tolerated than most clients expect.

- Introduce low and slow. Twice weekly, building over eight to twelve weeks. A high-strength retinoid introduced too fast causes irritation, and irritation worsens melasma. This is the most common own goal in a therapist-led protocol.
- If the skin is red, stinging or peeling, you have gone too fast and you are actively making the pigment worse. Pull back immediately.
- Not during pregnancy or breastfeeding. Use azelaic acid and niacinamide instead.

Pillar four: antioxidants

- Vitamin C, vitamin E, ferulic acid, polyphenols. Melasma involves UV-induced oxidative stress and dermal inflammation, so this is mechanistically justified rather than a nice extra.
- Morning application, under the tinted SPF. Antioxidants and sunscreen are a partnership, not alternatives.
- Oral antioxidants are endorsed in consensus guidance as systemic adjuncts. Polypodium leucotomos is the most commonly used in practice.

3.3 How long to pre-treat

Longer than the prescription route. This is the single most important number in this section, and it is the one clients and therapists both want to shorten.

Timepoint	What happens
Week 0	Full consultation. Trigger history including hormones, thyroid, pregnancy, contraception and HRT. Standardised photography. Tinted SPF 50 with iron oxides starts today. Antioxidant serum starts today. Nothing else yet.
Weeks 1 to 2	Introduce the tyrosinase inhibitor. One product, one variable. If the skin reacts, you know exactly what caused it.
Weeks 3 to 4	Introduce the cosmetic retinoid at twice weekly. Build slowly from here.
Weeks 5 to 12	Build tolerance. Increase retinoid frequency as tolerated. Reinforce heat and UV avoidance at every appointment. Do not add a fourth new active in this window.
Week 12	First formal review with repeat photography. This is the earliest point at which any in-clinic procedure should be considered, and only if pigment is visibly suppressed and compliance has been demonstrated.
Weeks 12 to 16	If progress is slow, extend the pre-treatment rather than escalating. Extending costs you nothing. Escalating too early costs you the client.
Ongoing	Review every 8 to 12 weeks with photography, for as long as they are your client. Which should be years.

> **Twelve weeks minimum. Say it at consultation, not at week six.**
>
> A prescriber can prime in eight weeks because the triple combination is doing heavy lifting from night one. Cosmetic actives need twelve, and often sixteen. Set that expectation in the first appointment, in writing, and the client stays with you. Set it at week six when they ask why nothing has happened and you lose them.

3.4 In clinic: what is safe and what is not

Modality	Verdict
Superficial chemical peels	Yes, with care. Glycolic acid peels reached high consensus as an acceptable adjunct, though the American systematic review rates peels as equal or inferior to topicals with higher adverse-effect risk. Mandelic acid is the gentler choice for Types III and above given the larger molecule and slower penetration. Adjunct to topicals, never a standalone protocol.
Microneedling	Yes, with care. High consensus as an acceptable option, and the American panel reports strong histologic support specifically for dermal melasma. Conservative depths. Not during an active flare.

Modality	Verdict
LED, red and near-infrared	Caution. There is a heat and vascular consideration here that is not always acknowledged, and some practitioners specifically flag LED as an aggravator. If used, keep sessions short and the skin cool.
IPL	Avoid on active melasma. High recurrence and real potential to worsen it. If your clinic offers IPL, melasma is the diagnosis where you say no, and saying no is a credibility builder rather than a lost sale.
Any bulk heating device	Avoid on active melasma. Radiofrequency skin tightening, ultrasound tightening and infrared devices all deliver exactly the stimulus you are trying to remove.
Waxing over affected areas	Avoid. Inflammation from waxing worsens melasma. Offer an alternative.
Aggressive extractions and scrubs	Avoid. Any mechanical inflammation feeds the condition.

3.5 When to refer

Referring well is a professional strength, and clients respect it. It also protects you.

- No meaningful improvement after 16 weeks of a well-executed and genuinely compliant cosmetic protocol.
- Dermal or mixed melasma identified on Wood lamp examination.
- A suspected hormonal driver that needs medical review, particularly HRT, contraception or a possible thyroid issue.
- Any pigmented lesion that is asymmetric, changing rapidly, bleeding or painful. That is not melasma until a doctor says it is, and it is not yours to treat.
- A client who wants, and would benefit from, options that only a prescriber can provide.
- Diagnostic uncertainty of any kind. Not everything brown on a face is melasma.

> **Build the referral relationship before you need it**
>
> Have a named GP, dermatologist or prescribing colleague you can send to and who will send back. A client referred out and managed medically almost always returns for the maintenance work, and returns trusting you more than before. That trust is worth more than the treatment you did not sell.

3.6 Glossary of terms

Terms used in this document and in the papers listed in Section Four.

Term	Meaning
Chloasma	The older name for melasma, still used for the pregnancy-associated form. Melasma is now the preferred term.
Epidermal melasma	Pigment sits in the upper layers. Responds best to treatment. Appears more sharply defined and enhances under Wood lamp.
Dermal melasma	Pigment has dropped into the deeper layer. Responds poorly. Appears greyer and more diffuse.
Mixed melasma	Both patterns present. The most common presentation in practice.
Wood lamp	A hand-held ultraviolet lamp used to determine whether pigment is epidermal, dermal or mixed. Epidermal pigment enhances under the lamp; dermal pigment does not.
MASI and mMASI	Melasma Area and Severity Index, and its modified version. A scoring system for measuring severity objectively and tracking change over time. Validated by Pandya and colleagues.
MELASQoL	Melasma Quality of Life Scale. A validated instrument for measuring the psychological impact of the condition.
Tyrosinase	The rate-limiting enzyme in melanin production. Most pigment-suppressing actives work by inhibiting it.
Melanocyte	The pigment-producing cell. In melasma these cells are not increased in number, but are larger and more active.
Melanosome	The package in which melanin is transferred from melanocyte to keratinocyte. Niacinamide works by blocking this transfer.
PIH	Post-inflammatory hyperpigmentation. Darkening that follows inflammation or injury. A separate condition from melasma, though the two often coexist and are frequently confused.
Exogenous ochronosis	A blue-black paradoxical darkening that can follow prolonged uninterrupted hydroquinone use. The main reason for cycling rather than continuous use.
Rebound	Pigmentation returning, often worse than baseline, after a treatment is stopped or after inappropriate device use.
Triple combination cream	The combination of hydroquinone, tretinoin and a mild corticosteroid. Sometimes called modified Kligman formula. Prescription only.
Kligman formula	The original 1975 combination on which modern triple combination creams are based.
Photoprotection	The full package of sun and light protection: sunscreen, iron oxides, clothing, shade, and behaviour. Broader than sunscreen alone.

Term	Meaning
Iron oxides	Mineral pigments that give a tinted sunscreen its colour and are what provides visible-light protection.
HEV	High-energy visible light. The blue end of the visible spectrum, from sunlight and screens. Drives melasma independently of UV.
Fitzpatrick scale	A six-point classification of skin phototype based on the tendency to burn and to tan. A useful shorthand, but note that it was designed to predict UV response, not to describe ethnicity.
Priming	Pre-treating the skin with pigment-suppressing agents before a procedure to reduce the risk of post-inflammatory hyperpigmentation. Also called pre-treatment.
Delphi consensus	A structured method in which a panel of experts vote across several rounds until agreement is reached. It is how much of the guidance in this document was arrived at.
Grade A evidence	The strongest tier of evidence, supported by well-conducted randomised controlled trials.
POM	Prescription-only medicine. May be supplied only on the prescription of a registered prescriber.

SECTION FOUR

Sources and Further Reading

Every clinical claim in this document traces back to the sources below. All links were live at the time of writing. Read them yourself and form your own view.

> **How to use these in a talk**
>
> There is never time to cover this properly in a short slot, and it is a mistake to try. Put three or four QR codes on a single slide at the end, say clearly which one is for which purpose, and let the room take it home. People remember the practitioner who gave them something to read far longer than they remember a slide.

4.1 American expert sources

Best practices in the treatment of melasma with a focus on patients with skin of color

Desai SR, Alexis AF, Elbuluk N, Grimes PE, Weiss J, Hamzavi IH, Taylor SC. Journal of the American Academy of Dermatology, 2023.

`https://www.jaad.org/article/S0190-9622(23)02850-5/abstract`

The American reference document, written by seven of the leading skin-of-colour and pigmentation specialists in the United States. Sets out a treatment algorithm that explicitly separates a treatment period from a maintenance period, and reports strong histologic support for retinoids in epidermal melasma and microneedling in dermal melasma.

Melasma Treatment: An Evidence-Based Review

McKesey J, Tovar-Garza A, Pandya AG. University of Texas Southwestern. American Journal of Clinical Dermatology, 2020.

`https://pubmed.ncbi.nlm.nih.gov/31802394/`

The most rigorous systematic review available: 113 studies, 6,897 participants. Concludes that hydroquinone and triple combination cream are the most effective and best studied, that peels and laser and light therapies are equal or inferior to topicals while carrying higher adverse-effect risk, and that oral tranexamic acid is a promising systemic adjunct. The single most quotable source in this document.

The Vascular Component of Melasma: A Systematic Review

Dermatologic Surgery. VA New York Harbor Healthcare System.

`https://pubmed.ncbi.nlm.nih.gov/33252894/`

The evidence behind treating melasma as a vascular as well as a pigmentary condition. Useful background for explaining why heat, flushing and inflammation matter so much.

An Update on New and Existing Treatments for the Management of Melasma

American Journal of Clinical Dermatology, 2024.

`https://link.springer.com/article/10.1007/s40257-024-00863-2`

The most current American overview. Covers newer agents and cites the American expert consensus on topical tranexamic acid led by Desai. Good for anyone who wants to know what is coming next.

Melasma: treatment and management

Medscape, continuously updated.

`https://emedicine.medscape.com/article/1068640-treatment`

Free, clinically detailed, and heavily referenced to the American literature including Pandya, Grimes and the MASI validation work. A practical starting point for a practitioner without journal access.

4.2 International consensus and reviews

Delphi consensus on melasma management by international experts and the Pigmentary Disorders Society

Sarkar R, Desai SR, Sinha S, et al. Journal of the European Academy of Dermatology and Venereology, 2026.

https://pubmed.ncbi.nlm.nih.gov/40996222/

The current international benchmark. Twenty-one statements reached high consensus. Notably includes several of the American experts listed above on its panel, which is why the two bodies of work align so closely. If a practitioner reads one thing, this is it.

Latin American consensus on the treatment of melasma

International Journal of Dermatology, 2025. Open access.

https://pmc.ncbi.nlm.nih.gov/articles/PMC11840225/

Practical and algorithmic. Contains the decision framework around mMASI response at six to eight weeks that underpins the escalation logic in Section Two. Free to read in full.

New Mechanistic Insights of Melasma

Clinical, Cosmetic and Investigational Dermatology, 2023. Open access.

https://pmc.ncbi.nlm.nih.gov/articles/PMC9936885/

The pathophysiology paper. Explains why melasma is a dermal and vascular condition rather than a surface pigment deposit, and why that changes the treatment approach. Good for anyone teaching the science.

Melasma: a clinical and epidemiological review

Handel AC, Miot LDB, Miot HA. Anais Brasileiros de Dermatologia, 2014. Open access.

http://www.scielo.br/j/abd/a/WPYDvDFnT6JrMDr9ZgtGkxJ/?lang=en

The source of most of the Fitzpatrick prevalence data quoted in Section One. Older, but still the standard reference for epidemiology.

Melasma

StatPearls, National Center for Biotechnology Information. Updated 2026.

https://www.ncbi.nlm.nih.gov/books/NBK459271/

Free, comprehensive, continuously updated and written at clinical level. The best single starting point for the full picture without paying for journal access.

Different therapeutic approaches in melasma: advances and limitations

Frontiers in Pharmacology, 2024. Open access.

https://www.frontiersin.org/journals/pharmacology/articles/10.3389/fphar.2024.1337282/full

A thorough run through every topical, systemic and procedural option, with an honest account of where each falls short. Useful when a client asks about something you have not heard of.

Tranexamic Acid for Hyperpigmentation Disorders: efficacy and safety in melasma and PIH

Open access literature review.

https://pmc.ncbi.nlm.nih.gov/articles/PMC12848551/

Everything on tranexamic acid in one place, covering oral, topical and intradermal routes and the safety profile. Relevant background for a referral conversation with a prescribing colleague.

Topical Hydroquinone for Hyperpigmentation: A Narrative Review

Open access, 2023.

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10723018/

Balanced account of efficacy against side effects, and covers the international regulatory position including the EU ban in cosmetics. Useful for explaining why hydroquinone cannot simply be bought online.

4.3 Patient-friendly resources

Melasma

DermNet, New Zealand.

`https://dermnetnz.org/topics/melasma`

The best all-round resource on this list. Readable by an interested client, accurate enough for a practitioner, and clear about the essentials including SPF 50 with iron oxides and life-long year-round protection. The QR code to lead with.

Melasma patient information

British Association of Dermatologists, Patient Hub. Lay reviewed.

`https://www.skinhealthinfo.org.uk/condition/melasma/`

Written and readability-tested specifically for patients by a national dermatology body. Calm, non-commercial and authoritative. Exactly what a newly diagnosed client needs, and nothing they have to be sold.

Melasma patient information leaflet, PDF

British Association of Dermatologists, June 2024.

`https://www.skinhealthinfo.org.uk/wp-content/uploads/2018/11/Melasma-PIL-June-2024.pdf`

The printable version of the above. Useful for handing something physical to a client at the end of a consultation.

Melasma: causes, treatment and prevention

Cleveland Clinic.

`https://my.clevelandclinic.org/health/diseases/21454-melasma`

Very accessible. Covers the hormonal triggers in plain language, including the pill, HRT and thyroid, and lists the everyday aggravators such as waxing, tanning beds, screens and irritating products.

> **One closing point**
>
> The thing that separates a good melasma outcome from a bad one is almost never the device. It is the twelve weeks before and the years afterwards. Pre-treatment and post-treatment are not admin around the edges of the real work. They are the real work.

SECTION FIVE

Important Notice and Terms of Use

This notice forms part of the document and applies to every page of it. Please read it before using anything set out above.

1. This is educational material, not medical advice

This document has been prepared for educational and informational purposes only. It is a summary of publicly available, peer-reviewed clinical literature and published international consensus guidance on the management of melasma. It does not constitute medical advice, diagnosis, or treatment, and it must not be relied upon as a substitute for consultation with a doctor, dermatologist, pharmacist, or other appropriately qualified and registered healthcare professional.

2. The author is not a medical practitioner

Valerie Osborne is an aesthetic practitioner, clinic owner and educator with more than twenty years of experience in the aesthetics industry. She is not a doctor, dermatologist, nurse, pharmacist or prescriber. She does not diagnose medical conditions and she is not qualified or authorised to prescribe, recommend or supply prescription medicines. Where prescription-only agents are described in this document, they are described only to explain what the published clinical literature reports about them, so that non-prescribing practitioners understand the wider context in which they work and can recognise when to refer a client onward. Nothing in this document is a recommendation to use, obtain or supply any prescription medicine.

3. Prescription medicines and referral

A number of the agents discussed in Section Two of this document are classified as prescription-only medicines in Ireland and in most other jurisdictions. They may lawfully be prescribed only by a registered prescriber, following an individual clinical assessment of the patient, and they carry contraindications and potential adverse effects that are not fully described here. They must never be obtained from unregulated sources, imported privately, or supplied by anyone not legally authorised to do so. If you or your client wish to explore these options, the correct and only route is a referral to a GP, dermatologist or other registered prescriber.

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6. Currency and accuracy

The clinical guidance summarised here reflects published literature and consensus statements available at the time of writing. Medicine changes. Guidance is superseded. Every effort has been made to represent the

sources accurately, but no warranty is given as to completeness or continued accuracy, and readers are encouraged to consult the primary sources listed in Section Four directly.

7. No commercial endorsement

No brand, product, device or manufacturer is endorsed in this document, and no payment or commercial consideration has been received in connection with its preparation. Ingredients and agents are referred to generically.

8. Seek medical attention where appropriate

If you have a skin concern, particularly a pigmented area that is changing, asymmetric, bleeding, painful or growing, seek assessment from a doctor without delay. Not all facial pigmentation is melasma, and some conditions that resemble it require urgent medical attention.

> **In one sentence**
>
> This is a summary of what the published international guidelines say. It is offered as general professional education. It is not personal medical advice, the author is not a doctor, and any decision about an individual person should be made by a qualified professional who has actually assessed that person.