WHEN TO CHOOSE A CHEMICAL PEEL OVER OTHER MODALITIES

NEW FRONTIERS IN COSMETIC MEDICINE AND MEDICAL DERMATOLOGY (NFCMMD)

NOVEMBER 2019

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SKIN AND LASER SURGERY SPECIALISTS OF NY & NJ

INTRO TO PEELS

- According to the American Society of Dermatologic Surgery and the American Society for Aesthetic Plastic Surgery …

between 596,000 and 603,305 chemical peel procedures were performed in 2015, an increase of 25% compared with the previous year.1,2

1. American Society for Aesthetic Plastic Surgery. 2015 cosmetic surgery national data bank statistics. Available from: http://www.surgery.org/ sites/default/files/ASAPS-Stats2015.pdf. Accessed February 2, 2017.
2. American Society for Dermatologic Surgery. ASDS survey: nearly 10 million treatments performed in 2015. Available from: https://www. asds.net/_Media.aspx?id=9449. Accessed February 2, 2017.

PROS & CONS OF A PEEL

PROS:

- Low cost
- No need for numbing
- Relatively less risk of post-inflammatory pigmentation (PIH) in skin of color patients (no heat energy)
- Less risk of worsening melasma patients (no heat energy)
- Indicated for treating active acne and acne scarring

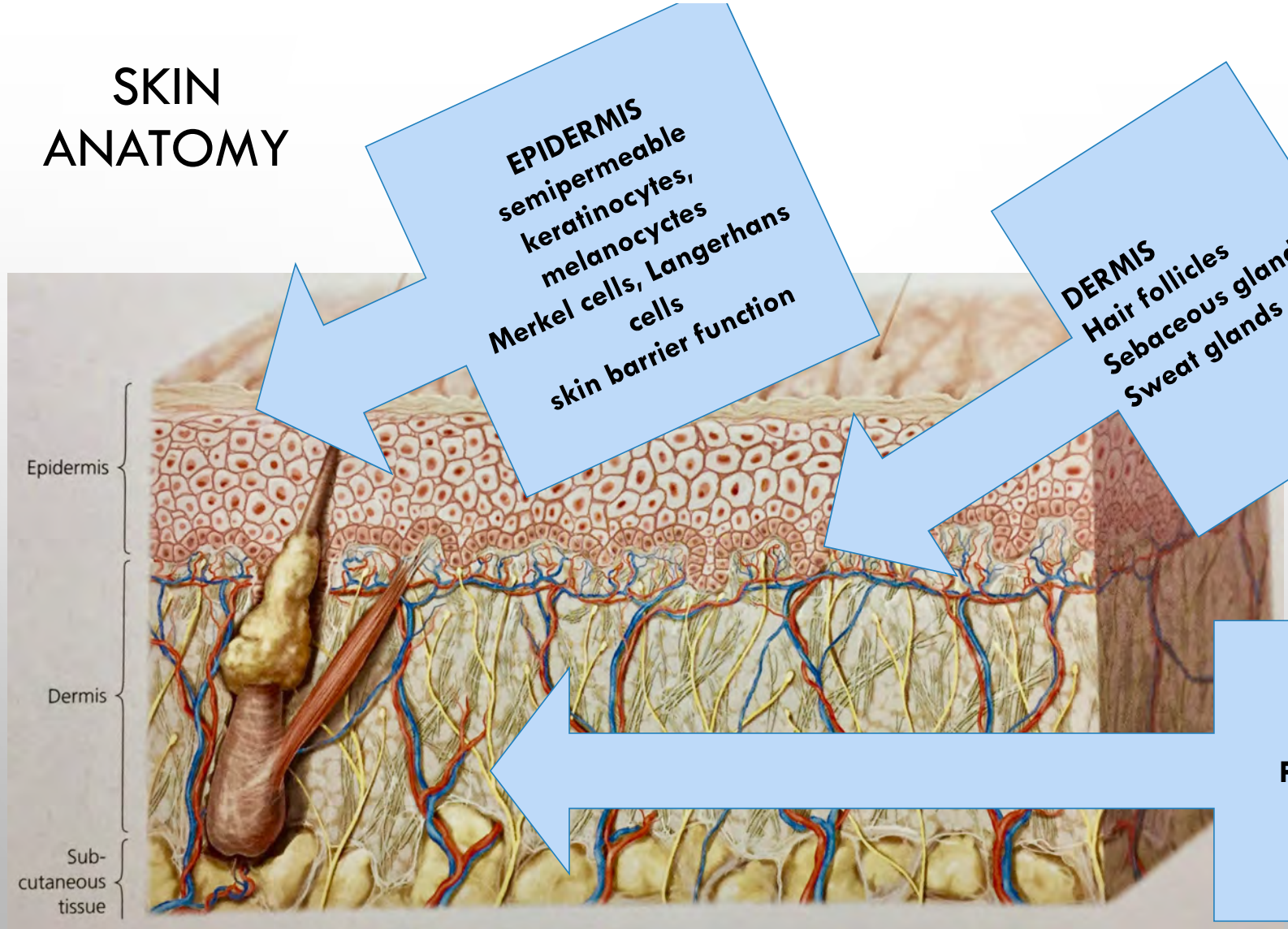
CONS:

- "Flaking" and "peeling" like a snake peeling vs rough texture/scabs after a laser
- Unpredictable results, varying skin thickness, skincare and prior peel hx dictates depth of penetration and this side effect profile
- Scarring with deep peels, since confluent (not fractionated) necrosis at the level lower reticular dermis
- Hypopigmentation with deep peels

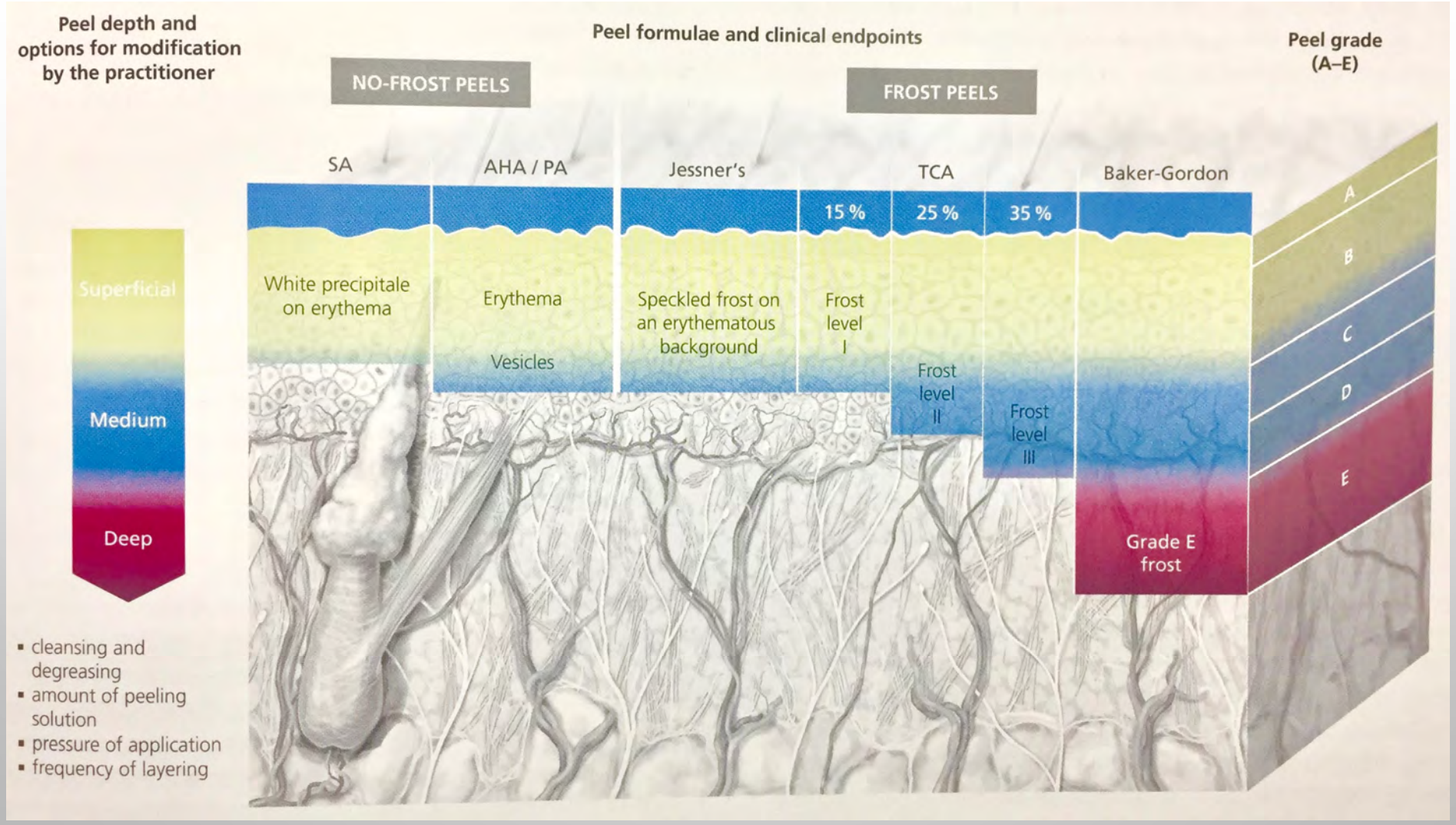
TYPES OF PEELS

1. Salicylic acid (SA)
2. Glycolic acid (GA)
3. Pyruvic acid (PA)
4. Lactic acid (LA)
5. Mandelic acid (MA)
6. Jessner solution (JS)
7. Trichloroacetic acid (TCA)
8. Retinoic acid
9. Phenol
10. Croton Oil
11. Combination Peels

SKIN ANATOMY



6. Illustrated guide to chemical peels. Rubin et al. 2014. 1st Ed.


Peel depth and options for modification by the practitioner
Peel formulae and clinical endpoints
Peel grade (A–E)
NO-FROST PEELS
FROST PEELS
SA
AHA / PA
Jessner's
TCA
Baker-Gordon
15 %
25 %
35 %
White precipitale on erythema
Erythema
Vesicles
Speckled frost on an erythematous background
Frost level I
Frost level II
Frost level III
Grade E frost
A
B
C
D
E
Superficial
Medium
Deep
cleansing and degreasing
amount of peeling solution
pressure of application
frequency of layering

HOW DO YOU CHOOSE THE TYPE OF PEEL?

- Determine main concerns and goals of patient (pigment, pores, wrinkles, acne, acne scarring)
- Determine downtime patient has (2-3 days, vs 1 week)
- Determine budget (deeper peels cost more because have increased risk)
- Establish expectations (next slide)

HOW DO YOU CHOOSE THE TYPE OF PEEL?

Establish expectations:

- Not all brown spots fade, and may require multiple treatments as well as possible laser or electrodessication in future
- Prepare patients for days to 1 week of flaking/peeling
- No sun exposure for 2-4 wk pre-post tx depending on depth
- Patient compliance with topicals and sun protection

MOST COMMON SKIN COMPLAINTS – TREATED BY CHEMICAL PEELING?

Skin texture:

- dull skin (scaly, dry, sundamaged) YES!
- crepey skin and fine lines (eyes, smoker's lines, buccal) YES!
- large pores, seborrheic keratoses, sebaceous hyperplasia – PARTLY!
- acne YES!
- acne scarring PARTLY

Skin discoloration

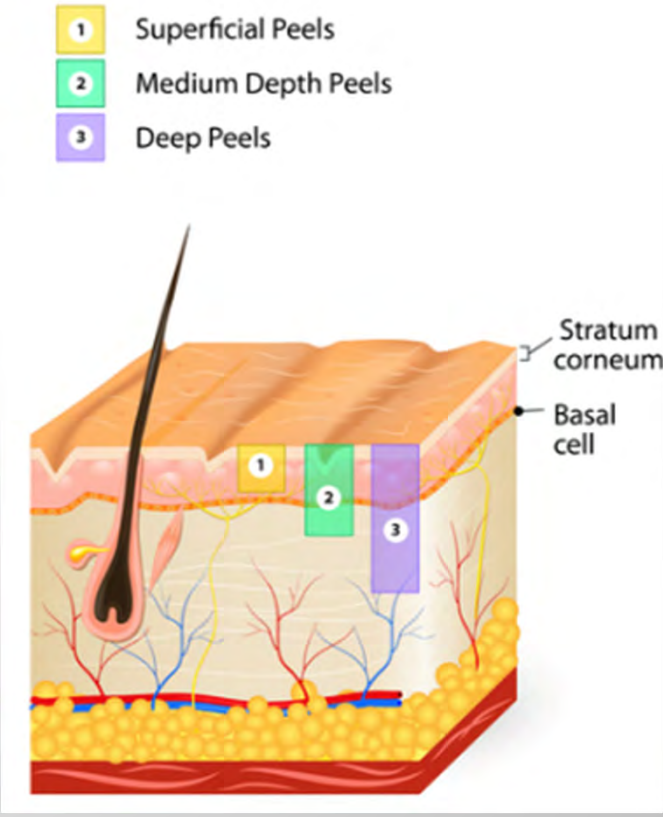
- sun spots (ephelides, lentigines) PARTLY
- melasma PARTLY

Connective tissue loss: start early to prevent face-lifts!!

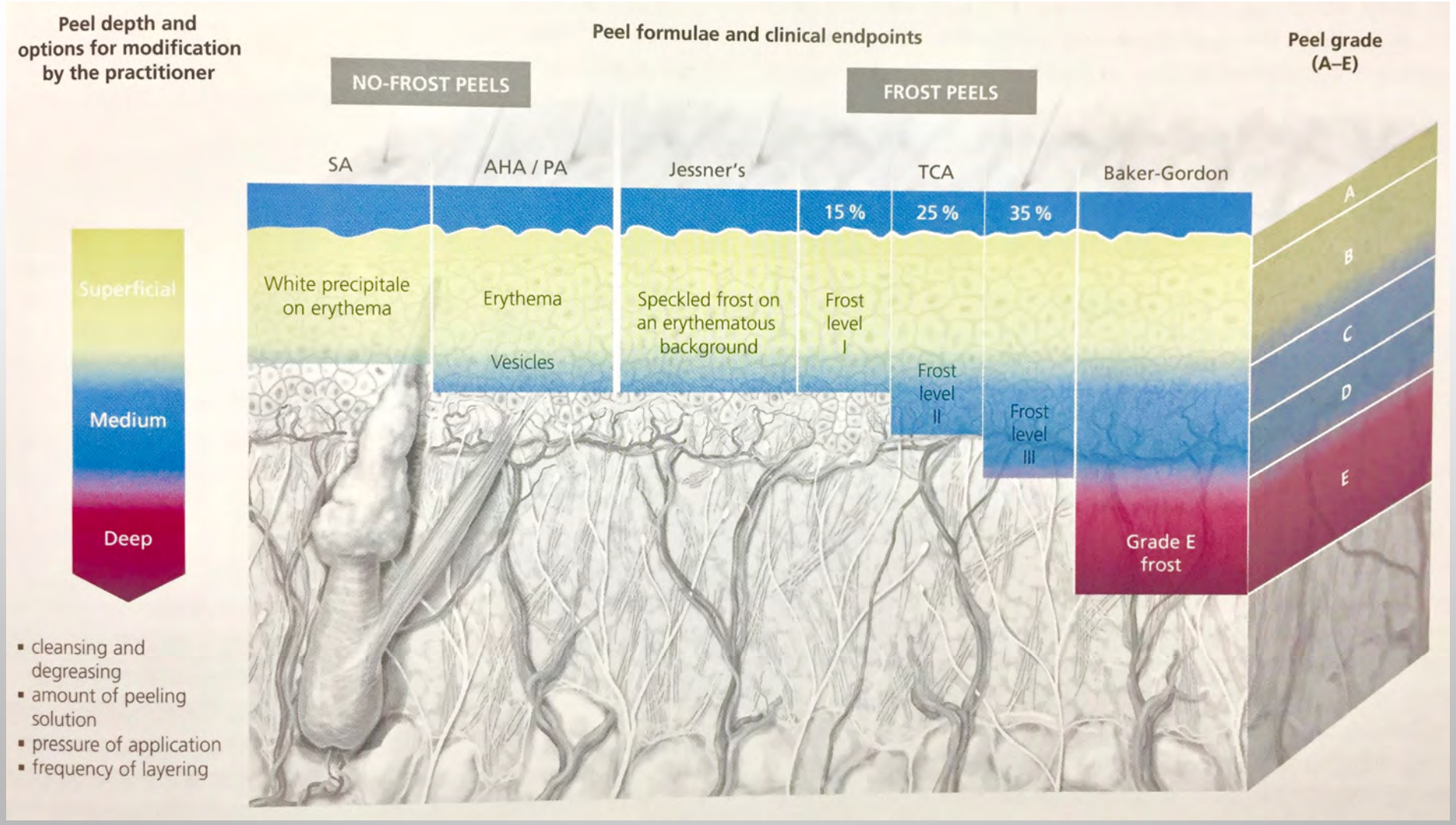
- Hooding, crow's feet and teartrough – PARTLY with DEEPER PEELS, plus volumizers and surgical lifts

TYPES OF PEELS

- Chemical peels induce all 3 stages of tissue replacement:
  - **destruction, elimination,** and **regeneration,** all under controlled inflammation
- Classified based on their histologic depth of skin penetration:
  - **Superficial** peels: destroy keratinocytes down to the level of stratum spinosum and stratum basale
  - **Medium** peels: penetrate to mid-reticular dermis
  - **Deep**: part or all mid-reticular dermis



1. Dewandre L, Tenenbaum A. The chemistry of peels: a hypothesis of action mechanisms and a proposal of a new classification of chemical peelings. In: Tung RC, Rubin MG, editors. Procedures in Cosmetic Dermatology Series: Chemical Peels (2nd ed). Philadelphia, PA: Saunders; 2011; pp. 1–16.
2. Tse Y. Choosing the correct peel for the appropriate patient. In: Tung RC, Rubin MG, editors. Procedures in Cosmetic Dermatology Series: Chemical Peels (2nd ed). Philadelphia, PA: Saunders; 2011; pp. 17–22.
3. Image: http://www.theperfectdermapeel.com/types-of-chemical-peels/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Superficial
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cleansing and degreasing
amount of peeling solution
pressure of application
frequency of layering

ACTION OF VARIOUS CHEMICAL PEELS

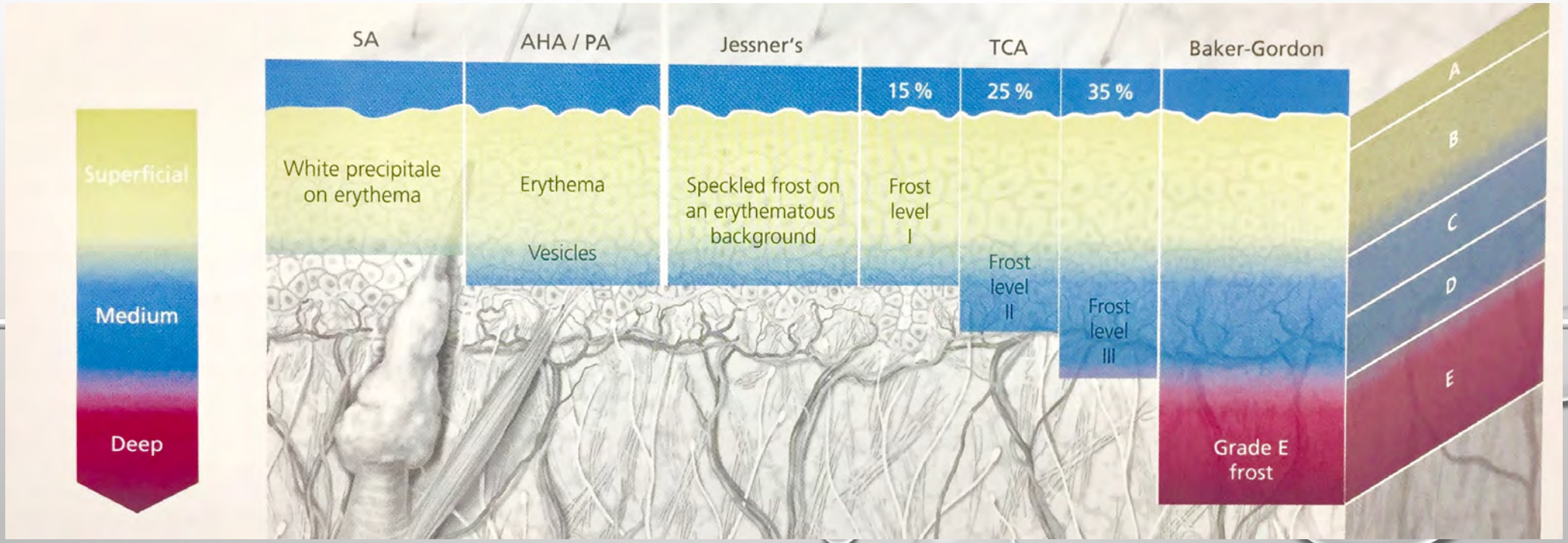
Table 1 Mechanism of action of various peeling agents in acne

	GA	MA	LA	JS	SA	PA	TCA	Phe
Desquamation	✔	✔	✔	✔	✔	✔	✔	✔
Comedolysis				✔	✔	✔		
Reduction of sebum production				✔	✔	✔		
Antibacterial effect	✔	✔	✔	✔	✔	✔	✔	✔
Anti-inflammatory effect	✔	✔	✔		✔			
Neocollagenesis	✔	✔	✔	✔	✔	✔	✔	✔

GA, glycolic acid; MA, mandelic acid; LA, lactic acid; JS, Jessner solution; SA, salicylic acid; PA, pyruvic acid; Phe, phenol; TCA, trichloroacetic acid.

Kontochristopoulos G, Platsidaki E. Chemical peels in active acne and acne scars. Clin Dermatol. 2017 Mar - Apr;35(2):179-182. doi: 10.1016/j.clindermatol.2016.10.011. Epub 2016 Oct 27. PubMed PMID: 28274356.

DEPTH OF CHEMICAL PEELS



VARIABLES AFFECTING ACTION & DEPTH OF PEEL:

- **Skin type** (sebaceous vs crepey/thin)
- **Anatomic location** of peel: neck/chest vs face (face is safer with more pilocebaceous units)
- **Priming** of skin with **RA/HQ** weeks to months leading to the peel (retinols, lightening agents)
- Peeling **agent** & **volume** of peeling agent (number of passes)

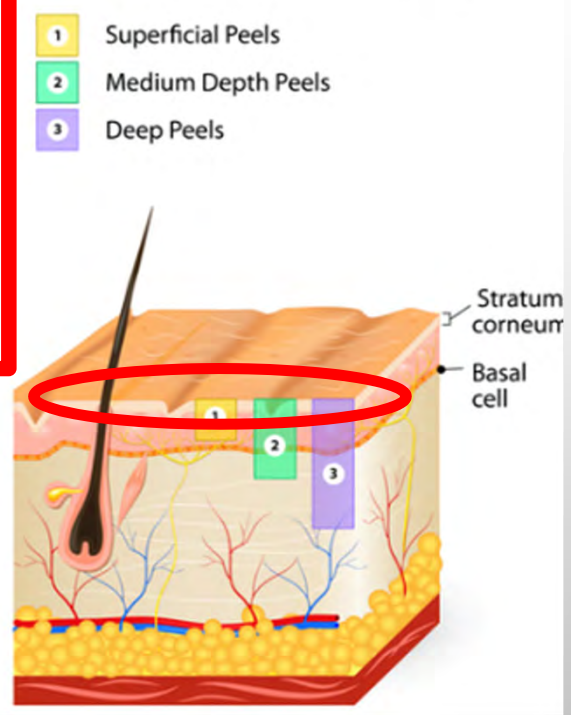
VARIABLES AFFECTING ACTION & DEPTH OF PEEL (CONT):

- **Concentration** of peeling agent (i.e. more control with lower concentrations)
- Application **pressure** and type of **gauze** (smooth, rough)
- **Degreasing** prior to peel (alcohol, acetone)
- Immediate preceding procedures (lasers– alter epidermal barrier, recent peels)

5. Sadick, Moy, Lawrence, Hirsch - Concise Manual of Cosmetic Dermatologic Surgery. McGraw Hill, 2008
4. Jackson

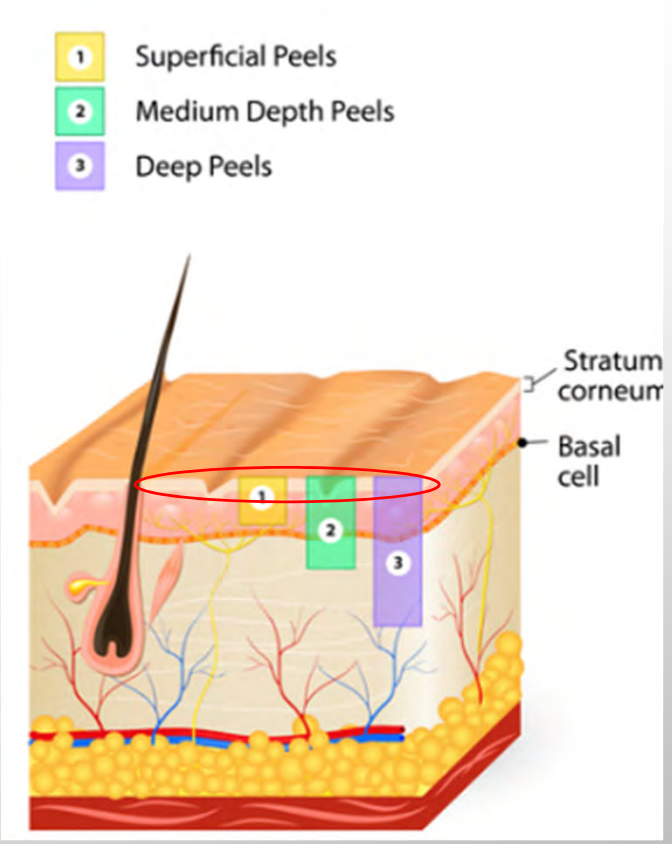
Classification of Chemical Peels by Depth of Injury			
Peel Type	Depth (um)	Level Injury	Agent
Superficial- very light	<100	Exfoliating stratum corneum, +/- stratum granulosum	Low potency AHA Salicylic acid 10-20% TCA Retinoic acid
Superficial- light	100	Necrosis of entire epidermis to basal layer, stimulate regeneration of new epithelium	40-70% GA/AHA 22-30% TCA Jessners solution ViPeel
Medium depth	200	Wound epidermis and papillary dermis, +/- upper reticular dermis; new collagen production	22-50% TCA (not recommended) Jessner + 35% TCA 70% glycolic+ 35% TCA Hetter VL (phenol)
Deep	>400	Necrosis of part or all mid reticular dermis; new collagen production	>50% TCA Hetter Baker-Gordon peel

Modified from Table 1: Facial Plast Surg. 2014 Feb;30(1):26-34. doi: 10.1055/s-0033-1364220. Epub 2014 Jan 31.



VIPEEL: LIGHT TO MEDIUM DEPTH PEEL

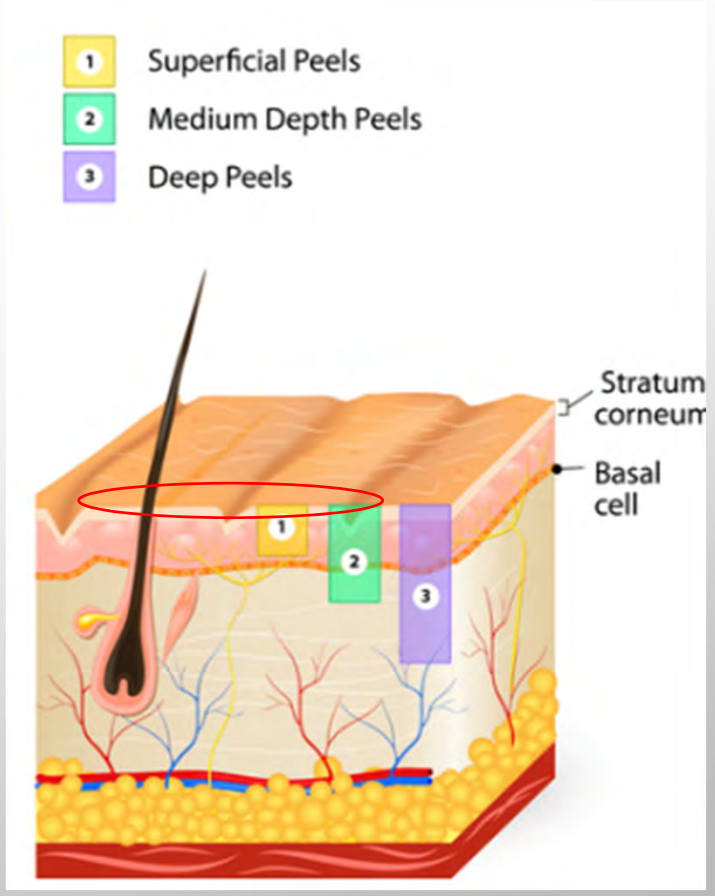
- The Vi Peel is a premixed formula containing TCA (10–12% in alcohol), phenol (10–12%), salicylic acid (10–12%), tretinoin (0.1–0.4%), and 4% vitamin C
- Can use on face, eyelids, chest, hands and back
- Phenol is numbing
- Phenol concentration is low, so do not need cardiopulmonary monitoring



Facial Plast Surg. 2014 Feb;30(1):26-34. doi: 10.1055/s-0033-1364220. Epub 2014 Jan 31.

JESSNERS PEEL:

- Light to medium peeling
- Components:
  - Salicylic acid
  - Resorcinol (protein coagulation and necrotizing)
  - AHA (lactic acid)
  - Ethanol (96%)



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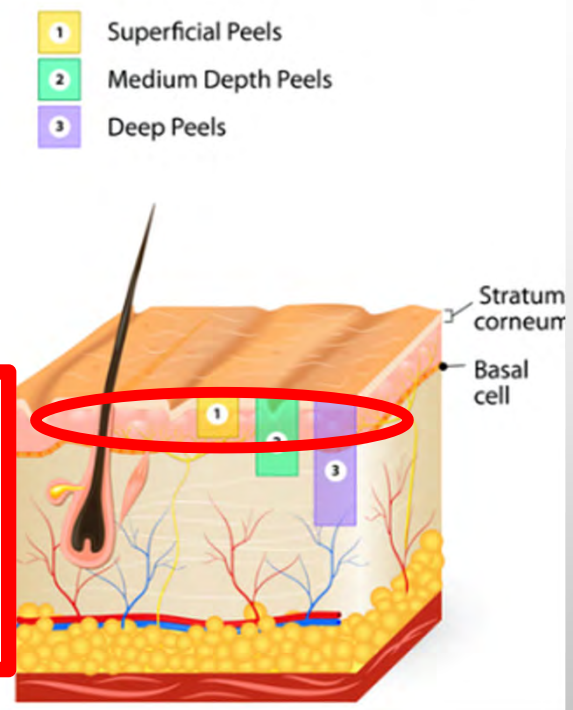


MEDIUM - DEPTH PEELS

- **Medium-depth peels** are generally done as a single procedure (or every 3-12 mos) due to the level of wound injury and the continued clinical improvement months after treatment
- **Classic medium-depth peel was 40 to 50% TCA** because of its ability to improve fine rhytides, actinic damage, and "preneoplasias"
  - generally no longer used as a single-agent peel due to the high risk of complications, namely, scarring and dyspigmentation, when TCA >50%
- **Current use** of medium-depth chemical peels utilizes 35% TCA with an initial application of a "priming" agent, such as **Jessner solution,** 70% glycolic acid
- As a result of the damage to the epidermis produced with the initial peel, the level of TCA penetration is deep and better controlled

COMBINATION MEDIUM DEPTH PEELS

- **Combination peels** are thought to be as effective, but with **better** safety profile as compared to 50% TCA
- **Coleman** peel - 70% glycolic acid + 35% TCA peel
- **Monheit** peel - Jessner solution + 35% TCA peel
- *** Of note, **glycolic acid peels** need to be neutralized within 2 minutes to inhibit further penetration of the chemical agents

FUNDAMENTALS OF COSMETIC SURGERY 0733–8635/01 $15.00 + .00

MEDIUM-DEPTH CHEMICAL PEELS

Gary D. Monheit, MD

Table 1. AGENTS FOR MEDIUM-DEPTH CHEMICAL PEEL

Agent	Comment
TCA—50%	Not recommended because of risk of scarring
Combination—35% TCA-solid CO_2 (Brody)	The most potent combination
Combination—35% TCA-Jessners (Monheit)	The most popular combination
Combination—35% TCA-70% Glycolic (Coleman)	An effective combination
89% Phenol	Rarely used

Monheit. Dermatol Clin. 2001 Jul;19(3):405-11.
Jackson. Facial Plast Surg. 2014 Feb;30(1):26-34. doi: 10.1055/s-0033-1364220. Epub 2014 Jan 31.

OBAGI (TCA) BLUE PEEL

- TCA coagulates proteins, smooths deep wrinkles and tightens
- Can be superficial or medium depth peeling
- 10% can be used for epidermal (superficial) peel
- Don't use greater than 20-25% on skin with decreased pilosebaceous units (i.e. neck/chest), since increased scarring
- However, be aware that VOLUME of TCA peel (even lower concentrations) can be made to penetrate to a particular depth

TCA-Based Blue Peel: A Standardized Procedure with Depth Control

ZEIN E. OBAGI, MD,* SUZAN OBAGI, MD,† SAMER ALAITI, MD,‡,§
AND MICHAEL B. STEVENS, MD, PHD§

*Obagi Dermatology, Plastic Surgery and Laser Center, Beverly Hills, California; †University of Pittsburgh Medical Center, Pittsburgh, Pennsylvania; ‡University of Southern California, Los Angeles, California; and §University of California, Los Angeles, California

- Mixing a set volume of TCA and blue dye (glycerin, saponins, nonionic blue color base)
- More homogeneous TCA-oil-water solution
- Delayed penetration
- Allows to stop at desired depth if doing medium peel, and increasing safety margin
- This results in SOLID white frost (only ok for facial skin

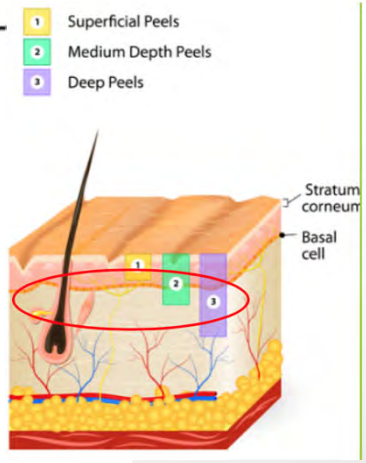
Obagi et al 1999

ISSN: 1076-0521/99/$14.00/0 • Dermatol Surg 1999;25:773–780

STUDY

A Comparison of the Efficacy and Safety of Jessner's Solution and 35% Trichloroacetic Acid vs 5% Fluorouracil in the Treatment of Widespread Facial Actinic Keratoses

Naomi Lawrence, MD; Sue Ellen Cox, MD; Clay J. Cockerell, MD; Robert G. Freeman, MD; Ponciano D. Cruz, Jr, MD



- Split face study of 15 patients with widespread actinic damage
- Jessner-35% TCA has demonstrated **similar** resolution of widespread facial actinic keratoses as compared with 5-fluorouracil cream
- Prior to peel 2 week course of tretinoin cream at bedtime
- F/u of 12 mos with lasting results in both Jessner/TCA and 5FU group, and both produced 75% reduction in AKs

Lawrence N. Arch Dermatol. 1995 Feb;131(2):176-81.

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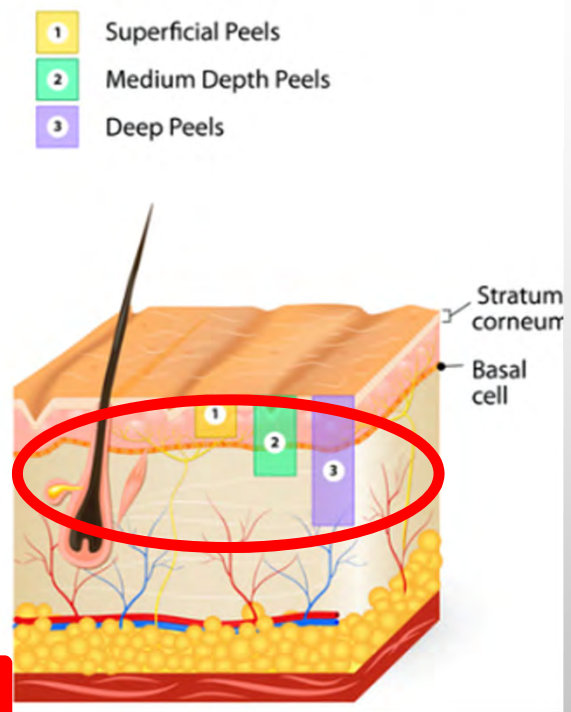


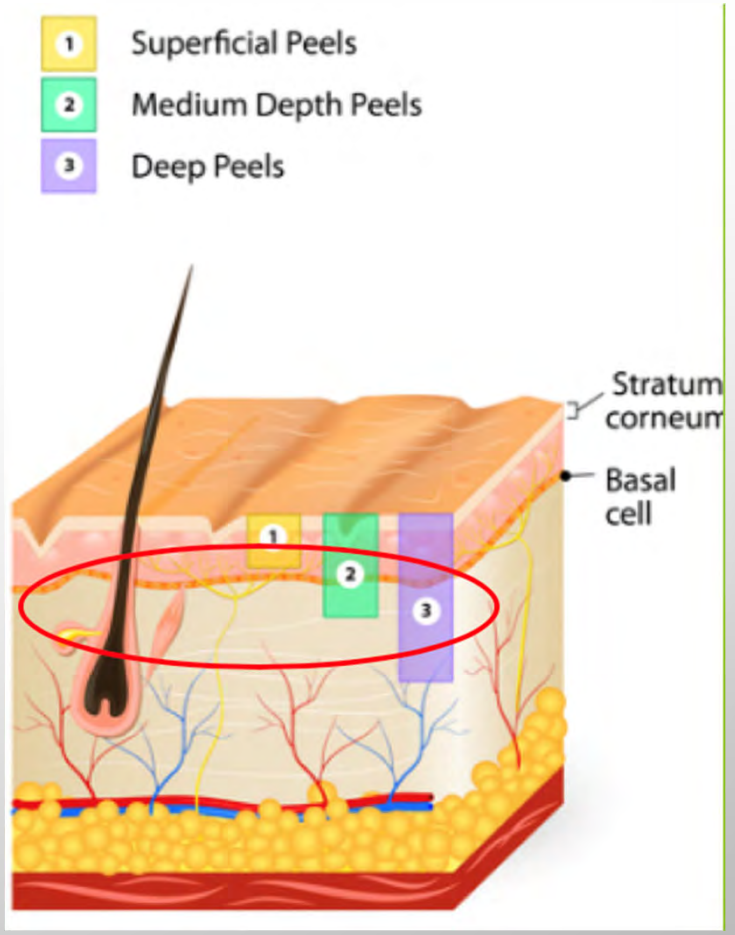
PEELING AGENTS IN DEEP PEELS – PHENOL AND CROTON OIL

- Phenol
  - Denatures proteins, inactivated enzymes, increasing permeability of cell membranes, inducing cell death, numbs skin
  - Goes to reticular dermis
  - ViPeel 10-14% phenol (light to medium peel) and doesn't require monitoring

- Croton oil
  - Concentration determines the depth of the peel
- Baker/Gordon Peel 50% croton oil and phenol (deep)
- Hetter 30% croton oil and phenol (deep, more control)
- Toxic at high concentrations to kidney, used to require IV placement, cardiac monitoring and prior lab testing

BAKER GORDON PEEL

- Baker gordon
  - Phenol + croton oil + septisol
  - High concentration of croton oil – DENSE FROST
  - Wounding to reticular dermis
  - Significant hypopigmentation can occur = “alabaster statue” appearance
  - Renal, cardiopulmonary toxicity and
  - Requires monitoring



Monheit 1995 Bensimon (*Aesthetic Surg J 2008;28:33–45.*)

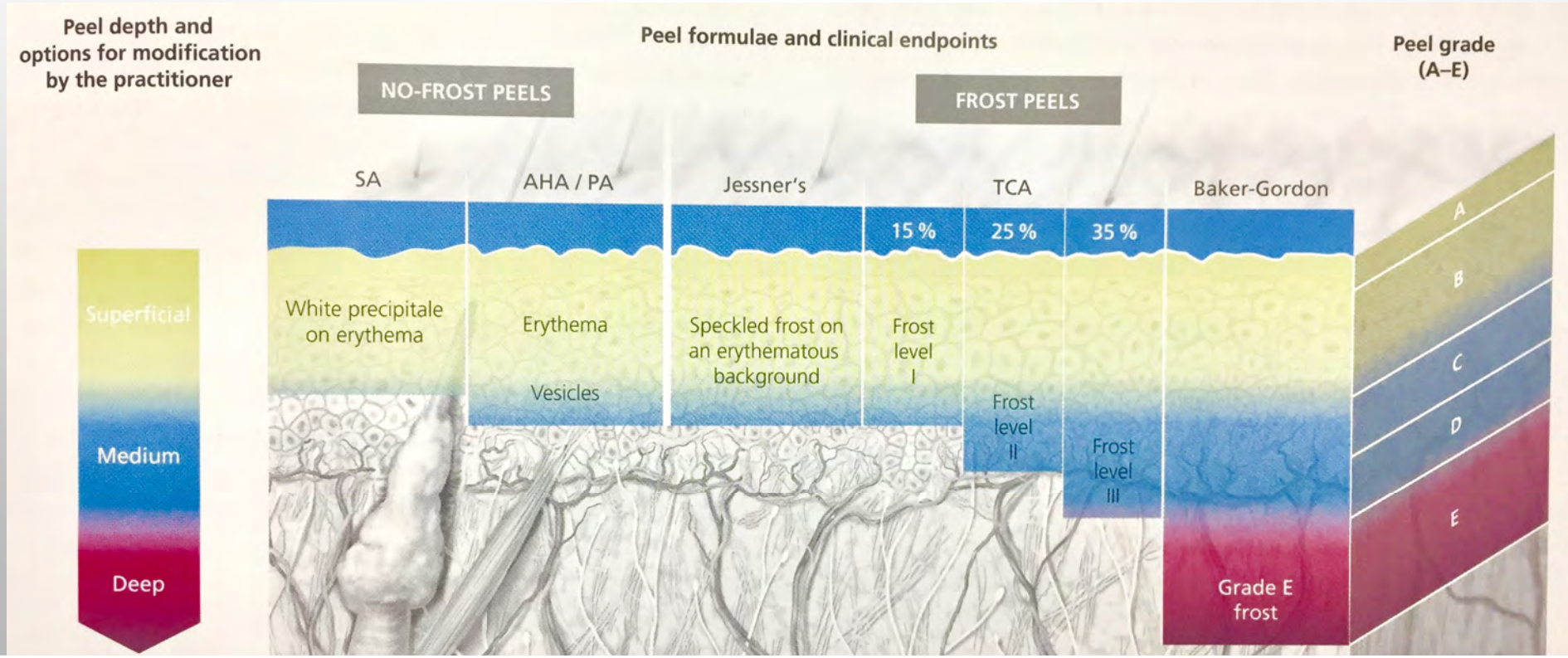
CLINICAL ENDPOINTS OF PEELS

- Crystallization at surface with salicylic acid (do not confuse with frosting – protein denaturation)
- Erythema
- Frost (salicylic acid, TCA)
- Speckled frost (Jessners is not confluent)

- *** Frost is different than laser where depth is set, so medium and deeper peels should only be performed by experienced practitioner

DEFROSTING IN ANY PEEL

- **Always watch for defrosting and remember areas already treated, since mistakenly can re-apply to already frosted and denatured area**



SKIN OF COLOR PATIENTS

- Deep peels should be avoided in skin type IV-VI
- Superficial and medium-depth peels can still be reliably used in this population
- Salicylic acid, glycolic acid and Jessners peels used for pseudofolliculitis barbae (PFB)

1. Duffy DM. Avoiding complications. In: Tung RC, Rubin MG, editors. Procedures in Cosmetic Dermatology Series: Chemical Peels (2nd ed). Philadelphia, PA: Saunders; 2011; pp. 151–72.
2. Salam A, Dadzie OE, Galadari H. Chemical peeling in ethnic skin: an update. Br J Dermatol 2013;169(Suppl 3):82–90.
3. Roberts WE. Chemical peeling in ethnic/dark skin. Dermatol Ther 2004;17:196–205
4. Monheit GD. Combinations of therapy. In: Tung RC, Rubin MG, editors. Procedures in Cosmetic Dermatology Series: Chemical Peels (2nd ed). Philadelphia, PA: Saunders; 2011; pp. 133–50.
5. Cortez EA, Fedok FG, Mangat DS. Chemical peels: panel discussion. Facial Plast Surg Clin North Am 2014;22:1–23.
6. Grimes PE. Chemical peels in dark skin. In: Tosti A, Grimes PE, De Padova MP, editors. Color Atlas of Chemical Peels. Berlin, Germany: Springer-Verlag Berlin Heidelberg; 2006; pp. 139–48.

SKIN OF COLOR PATIENTS

- Ethnic skin patients to avoid retinoids and other exfoliants at least 7 days before a peel to reduce risk of greater peel penetration and potential post- inflammatory pigmentary changes
- Pre-peel regimen that includes bleaching agents, such as hydroquinone, to mitigate induction of dyschromias

1. Duffy DM. Avoiding complications. In: Tung RC, Rubin MG, editors. Procedures in Cosmetic Dermatology Series: Chemical Peels (2nd ed). Philadelphia, PA: Saunders; 2011; pp. 151–72.
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PEELING SKIN OF COLOR PATIENTS

- In **skin of color pt,** it is recommended to start with **low concentrations** of peeling agents such as tretinoin, glycolic acid, salicylic acid, and Jessners solution
- These peels have a lower risk of postprocedure complications compared with superficial trichloroacetic acid (TCA) (25–30%) peels

Jackson A. Chemical peels. Facial Plast Surg. 2014 Feb;30(1):26-34. doi: 10.1055/s-0033-1364220. Epub 2014 Jan 31. PubMed PMID: 24488634.

PEELING SKIN OF COLOR PATIENTS

- When TCA concentrations of 10 to 30% are utilized in skin types IV to VI, **frost is not desired** in dark skin because it increases the risk of adverse events such as pigmentation and scarring
- Pre-condition the skin with HQ and retinoid, SPF for weeks to months before peeling

Jackson A. Chemical peels. Facial Plast Surg. 2014 Feb;30(1):26-34. doi: 10.1055/s-0033-1364220. Epub 2014 Jan 31. PubMed PMID: 24488634.

SALICYLIC ACID PEEL FOR ACNE SCARS

- Best peel results are achieved in macular scars, and icepick and rolling cannot disappear as easy
- Best chemical peel for **acne** scars is **salicylic acid** peels since help with acne as well
- Beta hydroxy acid agent which removes intercellular lipids that are covalently linked to the cornified envelope surrounding cornified epithelioid cells
- Persistent post-inflammatory hyperpigmentation or scarring are very rare and for this reason it is used to **treat dark skin**

Fabbrocini G, Annunziata MC, D'Arco V, De Vita V, Lodi G, Mauriello MC, Pastore F, Monfrecola G. Acne scars: pathogenesis, classification and treatment. Dermatol Res Pract. 2010;2010:893080. doi: 10.1155/2010/893080. Epub 2010 Oct 14. PubMed PMID: 20981308; PubMed Central PMCID: PMC2958495.
P. E. Grimes, "The safety and efficacy of salicylic acid chemical peels in darker racial-ethnic groups," *Dermatologic Surgery*, vol. 25, no. 1, pp. 18–22, 1999.

SALICYLIC ACID PEEL FOR ACNE SCARS (CONT)

- Salicylism:
  - Rapid breathing, tinnitus, hearing loss, dizziness, abdominal cramps, and central nervous system symptoms
  - salicylic acid toxicity
  - observed with 20% salicylic acid applied to 50% of the body (be cautious when peeling face, neck and back same day)

Fabbrocini G, Annunziata MC, D'Arco V, De Vita V, Lodi G, Mauriello MC, Pastore F, Monfrecola G. Acne scars: pathogenesis, classification and treatment. Dermatol Res Pract. 2010;2010:893080. doi: 10.1155/2010/893080. Epub 2010 Oct 14. PubMed PMID: 20981308; PubMed Central PMCID: PMC2958495.
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SALICYLIC ACID PEEL FOR ACNE SCARS

- salicylic acid 20% and 30%, performed at 2 week intervals

Grimes PE. The safety and efficacy of salicylic acid chemical peels in darker racial-ethnic groups. Dermatol Surg. 1999 Jan;25(1):18-22. PubMed PMID: 9935087.

SALICYLIC ACID PEEL AND ISOTRETINOIN FOR ACNE

- Literature classically contraindicated procedures during isotretinoin therapy
- Recent article showed that non-aggressive procedures such as light peels safe to use
- Karr et al in 2013 showed that 20% sal acid peels done at 2-wk intervals showed improved MASI scores sooner than isotretinoin alone probably due to decreased sebo-production
- Potential way to decrease inflammation with isotretinoin tx and see results sooner

	MASI (BL)	MASI (1)	MASI (2)	MASI (3)	MASI (4)
Group A	64.1±4.4	66.4±3.7	63.0±4.3	31.6±1.3	17.0±2.9
Group B	63.0±5.1	52.8±4.8	22.9±4.1	12.1±1.8	4.7±2.1
P value	0.3879	0.0001	0.0001	0.0001	0.0001

MSAI: Michaelson acne severity index, SD: Standard deviation

1. Spring et al. Isotretinoin and Timing of Procedural Interventions: A Systematic Review With Consensus Recommendations. JAMA Dermatol. 2017 Aug 1;153(8):802-809. doi: 10.1001/jamadermatol.2017.2077. Review. PubMed PMID: 28658462.
2. Kar BR, Tripathy S, Panda M. Comparative study of oral isotretinoin versus oral isotretinoin + 20% salicylic Acid peel in the treatment of active acne. J Cutan Aesthet Surg. 2013 Oct;6(4):204-8. doi: 10.4103/0974-2077.123403. PubMed PMID: 24470716; PubMed Central PMCID: PMC3884884.
3. Kontochristopoulos G, Platsidaki E. Chemical peels in active acne and acne scars. Clin Dermatol. 2017 Mar - Apr;35(2):179-182. doi:

CROSS TECHNIQUE FOR ACNE SCARS

- Chemical reconstruction of skin scars = CROSS
- When you don't have an ablative or non-ablative laser for acne scars
- When you have many ice-pick scars
- 90% TCA is often used, but lower TCA concentration (50%) has similar results and much less adverse reactions
- Would not perform in skin of color pt type >IV

Fabbrocini G, Annunziata MC, D'Arco V, De Vita V, Lodi G, Mauriello MC, Pastore F, Monfrecola G. Acne scars: pathogenesis, classification and treatment. Dermatol Res Pract. 2010;2010:893080. doi: 10.1155/2010/893080. Epub 2010 Oct 14. PubMed PMID: 20981308; PubMed Central PMCID: PMC2958495.

TCA VS CO2 FOR XANTHELASMA

- Both TCA **peeling** 70% and **carbon dioxide** laser ablation showed more significant clinical efficacy and tolerability with least number of sessions in the treatment of xanthelasma palpebrarum **than** 50% and 35% TCA **peeling**
- Post-therapy erythema and hypopigmentation seen more with TCA 70%
- Post-therapy hyperpigmentation was more with TCA (50%)

Mourad B, Elgarhy LH, Ellakkawy HA, Elmahdy N. Assessment of efficacy and tolerability of different concentrations of trichloroacetic acid vs. carbon dioxide laser in treatment of xanthelasma palpebrarum. J Cosmet Dermatol. 2015 Sep;14(3):209-15. doi: 10.1111/jocd.12148. Epub 2015 Aug 7. PubMed PMID: 26251333.

COMBINATION TX WITH PEELS FOR ACNE SCARRING

- Cochrane review did not support use of peel as first line as **monotherapy** or combination with other non-invasive treatments
- One study showed combining microneedling with 20% TCA peel, improved with NAFL
- CROSS technology 100% TCA comparable to 1,550 Erbium:glass fractional

1. Abdel Hay R, Shalaby K, Zaher H, Hafez V, et al. Interventions for acne scars. Cochrane Database Syst Rev 2016;4:CD011946.
2. Leheta TM, Abdel Hay RM, Hegazy RA, El Garem YF. Do combined alternating sessions of 1540 nm nonablative fractional laser and percutaneous collagen induction with trichloroacetic acid 20% show better results than each individual modality in the treatment of atrophic acne scars? A randomized controlled trial. J Dermatolog Treat 2014;25: 137–41.
3. Kim HJ, Kim TG, Kwon YS, Park JM, et al. Comparison of a 1,550 nm erbium: glass fractional laser and a chemical reconstruction of skin scars (CROSS) method in the treatment of acne scars: a simultaneous split-face trial. Lasers Surg Med 2009;41:545–9.

Comparison of a 1,550 nm Erbium:Glass Fractional Laser and a Chemical Reconstruction of Skin Scars (CROSS) Method in the Treatment of Acne Scars: A Simultaneous Split-Face Trial

- Er:Glass fractionated non-ablative laser treated **three times** 6 weeks apart
- CROSS treated **2 times** every 12 weeks
- Both as effective for acne scar tx (including ice-pick), but **laser** more effective in **rolling** scars
- Grades of **pain** was significantly more for **laser**
- **Downtime** and lasting days of **erythema** was more for CROSS
- F/u 3 mos after last treatment

Kim HJ, Kim TG, Kwon YS, Park JM, Lee JH. Comparison of a 1,550 nm Erbium: glass fractional laser and a chemical reconstruction of skin scars (CROSS) method in the treatment of acne scars: a simultaneous split-face trial. Lasers Surg Med. 2009 Oct;41(8):545-9. doi: 10.1002/lsm.20796. PubMed PMID: 19639620.

MELASMA AND PEELS

- Peels are most useful for the **epidermal-type melasma,** with the dermal type being almost resistant to the effect of chemical peels
- In patients with skin of color, however, the correct **choice of peel** as well as **priming** and **maintenance** regimens is essential in ensuring their efficacy while minimizing PIH
- Combination therapy is best approach to challenging cases

Pandya article on Melasma treatment: Rodrigues M, Pandya AG. Melasma: clinical diagnosis and management options. Australas J Dermatol. 2015 Aug;56(3):151-63. doi: 10.1111/ajd.12290. Epub 2015. Mar 9. Review. PubMed PMID: 25754098.

MELASMA AND PEELS (CONT)

- Recommended superficial peels for melasma include:
- TCA [10%–30%] peel
- Twice monthly salicylic acid peels [25%–30%]
- Combined peel with salicylic acid [25%] and TCA gel [10%]
- Monthly medium peels using pyruvic acid [40%]

1. Fabbrocini G, De Padova MP, Tosti A. Superficial to medium-depth peels: a personal experience. In: Tung RC, Rubin MG, editors. Procedures in Cosmetic Dermatology Series: Chemical Peels (2nd ed). Philadelphia, PA: Saunders; 2011; pp. 123–32.
2. Iorizzo M, Tosti A, De Padova MP. Melasma. In: Tosti A, Grimes PE, De Padova MP, editors. Color Atlas of Chemical Peels. Berlin, Germany: Springer-Verlag Berlin Heidelberg; 2006; pp. 149–59.
3. Nadela RE. Chemical peeling for melasma. In: Handog EB, Enriquez- Macarayo MJ, editors. Melasma and Vitiligo in Brown Skin. New Delhi, India: Springer; 2017; pp. 133–5.

MELASMA AND PEELS (CONT)

- Glycolic acid peels >50% work better with topical regimen like Kligman formula
- i.e. Kligman's formula -5% hydroquinone, 0.05% tretinoin and 1% hydrocortisone
- Pre-treatment with hydroquinone may enhance improvement but based on current studies, GA peels are best used as adjunctive therapy
- GA peels should be used with caution at higher concentrations in those with skin of color but at lower concentrations, they are the safest and most efficacious peels to use in this group

1. Fabbrocini G, De Padova MP, Tosti A. Superficial to medium-depth peels: a personal experience. In: Tung RC, Rubin MG, editors. Procedures in Cosmetic Dermatology Series: Chemical Peels (2nd ed). Philadelphia, PA: Saunders; 2011; pp. 123–32.
2. Iorizzo M, Tosti A, De Padova MP. Melasma. In: Tosti A, Grimes PE, De Padova MP, editors. Color Atlas of Chemical Peels. Berlin, Germany: Springer-Verlag Berlin Heidelberg; 2006; pp. 149–59.
3. Nadela RE. Chemical peeling for melasma. In: Handog EB, Enriquez- Macarayo MJ, editors. Melasma and Vitiligo in Brown Skin. New Delhi, India: Springer; 2017; pp. 133–5.

SALICYLIC ACID PEEL FOR MELASMA

- Salicylic acid 20%-30%
- Pre-treated with 4% hydroquinone for 2 wks
- Peels were performed at 2 week intervals

- Although another study showed SA and 4% HQ were equivalent in tx

Grimes PE. The safety and efficacy of salicylic acid chemical peels in darker racial-ethnic groups. Dermatol Surg. 1999 Jan;25(1):18-22. PubMed PMID: 9935087.

MELASMA AND PEELS: TCA

- While commonly used in concentrations of between 10–20% in lighter skin types with good short-term results for epidermal melasma, TCA peels should be used with caution in those with skin of color due to the risk of post- peel PIH and scarring
- Kumari and colleagues found, in a comparative study with 40 Indian women, similar efficacy between six TCA peels and 10–35% GA peels
- GA peels, however, were more tolerable with fewer side-effects and have rejuvenating properties than TCA peels
- Combination peels like ViPeels have smaller concentrations of TCA, and are more tolerable with less side effects

R, Thappa DM. Comparative study of trichloroacetic acid versus glycolic acid chemical peels in the treatment of melasma. Indian J Dermatol Venereol Leprol. 2010 Jul-Aug;76(4):447. doi: 10.4103/0378-6323.66602. PubMed PMID: 20657143.

DEEP PEELS IN MELASMA AND SKIN OF COLOR

- While peels are a reasonable adjunct in the treatment of melasma, they rarely suffice as monotherapy
- The decision to use medium peels in those with skin of color must be made with caution due to the risk of PIH
- In this group, superficial peels are the safest to use with hydroquinone pretreatment priming and careful post-procedure instructions on sun protection and ongoing topical therapy

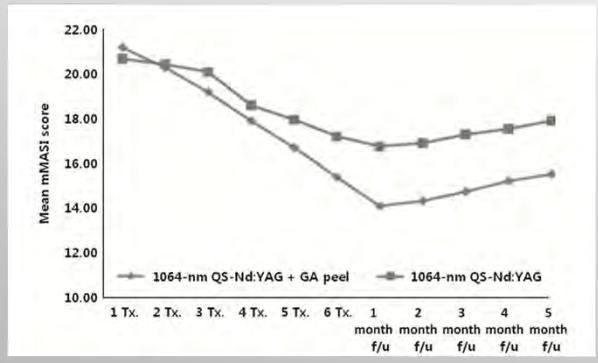
Split-face comparative study of 1550 nm fractional photothermolysis and trichloroacetic acid 15% chemical peeling for facial melasma in Asian skin

- Both 1550 FP and 15% TCA peeling improved melasma, but rebound occurred
- At the 12-week follow-up, patient assessment of improvement had significantly decreased, to approximately 25%, with respect to both treatment modalities
- No skin prepping was done for participants

Hong SP, Han SS, Choi SJ, Kim MS, Won CH, Lee MW, Choi JH, Moon KC, Kim YJ, Chang SE. Split-face comparative study of 1550 nm fractional photothermolysis and trichloroacetic acid 15% chemical peeling for facial melasma in Asian skin. J Cosmet Laser Ther. 2012 Apr;14(2):81-6. doi: 10.3109/14764172.2012.655287. Epub 2012 Feb 28. PubMed PMID: 22372386.

A randomized, observer-blinded, comparison of combined 1064-nm Q-switched neodymium-doped yttrium–aluminium–garnet laser plus 30% glycolic acid peel vs. laser monotherapy to treat melasma

- Mixed type melasma
- Weekly QS Nd:Yag with GA every 2 weeks vs GA alone
- Greater improvement for the combined therapy side 32.6% vs. 22.0%, $P < 0.001$
- Results maintained 5 months out from last tx



Park KY, Kim DH, Kim HK, Li K, Seo SJ, Hong CK. A randomized, observer-blinded, comparison of combined 1064-nm Q-switched neodymium-doped yttrium-aluminium-garnet laser plus 30% glycolic acid peel vs. laser monotherapy to treat melasma. Clin Exp Dermatol. 2011 Dec;36(8):864-70. doi: 10.1111/j.1365-2230.2011.04150.x. Epub 2011 Oct 5. PubMed PMID: 21973194.

Treatment of melasma in men with low-fluence Q-switched neodymium-doped yttrium-aluminum-garnet laser versus combined laser and glycolic acid peeling.

- Mixed type melasma in men
- 5 weekly sessions of LFQS on one side of the face and LFQS plus 30% GA peeling on the contralateral side and were followed for 12 weeks
- Partially rebound at 12 weeks f/u
- **Idiopathic guttate hypopigmentation** (8.3%)

Vachiramon V, Sahawatwong S, Sirithanabadeekul P. Treatment of melasma in men with low-fluence Q-switched neodymium-doped yttrium-aluminum-garnet laser versus combined laser and glycolic acid peeling. Dermatol Surg. 2015 Apr;41(4):457-65. doi: 10.1097/DSS.0000000000000304. PubMed PMID: 25760554.2. Kauvar AN. Successful treatment of melasma using a combination of microdermabrasion and Q-switched Nd:YAG lasers. Lasers Surg Med 2012;44:117–24.

Treatment of melasma in men with low-fluence Q-switched neodymium-doped yttrium-aluminum-garnet laser versus combined laser and glycolic acid peeling.

- **Idiopathic guttate hypopigmentation** (8.3%)
- Avoid aggressive or too frequent QS laser tx
- Use low fluences 1.5j/cm2 (Kauvar et al.)

- **Combination** peeling in darker skin types **with lower fluences** may be the future of

Vachiramon V, Sahawatwong S, Sirithanabadeekul P. Treatment of melasma in men with low-fluence Q-switched neodymium-doped yttrium-aluminum-garnet laser versus combined laser and glycolic acid peeling. Dermatol Surg. 2015 Apr;41(4):457-65. doi: 10.1097/DSS.0000000000000304. PubMed PMID: 25760554.2. Kauvar AN. Successful treatment of melasma using a combination of microdermabrasion and Q-switched Nd:YAG lasers. Lasers Surg Med 2012;44:117–24.

THANK YOU! ANY QUESTIONS?