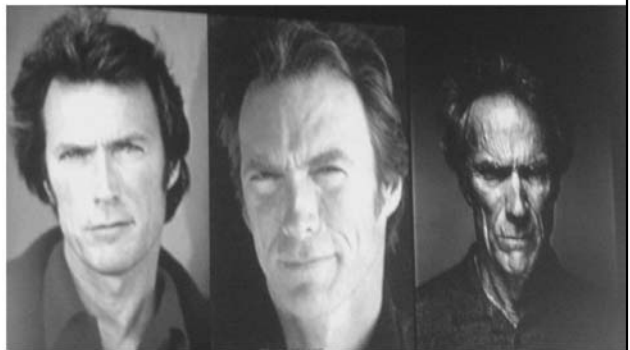


[연수강좌]

Transdermal augmentation

안 지 현

AnG클리닉

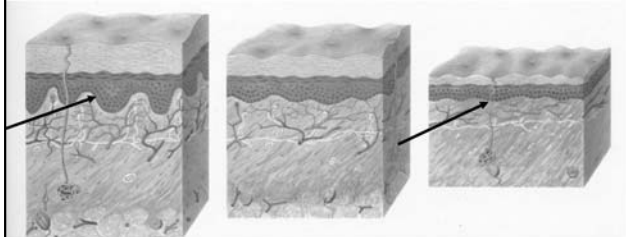




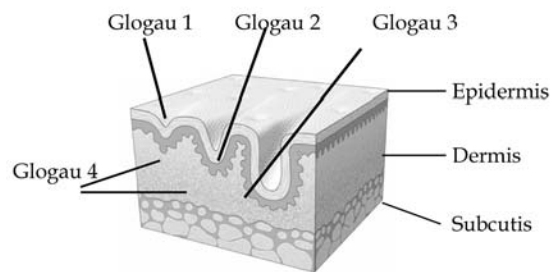
Ageing of skin texture

Symptoms

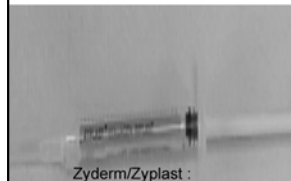
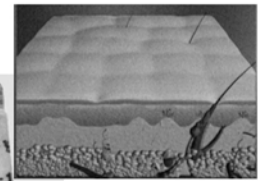
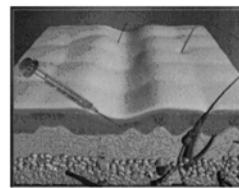
Flattening of the epidermis
reduction of collagen and Glucosaminoglycans and (!)

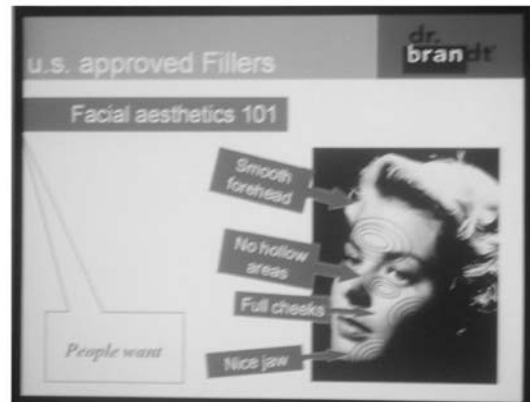


Depth of wrinkles according to Glogau skin ageing



2. Various Filler





The Perfect Filling Substance

- It must be easy to obtain or fabricate
- It has to be biodegradable or retrievable
- It must be nonteratogenic and noncarcinogenic
- It must provide proven, predictable, and persistent correction through reproducible implantation techniques
- The techniques should be easy to learn, produce results predictably, and be persistent

The Perfect Filling Substance(Cont.)

- It should require infrequent visits to maintain correction
- It must be noninflammatory, nonmigratory, and multipurpose
- It should be cost effective and have minimal malpractice potential
- It must be authority approved

History of Filler

Soft Tissue Augmentation

- Paraffin
- Silicone
- Gore-Tex
- Collagen
- Polymers & Synthetic
- Hyaluronic Acid

Available Filling Agents

- Autologous filling agents
 - Lipotransfer
- Homologous filling agents
 - Dermalogen, Alloderm, Cymetra, Fascian
- Heterologous filling agents
 - Zyderm, Zyplast, Fibrel

Available Filling Agents(Cont.)

- Foreign Filling Agents
 - Matridex, Teosyal, Juvaderm,
 - Restylane,
 - Polyacrylamide gel
 - Radiesse

Approved fillers

- 1. versatility
- 2. predicted result : injector confidence
- 3. durable : relative longer lasting
- 4. no species, or tissue

Limitations

- Technique dependent : start with little go slow
- Hurts more : assess need for anesthesia
- Safety for long-term results

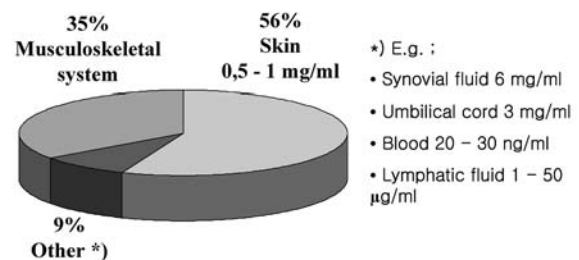
Fillers for Soft-Tissue Augmentation



Bovine collagen was the only FDA-approved product for soft-tissue augmentation for many years. More than 150 types of fillers are available worldwide. Currently approved fillers: hyaluronic acid gels, recombinant human collagen, injectable poly-L-lactic acid for HIV lipodystrophy. FDA is continuing to screen materials and approvals for additional fillers are anticipated.

Hyaluronic Acid

Hyaluronic Acid in the Body

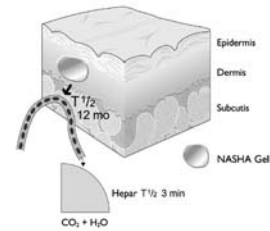


Character of HA

- High biocompatibility
- Hydrophilic – 1000 Times
- Non-selective species
- Linear polysaccharides
- D-glucuronic acid와 N-acetyl glucosamine의 반복되는 dimer(이중체)

Degradation

- Degradation – through the action of hyaluronidase & free radical
- Lymphatic drainage → blood circulation → Catabolism in sinusoidal liver
- Receptor mediated uptake & lysosomal hyaluronidase
- In blood, Half-life of HA is only a few min



In skin

- In skin half-life is < 24 hours
- In a normal human body about 3g of H·A is catabolized each day.

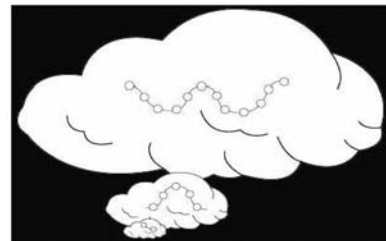
The stabilization is essential in order to improve the shelf life and the residence time.

Stabilization of HA

- Conversion of the viscous sol form to cross-linked hydrogel
- Resistance to degradation
- Retaining the biocompatibility & Pharmacological properties of native HA

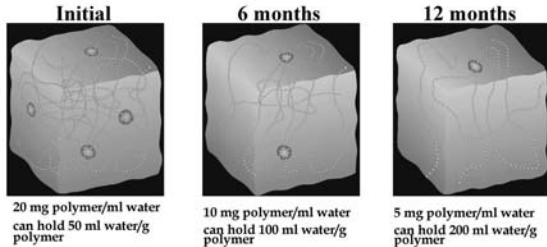
Water binding of Hyaluronic Acid

Dependence on molecular weight



Isovolemically degraded

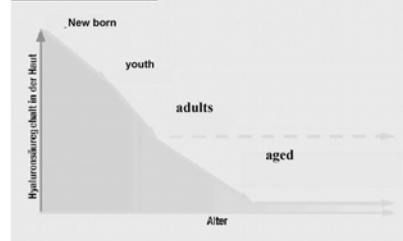
– because they can hold more water the less concentrated they are –



Decrease of hyaluronic acid



needs to be replaced

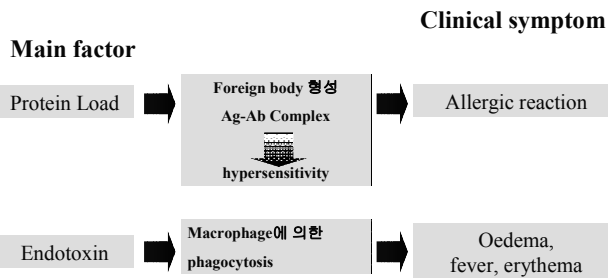


age	content of hyaluronic acid in the skin by age
19-47	0,0330%
60	0,015%
70	0,007%

Longas M; Evidence for structural changes in dermatan sulfate and hyaluronic acid with aging, Carbohydrate Research (1987) 159: 127-136

Klaus Fritz – Hautärzte und Laserzentrum Landau

Protein load & E.U level



What is a Good Filler? Safety

- Endotoxin Unit level : 0,2 EU/g (cf: EP 12.5EU/25mg)
 - 60 times
 - 열균공정에서 생성된 균체내독소
 - bacterial fermentation
 - 균주 : Stretococcus zooepidermicus



- Endotoxins이란?
 - pyrogen
 - fever
 - oedema
 - erythema, redness
 - ⇒ free radicals 생성

EXP)	ENDOTOXIN UNIT LEVEL
RESTITYLANE	0.5 Eu/g
TEOSYAL	0.2 Eu/g

	RESTYLANE	JUVEDERM	TEOSYAL
MANUFACTURER	Q-MED	LEADERM	TEOXANE
NATION	SWEDEN	FRANCE	SWISS
DISTRIBUTOR	CONTACT KOREA	WOORI TRADING	ORIENT
PROTEIN LOAD	107ppm/mg 155ppm/mg 13-17ppm/mg	39ppm/mg	39ppm/mg (2.7G, 30G)
ENDOTOXIN UNIT LEVEL	0.5 EU/G		0.2 EU/G
CONCENTRATION	20 mg	18 ~ 24mg	25mg(27G, 30G) 15mg(MESO)
DURATION	0.6 M ~ 1 YEAR	0.6 M ~ 1 YEAR	1 YEAR ~ 1.5 YEAR
GEL STRUCTURE	BIPHASIC ASPECT	MONOPHASIC ASPECT	MONOPHASIC ASPECT
DOSAGE	1 MI	1.2MI (0.6 x 2 Syr.)	2 MI (1 x 2 Syr.)
SPEC	RESTYLANE TOUCH RESTYLANE PERLANE	No.18 No.24 No.30	MESO 30G 27G

Matridex

- The hyaluronic acid derivative
- Partially cross-linked hyaluronic acid created via bacterial fermentation
- dextranomer
- It is biocompatible and biodegradable
- It is indicated for rhytides, depressions, and lip augmentation

Matridex의 Components

◆ Active components

Hyaluronic acid	25 mg
Cross-linked hyaluronic acid	25 mg
Hypromellose	15 mg
Dextranome DEAE	25 mg

◆ Excipients

L(+)-lactic acid	3.3 mg
Sodium chloride	6.9 mg
Phosphate buffer	
Water for injection	1 ml



What are HA & CL-HA?

◆ Hyaluronic acid

- 체내 구성물질로서 조직의 수분유지기능에 중요한 요소
- Hydration으로 인한 Augmentation 효과

◆ Cross-linked Hyaluronic acid

- HA가 쉽게 흡수되는 것을 보완 cross-link시킴.
- Insolubility in water, high hydration, viscoelasticity의 특징으로 지속력 증가

Ref) Journal of Biomedical Materials Research 1993;27:1129-34

Advantages of Hyaluronic Acid

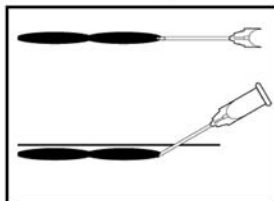
- Non-animal
- No skin test needed
- Biodegradable
- Instant result
- Long-lasting
- Hyaluronidase(Hylase)

Injection of Hyaluronic Acid

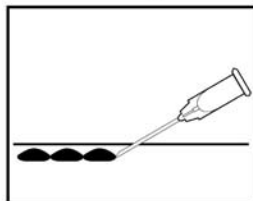
- Inject through 27 or 30 gauge needles
- Requires a full correction for the defect; but, not overcorrected
- After the injection, the material should be lightly massaged to conform to the contour of the surrounding tissue
- Additional implantation may be necessary to achieve the desired level of correction

Injection technique

Linear threading technique

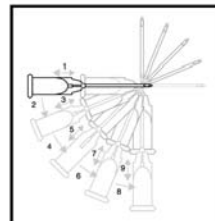


Serial puncture technique

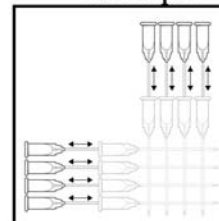


Injection technique

Fan technique



Cross-hatching technique



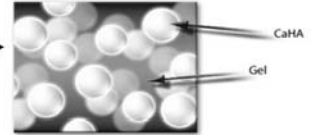
Calcium Hydroxylapatite for Soft-Tissue Augmentation



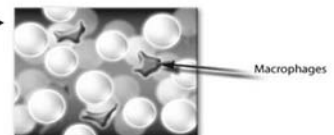
FDA-approved for vocal cords, as a tissue marker, and for periodontal use as a bony onlay
Approved for other usages in soft tissue, so found safe for soft-tissue use
Nasolabial fold and HIV Facial Lipatrophy studies are finishing 12-month follow-up after patient injections completed.

Mechanism of Action

- *Radiesse (CaHA+Gel) initially performs as a filler*

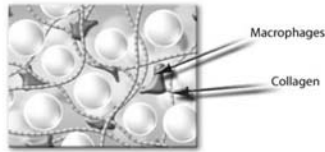


- *Macrophages start to degrade gel carrier (2-3 Months)*

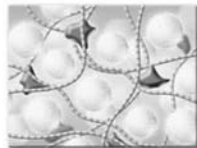


Mechanism of Action

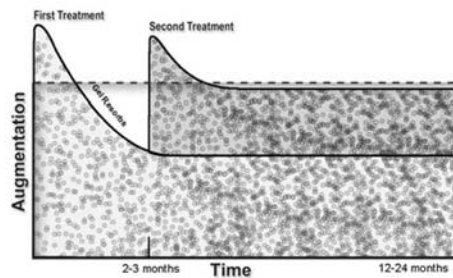
Macrophages dissolve gel carrier as new collagen forms "scaffold" around particles. Collagen surrounds microspheres of CaHA and provides for a long term augmentation (1-2 year augmentation)



CaHA particles start to degrade and are metabolized by macrophages (2-3 years)

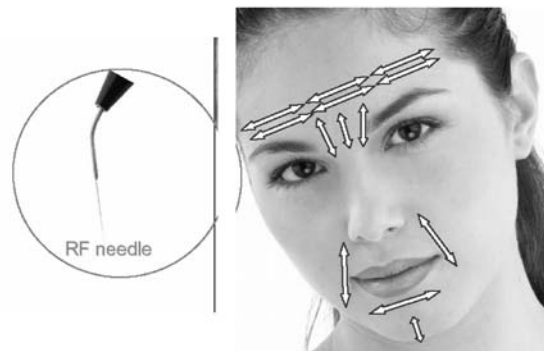


최적의 Follow-up time?

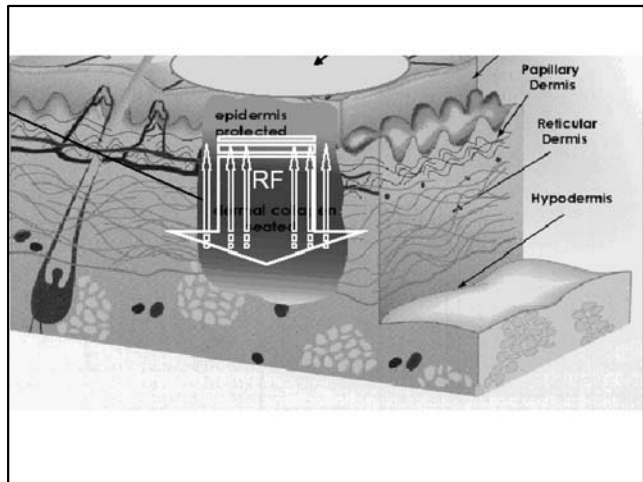
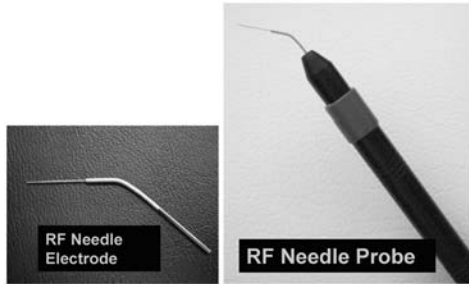


Radiesse advantage

- Long lasting results (up to 24 months)
- Immediate visible improvement
- Increased patient satisfaction
- No skin pre-testing required
- Natural product formulation — No animal or derived human components
- Superior versatility – can shape and contour face



RF NEEDLE PROBE

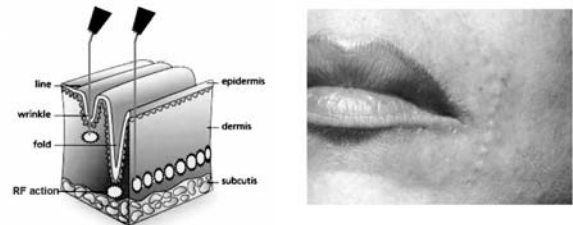


Fibrologie

- Specific and precise RF energy delivered into target tissue.
- 1. inflammatory reaction & collagen retraction, edema
- 2. fibroblasts stimulation
- 3. new collagen & elastin network organisation

FIBROLOGIE™ SUBRADIO TREATMENT

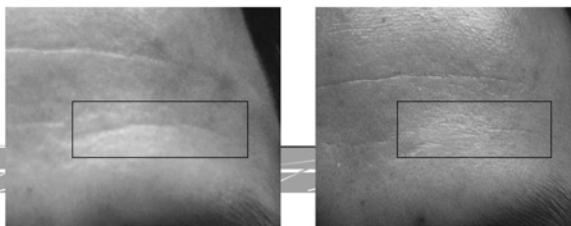
- Sub Sub-Radio Probe Radio Probe™



1. 이마주름

Before

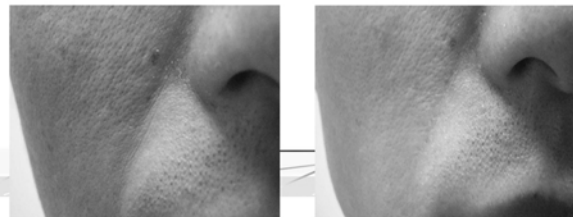
After



2. 팔자주름

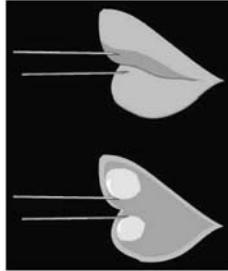
Before

After



Lip augmentation

- fullness of the lip -



Before



After



Before



After



Before



After



Before



After



Before



After



[Transdermal augmentation]

