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A review of hydrolifting: A new modality for skin rejuvenation

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ABSTRACT

Background: Hydrolifting is a newly developed modality of skin rejuvenation, which enhances overall facial volume augmentation and recovers skin thickness through multi-pass HA injection. Although it is commonly performed, only a few articles have reported on the rejuvenating effects of hydrolifting. Moreover, clear protocols and possible mechanisms of the procedure have not been elucidated. **Objective:** To define a novel technique for injecting HA and to clarify how to choose an appropriate HA filler based on the procedural purpose. **Methods:** This article is based on a review of the medical literature and the authors' clinical experience in investigating and treating skin wrinkles with the hydrolifting method. **Results:** In hydrolifting, HA filler serves as a hydration source, dermal volumizer, and stimulator of dermal collagen and antioxidants. Hydrolifting is frequently indicated in minor wrinkles, minor volume depletion and rough skin texture. **Conclusion:** The hydrolifting method is a newly introduced antiaging treatment modality. It effectively covers the blind spots of conventional HA injection, such as infraorbital, perioral and hand dorsal wrinkles. However, further investigations are needed to reach a consensus on the basic concepts of treatment, choice of appropriate fillers and optimal technique in hydrolifting.

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Introduction

Aging skin typically shows wrinkles and sagging, as well as loss of laxity. This phenomenon is mainly affected by depletion of hyaluronic acid (HA), which is a major component of the dermal extracellular matrix. Since HA has the ability to hold 500 to 1,000 times more weight than its own, replenishing this component in skin can restore dermal volume and hydration (1). The conventional way to supplement HA in the skin is to directly inject it into the desired area with a needle or cannula. With this method, clinicians can effectively fill deep wrinkles such as nasolabial folds or marionette lines (2). However, the flaccidity and loss of skin elasticity on the aging face are hard to recover by filling just some lines or folds. In addition, numerous adverse events ranging from mild and transient to very severe have been reported. Therefore, there have been constant demands for rejuvenating procedures with less burden and more rapid recovery.

The hydrolifting technique is a newly developed modality of skin rejuvenation. It replenishes the reduced HA as it gets older, restoring facial volume. The difference between hydrolifting and conventional treatment using an HA filler is that the aim of conventional treatment is mainly volume effect. Hydrolifting is intended to rejuvenate overall skin in addition to creating a minor volume effect by inserting small amounts of filler with multiple passes of the injection.

Although it is commonly performed, few articles on filler rejuvenation have been published. This article defines a novel HA injection technique and clarifies how to choose an appropriate HA filler and inject it properly.

Roles of hyaluronic acid in hydrolifting

HA used in hydrolifting serves as a dermal hydration source and antioxidant, augments dermal and subdermal volume and increases dermal collagen synthesis (3). HA prevents skin dehydration by attracting 218 molecules of water per 1 HA molecule, and dermal or subcutaneous volume augmentation can be achieved according to the injected depth of HA filler (4). By stretching dermal fibroblasts, neocollagenogenesis is stimulated at each injection site. The transformation of activated procollagen to mature collagen can significantly improve the mechanical properties of the skin and increase the volume (5). Not only neocollagenogenesis, but interaction between HA and fat tissue may lead to long-term increase in the tissue volume (6). HA filler can help differentiation of adipose-derived stem cells (ADSCs) into mature adipocyte and may be connected with hypertrophy of these adipocytes, which can lead to tissue volume increase (7). In addition, HA is a well-known antioxidant that scavenges ultraviolet-induced free oxidative radicals through self-degradation of its polysaccharide chains (8).

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As described above, hydrolifting mainly handles other roles rather than having a definite lifting effect. Therefore, hydrolifting is not solely a lifting procedure to tighten facial wrinkles. We suggest the concept of hydro-filling plus hydro-balance, as compared to hydro-lifting. This is an antiaging treatment to recover minor volume loss in the face with hydration, collagen synthesis, and removal of free radicals.

Selection of filler in hydrolifting

Almost all HA fillers are available for hydrolifting. However, it is important to select suitable HAs to match the purpose of the procedure.

Noncross-linked HA vs. cross-linked HA

Noncross-linked HA has a little volumizing effect and a shorter duration compared to cross-linked HA. However, it has the ability to diffuse very well to peripheral tissues and shows very low incidence of post-procedural lump formation, so it is appropriate for hydration of the periorbital areas, where the skin is thin and dry. In contrast, cross-linked HA can be utilized for areas other than the periorbital area due to its highly volumizing effect and longevity (Table 1).

Cross-linked HA: monophasic vs. biphasic

HA fillers can be divided into two families based on elasticity—biphasic HA (e.g., Restylane[®], Yvoire[®]) and monophasic HA (e.g., Belotero[®], Juvederm[®], Teosyal[®]). Each type of filler can be chosen according to the procedural purpose and the patient's condition.

In general, biphasic fillers are preferred when a massive volumizing effect and longevity are required. If injected in the shallow dermal layer, however, it may produce intractable filler lumps. Therefore, it is better to inject biphasic filler into the deep dermis or subdermal levels. In contrast, monophasic filler is favored for moderate volume and duration, while dermal injection is possible due to its lower elasticity and tendency to form fewer lumps. We suggest monophasic

filler for thinner skin and biphasic filler for thicker skin, based on our clinical experiences.

Selection of HA fillers

Because every product differs based on HA concentration, particle size, and degree of cross-linking, practitioners should be aware of individual characteristics of each filler product made by numerous companies. Manufacturers usually suggest diverse product lineages according to the volume, which can be classified into heavy/middle/light/very light groups (Table 2).

Longevity of fillers depends on the degree of cross-linking, injection technique and site, and HA contents (9). In addition, filler products with higher concentrations of HA or larger particles can offer a more optimal volumizing effect and more durable longevity, although they also have longer downtime. Products with lower concentrations and smaller particles would provide the opposite. Therefore, fillers in hydrolifting procedures should be selected considering the injection sites, patient characteristics and cost. Practically, we have generally chosen light/very light products for biphasic types and middle/light/very light groups for monophasic types, as described in Table 2.

Hydrolifting technique

Injection technique plays a crucial role in hydrolifting. This results from the difference between the recommended injection depth and the actual injected depth. Practically, it is hard to identify the injected depth during the procedure. Therefore, it is necessary to define the meaning of injection techniques and to standardize them.

Intradermal injection

Papule technique

Schematically, filler should be injected in the center of the dermis as a spherical shape (Figure 1A), which is not easy in practice. Clinicians estimate the injection depth based on experience, because it is impossible to identify the injected position. Arlette et al. histologically evaluated the anatomic location of injected HA filler within the nasolabial fold (NLF) skin of 16 patients, which revealed that HA filler localized to the subcutis in all 16 cases (10). This means that fillers are usually injected to the subcutis level rather than into the dermis. Therefore, the papule technique is needed for precise dermal injection. Practitioners may observe small lumps right after intradermal injection; if this is not the case, the injection may have been subdermal.

Table 1. Comparison between noncross-linked HA and cross-linked HA.

	Noncross-linked HA	Cross-linked HA
Viscosity	Low	High
Price	Low	High
Volumizing effect	(-)	(+)
Duration	Short	Long
Lump formation	(-)	(±)
Effect	Biostimulation	Structural support
	Hydration	Space filling
Target area	Thinner skin area (periorbital)	Except periorbital area

Table 2. Classification of HA fillers according to volume effect.

Manufacturer	Huons [®]	Merz [®]	Allergan [®]	Teoxane [®]	Galderma [®]	LG [®]
Characteristics	Monophasic			Biphasic		
Heavy	Elravie [®] Ultradeep	Belotero [®] Volume /Intense	Voluma [®]	Teosyal [®] Ultradeep	Restylane [®] SubQ	Yvoire [®] Contour
Middle	Elravie [®] Deepline	Belotero [®] Basic		Teosyal [®] Deepline /Kiss	Perlane [®]	Yvoire [®] Volume
Light	Elravie [®] Light		Volbella [®]	Teosyal [®] Global action	Restylane [®]	Yvoire [®] Classic
Very light	-	Belotero [®] Soft		-	Restylane [®] Vital	Yvoire [®] Soft

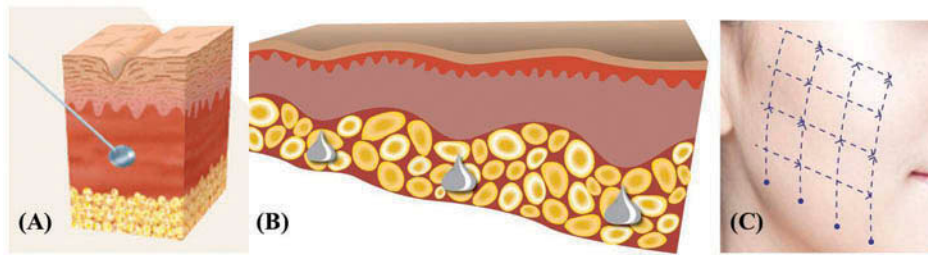


Figure 1. (A) Papule technique: HA filler should be injected in the center of the dermis, which clinically results in wheal-like papules. (B) Kisses technique: 1-cm interval injections in vertical or diagonal direction to skin surface (C) Matrix technique: a method of 1-cm interval injection in a reticular pattern, parallel to skin surface.

Progress for each filler

HA fillers appropriate for the papule technique should be chosen. Their properties depend on the HA concentration and particle size. Highly concentrated HA fillers with large particles should be avoided due to the longer duration of intradermal lump formation. HA fillers with low concentrations and small particles are appropriate for the papule technique.

Monophasic fillers

Belotero Soft® (20 mg/cc), for example, can be utilized in the face, neck, and hands using the papule technique. The immediate lump usually disappears after 1–2 days after the procedure (Figure 2). In contrast, Belotero Balance® (22.5 mg/cc) induces durable lumps for up to 2–3 days on the face and hand dorsi and for 2–3 months for the neck. Therefore, Belotero Balance® is inappropriate for the papule technique on the neck.

Biphasic fillers

Restylane Vital® (20 mg/cc), for example, is a biphasic filler which leads to different lump formation based on the procedure site and skin thickness.

- For thinner skin, lumps remain for up to 16 days after the papule technique (0.02 ml/shot, 10-point injection) on the anteromedial cheek, using a 30-gauge needle.
- For thicker skin, lumps subside 5 days after injection with the same technique.

- Even in the perioral area and chin, which have thick skin, lumps disappear the day after the procedure (0.02 ml/shot, 70-point injection).
- Intradermal injection of 0.02 ml HA fillers with a 30-gauge needle leaves lumps for as long as 8 months on the neck.
- For the hand dorsum, lumps subside 2 days after the same injection technique.

The most disabling side effect of intradermal injection in the hydrolifting technique is the formation of lumps. Therefore, appropriate technique, which considers skin thickness, filler characteristics, concentration, and molecular size, is necessary.

Subdermal injection

The aging face often results from facial volume depletion and wrinkles, which can be improved through filler injection. The main purpose of subdermal injection is to replenish minor volume depletion instead of hydration. HA is expressed during adipocyte differentiation; the depletion of HA content reduced the adipogenic differentiation of preadipocytes *in vitro* as well as abdominal fat accumulation in C57BL/6J mice (11). Multiple applications of a hyaluronidase resulted in significant (up to 35%) reductions of fat mass in the same mouse strain with simultaneous reduction of adipocyte size (12,13). Recent studies have reported that changes in adipocyte derived stem cells, adiponectin and leptin might be related to skin aging, which leaves HA as a potential agent



Figure 2. (A) Immediately and (B) 1 day after hydrolifting procedure with Belotero Soft® (20 mg/ml) 1 ml divided to 70 points of 0.015 ml. No distinct lumps are observed after 1 day.

for regulating those components and rejuvenating skin (14,15).

In our clinic, combination intradermal and subdermal injection is practiced, which can induce collagenogenesis and hydration through the intradermal procedure and volume augmentation through the subdermal technique.

Kisses technique

The kisses technique can be defined as 1-cm interval injections vertical or diagonal to the skin surface (Figure 1B). The injected filler may have a shape of cone, which is similar to that of Kisses® chocolate. Filler should be placed in a resistance-free area met after a maximally resistant spot found while penetrating the dermis.

Matrix technique

The matrix technique involves 1-cm interval injections in a reticular pattern, parallel to the skin surface (Figure 1C). This technique is preferred for structural support and volumizing effect.

Filler selection

HA fillers used for subdermal injection should be more concentrated and should have larger particles than those used for the papule technique. For example, Belotero Balance® or Restylane® can be utilized.

Injected amount and interval

In total, 0.01–0.03 ml of HA filler per injection point can be injected in either the dermal or subcutaneous position with needles or cannulas. A cannula cannot be applied for dermal injection and can be used for subdermal injection in order to minimize bruising, swelling and lumps.

Indications for hydrolifting

Hydrolifting is indicated for minor wrinkles, minor volume depletion, dryness, roughness, and low elasticity.

Face: periorbital and perioral area

- Periorbital area

The strength of hydrolifting is that it can treat minor wrinkles between the eyelids and tear troughs, which is difficult with conventional methods. Volume depleted areas can be managed with low concentrated cross-linked HA filler with small particles, while minor wrinkles can be treated with noncross-linked HA (Figure 3).

- Perioral area

Dynamic wrinkles, minor wrinkles, and volume depletion around the mouth are major indication for hydrolifting. If downtime is unwanted, low concentrated cross-linked HA

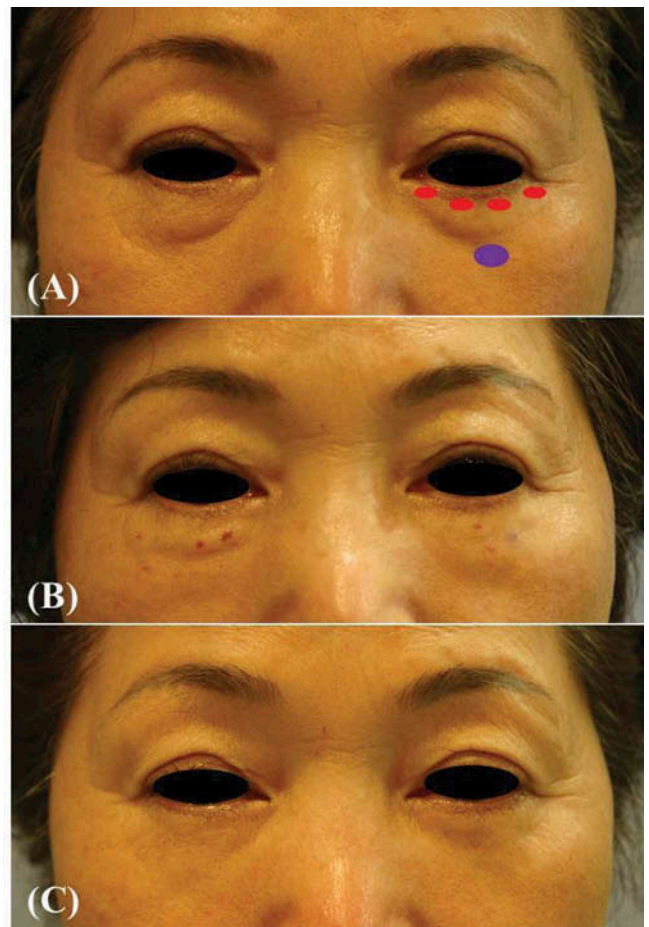


Figure 3. (A) Before, (B) 1 day and (C) 2 months after suborbital hydrolifting. 0.015 ml of fillers was intradermally injected along the red colored dots. Subdermal injection of 0.3 ml fillers was done at the purple colored point. The procedure was performed twice at four-week interval.

with small particles is appropriate. In contrast, moderately concentrated HA fillers with medium sized particles are appropriate if the volumizing effect and durability are more important than downtime.

Hand dorsum

Due to procedural complexity, only limited treatment modalities were introduced, such as fat graft or peeling. When applied to the hand dorsum, hydrolifting can lead to volume augmentation and hydration without significant downtime (Figure 4).

Clinical effects of hydrolifting

Generally, the short-term (days to weeks) effects after hydrolifting show low intersubject variations. Shortly, hydrolifting can improve minor wrinkles, minor cutaneous volume depletion, dryness, roughness, and enhance skin elasticity. These are connected to direct volume replenishment at the target area via injected filler or its mechanical expansion (5).

However, the clinical results can often be observed even after full biodegradation of the injected filler. This is what we call the long-term effects of hydrolifting. In our personal

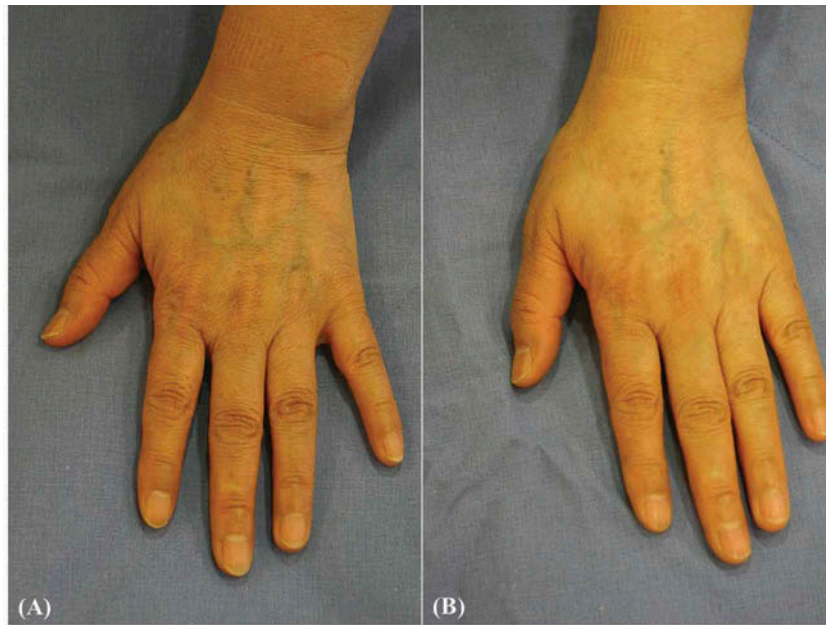


Figure 4. (A) Before and (B) 4 weeks after hydrolifting on hand dorsum. 0.6 ml of Belotero Balance[®] was intradermally injected, divided to 0.015 ml per point (total 40 points) with 33 gauge needle. (B) shows improvement of minor wrinkles and skin laxity.



Figure 5. (A) Before, (B) 6 months, and (C) 1 year after hydrolifting on the full face. Total 3ml of Restylane Vital[®] was injected for three times with 1-month intervals. It shows gradual improvement of skin laxity and coarseness.

experience, hydrolifting can both enhance the volume and rejuvenate the skin. Kerscher et al. has also reported that skin elasticity was enhanced after three hydrolifting procedures (16,17). **Figure 5** shows gradual improvement of skin laxity and coarseness 6 months and 1 year after injecting 3 ml of Restylane Vital[®] each month.

The prolonged efficacy in hydrolifting cannot be sufficiently explained solely by activation of dermal fibroblasts due to HA fillers, because procollagen induced by filler injection can easily be degraded by matrix metalloproteinases (18). Another hypothesis is that HA interacts with subcutaneous tissue and induces stress response (19). Due to its enormous water-binding capacity, injected HA causes an expansion of adipocytes, which enhances fibroblast activity and proliferation. Also, HA provides a protective scaffold and optimized microenvironment

for expansion and differentiation for adipose tissue-derived mesenchymal stem cells (ADMSCs) (20). Moreover, since HA itself serves as a potent antioxidant and hydrator, it can recover damaged skin. This could explain the prolonged effect of hydrolifting. In addition, subjective complaints of sensitive, erythematous and itchy skin decreased dramatically.

Treatment schedule

Noncross-linked HA

- (1) Mild skin aging—Twice at a 3-week interval, followed by maintenance treatments 2–3 months apart.
- (2) Severe skin aging—Three times at 2-week intervals, followed by maintenance treatments 2 months apart.

Cross-linked HA

- (1) Low level HA—Twice at a 6-week interval, followed by maintenance treatments 4–6 months apart.
- (2) Medium level HA—Twice at an 8-week interval, followed by maintenance treatments 6–8 months apart.

Side effects

Allergic reactions to HA filler are rare, but should be considered if redness, itching and swelling occur (21). To prevent bruising, practitioners should select fine needles with small outer calibers and large inner calibers. Generally, the neck area is prone to bruising longer than the face (22). In perioral wrinkles, vertical injection of fillers reduces the occurrence of bruising compared to the fern pattern injection. Swelling and redness usually subside after 2–3 hours. Lump formation depends on the concentration, size and injection depth (23). If problematic, hyaluronidase can resolve the mass.

Conclusion

The hydrolifting method is a newly introduced anti-aging treatment modality. It effectively covers the blind spots of conventional HA injection, such as infraorbital, perioral and hand dorsal wrinkles and minor volume loss. However, further evaluation and investigation are needed to reach a consensus on the basic concepts of treatment, filler choice, and optimal techniques in hydrolifting.

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None.

Conflicts of interest

None declared.

References

1. Roh NK, Kim MJ, Lee YW, Choe YB, Ahn KJ. A split-face study of the effects of a stabilized hyaluronic acid-based gel of nonanimal origin for facial skin rejuvenation using a stamp-type multi-needle injector: a randomized clinical trial. *Plast Reconstr Surg*. 2016;137(3):809–16. doi:10.1097/01.prs.0000480686.68275.60.
2. De Felipe I, Redondo P. The liquid lift: looking natural without lumps. *J Cutan Aesthet Surg*. 2015;8(3):134–38. doi:10.4103/0974-2077.167267.
3. Trabucchi E, Pallotta S, Morini M, Corsi F, Franceschini R, Casiraghi A, Pravettoni A, Foschi D, Minghetti P. Low molecular weight hyaluronic acid prevents oxygen free radical damage to granulation tissue during wound healing. *Int J Tissue React*. 2002;24(2):65–71.
4. Baspeyras M, Rouvrais C, Liegard L, Delalleau A, Letellier S, Bacle I, Courrech L, Murat P, Mengesaud V, Schmitt AM. Clinical and biometrological efficacy of a hyaluronic acid-based mesotherapy product: a randomised controlled study. *Arch Dermatol Res*. 2013;305(8):673–82. doi:10.1007/s00403-013-1360-7.
5. Kruglikov IL, Wollina U. Soft tissue fillers as non-specific modulators of adipogenesis: change of the paradigm? *Exp Dermatol*. 2015;24(12):912–15. doi:10.1111/exd.12852.
6. Driskell RR, Jahoda CA, Chuong CM, Watt FM, Horsley V. Defining dermal adipose tissue. *Exp Dermatol*. 2014;23(9):629–31. doi:10.1111/exd.12450.
7. Cristancho AG, Lazar MA. Forming functional fat: a growing understanding of adipocyte differentiation. *Nat Rev Mol Cell Biol*. 2011;12(11):722–34. doi:10.1038/nrm3198.
8. Andre P. Hyaluronic acid and its use as a “rejuvenation” agent in cosmetic dermatology. *Semin Cutan Med Surg*. 2004;23(4):218–22. doi:10.1016/j.sder.2004.09.002.
9. Wollina U. Facial rejuvenation starts in the midface: three-dimensional volumetric facial rejuvenation has beneficial effects on nontreated neighboring esthetic units. *J Cosmet Dermatol*. 2016;15(1):82–88. doi:10.1111/jocd.2016.15.issue-1.
10. Arlette JP, Trotter MJ. Anatomic location of hyaluronic acid filler material injected into nasolabial fold: a histologic study. *Dermatol Surg*. 2008;34(Suppl 1):S56–62.
11. Ji E, Jung MY, Park JH, Kim S, Seo CR, Park KW, Lee EK, Yeom CH, Lee S. Inhibition of adipogenesis in 3T3-L1 cells and suppression of abdominal fat accumulation in high-fat diet feeding C57BL/6J mice after downregulation of hyaluronic acid. *Int J Obes (Lond)*. 2014;38(8):1035–43. doi:10.1038/ijo.2013.202.
12. Kang L, Lantier L, Kennedy A, Bonner JS, Mayes WH, Bracy DP, Bookbinder LH, Hasty AH, Thompson CB, Wasserman DH. Hyaluronan accumulates with high-fat feeding and contributes to insulin resistance. *Diabetes*. 2013;62:1888–96. doi:10.2337/db12-1502.
13. Zhu Y, Crewe C, Scherer PE. Hyaluronan in adipose tissue: beyond dermal filler and therapeutic carrier. *Sci Transl Med*. 2016;8(323):323ps4. doi:10.1126/scitranslmed.aad6793.
14. Kim EJ, Kim YK, Kim MK, Kim S, Kim JY, Lee DH, Chung JH. UV-induced inhibition of adipokine production in subcutaneous fat aggravates dermal matrix degradation in human skin. *Sci Rep*. 2016;6:25616. doi:10.1038/srep25616.
15. Derby BM, Dai H, Reichensperger J, Cox L, Harrison C, Cosenza N, Yang M, Bueno RA, Neumeister MW. Adipose-derived stem cell to epithelial stem cell transdifferentiation: a mechanism to potentially improve understanding of fat grafting’s impact on skin rejuvenation. *Aesthet Surg J*. 2014;34(1):142–53. doi:10.1177/1090820X13515700.
16. Reuther T, Bayrhammer J, Kerscher M. Effects of a three-session skin rejuvenation treatment using stabilized hyaluronic acid-based gel of non-animal origin on skin elasticity: a pilot study. *Arch Dermatol Res*. 2010;302(1):37–45. doi:10.1007/s00403-009-0988-9.
17. Kerscher M, Bayrhammer J, Reuther T. Rejuvenating influence of a stabilized hyaluronic acid-based gel of nonanimal origin on facial skin aging. *Dermatol Surg*. 2008;34(5):720–26.
18. Kruglikov IL. Neocollagenesis in non-invasive aesthetic treatments. *J Cosmet Dermatol Sci Appl*. 2013;3:1–5.
19. Wollina U. Midfacial rejuvenation by hyaluronic acid fillers and subcutaneous adipose tissue - a new concept. *Med Hypotheses*. 2015;84(4):327–30. doi:10.1016/j.mehy.2015.01.023.
20. Shimizu N, Ishida D, Yamamoto A, Kuroyanagi M, Kuroyanagi Y. Development of a functional wound dressing composed of hyaluronic acid spongy sheet containing bioactive components: evaluation of wound healing potential in animal tests. *J Biomater Sci Polym Ed*. 2014;25(12):1278–91. doi:10.1080/09205063.2014.929427.
21. Kim MS, Youn S, Na CH, Shin BS. Allergic reaction to hyaluronidase use after hyaluronic acid filler injection. *J Cosmet Laser Ther*. 2015;17(5):283–85. doi:10.3109/14764172.2015.1007069.
22. Fulton J, Caperton C, Weinkle S, Dewandre L. Filler injections with the blunt-tip microcannula. *J Drugs Dermatol*. 2012;11(9):1098–103.
23. Choi SY, Ko EJ, Kim BJ, Song KY, Kim WS. Lump on the lower eyelid due to hyaluronic acid filler. *Clin Exp Dermatol*. 2016;41(1):94–95. doi:10.1111/ced.12653.