

EPONYMS IN DERMATOLOGY: A SYSTEMATIC REVIEW OF CLINICAL RELEVANCE IN SKIN AGING AND AESTHETIC MEDICINE

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ABSTRACT

Introduction: Eponyms in dermatology provide concise, clinically meaningful descriptors of characteristic wrinkle patterns and age-related anatomical changes. Originating from careful clinical observation, these terms have been progressively integrated into aesthetic medicine to support comprehensive assessment and effective clinician-patient communication. This review aims to gather current knowledge regarding commonly encountered aging-related dermatologic eponyms, emphasizing their anatomical basis, pathophysiology, and relevance to modern aesthetic practice.

Aim: Understanding the aforementioned eponyms and their underlying pathophysiological concepts allows for the development of more effective strategies in aesthetic care. Their application increases efficiency in defining skin aging evaluations and planning treatment. By synthesizing available knowledge, this paper aims to facilitate clinical evaluation and inform interventions.

Methods: We conducted a systematic investigation on PubMed, Scopus, and Web of Science using a pre-defined set of keywords for the search. The study consisted of a review of articles discussing wrinkle patterns that are named after people and have to do with intrinsic and extrinsic factors contributing to skin aging. In addition, data were collected regarding the area of skin where the wrinkles appear, the underlying factors of wrinkle formation, and the age at which the wrinkles are likely to develop. This work is a systematic literature review conducted following PRISMA 2020 guidelines.

Results: Eponymous facial aging phenomena usually manifest during adulthood, while neck-related changes occur at a later point in time. Three main eponyms that are encountered during this process are those that show dynamic, static, and mixed characteristics, reflecting underlying muscular or structural contributions.

Conclusion: Eponyms in dermatology significantly improve diagnostic precision, promote the standardization of clinical documentation and simplify patient care planning. This paper reviews the importance of knowledge of dermatological eponyms in assessing aesthetic condition and making therapeutic decisions.

KEYWORDS: Dermatology, eponyms, skin aging, wrinkles, aesthetic medicine, systematic review.

1. INTRODUCTION

Eponymous terms in dermatology reflect specific clinical features of wrinkles and anatomical features, thus providing a common language between specialists and patients. Most eponyms related to aging were originally derived from clinical observations and later acquired usage as a means to explain the different age-related changes in the face and neck. Such descriptions provide an important basis for potential treatment methods [1-5].

2. MAIN TEXT/REVIEW SECTIONS

The identified eponyms are described below in narrative form.

2.1 CROW'S FEET

Crow's feet are a critical sign of facial aging [1]. This term is used to describe wrinkles around the outer part of the eye that appear more prominent with increasing age. The orbicularis oculi muscle's orbital fibers are essential to the pathophysiology of wrinkles; their contracture will produce wrinkles perpendicular to the muscle fiber orientation [1].

2.2 BUNNY LINES

Bunny lines are transverse wrinkles over the nasal bridge due to nose scrunching [2]. These lines are caused by the nasalis muscle contracting [2].

2.3 MARIONETTE LINES

Marionette lines are vertical lines from the mouth corners to the chin that cause drooping [3]. Overall, this downward appearance portrays a more aged and angry facial expression [3, 4]. They occur due to the contraction of the depressor anguli oris muscle [5].

2.4 ACCORDION LINES

Accordion lines are superficial vertical lines on the lateral cheek that appear while smiling [6]. The natural loss of collagen and elastin makes these lines more obvious and decreases the elasticity and plumpness of the skin [7].

2.5 SMOKER'S LINES

Smoker's lines, also called barcode lines, are vertical wrinkles around the lips [7]. These lines form due to the repetitive contraction of the orbicularis oris muscle, which circles the mouth [7]. These repeated contractions, particularly when smoking, can lead to the formation of vertical wrinkles around the lips [7].

2.6 NASOLABIAL FOLDS

Nasolabial folds, also called smile lines, are deep creases from the nose to the mouth corners [8]. The folds are formed by strong fascial attachments to the fascia of the levator labii superioris, levator labii superioris alaeque nasi, and zygomaticus minor [9].

2.7 TEAR TROUGH DEFORMITY

Tear trough deformity is hollowing under the eyes [10]. It is caused by the interaction of the orbicularis oculi muscle and the tear trough ligament [11]. This interaction, combined with age-related changes in fat and skin, contributes to the appearance of the tear trough [11].

2.8 TURKEY NECK

Turkey neck appears as neck sagging and skin laxity [12]. It is primarily caused by the weakening of the platysma muscle that occurs during the natural aging process [13].

2.9 VENUS RINGS

Venus rings are horizontal neck creases that occur during the aging process [14]. These wrinkles result from aging-induced weakening of the platysma muscle [14].

2.10 WITCH'S CHIN DEFORMITY

Witch's chin deformity is sagging of the chin pad from an overactive mentalis muscle that appears as a deep submental skin crease [15]. The exaggeration of this chin ptosis when smiling is often the patient's main concern [15]. It is due to either an excessive or insufficient anterior chin projection [15].

2.11 LANGER'S LINES

Langer's lines, also called cleavage lines, are natural skin tension lines influencing wrinkle orientation [16]. Rather than being caused by muscles, the orientation of these skin tension lines reflects the alignment of collagen and elastic fibers in the reticular dermis [17].

2.12 SLEEP LINES

Sleep lines are wrinkles on the side of the face from chronic side-sleeping [18]. The way a person sleeps results in wrinkles that are either oblique or horizontal [19].

2.13 JEKYLL AND HYDE CHIN

Jekyll and Hyde chin is a term for asymmetrical mentalis activity leading to chin distortion. The mentalis muscle can cause wrinkling and dimpling of the chin when it contracts unevenly or excessively [20].

2.14 FROWN LINES

Frown lines, also called eleven lines, are vertical glabellar frown lines between the eyebrows [21]. These lines are caused by the repeated contraction of the corrugator supercilii, procerus, and depressor supercilii muscles [22].

Table 1: Summary of Dermatologic Eponyms (own elaboration)

Eponym	Anatomical Region	Mechanism	Age of Onset	Associated Structures	Therapeutic Relevance
Crow's feet	Periorbital	Dynamic	Late 20s–30s	Orbicularis oculi	Neuromodulator [1]
Bunny lines	Nasal bridge	Dynamic	Late 20s–30s	Nasalis	Neuromodulator [2]
Marionette lines	Perioral to chin	Mixed	30s–40s	Depressor anguli oris, skin	Filler, combined [3–5]
Accordion lines	Lateral cheek	Mixed	30s–40s	Dermis, collagen	Filler, resurfacing [6]
Smoker's lines	Perioral	Dynamic	30s–40s	Orbicularis oris	Neuromodulator, resurfacing [7]
Nasolabial folds	Midface	Static	Late 20s–40s	Facial ligaments, fat	Filler [8–9]
Tear trough deformity	Periorbital	Static	30s–40s	Orbicularis oculi, ligament	Filler [10–11]
Turkey neck	Neck	Mixed	≥40	Platysma	Neuromodulator, surgery [12–13]
Venus rings	Neck	Static	≥40	Platysma	Neuromodulator, filler [14]
Witch's chin	Chin	Dynamic	30s–40s	Mentalis	Neuromodulator [15]
Langer's lines	General	Static	N/A	Dermis, collagen	Surgical planning [16–17]
Sleep lines	Lateral face	Static	Variable	Dermis	Preventive, skincare [18–19]
Jekyll & Hyde chin	Chin	Dynamic	30s–40s	Mentalis	Neuromodulator [20]
Frown lines	Glabella	Dynamic	Late 20s–30s	Corrugator supercilii, procerus, depressor supercilii	Neuromodulator [21–22]

3. MATERIALS AND METHODS

This review was conducted in accordance with PRISMA 2020 guidelines. A structured search of PubMed, Scopus, and Web of Science was performed using keywords such as “eponyms,” “skin aging,” “facial wrinkles,” “aesthetic,” and “cosmetic dermatology.” Peer-reviewed original articles, reviews, and clinical reports discussing eponymous wrinkle patterns related to intrinsic and extrinsic aging were included. Data were extracted on anatomical region, pathophysiologic mechanism, age of onset, and therapeutic relevance [6–25]. A narrative synthesis and descriptive statistics summarized the distribution and characteristics of the eponyms. Meta-analysis was not performed due to heterogeneity of study designs.

3.1 ELIGIBILITY CRITERIA

Studies included peer-reviewed original articles, reviews, and clinical cases discussing eponymous terminology describing wrinkles, folds, or deformities due to intrinsic and extrinsic aging. Studies addressing anatomy, pathophysiology, or aesthetic therapeutic approaches were prioritized. Excluded studies were those unrelated to skin aging or eponym classification [6–10].

3.2 INFORMATION SOURCES AND SEARCH STRATEGY

The review process must include systematic searches in different scientific databases such as PubMed, Scopus, and Web of Science using keywords for eponyms, skin aging, facial wrinkles, aesthetics, and cosmetic dermatology. All records for the searches were limited to English language publications and dated up to 2025 while reference lists of some studies were manually scrutinized for additional information [11–18].

3.3 SELECTION PROCESS

Two independent assessors evaluated all titles and abstracts. Full-text articles were also screened for eligibility, and discrepancies were resolved by consensus. A total of 385 records were identified, and the number of records was reduced to 112 after duplicate removal. Out of these publications, 98 were found relevant, and the final number of papers included in the qualitative synthesis was 38.

3.4 DATA COLLECTION & EXTRACTION

Data were extracted on the eponym name, anatomical region, primary etiologic mechanism, age of clinical onset, associated anatomical structure, and therapeutic relevance [12–25].

From the included studies (references 1–38), data were systematically extracted for each eponym whenever reported. Variables collected included the eponym name, anatomical region (periorbital, perinasal, perioral, midface, chin, neck, or generalized), primary etiologic mechanism (muscle-driven/dynamic, structural/static, or mixed), reported age of clinical onset, associated anatomical structure (muscle, ligament, fat compartment, dermis, or fascia), and therapeutic relevance (neuromodulator responsive, filler responsive, or combined). Each eponym was treated as a distinct unit of analysis. In instances where multiple studies examined the same eponym, the most consistent or well-supported estimates for both mechanism and age range were used.

3.5 DATA SYNTHESIS

A narrative synthesis was conducted with descriptive statistics to summarize frequency distributions by anatomical region, mechanism, and age of onset. Meta-analysis was not performed due to study heterogeneity [19–25].

3.4 STATISTICAL ANALYSIS

The statistical framework was based on descriptive, categorical, and frequency-based synthesis of published evidence. When available, quantitative data were extracted from the referenced clinical, anatomical, and imaging studies. These were analyzed to identify patterns of age of onset, anatomical distribution, and functional classification of dermatological eponyms related to skin aging.

4. RESULTS

Facial eponyms generally appear in the late 20s to mid-30s, whereas neck-related eponyms typically manifest after 40 [23,24]. Dynamic eponyms are responsive to neuromodulators, while static and mixed eponyms respond to fillers or combined approaches. The use of these descriptors improves clinical communication, standardizes documentation, and guides treatment planning [25,26].

4.1 DESCRIPTIVE STATISTICAL APPROACH

The primary objective of the statistical analysis was to characterize the distribution patterns of dermatological aging eponyms. Frequencies and proportions were calculated for facial versus neck eponyms, dynamic versus static versus mixed mechanisms, and early-onset (<40 years) versus late-onset (≥40 years) presentations. Median age categories (late 20s–30s versus ≥40 years) were used to summarize central tendencies rather than means, given that most source studies reported age ranges.

Eponyms were dichotomized into early-onset and late-onset groups based on median age of onset. Comparative descriptive analyses revealed that facial eponyms were predominantly observed in the early-onset category, whereas neck eponyms were more common in the late-onset group.

4.2 MECHANISM-BASED CLASSIFICATION ANALYSIS

Eponyms are categorized by their respective dominant forms physiologically. Dynamic, muscle-driven eponyms included Crow's feet, Bunny lines, Frown lines, Smoker's lines, and Jekyll & Hyde chin. Static, structural eponyms included Nasolabial folds, Tear trough, Langer's lines, and Venus rings. Mixed eponyms comprised Marionette lines, Accordion lines, Turkey neck, and Witch's chin. Compared to static eponyms, dynamic eponyms have a greater percentage of use, indicating that the muscles help cause dynamic facial aging. Mixed eponyms and static eponyms, which were associated with changes due to age in the structure of the muscle, were used to represent cumulative loss of collagen, fat and ligament elasticity due to aging on an individual basis.

4.3 STATISTICAL LIMITATIONS

As this review combines disparate sources of information (cadaveric studies, imaging studies, clinical trials, and review articles), meta-analysis on a statistical basis could not be conducted. The outcome variables include wrinkle type, age at onset, and anatomical basis, all of which are categorical and descriptive in nature. The trends on aging and anatomy are highly valid on a convergent basis due to consistency among independent sources.

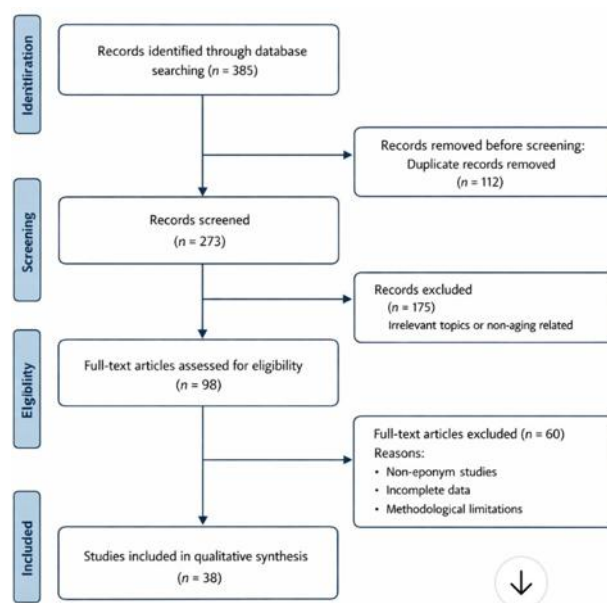


Figure 1: Systematic Review Flow Diagram (own elaboration)

5. DISCUSSION

Eponymic terminology assists in linking complex anatomical concepts to clinical practice in the domain of aesthetic medicine. Active rhytides, such as crow's feet and bunny lines, are direct manifestations of dynamic muscle activity, whereas passive rhytides like Nasolabial folds and Tear troughs are caused by structural changes due to aging. Eponyms can be classified into dynamic/structural (mixed) rhytides like Marionette lines and Accordion lines, which need integration of both approaches.

Another important category in eponyms is location-specific terms like Turkey neck and Venus rings, emphasizing the significance of specific assessment and treatment. The implementation of Langer's lines provides information regarding how to plan and perform the procedures optimally without scarring. Recognizing the mechanism underlying each eponym is critical for selecting the most effective therapeutic approach [1–38].

On the downside, lack of uniformity in research design and no opportunity to carry out meta-analysis limit the findings significantly. In most cases, the onset of rhytides is reported in ranges, while anatomical studies are performed using varying methods [6–10,12–18]. Normalization of report methodologies in future studies will make sure that evidence-based recommendations are provided [19–25].

6. CONCLUSION

Eponyms used in dermatology improve the accuracy of diagnosis, enhance communication between clinicians and patients, and help in planning individual treatment. In-depth understanding of these terms is critically important for the clinical practice governed by evidence-based principles, and continuous studies will contribute to the further improvement of their use in practice.

7. SUMMARY

The present systematic review highlights current scientific data regarding dermatological eponyms related to aging of the skin and focuses on their anatomical structure, pathogenesis, and practical applications in aesthetic dermatology. It presents a summary of data collected by means of systematic searching of databases PubMed, Scopus, and Web of Science according to PRISMA 2020 methodology.

Popular eponyms reflecting facial and neck aging are discussed in view of their anatomical position, pathophysiology, age of manifestation, and application in therapy. The results show that aging eponyms may be classified into dynamic, static, and combined depending on their pathophysiology and underline the importance of their application in the standardization of clinical terminology and communication.

CONFLICT OF INTERESTS

The authors declare no conflict of interest.

ETHICS APPROVAL AND CONSENT TO PARTICIPATE

Not applicable.

CONSENT FOR PUBLICATION

Confirmation that written consent for publication has been obtained.

CLINICAL TRIAL REGISTRATION

Not applicable.

AVAILABILITY OF DATA AND MATERIALS

Data supporting findings can be accessed via PUBMED, SCOPUS, and Web of Science.

COMPETING INTERESTS

The authors declare that they have no competing interests.

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AUTHORS' CONTRIBUTIONS

CRediT Role	Contributor(s)
Conceptualization	BV (Bojana Vuksan), AW (Anna Woźniacka)
Methodology	BV
Software	BV
Validation	BV
Formal Analysis	BV
Investigation	BV
Resources	BV
Data Curation	BV
Writing – Original Draft	BV
Writing – Review & Editing	BV
Visualization	BV
Supervision	AW
Project Administration	BV
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AI DECLARATION

The authors declare no use of AI tools.

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