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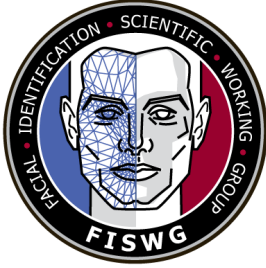
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# Physical Stability of Facial Features of Adults

## 1 Purpose

2 This standard guide is intended to be used in interpreting observed differences and  
3 similarities of adult facial features listed in Facial Image Comparison Feature List for  
4 Morphological Analysis by providing information on the physical stability of facial features.

5 This document is meant to be used in conjunction with Facial Image Comparison Feature  
6 List for Morphological Analysis.

## 7 Scope

8 This document refers only to images appearing to be adult (i.e., post-pubescent) subjects  
9 and does not address the stability of features in children due to rapid developmental  
10 changes. This document does not prescribe methods, techniques, or processes. It is  
11 limited to a presentation of the stability of the feature set to be considered in a comparison.  
12 Other documents (standards/guidelines/best practices) should be consulted regarding  
13 the effects of imaging conditions on feature appearance. This document is intended to  
14 bring these concerns to the attention of the practitioner and promote reliability of analysis.

## 15 Limitations

16 The stability assessments provided in this document are primarily a consensus opinion

17 of practitioners informed by discussion with medical and other experts, and the limited  
18 scientific literature available (as noted in the specific feature tables). As more research is  
19 published, the stability assessments may be updated.

## 20 **Introduction**

21 Over time, images of the same person may contain apparent differences due to  
22 anticipated changes (e.g., aging and expression) or unanticipated changes (e.g.,  
23 fluctuations in weight, health, or effects of substance use). Other visible differences may  
24 be due to intentional alterations to appearance. While some changes, such as expression  
25 and weight gain/loss, may be transient, others may result in a permanent change in  
26 appearance. When conducting a one-to-one comparison of images captured at different  
27 time periods, the practitioner must consider these potential variances when forming an  
28 opinion.

## 29 **Factors Affecting Physical Stability of Facial Components**

30 The following factors affect the physical stability of facial features and their components  
31 on an individual face (regardless of imaging conditions), listed in no particular order:  
32 expression, aging (short and long term), marked weight change, change in health, and  
33 intentional alteration. For each factor, stability is assessed for that factor taken in isolation.  
34 In other words, under “Expression”, the stability is ONLY assessed as a function of  
35 changes in expression. However, multiple factors can act concurrently on the same  
36 components which the practitioner will have to take into consideration. Not all factors will

37 affect components at the same time or in the same way and some components may not  
38 be affected at all. The physical stability of features under each of these factors is  
39 presented below.

#### 40 ***Expression***

41 This factor refers to any deviation from a relaxed face. A relaxed face usually includes  
42 eyes open and a closed mouth; however, there are individuals for whom the relaxed face  
43 includes an open mouth. A neutral expression ((non-smiling) with both eyes open  
44 normally (i.e., not wide-open), and mouth closed (unless medical condition precludes it  
45 (Mangold, 2016)) is generally the standard by which controlled captured images  
46 (passport, ID etc.) are collected. If an individual is depicted in two (2) images under similar  
47 imaging conditions with no change in expression or any other factor, then all features  
48 should appear consistent.

#### 49 ***Time-related Changes***

50 This factor refers to facial variations that occur as a person ages over time. The scope  
51 of time-related changes considers (without limitation) exposure to the elements (e.g., sun,  
52 wind), dental changes, skin elasticity, hair loss, hyperpigmentation or hypopigmentation  
53 that may occur during this progression. For the purposes of this document, time-related  
54 changes are discussed in two (2) categories:

55

56 ▶ **Short term** refers to periods of five (5) years or less.

57 ▶ **Long term** refers to periods in excess of five (5) years.

58 The practitioner should be aware that these time frames are approximate and may need  
59 to be adjusted when considering the differing rates of change applicable to the person's  
60 demographic and environmental variables. If an individual is depicted in two (2)  
61 contemporaneous images under similar imaging conditions with no other factors  
62 changed, then all features would be expected to appear consistent.

### 63 ***Marked Weight Change***

64 This factor refers to the variations to the face that occur as a function of observable weight  
65 loss or gain. The specific details of these variations will differ from person to person. If an  
66 individual is depicted in two (2) images under similar imaging conditions with a negligible  
67 change in weight or other factors, then all features would be expected to appear  
68 consistent.

### 69 ***Changes in Health***

70 This factor refers to variations to the face that occur as a function of changes in health.  
71 A comprehensive delineation of the effect of all potential health conditions is beyond the  
72 scope of this document. If an individual is depicted in two (2) images under similar  
73 imaging conditions with no substantial change in health or other factors, then all  
74 features would be expected to appear consistent.

75

76 *Note on Trauma, Inflammation, Tumors, and Substance Use:* Trauma to the head,  
77 inflammation (e.g., due to infection or allergic reaction), or tumors can alter any facial  
78 feature or portion of the face temporarily or permanently. As a result, the stability of all  
79 facial features affected by trauma, inflammation, or tumors is low and will not be  
80 delineated in the tables below. Additionally, substance use depends on multiple different  
81 factors to include, but not limited to, the body chemistry of the person, the substance  
82 being used, and the amount of use. Therefore, substance use will not be delineated in  
83 the tables below.

#### 84 ***Intentional Alteration***

85 This factor refers to variations of the face that occur as a function of deliberate  
86 modifications. These variations can be temporary or permanent. Changes may result  
87 from visible modifications to the skin surface such as facial hair, tattoos, piercings, or  
88 cosmetics (makeup). Changes may also result from modifications below the skin  
89 surface due to cosmetic, dental, or reconstructive procedures. Modifications due to  
90 cultural practices can also affect the appearance of facial features. If an individual is  
91 depicted in two (2) images under similar imaging conditions with no intentional  
92 alterations or changes in other factors, then all features would be expected to appear  
93 consistent. Intentional alterations are component characteristics whose stability must  
94 also be considered.

95

## 96 **Stability Tables**

97 Each component characteristic listed in the tables below is defined as having either  
98 "High", "Medium", or "Low" stability in the same individual. This determination is based  
99 on the potential for change in the respective characteristic descriptors under the factor  
100 in question. A practitioner must consider the stability of component characteristics  
101 during the comparison and evaluation phases of ACE-V. The stability of the observed  
102 component characteristics, under given factors, should affect the strength of a  
103 practitioner's opinion.

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- 105 **1. High stability (H)** features exhibit little to no change.
- 106 **2. Medium stability (M)** features may exhibit moderate changes.
- 107 **3. Low stability (L)** features may exhibit substantial changes.

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109 Each table is accompanied by text describing conditions under which each factor affects  
110 the stability of the corresponding component characteristic.

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Skin						
Skin appearance is extremely variable. Skin appearance may be affected by emotion, hormone levels, temperature, fatigue, hydration, etc. Changes in health or intentional alterations including, but not limited to, cosmetics, tanning, tattoos, and skin bleaching may increase variation in how skin appears in images produced before and after these changes.						
Component Characteristic	Expression	Time-related Changes (Short Term)	Time-related Changes (Long Term)	Marked Weight Change	Changes in Health	Intentional Alterations
Overall Skin Appearance	M	M	L	M	L	L

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Face/Head Outline						
The shape of the cranial vault does not change substantially in adulthood under normal conditions, but weight fluctuation or subdermal implants may give the appearance of change.						
Changes in weight or expression affect the shape of the face with the latter dominated by movement of the lower jaw. The stability of the face shape over long periods of time may also depend on tooth and related bone loss. Changes in health or intentional alterations including, but not limited to, maxillofacial surgery, orthodontic procedures, and cosmetic procedures may increase variation in the overall shape of the face as seen in images from before and after these changes.						
Component Characteristic	Expression	Time-related Changes (Short Term)	Time-related Changes (Long Term)	Marked Weight Change	Changes in Health	Intentional Alterations
Shape of Cranial Vault	H	H	H	M	H	M
Overall Shape of Face	L	H	M	L	L	L

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Face/Head Composition						
While the proportions of the features of the face are less stable, the position of the eyes, ears, and nose relative to each other remains stable under most conditions.						
Expressions can affect the proportions of the facial features with the greatest effect occurring with movement of the lower jaw and mouth. The stability of the proportions/position of features over long periods of time may also depend on tooth and related bone loss. Changes in health or intentional alterations including, but not limited to, maxillofacial surgery, orthodontic procedures, and cosmetic procedures may increase variation in the proportions or positions of features on the face as seen in images from before and after these changes.						
Component Characteristic	Expression	Time-related Changes (Short Term)	Time-related Changes (Long Term)	Marked Weight Change	Changes in Health	Intentional Alterations
Proportions/ Position of Features on Face	L	H	M	M	L	L

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### Hair

Both women and men may exhibit hair loss or other changes to the hairline and baldness pattern.

Component Characteristic	Expression	Time-related Changes (Short Term)	Time-related Changes (Long Term)	Marked Weight Change	Changes in Health	Intentional Alterations
Hair	H	L	L	H	L	L
Forehead Hairline	H	L	L	H	L	L
Hairline Right Side Hairline Left Side	H	L	L	H	L	L
Cranial baldness pattern	H	L	L	H	L	L

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### Forehead

Both the forehead and the brow ridges are defined by the frontal bone. Forehead shape is not affected by hairline modifications, nor are brow ridges affected by eyebrow growth or recession. Brow ridge prominence can be altered in both men and women due to prolonged changes in hormone levels (e.g., menopause, human growth hormone) or surgical procedures.

Component Characteristic	Expression	Time-related Changes (Short Term)	Time-related Changes (Long Term)	Marked Weight Change	Changes in Health	Intentional Alterations
Forehead Shape	H	H	M	M	H	L
Brow Ridges	H	H	M	M	M	L
Glabella Region	M	M	M	M	M	L

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### Eyebrow

Eyebrows have many characteristic descriptors which can be highly variable under various factors. With the exception of expression, which can change the shape, position and asymmetry of the eyebrows, most variability is related to changes in the hair details or alterations (e.g., grooming, tattoos). Some health conditions such as facial palsy (e.g., from stroke or viral condition) may create asymmetry to the appearance of the eyebrows.

Component Characteristic	Expression	Time-related Changes (Short Term)	Time-related Changes (Long Term)	Marked Weight Change	Changes in Health	Intentional Alterations
Right Eyebrow Left Eyebrow	L	H	L	H	L	L
Asymmetry between Right and Left Eyebrows	L	H	H	H	L	L

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<b>Eyes</b>						
Intercanthal distance does not change with the exception of trauma. Some component characteristics of the eye are affected by expression while others are not. Changes to the sclera can occur over short periods of time due to causes such as exposure to sun, wind, and other irritants. Time-related changes over the long term and marked weight change primarily affect the soft tissues, e.g., eyelid drooping, orbital fat variations, and corneal clouding. Changes in health can affect all other component characteristics of the eyes, and some conditions such as facial palsy may create asymmetry in the appearance of the eyes. Intentional alterations to the eye include, but not limited to, contact lenses, cosmetics, cosmetic procedures, tattoos, piercings, prostheses (Sforza et al., 2009).						
<b>Component Characteristic</b>	Expression	Time-related Changes (Short Term)	Time-related Changes (Long Term)	Marked Weight Change	Changes in Health	Intentional Alterations
Intercanthal Distance	H	H	H	H	H	H
Interpupillary Distance (IPD)	M	H	H	H	M	L
Right Eye Fissure Opening (Outline) Left Eye Fissure Opening (Outline)	L	H	M	M	L	M
Right Upper Eyelid (including lashes) Left Upper Eyelid (including lashes)	L	H	M	M	L	L
Right Lower Eyelid (including lashes) Left Lower Eyelid (including lashes)	L	H	L	M	L	L
Right Eyeball Prominence Left Eyeball Prominence	H	H	H	M	L	M
Right Eye Sclera Left Eye Sclera	H	M	M	H	L	L
Right Iris Left Iris	L	H	M	H	L	L
Right Eye Medial Canthus Left Eye Medial Canthus	H	H	H	H	L	M
Right Eye Lateral Canthus Left Eye Lateral Canthus	H	H	M	H	L	M
Asymmetry Between Right and Left Eyes	H	H	H	H	L	M

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### Cheeks

The apparent prominence of the cheekbones varies in relation to changes in weight, health (e.g., stroke, facial palsy, dental changes) and intentional alteration (e.g., cosmetics or cosmetic procedures). With aging (senescence) the cheekbone may appear more prominent due to decreased soft tissue and muscle mass.

The cheek is a flexible soft tissue structure which can be affected by all of the factors. The buccal fat pad moves down the cheek during middle-age and this creates a flatter cheek shape with less prominent cheekbones. Intentional alterations include cosmetics, surgical implants and fillers.

Component Characteristic	Expression	Time-related Changes (Short Term)	Time-related Changes (Long Term)	Marked Weight Change	Changes in Health	Intentional Alterations
Right Cheekbone Left Cheekbone	H	H	M	L	L	L
Right Cheek Shape (soft tissue) Left Cheek Shape (soft tissue)	L	M	L	L	L	L

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### Nose

The nose is a stable feature over the short term under normal conditions. All characteristic components, except the nasal root, can change with expression, and all components can be changed with intentional alterations (e.g., piercings, surgery). Over the long term, the soft tissues (including the cartilage) of the nose change in length and shape. Under marked weight changes, only the root and columella remain stable, and under health changes, only the root and body remain stable. The other characteristic components of the nose can be affected by disease (e.g., syphilis, gout), viral conditions (e.g., colds, sinusitis), and growths (e.g., polyps). The attachment of the alae to the upper lip does not change unless there has been surgery, trauma, or tumor (Sforza et al., 2011).

Component Characteristic	Expression	Time-related Changes (Short Term)	Time-related Changes (Long Term)	Marked Weight Change	Changes in Health	Intentional Alterations
Nasal Outline (Profile/Front view)	L	H	M	M	M	L
Nasal Root (bridge)	H	H	H	H	H	L
Nasal Body	M	H	H	M	H	L
Nasal Tip	L	H	L	M	M	L
Nasal Base	L	H	M	M	M	L
Nasal Base: Alae (Wings of nose)	L	H	M	M	M	L
Nasal Base: Nostrils (Nasal Openings)	L	H	M	M	M	L
Nasal Base: Columella (Soft tissue between Nostrils)	M	H	M	H	M	L

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<b>Ears</b>						
The ear is a highly stable feature. Ear position alone can change with expression, but the ear configuration remains stable. Over the long term, the ear continues to grow. The component characteristics of the ear with underlying cartilaginous structure (e.g., concha, helix, antihelix) generally show less perceivable change over time than the lobule, which lacks an underlying structure. Marked weight changes can affect the prominence and protrusion of the ear, as well as the fat content of the lobule. Other than trauma (e.g., cauliflower ear), inflammation and tumors, health changes rarely affect the characteristic components of the ears, except in cases of unusual disease (e.g., leprosy or cysts) (Sforza et al., 2009).						
<b>Component Characteristic</b>	Expression	Time-related Changes (Short Term)	Time-related Changes (Long Term)	Marked Weight Change	Changes in Health	Intentional Alterations
Asymmetry Between Left and Right Ears	M	H	H	H	H	L
Right Ear Protrusion Left Ear Protrusion	M	H	M	L	H	L
Overall Right Ear Overall Left Ear	M	H	M	M	H	L
Right Ear Helix-Superior, Inferior (tail) Left Ear Helix-Superior, Inferior (tail)	H	H	H	H	H	L
Right Ear Tubercles (Auricular Tubercle) Left Ear Tubercles (Auricular Tubercle)	H	H	H	H	H	L
Right Ear Antihelix Left Ear Antihelix	H	H	H	H	H	L
Right Ear Crura of Antihelix (Superior, Inferior) Left Ear Crura of Antihelix (Superior, Inferior)	H	H	H	H	H	M
Right Ear Triangular fossa Left Ear Triangular fossa	H	H	H	H	H	M
Right Ear Crus of Helix Left Ear Crus of Helix	H	H	H	H	H	M
Right Ear Scaphoid Fossa Left Ear Scaphoid Fossa	H	H	H	H	H	M
Right Ear Concha (Superior, Inferior) Left Ear Concha (Superior, Inferior)	H	H	H	H	H	M
Right Ear Tragus Left Ear Tragus	H	H	H	H	H	L
Right Ear Antitragus Left Ear Antitragus	H	H	H	H	H	L
Right Ear Intertragic/ Intertragal Notch Left Ear Intertragic/ Intertragal Notch	H	H	H	H	H	M
Right Ear Anterior Knob Left Ear Anterior Knob	H	H	H	H	H	L
Right Ear Anterior Notch Left Ear Anterior Notch	H	H	H	H	H	M

Right Ear Posterior Auricular Furrow Left Ear Posterior Auricular Furrow	H	H	H	H	H	M
Right Ear Lobule (Lobe) Left Ear Lobule (Lobe)	H	H	M	M	H	L
Ear Abnormalities	H	H	M	H	H	L

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<b>Mouth</b>						
<p>The mouth is the facial feature that changes the most under expression. Over a short period of time, the component characteristics of the mouth are stable, with the exception of tooth loss and tooth color/tonality (e.g., coffee stains). Over the long term the lips become thinner and the position of the mouth fissure may change due to this or any other dental changes. Health changes will affect the component characteristics of the mouth in a variety of ways, such as lip shape (e.g., herpes simplex virus), asymmetry (e.g., stroke and palsy), lip creases (e.g., dehydration) or lip tone. Intentional alterations include tattoos, piercings, fillers and cosmetics. Mouth abnormalities, such as cleft lip and palate, are frequently corrected through cosmetic procedures which results in a different appearance (Sforza et al., 2010).</p>						
<b>Component Characteristic</b>	Expression	Time-related Changes (Short Term)	Time-related Changes (Long Term)	Marked Weight Change	Changes in Health	Intentional Alterations
Philtrum	L	H	L	M	M	L
Overall Mouth	L	H	L	M	M	L
Upper Lip	L	H	L	M	M	L
Lower Lip	L	H	L	M	M	L
Lip Fissure (Opening between lips)	L	M	L	M	M	L
Mouth Asymmetry	L	H	H	H	M	L
Overall Dental Occlusion (Contact between Upper and Lower Teeth)	L	M	M	H	M	L
Gnathism (apparent convexity or concavity of the mouth complex, related to the relative projection of the upper and/or lower teeth)	H	H	M	M	M	L
Characteristic Detail of Teeth	H	H	M	H	M	L
Mouth Abnormalities	H	H	H	H	M	L

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**Chin/Jawline**

The chin, jawline and gonial angle are stable features and do not change over the short term. Long term changes relate to tooth and related bone loss. Sagging due to loss of skin elasticity and changes in subcutaneous fat distribution with age may give the appearance of change. Marked weight change will alter the appearance of these features due to subcutaneous fat changes and the effects of gravity on the soft tissues. Health changes, such as hormone levels (e.g., menopause or steroid treatment), behavior (e.g., tooth grinding), disease (e.g., sialosis) and viral conditions (e.g., mumps, mononucleosis) can also affect the chin/jawline. Intentional alterations can include maxillofacial surgery, orthodontic treatment, cosmetic procedures, and facial hair.

<b>Component Characteristic</b>	Expression	Time-related Changes (Short Term)	Time-related Changes (Long Term)	Marked Weight Change	Changes in Health	Intentional Alterations
Chin (Profile and Frontal view)	M	H	M	L	M	L
Jawline (from Chin to Gonial Angle)	H	H	M	L	M	L
Gonial Angle (Angle of the jaw)	H	H	M	L	M	L

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**Neck**

The neck is a stable feature in the short term. Long term there may be changes in muscle mass associated with aging, exercise, and hormone levels, and positional changes related to posture. The neck will change shape in relation to expression and marked weight change. Health changes may affect the neck in relation to asymmetry (e.g., torticollis), width (e.g., goiter) and position (e.g., arthritis). Intentional alterations include body building, spinal surgery, and postural alteration.

The laryngeal prominence is a stable feature under normal conditions. The laryngeal prominence will change position in relation to expression and posture. Marked weight change will affect the apparent prominence. Health changes (e.g., goiter, mononucleosis) and intentional alterations (e.g., hormonal treatment, facial hair, and cosmetic procedures) may affect the laryngeal prominence.

<b>Component Characteristic</b>	Expression	Time-related Changes (Short Term)	Time-related Changes (Long Term)	Marked Weight Change	Changes in Health	Intentional Alterations
Neck (Overall)	M	H	L	L	L	L
Laryngeal Prominence (Adam's Apple)	M	H	H	L	M	L

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Facial Hair						
Following post-pubescent growth, the distribution, symmetry, and density of facial hair remain stable in all areas of the face in the short term, however, the other characteristic descriptors are highly variable. Long term changes (e.g., aging, hormone levels) and health changes (e.g., disease, stress) are exhibited for all characteristic descriptors. Expression will change apparent facial hair position at the upper and lower lip but remain stable on the sides and neck. Marked weight change will affect the apparent position of facial hair. Intentional alterations include grooming, cosmetic procedures, hormonal treatment, and prostheses.						
Component Characteristic	Expression	Time-related Changes (Short Term)	Time-related Changes (Long Term)	Marked Weight Change	Changes in Health	Intentional Alterations
Facial Hair Above Upper Lip Facial Hair Below Lower Lip	L	H	L	M	L	L
Facial Hair on Right Side Facial Hair on Left Side	M	H	L	M	L	L
Facial Hair on Neck, below Chin/Jawline	H	H	L	M	L	L

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Facial Lines						
All facial creases become more defined over time and the number of wrinkles will increase over time. Wrinkles are a skin aging response in relation to muscle action and decreased skin elasticity. They align perpendicular to the muscle fiber action. Some creases are related to anatomical structure, such as a bifid nasal tip, cleft chin, and nasolabial folds. Creases and wrinkles are stable under normal conditions, although their prominence can be changed by some factors. Expression will make most facial lines more defined and may change their appearance and relative position. Although some structural creases (e.g., bifid nasal tip and cleft chin) are unaffected by expression. Long term changes are related to intrinsic aging, lifestyle (e.g., smoking, drug use, alcohol consumption), stress, sun exposure, and dehydration. Marked weight change will affect the position, definition, and shape of crease patterns. Health changes (e.g., stroke, palsy) will affect creases and wrinkles in relation to asymmetry, definition, shape, and number. Some conditions will obscure crease patterns (e.g., goiter, dermatological conditions). Intentional alterations include cosmetic procedures, surgery, and cosmetics.						
Component Characteristic	Expression	Time-related Changes (Short Term)	Time-related Changes (Long Term)	Marked Weight Change	Changes in Health	Intentional Alterations
Frontal Lines (Forehead Wrinkles)	L	H	M	M	L	L
Vertical Glabellar Line(s)	L	M	M	M	L	L
Nasion Creases	L	H	M	M	L	L
Right Lateral Nasal Lines Left Lateral Nasal Lines	L	H	M	H	M	L
Bifid Nose Crease	H	H	H	M	M	L
Periorbital Lines Right Eye (Crow's Feet/wrinkles) Periorbital Lines Left Eye (Crow's Feet/wrinkles)	L	M	M	M	L	L
Right Superior Palpebral Crease	L	H	M	M	L	L

Left Superior Palpebral Crease (Crease between the Upper Eyelid and the Top of the Bony Orbit)						
Right Inferior Palpebral Crease Left Inferior Palpebral Crease (Crease between the Lower Eyelid and the Bottom of the Bony Orbit)	L	H	M	M	L	L
Right Infraorbital Creases Left Infraorbital Creases (Creases below the eyes)	L	H	M	M	L	L
Upper Circumoral Striae (Lip Creases) Lower Circumoral Striae (Lip Creases)	L	H	M	M	L	L
Mentolabial sulcus (Horizontal Crease or Fold between Lower Lip and Chin)	L	H	M	M	L	L
Right Nasolabial Crease/Folds Left Nasolabial Crease/Folds (Creases or Folds extending from Nose to Corners of Mouth)	L	H	M	M	L	M
Right Marionette Lines Left Marionette Lines	L	H	M	M	L	L
Cleft Chin	H	H	H	M	M	L
Right Buccal Creases/folds Left Buccal Creases/folds (cheek to chin)	L	H	M	M	L	L
Wrinkles on Neck	M	H	L	M	L	L
Other Creases	See below*					

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\*The stability of other creases depends on their location and orientation as such the stability of a specific crease cannot be generalized in this document.



<b>Scars</b>						
Over time scars may change in relation to visibility but are unaltered by marked weight change or health changes. Expression may change a scar in relation to apparent position and shape. Intentional alterations to conceal scars include cosmetics, facial hair, and tattoos.						
<b>Component Characteristic</b>	Expression	Time-related Changes (Short Term)	Time-related Changes (Long Term)	Marked Weight Change	Changes in Health	Intentional Alterations
Scars	M	M*	M	H	H	L

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\*Scars are extremely unstable during the scar maturation phase which can last up to one year once the wound has healed. Following that they are relatively stable features in the short term, under normal conditions.

<b>Facial Marks</b>						
Facial marks are features that may be transient or permanent. Transient marks (e.g., acne or blemishes) are unstable, but other marks (e.g., moles or skin tags) may be stable both short and long term. Expression may change a facial mark in relation to apparent position and shape, depending on its original position. Marks on the lower face (e.g., mouth and lower jaw) will be affected more than those on the upper face (e.g., forehead and nose) by expression. Marks on the ear are unaffected by expression. Health changes (e.g., dermatological conditions, high blood pressure, sun damage) will affect the distribution, number, definition, and position of some skin marks (e.g., freckles, blemishes, warts). Intentional alterations include cosmetics, surgery, facial hair, and tattoos.						
<b>Component Characteristic</b>	Expression	Time-related Changes (Short Term)	Time-related Changes (Long Term)	Marked Weight Change	Changes in Health	Intentional Alterations
Skin Marks	M	L	L	M	L	L

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<b>Alterations</b>						
Piercings may be unstable over time due to healing and stretching, but the location relative to the pierced feature remains stable even with expression. Weight change may affect the appearance of a piercing. Intentional alterations of piercings include surgery, cosmetics, stretching, and additional piercings. The presence of piercings may have a widely variable impact on most component characteristics.						
Tattoos are stable in the short term but may fade or become blurred over time. Expression may alter the tattoo shape due to skin movement and marked weight change may stretch or crease a tattoo. Health changes may affect tattoos in relation to skin changes (e.g., dermatological conditions). Intentional alterations or concealment of tattoos include laser removal, cosmetics, additional tattooing, or facial hair.						
Because makeup is a transient alteration that is unstable over time and is not particularly affected by expression, weight changes, or changes in health, its stability relative to those factors is not addressed in the table below.						
Other alterations include, but are not limited to, surgery, implants, and fillers.						
<b>Component Characteristic</b>	Expression	Time-related Changes (Short Term)	Time-related Changes (Long Term)	Marked Weight Change	Changes in Health	Intentional Alterations
Piercing	H	M	L	M	M	L
Tattoo	M	M	M	M	M	L
Other	See below*					

162  
163 \*The stability of other alterations depends on their location, type, and orientation. The stability of a  
164 specific alteration cannot be generalized in this document.  
165

## 166 **Conclusion**

167 Trained practitioners conducting one-to-one comparison examinations must consider  
168 the stability of facial features, which may vary relative to given factors. The strength of a  
169 practitioner's opinion will be affected by the stability of the features compared.  
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