Lip-print
(cheiloscopy)
Person’s identification

Biometrics

Physiological
- face
- fingerprint
- dental
- DNA

Behavioral
- signature
- voice
Lip-print (cheiloscopy)

Many studies have characterized lip prints in order to ascertain their unique features and characteristics.

Lip print types

Forensic applications of the technique

Method of acquiring lip impressions at the crime scene
1999 : M. Alvarez

“The Study of Lip Prints Generated by Permanent Lipstick.”

Aim : Latent lip print test results produced by permanent lipsticks on different supports at different time intervals

Persistent lipsticks

A = Margaret AstorÒ no. 18
B = Margaret AstorÒ no. 32
C = L’OrealÒ no. 19
D = L’OrealÒ no. 24
Results after developing latent prints produced by persistent lipstick on different supports at different time intervals

<table>
<thead>
<tr>
<th>Support</th>
<th>Lipstick</th>
<th>Developing time</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td>2 h</td>
</tr>
<tr>
<td>White ceramic</td>
<td>A</td>
<td>++ ++</td>
</tr>
<tr>
<td>White ceramic</td>
<td>B</td>
<td>++ ++</td>
</tr>
<tr>
<td>White ceramic</td>
<td>C</td>
<td>++ ++</td>
</tr>
<tr>
<td>White ceramic</td>
<td>D</td>
<td>++ ++</td>
</tr>
</tbody>
</table>

Developing intensity: 111 high, 11 medium, 1 low, Ø none.
2005 : H. Utsuno et al

“Preliminary study of post mortem identification using lip prints”

Aim : clarify characteristics of lip prints from cadavers with various causes of death and to determine the effects of fixation on post mortem changes in lip impressions.
Morphological patterns of lip prints in Saudi Arabia at Almadinah Almonawarah province

Aim

• study in depth the lip prints of Saudi individuals (males and females) in Almadinah Almonawarah province.

• to focus attention on lip-print patterns of twins and families

• hoping that this study might be of value in the identification process in both civil and criminal issues
Subjects

Saudi residents of Almadinah Almonawarah area

females : 540
males : 426
aged : 18 - 40 years

13 identical twins of different ages and 19 families
Recording the lip prints

Lip stick: Red or brown, non-persistent, non-glossy, non-metallic
Lise Watier or Black Up

Support: White papers (white A4 ROCO Premium 80-g copy papers)
tissue papers (Kleenex)

Methods: A thin film of lipstick was applied onto cleaned and dried
lips, left for 3 min, and then the impressions of the lips
were taken on the specified papers
Methods for taking the impression

(a) Direct light pressure was applied by the lips on a folded paper

(b) Rolling the paper onto the lips with applying slight pressure onto the lip

(c) Applying direct light pressure of slightly separated lips on a paper put on a hard surface.
Examination of the prints
Lip-groove types

A = complete vertical
B = incomplete vertical
C = complete bifurcated
D = incomplete bifurcated
E = complete branched
F = incomplete branched
G = reticular pattern
H = X or comma form
I = horizontal
J = horizontal with others forms (vertical, bifurcate or branching)
Results and Discussion
Photographs of lower lip prints of three Saudi individuals

the same groove types in
the same areas of the lip

specificity of groove pattern
was evidently present
The lips of the studied persons at Almadinah Almonawarah area showed nine types of grooves.
Groove type A
(complete vertical)

female

male

Groove type E
(complete branched)
Groove type C
(complete bifurcate)

male

female

Groove type D
(incomplete bifurcate)

female

female
Groove type H
(X form)

Groove type I
(horizontal)

Groove type J
(horizontal with other forms)
Groove type G
(reticular)

Groove type J
(horizontal with other forms)
## Frequency of pattern types

<table>
<thead>
<tr>
<th>Areas</th>
<th>Sex</th>
<th>Frequency of pattern type %</th>
<th></th>
<th></th>
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<tbody>
<tr>
<td></td>
<td></td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
<td>E</td>
<td>F</td>
<td>G</td>
<td>H</td>
<td>I</td>
<td>J</td>
</tr>
<tr>
<td>Upper right</td>
<td>M</td>
<td>–</td>
<td>–</td>
<td>32.6</td>
<td>2.6</td>
<td>19.2</td>
<td>–</td>
<td>19.5</td>
<td>2.1</td>
<td>–</td>
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<td>0.2</td>
<td>24.1</td>
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<td>14.3</td>
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<td>17.4</td>
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<tr>
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<td>1.6</td>
<td>30.3</td>
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<td>6.1</td>
<td>–</td>
<td>3.1</td>
<td>1.4</td>
<td>–</td>
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<td>7.4</td>
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<td>12.0</td>
<td>1.3</td>
<td>3.5</td>
<td>–</td>
<td>4.6</td>
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<td>0.9</td>
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<td>0.5</td>
<td>24.6</td>
<td>3.5</td>
<td>18.1</td>
<td>–</td>
<td>19.2</td>
<td>2.8</td>
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<tr>
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<td>17.6</td>
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<tr>
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<td>33.3</td>
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<tr>
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<td>31.9</td>
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<td>40.6</td>
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## Frequency of groove types

<table>
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<th>Type</th>
<th>Male</th>
<th>Area</th>
<th>Female</th>
<th>Area</th>
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<tr>
<td>J</td>
<td>42.7%</td>
<td>UM</td>
<td>68.7%</td>
<td>UM</td>
</tr>
<tr>
<td>C</td>
<td>35.9%</td>
<td>LR</td>
<td>41.9%</td>
<td>LR</td>
</tr>
<tr>
<td>E</td>
<td>31.9%</td>
<td>LL</td>
<td>26.9%</td>
<td>LR</td>
</tr>
<tr>
<td>G</td>
<td>19.5%</td>
<td>UR</td>
<td>17.4%</td>
<td>UR</td>
</tr>
<tr>
<td>A</td>
<td>13.1%</td>
<td>LM</td>
<td>11.1%</td>
<td>LM</td>
</tr>
<tr>
<td>D</td>
<td>7.0%</td>
<td>LM</td>
<td>4.3%</td>
<td>LL</td>
</tr>
<tr>
<td>H</td>
<td>2.8%</td>
<td>UL</td>
<td>1.7%</td>
<td>LL</td>
</tr>
<tr>
<td>B</td>
<td>1.9%</td>
<td>LM</td>
<td>2.2%</td>
<td>LM</td>
</tr>
<tr>
<td>I</td>
<td>–</td>
<td>–</td>
<td>0.9%</td>
<td>UM</td>
</tr>
<tr>
<td>F</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–22</td>
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</table>
Frequency percent of the groove types in the upper middle region

- Male
- Female

<table>
<thead>
<tr>
<th>Types</th>
<th>Frequency</th>
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</thead>
<tbody>
<tr>
<td>A</td>
<td>10.3</td>
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<tr>
<td>I</td>
<td>0.9</td>
</tr>
<tr>
<td>J</td>
<td>42.7</td>
</tr>
</tbody>
</table>

Frequency values range from 0 to 80.
Lip prints of one Saudi family
Lip prints of identical twins
Effect of different pressure
Effect of dry weather

(a) The first taken lip print from the subject

(b) The fifth taken lip print from the same subject
Conclusion

• This study proved the individuality of Saudi lip prints as no identically similar lip-print patterns appeared in two subjects

• Dissimilar lip-print patterns were detected among different individuals of families

• Non-identical lip-print patterns were recorded in identical twins