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The features marked with a star (*) are based entirely on material taken straight from standard research (and other Official and Therefore Always Correct) literature. Many of the other articles are genuine, too, but we don't know which ones.

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ANNALS OF

IMPROBABLE RESEARCH



On the Front Cover

Symbolic depiction of a waiter delivering a measure of justice, even while several hands tip the scale.

Photo: A.S. Kaswell



Some Coming Events

The Covid-19 pandemic has introduced excitingly boundless uncertainty as to whether, when, where, and how various public activities will happen in the near future. In 2021 most (but not all?) will happen teledistantly.

See [IMPROBABLE.COM](https://improbable.com) for details of these and other events:

September 9, 2021

The 31st First Annual Ig Nobel Prize Ceremony

2021 (Dates TBD, pandemic permitting)
Ig Nobel EuroTour

2021 (Dates TBD, pandemic permitting)
Japan



The Improbable Research podcast is back!

[https://www.improbable.com/
category/the-weekly-improbable-research-podcast/](https://www.improbable.com/category/the-weekly-improbable-research-podcast/)

Where There's More

There's always new improbable — it's not what you expect! — stuff on the **Improbable Research blog** at [IMPROBABLE.COM](https://improbable.com)

PUBIC HAIR FORENSICS

Research about pubic hair in a legal context

by Kochden Cadenza, Improbable Research staff

Frequency of Pubic Hair Transfer During Sexual Intercourse

“Frequency of Pubic Hair Transfer During Sexual Intercourse,” David L. Exline, Frederick P. Smith, and Steven G. Drexler, *Journal of Forensic Sciences*, vol. 43, 1998, pp. 505-508. The authors, at the University of Alabama and other institutions, report:

Participants (forensic laboratory employees and their spouses) were six Caucasian couples who collected their pubic hair combings immediately following intercourse.... The experiment was replicated ten times for five couples, and five times for another couple (total n = 110). Transfer frequencies were calculated from instances where foreign (exogenous) hairs were observed.

Results showed at least one exogenous pubic hair in 17.3% (19/110) of combings. Transfers to males (23.6%, or 13/55) were more prevalent than transfers to females (10.9%, or 6/55). Only once were transfers observed simultaneously between both male and female. A total of 28 exogenous public hairs were identified.



David L. Exline, co-author of the study “Frequency of Pubic Hair Transfer During Sexual Intercourse.” Drawing by Nan Swift.

Frequency of pubic hair transfer during sexual intercourse

DL Exline¹, FP Smith² & SO Drexler³

¹ RJ Lee Group, Inc., Monroeville, PA, ² Department of Justice Sciences, University of Alabama at Birmingham, Birmingham, AL, ³ Alabama Department of Forensic Sciences, Birmingham, AL.

Abstract: This study measured the frequency of pubic hair transfer between a limited number of consenting heterosexual partners. The results derive from controlled experiments 13/55) were more prevalent than transfers to females (10.9 %, or 6/55). Only once were transfers observed simultaneously between both male and female. A total of 28 exogenous pu-

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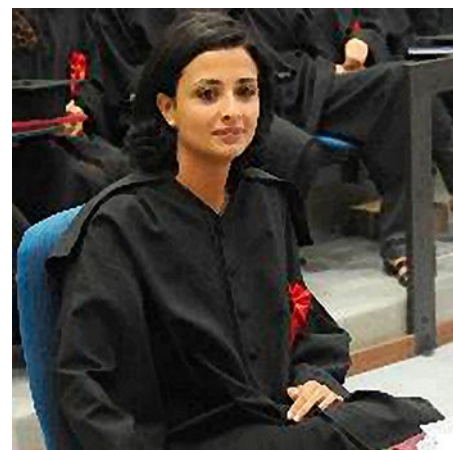
PUBIC HAIR FORENSICS [CONTINUED]

Rubbing Pubic Hair with Cocaine-Contaminated Hands

“Cocaine Contamination in Pubic Hair: Analysis of the Decontamination Method,” Guido Romano, Francesca Indorato, Giorgio Spadaro, Salvatore Barbera, and Nunziata Barbera, *Egyptian Journal of Forensic Sciences*, vol. 4, no. 4, 2014, pp. 129–136. The authors, at the University of Catania, Italy, report:

The aim of this study was to verify whether the external contamination of pubic hair with cocaine could influence the discrimination between active users and false positive subjects. The analysis was performed on in vivo and in vitro samples; the contamination was carried out by rubbing pubic hair with cocaine hydrochloride contaminated hands for three consecutive days....

Data from our studies show that all in vivo samples yielded false positives; the in vitro samples were negative only for 10 days and then yielded false positives.



Francesca Indorato, co-author of the study “Cocaine Contamination in Pubic Hair: Analysis of the Decontamination Method.” Drawing by Nan Swift.

Cocaine contamination in pubic hair: Analysis of the decontamination method

Guido Romano, Francesca Indorato *, Giorgio Spadaro, Salvatore Barbera, Nunziata Barbera

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KEYWORDS

Pubic hair;
Cocaine contamination;
Decontamination method;
False positive

Abstract Even if pubic hair represents a reliable and widely accepted alternative hair matrix to identify drug abusers, it might produce false positive results due to external contamination. The aim of this study was to verify whether the external contamination of pubic hair with cocaine could influence the discrimination between active users and false positive subjects. The analysis was performed on *in vivo* and *in vitro* samples: the contamination was carried out by rubbing pubic hair

BELOW: Detail from the study “Cocaine Contamination in Pubic Hair: Analysis of the Decontamination Method.”

Table 1 *In vivo* contamination followed by 5, 10, 20, 30, 40, 50 and 60 days of exposure and washing: cocaine (ng/mg) in washes and pubic hair.

Subjects	Day of collection	Isopropanol wash 15'	1st PO ₄ wash 30'	2nd PO ₄ wash 30'	3rd PO ₄ wash 30'	4th PO ₄ wash 60'	5th PO ₄ wash 60' (LW)	Pubic hair after wash	Pubic hair minus (5 × LW)	Cocaine wash and pubic hair values	Result
Subject 1	5	1.191	78.241	33.049	20.446	24.009	11.655	103.764	45.489	272.355	Positive
	10	0.635	26.433	12.679	8.418	12.093	5.674	79.810	51.440	145.742	Positive
	20	0.260	7.666	3.974	2.756	4.352	2.143	44.105	33.390	65.256	Positive
	30	0.151	3.600	2.255	1.130	1.881	0.978	23.331	18.441	33.326	Positive
	40	n.d.	1.387	0.753	0.474	1.004	0.552	17.039	14.279	21.209	Positive
	50	n.d.	0.678	0.433	0.311	0.415	0.297	10.549	9.064	12.683	Positive
	60	n.d.	0.413	0.202	0.154	0.279	0.205	7.195	6.170	8.448	Positive
Subject 2	5	1.094	67.582	21.437	11.439	15.573	7.265	79.681	43.356	204.071	Positive
	10	0.534	23.245	10.711	5.748	6.471	3.187	55.933	39.998	105.829	Positive
	20	0.223	9.366	3.963	1.814	2.572	1.410	39.406	32.356	58.754	Positive
	30	0.144	3.746	1.978	1.213	2.415	1.017	23.371	18.286	33.884	Positive
	40	0.105	1.344	0.773	0.395	1.213	0.706	15.711	12.181	20.247	Positive
	50	n.d.	0.873	0.281	0.195	0.437	0.287	10.805	9.370	12.878	Positive
	60	n.d.	0.441	0.207	0.148	0.361	0.280	7.792	6.392	9.229	Positive
Subject 3	5	0.839	53.653	20.569	11.682	15.052	6.837	65.839	31.654	174.471	Positive
	10	0.474	22.099	8.515	5.062	8.270	1.863	49.573	40.258	95.856	Positive
	20	0.195	7.519	3.396	2.079	3.789	1.583	33.449	25.534	52.010	Positive
	30	0.541	3.210	1.875	1.056	2.001	0.929	21.247	16.602	30.859	Positive