ELECTRONIC APPENDIX

This is the Electronic Appendix to the article

Image content influences men's semen quality

by

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Electronic supplemental Data

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Lifestyle factors

We provided participants with a lifestyle questionnaire that sought information on factors that might have influenced, or are known to influence semen quality. The questions were based on a thorough search of the medical literature for data relating mens reproductive health to environmental and lifestyle factors (for example see Figa-Talamanca *et al.* 1996; Chia *et al.* 2000; Sharpe 2000; Auger *et al.* 2001; Tsujimura *et al.* 2004). Copies of the questionnaire are available from the authors on request.

The questions were broadly categorised into four areas. First, we asked about their sexual lives: were they in a stable relationship, did they have children, and how regularly did they engaged in sexual activity (intercourse and/or masturbation per week)? We also asked about their use of sexually explicit literature. In particular, we asked whether the images they were provided during the experiment were more or less explicit than the material they had viewed previously. Second, we sought information regarding their state of health. Participants were asked about recent illnesses and whether they were currently taking, or had recently taken medications. Medications were categorised as none, medications with no known influence on fertility, and medications that have reported side effects on fertility. Subjects were asked if they had experienced any trauma and/or injury to the testes or had experienced any other reproductive tract condition. They were asked if they were experiencing any stress, whether they exercised regularly, and about factors in their diet that might influence semen quality. For example, they were asked how often they took vitamin C supplements or foods rich in vitamin C, zinc/mineral supplements or foods rich in zinc, and iron supplements. And we sought information about the likelihood that they had experienced raised scrotal temperatures by asking if they had recently experienced a fever, whether they regularly wore tight fitting jeans and underwear, or took regular hot baths. Third, we asked subjects about exposure to known xenobiotics. We asked if they smoked cigarettes or marijuana or took any other recreational drugs. They were asked how many standard alcoholic drinks they consumed per week, and the number of caffeinated drinks (coffee/coke) they consumed per day, and they were asked if they had regular contact with lead, pesticides, organic solvents, ionizing radiation, heavy metals, benzene, mercury, boron, or other potentially toxic chemicals. Fourth, we asked about their occupation and living styles. We asked whether they were raised in the country or in the city. Many of our subjects were students, some office workers and others tradesmen (gardeners, builders etc.). We asked how many hours per day they spent seated. Finally, we asked if they carried a mobile phone, and if so where they stored their phone, the amount of time it was left on standby, and the amount of time per day they spent on calls. We also noted the subject's ethnicity.

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Table A1 Generalised linear model of variables influencing the percentage of motile sperm in an ejaculate. Raw means ± SE are presented for each level of the nominal variables and the partial slopes* are presented for continuous variables. The partial F ratios test the effect of each variable controlling for all others. Least squares means show the relative motility controlling for all other effects in the model.

Variable	Mean	± SE	Least Squares Mean	F Ratio	Degrees of Freedom		p
					Source	Error	
Treatment							
- Image Set 1	52.10	7.26	8.21	5.079	1	23	0.0340
- Image Set 2	49.28	8.03	2.55				
Image Rating							
No Response	46.63	8.80	3.43	3.952	3	23	0.0207
Less Explicit	38.03	8.39	-3.41				
Similar	52.75	7.52	6.40				
More Explicit	58.74	7.67	15.11				
Liquefied							
- Non-Liquefied	33.73	8.72	-5.91	15.32	1	23	0.0007
- Liquefied	51.84	7.39	16.68				
Age (years)	1.49*	0.37*	–	16.53	1	23	0.0005
Combined Testes Volume (cm^3)	9.62*	2.92*	–	10.88	1	23	0.0031
Height (cm)	-0.75*	0.26*	–	8.339	1	23	0.0083
Childhood Upbringing							
- Rural	49.44	8.01	0.35	6.791	1	23	0.0158
- Urban	51.16	7.57	10.42				
Self-Rated Stress							
- None	49.31	7.44	1.68	7.662	2	23	0.0028
- Temporary Stress	55.18	7.36	14.73				
- Regular Stress	51.84	8.75	-0.26				
Occupation							
- Student	51.03	7.80	4.57	10.00	2	23	0.0007
- Office worker	47.79	7.93	-6.67				
- Tradesman	52.19	8.40	18.26				
Dietary Factors							
- Un-Balanced Diet	55.69	8.28	8.39	3.215	1	23	0.0861
- Balanced Diet	49.77	7.15	2.38				
Weekly Alcohol Consumption							
- 0 Drinks	57.70	7.55	5.39	11.85	3	23	<.0001
- 1 to 4 Drinks	49.25	6.07	18.44				
- 5 to 7 Drinks	46.49	5.81	7.99				
- 8 + Drinks	52.30	5.19	28.03				
Caffeine Consumption							
- 0 cups	47.56	7.55	5.39	32.28	2	23	<.0001
- 1 to 3 cups	52.36	6.99	24.30				
- 4 + cups	46.23	8.91	0.65				
Cigarette Smoking							
- Non Smoker	50.99	6.64	20.83	28.37	1	23	<.0001
- >1 Cigarette *per* Day	49.33	9.31	-10.06				
Partner							
- No	49.45	7.78	-0.49	18.15	1	23	0.0003
- Yes	52.15	7.57	11.26				
Frequency of Ejaculation							
- 1 to 2 *per* Week	46.41	7.55	5.39	11.51	3	23	<.0001
- 3 to 4 *per* Week	51.81	8.87	-1.31				
- 5 to 6 *per* Week	54.31	8.58	7.05				
- 7 + *per* Week	50.89	7.89	30.07				
Time taken to obtain sample (mins)	-2.25*	0.62*	–	13.05	1	23	0.0015
Time of Day (when ejaculated)	2.07*	1.00*	–	4.301	1	23	0.0495
Ejaculation to Analysis (mins)	-2.88*	0.79*	–	13.31	1	23	0.0013
Mobile Phone Storage							
- Alternative	55.43	7.37	16.48	33.28	1	23	<.0001
- Pocket or Belt	49.25	8.19	-5.71				

Table A2 Generalised linear model of variables influencing the number of sperm per ml of ejaculate natural log transformed). Raw mean ± SE number of sperm ($x10^6$) are presented for each level of the nominal variables and the partial slopes* are presented for continuous variables. The partial F ratios test the effect of each variable controlling for all others. Least squares means show the natural log transformed relative number of sperm controlling for all other effects in the model.

Variable	Mean	± SE	Least Squares Mean	F Ratio	Degrees of Freedom		p
					Source	Error	
Treatment							
- Image Set 1	61.35	1.27	3.65	8.476	1	36	0.0061
- Image Set 2	76.64	1.26	4.09				
Image Rating							
No Response	64.63	1.30	3.85	5.353	3	36	0.0037
Less Explicit	47.39	1.37	3.28				
Similar	73.01	1.25	4.01				
More Explicit	72.84	1.30	4.34				
Ethnicity							
- Caucasian	70.16	1.22	4.25	4.563	1	36	0.0396
- Asian	50.58	1.35	3.62				
Combined Testes Volume (cm^3)	2.56*	1.20*	–	26.25	1	36	<.0001
Occupation							
Student	69.45	1.28	4.17	9.618	2	36	0.0005
Office worker	47.05	1.35	3.14				
Tradesman	83.15	1.29	4.31				
Hours Seated per Day							
- 0 to 4 hours	77.46	1.25	3.87	6.181	2	36	0.0049
- 5 to 7 hours	72.72	1.29	3.42				
- 8 + hours	51.41	1.31	3.11				
Environmental Factors							
- 0 Factors	63.23	1.25	3.87	3.006	2	36	0.0621
- 1 Factor	80.17	1.39	4.26				
- 2 to 4 Factors	91.51	1.39	3.46				
Caffeine Consumption							
- 0 cups	66.68	1.25	3.87	3.656	2	36	0.0359
- 1 to 3 cups	68.51	1.22	4.44				
- 4 + cups	66.75	1.31	4.39				
Mobile Phone Storage							
- Alternative	75.67	1.30	4.21	12.09	1	36	0.0013
- Pocket or Belt	65.60	1.26	3.54				