

**HISTORICAL CONTROL DATA ON POSTNATAL  
INDICES AND SPERM ANALYSIS IN P- AND F1- GENERATION  
IN HsdRccHan<sup>TM</sup>: WIST, Wistar Hannover Rats**

**Compiled from Postnatal Developmental Studies performed at RCC Ltd. Itingen/Switzerland**

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**Table 1: Study Identification**

<b>Study-ID</b>	<b>RCC Study</b>	<b>Typ</b>	<b>Administration</b>	<b>Starting Date</b>
1		OECD 416	Diet	2002
2		OECD 416	Diet	2002
3		OECD 416	Gavage	2004
4		OECD 416	Diet	2004
5		OECD 416	Diet	2004
6		OECD 416	Diet	2004
7		OECD 416	Diet	2005
8		OECD 416	Diet	2006

**Table 2: Postnatal Breeding Loss**

**P-Generation:**

<b>Postnatal Loss Days 0 - 4 p.p.</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>
% of living pups at first litter check	1.1	1	1	4.8	1.4	1.6	0.7	0.7
Litters affected	3	3	3	2	3	4	2	2
Total	3	3	3	14	4	5	2	2
Mean	0.1	0.1	0.1	0.6	0.2	0.2	0.1	0.1
St.Dev	0.34	0.34	0.34	2.65	0.49	0.51	0.28	0.28
N (litters)	23	24	24	24	23	24	24	24

<b>Breeding Loss Days 5 - 21 p.p.</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>
% of living pups at day 4 p.p. after culling	0	0	1	1.1	1.1	1	0.5	0
Litters affected	0	0	1	2	2	2	1	0
Total	0	0	2	2	2	2	1	0
Mean	0	0	0.1	0.1	0.1	0.1	0	0
St.Dev	0	0	0.41	0.28	0.29	0.28	0.2	0
N (litters)	23	24	24	24	23	24	24	24

**Table 3: Postnatal Breeding Loss**

**F1-Generation:**

<b>Postnatal Loss Days 0 - 4 p.p.</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>
% of living pups at first litter check	0.4	7.4	1.5	8.5	0	3.1	0.4	4.6
Litters affected	1	4	4	3	0	5	1	5
Total	1	18	4	23	0	9	1	11
Mean	0	0.9	0.2	1	0	0.4	0	0.5
St.Dev	0.22	2.57	0.38	3.12	0	0.92	0.2	1.2
N (litters)	21	21	24	23	22	24	24	23

<b>Breeding Loss Days 5 - 21 p.p.</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>
% of living pups at day 4 p.p. after culling	15.5	2.5	0	0.6	0.6	1.6	0	2.5
Litters affected	10	1	0	1	1	2	0	3
Total	26	4	0	1	1	3	0	4
Mean	1.2	0.2	0	0	0	0.1	0	0.2
St.Dev	1.73	0.87	0	0.21	0.21	0.45	0	0.49
N (litters)	21	21	24	23	22	24	24	23

**Table 4: Indices Breeding**

**P-Generation:**

<b>Study-ID</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>
Birth index	95.7	98.4	92.4	91.8	91.0	91.2	87.9	88.4
Viability index	98.9	99.0	99.0	95.2	98.6	98.4	99.3	99.3
Weaning index	100.0	100.0	99.0	98.9	98.9	99.0	99.5	100.0

Birth index = (number of pups born alive / number of implantations) \* 100

Viability index = (number of alive pups on day 4 p.p. / number of pups born alive) \* 100

Weaning index = (number of alive pups on day 21 p.p. / number of alive pups on day 4 p.p.) \* 100

**Table 5: Indices Breeding**

**F1-Generation:**

<b>Study-ID</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>
Birth index	95.5	91.4	92.1	91.6	91.2	90.1	89.2	85.8
Viability index	99.6	92.6	98.4	91.5	100.0	96.9	99.6	95.4
Weaning index	84.5	97.5	100.0	99.4	99.4	98.4	100.0	97.5

Birth index = (number of pups born alive / number of implantations) \* 100

Viability index = (number of alive pups on day 4 p.p. / number of pups born alive) \* 100

Weaning index = (number of alive pups on day 21 p.p. / number of alive pups on day 4 p.p.) \* 100

**Table 6: Sperm Analysis**

**P-Generation**

<b>Motility</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>
Mean	15	13	10	12	9	13	16	15
St.Dev.	19	5	4	3	3	4	9	4
N	24	24	9	9	10	10	24	10
Stat. Mot. %								
Mean	31	34	24	30	35	25	30	26
St.Dev.	13	4	4	4	7	7	6	7
N	24	24	9	9	10	10	24	10
Prog. Mot. %								
Mean	54	53	66	58	56	63	55	59
St.Dev.	17	6	6	6	9	9	10	8
N	24	24	9	9	10	10	24	10

<b>Morphology</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>
<b>A % (Sperm with normal hook and tail)</b>								
Mean	89.8	93.3	95.1	94.4	93.2	95.6	93.9	90.3
St.Dev.	17.6	2.3	1.7	0.9	4.8	0.7	1.9	3.3
N	24	24	9	9	10	10	24	10
<b>B % (Normal hook without tail)</b>								
Mean	5.6	3.2	2.1	1.9	4.2	1.8	2.8	4.4
St.Dev.	12.2	1.5	1.1	0.6	4.6	0.6	1.9	3.8
N	24	24	9	9	10	10	24	10
<b>C % (Misshapen sperm hook with tail)</b>								
Mean	0.7	0.8	0.6	0.4	1.1	0.4	0.5	0.8
St.Dev.	0.6	0.8	0.5	0.4	0.8	0.2	0.5	0.8
N	24	24	9	9	10	10	24	10
<b>D % (Sperm with abnormal curved hook with tail)</b>								
Mean	2.5	2.3	2	3	1.1	1.9	2.3	3.8
St.Dev.	1.2	1	0.9	1	0.4	0.7	1	1.2
N	24	24	9	9	10	10	24	10
<b>E % (Sperm with reversed hook with tail)</b>								
Mean	0.1	0	0.1	0	0.1	0	0	0.2
St.Dev.	0.1	0.1	0.1	0.1	0.2	0	0.1	0.3
N	24	24	9	9	10	10	24	10
<b>F % (Abnormal hook without tail)</b>								
Mean	1.4	0.4	0.1	0.3	0.3	0.3	0.4	0.4
St.Dev.	5.4	0.3	0.1	0.2	0.2	0.3	0.3	0.3
N	24	24	9	9	10	10	24	10

<b>Sperm Head Count</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>
<b>Cauda epididymis (mio/g org.)</b>								
Mean	716	658	721	686	671	673	608	699
St.Dev.	174	76.5	80.3	175	117	52.7	90.6	110
N	24	24	9	9	10	10	24	10
<b>Testis (mio/g org.)</b>								
Mean	123	137	136	140	132	132	127	123
St.Dev.	28.3	21.7	5.89	14.9	10.2	13.1	14.9	14.5
N	24	24	9	9	10	10	24	10

**Table 7: Sperm Analysis**

**F1-Generation**

<b>Motility</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>
No Mot. %								
Mean	14	12	11	12	10	12	10	14
St.Dev.	7	4	3	4	4	6	4	7
N	23	23	10	10	10	10	24	10
Stat. Mot. %								
Mean	33	30	28	30	28	27	32	27
St.Dev.	7	10	5	7	7	7	7	6
N	23	23	10	10	10	10	24	10
Prog. Mot. %								
Mean	53	58	61	58	62	60	58	59
St.Dev.	11	11	6	7	8	11	9	11
N	23	23	10	10	10	10	24	10

<b>Morphology</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>
<b>A % (Sperm with normal hook and tail)</b>								
Mean	90.9	92.6	93.1	94.4	92.6	94.5	94.3	90.6
St.Dev.	4.4	2.3	1.2	1.4	5.7	1.9	1.5	5.7
N	23	23	10	10	10	10	24	10
<b>B % (Normal hook without tail)</b>								
Mean	4.5	2.9	3	1.9	3.9	2.1	2.2	4.9
St.Dev.	3.7	1.4	1.1	0.7	5.1	0.8	1.1	5
N	23	23	10	10	10	10	24	10
<b>C % (Misshapen sperm hook with tail)</b>								
Mean	1.1	0.9	0.8	0.5	1	0.4	0.6	0.8
St.Dev.	0.6	1	0.5	0.2	0.4	0.5	0.5	0.5
N	23	23	10	10	10	10	24	10
<b>D % (Sperm with abnormal curved hook with tail)</b>								
Mean	3.2	3.2	2.8	2.4	2	2.7	2.6	3.1
St.Dev.	1.3	1	0.9	0.8	0.9	1.2	0.9	0.6
N	23	23	10	10	10	10	24	10
<b>E % (Sperm with reversed hook with tail)</b>								
Mean	0.1	0.1	0	0	0.1	0	0.1	0.1
St.Dev.	0.1	0.1	0.1	0.1	0.3	0	0.1	0.3
N	23	23	10	10	10	10	24	10
<b>F % (Abnormal hook without tail)</b>								
Mean	0.3	0.3	0.3	0.7	0.4	0.3	0.3	0.4
St.Dev.	0.2	0.3	0.3	0.7	0.4	0.3	0.3	0.3
N	23	23	10	10	10	10	24	10

<b>Sperm Head Count</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>
<b>Cauda epididymis (mio/g org.)</b>								
Mean	668.6	575.5	639	652.7	606.7	660	658.6	705.2
St.Dev.	87.6	75.96	96.25	126.4	86.79	56.76	99.78	147.2
N	23	23	10	10	10	10	24	10
<b>Testis (mio/g org.)</b>								
Mean	129.3	115.1	123	137.4	131.2	124.5	125.6	127.2
St.Dev.	12.73	11.87	14.86	28.31	13.05	12.23	11.57	9.88
N	23	23	10	10	10	10	24	10

**Table 8: Postnatal Breeding Loss**

**P-Generation:**

<b>Postnatal Loss Days 0 - 4 p.p.</b>	<b>Total n</b>	<b>Mean</b>	<b>STDEV</b>	<b>MIN</b>	<b>MAX</b>
% of living pups at first litter check	12	1.54	1.35	0.70	4.80
Litters affected	22	2.75	0.71	2.00	4.00
Total	36	4.50	3.96	2.00	14.00
Mean	2	0.19	0.17	0.10	0.60
N (litters)	190	23.75	0.46	23.00	24.00

<b>Breeding Loss Days 5 - 21 p.p.</b>	<b>Total n</b>	<b>Mean</b>	<b>STDEV</b>	<b>MIN</b>	<b>MAX</b>
% of living pups at day 4 p.p. after culling	5	0.59	0.52	0.00	1.10
Litters affected	8	1.00	0.93	0.00	2.00
Total	9	1.13	0.99	0.00	2.00
Mean	0	0.05	0.05	0.00	0.10
N (litters)	190	23.75	0.46	23.00	24.00

**Table 9: Postnatal Breeding Loss**

**F1-Generation:**

<b>Postnatal Loss Days 0 - 4 p.p.</b>	<b>Total n</b>	<b>Mean</b>	<b>STDEV</b>	<b>MIN</b>	<b>MAX</b>
% of living pups at first litter check	26	3.24	3.31	0.00	8.50
Litters affected	23	2.88	1.96	0.00	5.00
Total	67	8.38	8.55	0.00	23.00
Mean	3	0.38	0.40	0.00	1.00
N (litters)	182	22.75	1.28	21.00	24.00

<b>Breeding Loss Days 5 - 21 p.p.</b>	<b>Total n</b>	<b>Mean</b>	<b>STDEV</b>	<b>MIN</b>	<b>MAX</b>
% of living pups at day 4 p.p. after culling	23	2.91	5.18	0.00	15.50
Litters affected	18	2.25	3.28	0.00	10.00
Total	39	4.88	8.69	0.00	26.00
Mean	2	0.21	0.41	0.00	1.20
N (litters)	182	22.75	1.28	21.00	24.00

**Table 10: Indices Breeding**

**P-Generation:**

<b>Study-ID</b>	<b>Total n</b>	<b>Mean</b>	<b>STDEV</b>	<b>MIN</b>	<b>MAX</b>
Birth index	737	92.10	3.51	87.90	98.40
Viability index	788	98.46	1.35	95.20	99.30
Weaning index	795	99.41	0.52	98.90	100.00

**Table 11: Indices Breeding**

**F1-Generation:**

<b>Study-ID</b>	<b>Total n</b>	<b>Mean</b>	<b>STDEV</b>	<b>MIN</b>	<b>MAX</b>
Birth index	727	90.86	2.75	85.80	95.50
Viability index	774	96.75	3.30	91.50	100.00
Weaning index	777	97.09	5.18	84.50	100.00

**Table 12: Sperm Analysis**

**P-Generation**

<b>Motility</b>	<b>Total n</b>	<b>Mean</b>	<b>STDEV</b>	<b>MIN</b>	<b>MAX</b>
Mean	103	12.88	2.47	9.00	16.00
N	120	15.00	7.46	9.00	24.00
Stat. Mot. %					
Mean	235	29.38	4.07	24.00	35.00
N	120	15.00	7.46	9.00	24.00
Prog. Mot. %					
Mean	464	58.00	4.54	53.00	66.00
N	120	15.00	7.46	9.00	24.00

<b>Morphology</b>	<b>Total n</b>	<b>Mean</b>	<b>STDEV</b>	<b>MIN</b>	<b>MAX</b>
<b>A % (Sperm with normal hook and tail)</b>					
Mean	746	93.20	2.11	89.80	95.60
N	120	15.00	7.46	9.00	24.00
<b>B % (Normal hook without tail)</b>					
Mean	26	3.25	1.37	1.80	5.60
N	120	15.00	7.46	9.00	24.00
<b>C % (Misshapen sperm hook with tail)</b>					
Mean	5	0.66	0.24	0.40	1.10
N	120	15.00	7.46	9.00	24.00
<b>D % (Sperm with abnormal curved hook with tail)</b>					
Mean	19	2.36	0.80	1.10	3.80
N	120	15.00	7.46	9.00	24.00
<b>E % (Sperm with reversed hook with tail)</b>					
Mean	1	0.06	0.07	0.00	0.20
N	120	15.00	7.46	9.00	24.00
<b>F % (Abnormal hook without tail)</b>					
Mean	4	0.45	0.40	0.10	1.40
N	120	15.00	7.46	9.00	24.00

<b>Sperm Head Count</b>	<b>Total n</b>	<b>Mean</b>	<b>STDEV</b>	<b>MIN</b>	<b>MAX</b>
<b>Cauda epididymis (mio/g org.)</b>					
Mean	5432	678.96	36.17	608.25	720.76
N	120	15.00	7.46	9.00	24.00
<b>Testis (mio/g org.)</b>					
Mean	1049	131.15	6.32	122.90	139.61
N	120	15.00	7.46	9.00	24.00

**Table 13: Sperm Analysis**

**F1-Generation**

<b>Motility</b>	<b>Total n</b>	<b>Mean</b>	<b>STDEV</b>	<b>MIN</b>	<b>MAX</b>
No Mot. %					
Mean	95	11.88	1.55	10.00	14.00
N	120	15.00	6.91	10.00	24.00
Stat. Mot. %					
Mean	235	29.38	2.26	27.00	33.00
N	120	15.00	6.91	10.00	24.00
Prog. Mot. %					
Mean	469	58.63	2.72	53.00	62.00
N	120	15.00	6.91	10.00	24.00

<b>Morphology</b>	<b>Total n</b>	<b>Mean</b>	<b>STDEV</b>	<b>MIN</b>	<b>MAX</b>
<b>A % (Sperm with normal hook and tail)</b>					
Mean	743	92.88	1.52	90.60	94.50
N	120	15.00	6.91	10.00	24.00
<b>B % (Normal hook without tail)</b>					
Mean	25	3.18	1.14	1.90	4.90
N	120	15.00	6.91	10.00	24.00
<b>C % (Misshapen sperm hook with tail)</b>					
Mean	6	0.76	0.24	0.40	1.10
N	120	15.00	6.91	10.00	24.00
<b>D % (Sperm with abnormal curved hook with tail)</b>					
Mean	22	2.75	0.42	2.00	3.20
N	120	15.00	6.91	10.00	24.00
<b>E % (Sperm with reversed hook with tail)</b>					
Mean	1	0.06	0.05	0.00	0.10
N	120	15.00	6.91	10.00	24.00
<b>F % (Abnormal hook without tail)</b>					
Mean	3	0.38	0.14	0.30	0.70
N	120	15.00	6.91	10.00	24.00

<b>Sperm Head Count</b>	<b>Total n</b>	<b>Mean</b>	<b>STDEV</b>	<b>MIN</b>	<b>MAX</b>
<b>Cauda epididymis (mio/g org.)</b>					
Mean	5166	645.81	39.59	575.54	705.23
N	120	15.00	6.91	10.00	24.00
<b>Testis (mio/g org.)</b>					
Mean	1013	126.67	6.50	115.07	137.35
N	120	15.00	6.91	10.00	24.00