

Historical Control Data in New Zealand White Rabbits



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¹ Additional HCD endpoints and years are available upon request.

Embryo-Fetal Developmental Historical Control Data

Notes regarding this dataset:

Due to calculation and database constraints, the study count may differ for each data type. This also means that animal count may differ for each data type. All the data that is presented is acceptable for use.

In the Reproductive Data, the total number of viable fetuses may not match the sum of the male and female fetuses. Sometimes, the sex of a fetus is not able to be determined.

Study Date Range: 09 Jan 2013 - 12 Jul 2018

Mean of Study Means

Endpoint	Total	Mean	S.D.	SEM	Median	Min	Max	25th Quartile	75th Quartile
NO. OF DATASETS	94								
Total No. of Animals in the Control Group	2109								
No. of Animals That Died	22								
No. of Animals That Aborted	7								
No. of Animals That Delivered	2								
Percent Pregnant		96.17	4.649	0.479	95.92	81.82	100.00	95.00	100.00
No. Gravid	2028								
No. With Only Resorptions	5								
No. of Dams With Live Fetuses	1993								
No. Nongravid	81								
No. Nongravid That Died	2								
No. of Animals Examined at Laparohysterectomy	2078								
Mean Gravid Uterine Weight (g)		509.59	23.412	2.415	508.56	449.47	565.27	491.08	526.30
Mean No. Viable Fetuses/Dam		8.85	0.487	0.050	8.80	7.35	9.95	8.57	9.20
Total No. Viable Fetuses	17666								
Viable Fetuses (%/Litter)		95.74	2.098	0.216	96.24	89.85	99.40	94.86	97.14
Mean No. Postimplantation Loss/Dam		0.39	0.178	0.018	0.36	0.05	1.05	0.27	0.47
Total No. of Postimplantation Losses	771								
Postimplantation Loss (%/Litter)		4.26	2.098	0.216	3.76	0.60	10.15	2.86	5.14
Early Resorptions (%/Litter)		3.29	1.855	0.191	2.92	0.60	9.65	2.31	4.01
Late Resorptions (%/Litter)		0.92	0.889	0.092	0.62	0.00	5.02	0.38	1.19
Dead Fetuses (%/Litter)		0.05	0.389	0.040	0.00	0.00	3.70	0.00	0.00
Mean No. Implantations/Dam		9.23	0.472	0.049	9.23	8.04	10.38	8.88	9.56
Mean No. Corpora Lutea/Dam		10.06	0.473	0.049	10.02	8.91	11.41	9.78	10.33
Mean No. Preimplantation Loss/Dam		0.82	0.304	0.031	0.82	0.24	2.05	0.65	0.95
Total No. Preimplantation Losses	1651								
Preimplantation Loss (%/Litter)		8.03	2.874	0.296	8.05	2.27	18.13	6.23	10.11
Total No. Male Fetuses	8581								
Total No. Female Fetuses	9085								
% Males/Litter		48.62	3.232	0.333	48.86	38.39	56.57	46.58	50.79
% Females/Litter		51.38	3.232	0.333	51.14	43.43	61.61	49.21	53.42
Mean Fetal Body Weight (g)		41.795	1.2822	0.1322	41.791	38.831	44.520	40.973	42.699
Mean Male Body Weight (g)		42.386	1.3723	0.1415	42.373	38.938	45.079	41.412	43.414
Mean Female Body Weight (g)		41.117	1.2496	0.1289	41.126	38.194	43.894	40.569	41.932

Developmental Parameters for Hra:(NZW)SPF New Zealand White Rabbits
(GD 29, Time-Mated, 100% Vis/Ske, 5 year Standard)

ASH_BZ_EFD-GD29-TM-100-5S_2019.01
05 Feb 2019

Mean of Study Means

NO. OF DATASETS: 94	Fetuses	Litters
Total No. Examined Externally	17683	1995
Total No. Examined Viscerally	17683	1995
Total No. Examined Skeletally	17683	1995

MALFORMATIONS (% Per Litter)	Mean	S.D.	N	SEM	Median	Min	Max	25th Quartile	75th Quartile
TOTAL EXTERNAL MALFORMATIONS	0.431	0.735	94	0.076	0.00	0.000	4.583	0.00	0.57
TOTAL VISCERAL MALFORMATIONS	1.966	1.361	94	0.140	1.84	0.000	7.384	0.98	2.59
TOTAL SKELETAL MALFORMATIONS	1.107	0.920	94	0.095	1.07	0.000	5.442	0.51	1.43
TOTAL MALFORMATIONS	3.138	1.806	94	0.186	2.91	0.000	8.617	1.84	3.94
EXTERNAL									
Acephaly	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00
Amelia	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00
Anal Atresia	0.009	0.090	94	0.009	0.00	0.000	0.877	0.00	0.00
Anencephaly	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00
Anodontia	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00
Apodia	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00
Arhinencephaly	0.014	0.094	94	0.010	0.00	0.000	0.752	0.00	0.00
Brachydactyly	0.018	0.101	94	0.010	0.00	0.000	0.752	0.00	0.00
Carpal and/or Tarsal Flexure	0.077	0.291	94	0.030	0.00	0.000	1.936	0.00	0.00
Cheilognathopalatoschisis	0.006	0.056	94	0.006	0.00	0.000	0.543	0.00	0.00
Cleft Jaw	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00
Cleft Lip	0.006	0.059	94	0.006	0.00	0.000	0.568	0.00	0.00
Cleft Palate	0.005	0.049	94	0.005	0.00	0.000	0.478	0.00	0.00
Cyclopia	0.004	0.034	94	0.004	0.00	0.000	0.334	0.00	0.00
Digit(s)- Malpositioned	0.007	0.068	94	0.007	0.00	0.000	0.658	0.00	0.00
Disseminated Subcutaneous Hemorrhage(s)	0.004	0.041	94	0.004	0.00	0.000	0.397	0.00	0.00
Ectrodactyly	0.016	0.090	94	0.009	0.00	0.000	0.529	0.00	0.00
Exencephaly with or without Open Eyelid(s)	0.006	0.056	94	0.006	0.00	0.000	0.543	0.00	0.00
Eyelid(s)- Open	0.017	0.096	94	0.010	0.00	0.000	0.621	0.00	0.00
Fat Pads- Extra	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00
Filamentous Tail	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00
Gastroschisis	0.040	0.157	94	0.016	0.00	0.000	0.877	0.00	0.00
Head- Domed	0.004	0.043	94	0.004	0.00	0.000	0.413	0.00	0.00
Hydrocephaly with or without Dome Head	0.027	0.258	94	0.027	0.00	0.000	2.500	0.00	0.00

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Mean of Study Means

NO. OF DATASETS: 94	Fetuses	Litters
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Total No. Examined Viscerally	17683	1995
Total No. Examined Skeletally	17683	1995

MALFORMATIONS (% Per Litter)	Mean	S.D.	N	SEM	Median	Min	Max	25th Quartile	75th Quartile
EXTERNAL									
Incisor(s)- Absent	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00
Incisors- Not Erupted	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00
Intestine- Umbilical Herniation	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00
Limb Malrotated	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00
Limb(s)- Hyperextension	0.019	0.184	94	0.019	0.00	0.000	1.786	0.00	0.00
Limb(s)- Malrotated	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00
Localized Fetal Edema	0.013	0.086	94	0.009	0.00	0.000	0.617	0.00	0.00
Lordosis	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00
Macroglossia	0.009	0.063	94	0.007	0.00	0.000	0.505	0.00	0.00
Mandibular Micrognathia	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00
Maxillary Micrognathia	0.005	0.052	94	0.005	0.00	0.000	0.505	0.00	0.00
Meningocele	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00
Meningoencephalocele	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00
Microglossia	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00
Micromelia	0.014	0.093	94	0.010	0.00	0.000	0.680	0.00	0.00
Microphthalmia and/or Anophthalmia	0.032	0.137	94	0.014	0.00	0.000	0.758	0.00	0.00
Microstomia	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00
Microtia	0.006	0.056	94	0.006	0.00	0.000	0.543	0.00	0.00
Naris- Absent	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00
Naris- Malpositioned	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00
Naris- Single Present	0.005	0.052	94	0.005	0.00	0.000	0.505	0.00	0.00
Naris- Small	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00
Omphalocele	0.114	0.271	94	0.028	0.00	0.000	1.389	0.00	0.00
Palate- High Arched	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00
Paw(s)- Hyperextension	0.006	0.061	94	0.006	0.00	0.000	0.595	0.00	0.00
Paw(s)- Malrotated	0.012	0.085	94	0.009	0.00	0.000	0.680	0.00	0.00
Pectoral Girdle- Narrow	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00
Pelvic Region- Narrow	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00
Pinna(e)- Small	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00

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MALFORMATIONS (% Per Litter)	Mean	S.D.	N	SEM	Median	Min	Max	25th Quartile	75th Quartile
EXTERNAL									
Polydactyly	0.012	0.085	94	0.009	0.00	0.000	0.658	0.00	0.00
Snout- Short	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00
Snout- Small	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00
Spina Bifida	0.006	0.054	94	0.006	0.00	0.000	0.526	0.00	0.00
Syndactyly	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00
Tail- Bent	0.004	0.043	94	0.004	0.00	0.000	0.413	0.00	0.00
Tail- Short	0.040	0.294	94	0.030	0.00	0.000	2.778	0.00	0.00
Thoracogastroschisis	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00
Umbilicus- Malpositioned	0.007	0.067	94	0.007	0.00	0.000	0.649	0.00	0.00
Vertebral Agenesis	0.008	0.078	94	0.008	0.00	0.000	0.758	0.00	0.00
VISCERAL									
Aorta- Bulbous	0.077	0.258	94	0.027	0.00	0.000	1.625	0.00	0.00
Aorta- Overriding	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00
Aorta- Stenotic	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00
Aortic Arch- Coarctation	0.005	0.047	94	0.005	0.00	0.000	0.455	0.00	0.00
Aortic Arch- Interrupted	0.024	0.116	94	0.012	0.00	0.000	0.625	0.00	0.00
Aortic Arch- Narrow	0.004	0.043	94	0.004	0.00	0.000	0.413	0.00	0.00
Aortic Arch- Retroesophageal	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00
Aortic Arch- Right-Sided	0.005	0.050	94	0.005	0.00	0.000	0.483	0.00	0.00
Atria- Enlarged	0.006	0.060	94	0.006	0.00	0.000	0.585	0.00	0.00
Atrioventricular- Ostium, Dilated	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00
Atrioventricular Valve- Absent	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00
Bicuspid- Misshapen	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00
Bicuspid Valve- Small	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00
Blood Vessel(s)- Blood Vessel	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00
Brain- Small	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00
Diaphragm- Thickened	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00
Diaphragmatic Hernia	0.034	0.149	94	0.015	0.00	0.000	0.918	0.00	0.00
Ductus Arteriosus- Atresia	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00

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MALFORMATIONS (% Per Litter)	Mean	S.D.	N	SEM	Median	Min	Max	25th Quartile	75th Quartile
VISCERAL									
Ductus Arteriosus- Narrow	0.005	0.052	94	0.005	0.00	0.000	0.505	0.00	0.00
Great Vessel(s)- Transposed	0.026	0.135	94	0.014	0.00	0.000	1.073	0.00	0.00
Heart- Atrioventricular Valve, Misshapen	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00
Heart- Atrium Absent	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00
Heart- Bicuspid Valve, Large	0.005	0.052	94	0.005	0.00	0.000	0.505	0.00	0.00
Heart- Bicuspid Valve, Small	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00
Heart- Chordae Tendinae, Thickened	0.004	0.041	94	0.004	0.00	0.000	0.397	0.00	0.00
Heart- Dextrocardia	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00
Heart- Enlarged	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00
Heart- Misshapen	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00
Heart- Misshapen Papillary Muscle	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00
Heart- Pulmonary Valve, Absent	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00
Heart- Pulmonary Valve, Small	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00
Heart- Tetralogy of Fallot	0.020	0.099	94	0.010	0.00	0.000	0.625	0.00	0.00
Heart- Three Chambered	0.011	0.076	94	0.008	0.00	0.000	0.585	0.00	0.00
Heart- Tricuspid Valve, Absent	0.006	0.055	94	0.006	0.00	0.000	0.529	0.00	0.00
Heart- Tricuspid Valve, Enlarged	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00
Heart- Tricuspid Valve, Misshapen	0.005	0.052	94	0.005	0.00	0.000	0.500	0.00	0.00
Heart- Tricuspid Valve, Small	0.005	0.052	94	0.005	0.00	0.000	0.505	0.00	0.00
Heart- Tricuspid Valve, Thickened	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00
Heart- Ventricle(s), Large	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00
Heart- Ventricle(s), Small	0.021	0.120	94	0.012	0.00	0.000	0.909	0.00	0.00
Heart- Ventricular Wall, Thickened	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00
Heart- Ventricular Wall, Thin	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00
Hydrocephaly	0.035	0.134	94	0.014	0.00	0.000	0.649	0.00	0.00
Hydropericardium	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00
Interventricular Septal Defect	0.057	0.182	94	0.019	0.00	0.000	0.955	0.00	0.00
Intestine- Fistula	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00
Kidney(s)- Absent	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00

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MALFORMATIONS (% Per Litter)	Mean	S.D.	N	SEM	Median	Min	Max	25th Quartile	75th Quartile
VISCERAL									
Kidney(s) and/or Ureter(s)- Absent	0.022	0.113	94	0.012	0.00	0.000	0.877	0.00	0.00
Kidney(s)- Fused	0.016	0.092	94	0.009	0.00	0.000	0.617	0.00	0.00
Kidney(s)- Malpositioned	0.097	0.307	94	0.032	0.00	0.000	2.083	0.00	0.00
Liver- Fused	0.005	0.045	94	0.005	0.00	0.000	0.433	0.00	0.00
Liver- Lobular Dysgenesis	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00
Lung(s)- Lobular Agenesis	1.527	1.194	94	0.123	1.33	0.000	6.735	0.60	2.27
Lung(s)- Lobular Dysgenesis	0.011	0.074	94	0.008	0.00	0.000	0.529	0.00	0.00
Persistent Truncus Arteriosus	0.063	0.189	94	0.019	0.00	0.000	0.878	0.00	0.00
Pulmonary Artery- Enlarged	0.004	0.043	94	0.004	0.00	0.000	0.413	0.00	0.00
Pulmonary Trunk- Coarctation	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00
Pulmonary Trunk- Enlarged	0.004	0.043	94	0.004	0.00	0.000	0.413	0.00	0.00
Pulmonary Trunk- Stenotic	0.012	0.079	94	0.008	0.00	0.000	0.585	0.00	0.00
Pulmonary Trunk- Vestigial	0.010	0.072	94	0.007	0.00	0.000	0.529	0.00	0.00
Retina(s)- Folded	0.005	0.045	94	0.005	0.00	0.000	0.433	0.00	0.00
Semilunar Valve- Misshapen	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00
Situs Inversus	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00
Subclavian Artery- Malpositioned	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00
Subclavian, Right- Malpositioned	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00
Thyroid Gland(s)- Absent	0.009	0.061	94	0.006	0.00	0.000	0.435	0.00	0.00
Trachea- Absent Cartilaginous Rings	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00
Uterine Horn(s)- Portion Absent	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00
Vena Cava- Malpositioned	0.005	0.050	94	0.005	0.00	0.000	0.483	0.00	0.00
SKELETAL									
Atlas-Occipital- Defect	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00
Clavicle- Bent	0.006	0.061	94	0.006	0.00	0.000	0.595	0.00	0.00
Costal Cartilage Anomaly	0.171	0.372	94	0.038	0.00	0.000	2.174	0.00	0.00
Hyoid Body and/or Arch(es)- Misshapen	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00
Hyoid Body- Misshapen	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00
Limb Bone(s)- Bent	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00

Developmental Parameters for Hra:(NZW)SPF New Zealand White Rabbits
(GD 29, Time-Mated, 100% Vis/Ske, 5 year Standard)

ASH_BZ_EFD-GD29-TM-100-SS_2019.01
05 Feb 2019

Mean of Study Means

NO. OF DATASETS: 94	Fetuses	Litters
Total No. Examined Externally	17683	1995
Total No. Examined Viscerally	17683	1995
Total No. Examined Skeletally	17683	1995

MALFORMATIONS (% Per Litter)	Mean	S.D.	N	SEM	Median	Min	Max	25th Quartile	75th Quartile
SKELETAL									
Pectoral Girdle- Bent	0.007	0.070	94	0.007	0.00	0.000	0.680	0.00	0.00
Pelvic Girdle- Bent	0.007	0.070	94	0.007	0.00	0.000	0.680	0.00	0.00
Rib(s)- 11 Pairs	0.005	0.052	94	0.005	0.00	0.000	0.505	0.00	0.00
Rib(s)- 14th Full	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00
Rib(s)- Anomaly	0.113	0.283	94	0.029	0.00	0.000	1.389	0.00	0.00
Rib(s)- Bent	0.064	0.498	94	0.051	0.00	0.000	4.762	0.00	0.00
Scapula(e)- Bent	0.006	0.061	94	0.006	0.00	0.000	0.595	0.00	0.00
Skull Anomaly	0.050	0.177	94	0.018	0.00	0.000	1.111	0.00	0.00
Sternebra(e)- Bent	0.006	0.061	94	0.006	0.00	0.000	0.595	0.00	0.00
Sternebra(e)- Fused	0.132	0.293	94	0.030	0.00	0.000	1.515	0.00	0.00
Sternebra(e)- Malaligned (Severe)	0.147	0.288	94	0.030	0.00	0.000	1.364	0.00	0.00
Sternoschisis	0.017	0.096	94	0.010	0.00	0.000	0.568	0.00	0.00
Talus- Absent	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00
Vertebra(e)- 23 Presacral	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00
Vertebra(e)- 24 Presacral	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00
Vertebra(e)- 25 Presacral	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00
Vertebra(e)- 28 Presacral	0.009	0.065	94	0.007	0.00	0.000	0.476	0.00	0.00
Vertebra(e)- 5 Cervical	0.006	0.057	94	0.006	0.00	0.000	0.556	0.00	0.00
Vertebra(e)- 6 Cervical	0.012	0.081	94	0.008	0.00	0.000	0.625	0.00	0.00
Vertebra(e)- 8 Cervical	0.016	0.090	94	0.009	0.00	0.000	0.568	0.00	0.00
Vertebral Anomaly with or without Associated Rib Anomaly	0.347	0.436	94	0.045	0.00	0.000	1.364	0.00	0.67
Caudal Vertebrae- Anomaly	0.007	0.064	94	0.007	0.00	0.000	0.625	0.00	0.00
Vertebral Centra Anomaly	0.077	0.234	94	0.024	0.00	0.000	1.389	0.00	0.00

Mean of Study Means									
NO. OF DATASETS: 94	Fetuses	Litters							
Total No. Examined Externally	17683	1995							
Total No. Examined Viscerally	17683	1995							
Total No. Examined Skeletally	17683	1995							
VARIATIONS (% Per Litter)	Mean	S.D.	N	SEM	Median	Min	Max	25th Quartile	75th Quartile
TOTAL EXTERNAL VARIATIONS	0.017	0.096	94	0.010	0.00	0.000	0.680	0.00	0.00
TOTAL VISCERAL VARIATIONS	31.151	5.763	94	0.594	31.89	15.567	42.534	27.59	34.65
TOTAL SKELETAL VARIATIONS	62.322	5.971	94	0.616	62.21	45.746	75.757	58.57	66.31
TOTAL VARIATIONS	73.503	4.697	94	0.484	73.97	56.621	85.172	71.25	76.44
EXTERNAL									
Abdomen- Distended	0.007	0.070	94	0.007	0.00	0.000	0.680	0.00	0.00
Adipose Tissue- Fat Pads, Extra	0.004	0.043	94	0.004	0.00	0.000	0.417	0.00	0.00
Fat Pads- Extra	0.005	0.052	94	0.005	0.00	0.000	0.505	0.00	0.00
Skin- Tag	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00
VISCERAL									
Abdominal Cavity- Contents, Dark Red	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00
Adipose Tissue- Edematous	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00
Adrenal Gland(s)- Accessory	0.014	0.095	94	0.010	0.00	0.000	0.714	0.00	0.00
Adrenal Gland(s)- Enlarged	0.022	0.217	94	0.022	0.00	0.000	2.105	0.00	0.00
Atria- Small	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00
Blood Vessel(s)- Accessory	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00
Blood Vessel(s), Major- Variation	10.099	4.281	94	0.442	9.56	2.661	20.918	7.08	13.65
Brachiocephalic Trunk- Short	0.020	0.144	94	0.015	0.00	0.000	1.250	0.00	0.00
Diaphragm- Thickened	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00
Fat Pads- Extra	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00
Gallbladder- Absent or Small	3.045	1.952	94	0.201	3.02	0.000	9.911	1.58	3.91
Gallbladder- Accessory	0.009	0.086	94	0.009	0.00	0.000	0.833	0.00	0.00
Gallbladder- Bilobed	0.057	0.168	94	0.017	0.00	0.000	0.733	0.00	0.00
Gallbladder- Distended	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00
Gallbladder- Enlarged	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00
Gallbladder- Misshapen	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00
Heart- Absent Papillary Muscle	0.248	0.530	94	0.055	0.00	0.000	2.386	0.00	0.31
Heart- Enlarged	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00

Mean of Study Means

NO. OF DATASETS: 94	Fetuses	Litters
Total No. Examined Externally	17683	1995
Total No. Examined Viscerally	17683	1995
Total No. Examined Skeletally	17683	1995

VARIATIONS (% Per Litter)	Mean	S.D.	N	SEM	Median	Min	Max	25th Quartile	75th Quartile
VISCERAL									
Heart- Extra Papillary Muscle	2.402	1.382	94	0.142	2.17	0.000	6.579	1.57	3.12
Heart- Misshapen	0.029	0.114	94	0.012	0.00	0.000	0.529	0.00	0.00
Heart- Papillary Muscle, Small	0.005	0.047	94	0.005	0.00	0.000	0.455	0.00	0.00
Heart- Papillary Muscle, Thickened	0.005	0.047	94	0.005	0.00	0.000	0.455	0.00	0.00
Heart- Small	0.033	0.127	94	0.013	0.00	0.000	0.568	0.00	0.00
Heart- Small Atria	0.005	0.047	94	0.005	0.00	0.000	0.455	0.00	0.00
Heart- Small Papillary Muscle	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00
Iris- Hemorrhagic	0.005	0.052	94	0.005	0.00	0.000	0.500	0.00	0.00
Iris- Hemorrhagic Ring	0.122	0.259	94	0.027	0.00	0.000	1.053	0.00	0.00
Kidney(s)- Pale	0.019	0.091	94	0.009	0.00	0.000	0.543	0.00	0.00
Kidney(s)- Small	0.012	0.117	94	0.012	0.00	0.000	1.136	0.00	0.00
Kidney(s)- White Precipitate	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00
Liver- Accessory Lobule(s)	0.421	0.665	94	0.069	0.00	0.000	3.074	0.00	0.55
Liver- Area(s), Yellow	0.004	0.038	94	0.004	0.00	0.000	0.366	0.00	0.00
Liver- Misshapen	0.027	0.137	94	0.014	0.00	0.000	1.010	0.00	0.00
Liver- Pale	0.015	0.113	94	0.012	0.00	0.000	1.010	0.00	0.00
Liver- Swollen	0.005	0.050	94	0.005	0.00	0.000	0.483	0.00	0.00
Lung(s)- Accessory Lobule(s)	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00
Lung(s)- Enlarged	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00
Lung(s)- Small	0.056	0.262	94	0.027	0.00	0.000	2.165	0.00	0.00
Pancreas- Small	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00
Renal Papilla(e) not Developed and/or Distended Ureter(s)	0.060	0.191	94	0.020	0.00	0.000	1.111	0.00	0.00
Spleen- 2 Equal Portions	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00
Spleen- Accessory	17.075	3.999	94	0.412	17.10	7.147	27.389	14.60	19.41
Spleen- Pale	0.159	0.348	94	0.036	0.00	0.000	1.770	0.00	0.00
Spleen- Present in Two Equal Portions	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00
Spleen- Small	0.225	0.423	94	0.044	0.00	0.000	2.273	0.00	0.43
Spleen- Two Present	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00
Thymus- Dark Red	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00

Developmental Parameters for Hra:(NZW)SPF New Zealand White Rabbits
(GD 29, Time-Mated, 100% Vis/Ske, 5 year Standard)

ASH_BZ_EFD-GD29-TM-100-5S_2019.01
05 Feb 2019

Mean of Study Means

NO. OF DATASETS: 94	Fetuses	Litters
Total No. Examined Externally	17683	1995
Total No. Examined Viscerally	17683	1995
Total No. Examined Skeletally	17683	1995

VARIATIONS (% Per Litter)	Mean	S.D.	N	SEM	Median	Min	Max	25th Quartile	75th Quartile
VISCERAL									
Thyroid Gland(s)- Enlarged	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00
Thyroid Gland(s)- Pale	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00
Thyroid Gland(s)- Small	0.017	0.094	94	0.010	0.00	0.000	0.625	0.00	0.00
Ureter(s)- Retrocaval	1.681	1.301	94	0.134	1.41	0.000	6.375	0.74	2.27
Ureter(s)- White Precipitate	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00
SKELETAL									
Extra Site of Ossification- Adjacent to Jugal	0.010	0.098	94	0.010	0.00	0.000	0.952	0.00	0.00
Extra Site of Ossification- Sternebra(e)	2.722	1.785	94	0.184	2.66	0.000	7.621	1.35	3.85
Extra Site of Ossification- Vertebra(e)	0.221	0.410	94	0.042	0.00	0.000	1.720	0.00	0.31
Hyoid Arch(es)- Bent	3.986	2.300	94	0.237	3.67	0.000	10.971	2.24	5.34
Hyoid Body and/or Arch(es)- Unossified	0.118	0.245	94	0.025	0.00	0.000	1.005	0.00	0.00
Metacarpal(s) and/or Metatarsal(s)- Unossified	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00
Pubis Unossified	0.010	0.068	94	0.007	0.00	0.000	0.556	0.00	0.00
Reduced Ossification- 12th Rib(s)	0.004	0.043	94	0.004	0.00	0.000	0.413	0.00	0.00
Reduced Ossification- 13th Rib(s)	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00
Reduced Ossification- Rib(s)	0.007	0.068	94	0.007	0.00	0.000	0.658	0.00	0.00
Reduced Ossification- Vertebral Arch(es)	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00
Rib(s)- 13th Full	32.057	6.451	94	0.665	31.97	12.540	48.097	28.56	36.24
Rib(s)- 13th Rudimentary	16.813	3.328	94	0.343	17.15	8.159	25.089	14.64	18.98
Rib(s)- 14th Rudimentary	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00
Rib(s)- 7th Cervical	2.619	1.985	94	0.205	2.43	0.000	11.981	1.10	3.67
Rib(s)- 8th Cervical	0.011	0.078	94	0.008	0.00	0.000	0.568	0.00	0.00
Rib(s)- Hemispherical Enlargement	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00
Rib(s)- Interrupted Ossification	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00
Rib(s)- Spherical Enlargement	0.039	0.160	94	0.017	0.00	0.000	1.000	0.00	0.00
Rib(s)- Thickened	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00
Rib(s)- Unossified	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00
Skull Bone(s)- Accessory	0.327	0.469	94	0.048	0.00	0.000	2.346	0.00	0.56
Reduced Ossification- Skull	0.158	0.652	94	0.067	0.00	0.000	4.762	0.00	0.00

Developmental Parameters for Hra:(NZW)SPF New Zealand White Rabbits
(GD 29, Time-Mated, 100% Vis/Ske, 5 year Standard)

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05 Feb 2019

			Mean of Study Means							
NO. OF DATASETS: 94	Fetuses	Litters								
Total No. Examined Externally	17683	1995								
Total No. Examined Viscerally	17683	1995								
Total No. Examined Skeletally	17683	1995								
VARIATIONS (% Per Litter)	Mean	S.D.	N	SEM	Median	Min	Max	25th Quartile	75th Quartile	
SKELETAL										
Skull- Unossified	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00	
Sternebra(e) #1, #2, #3 and/or #4 Unossified	0.023	0.130	94	0.013	0.00	0.000	0.962	0.00	0.00	
Sternebra(e) #5 and/or #6 Unossified	12.363	3.660	94	0.378	12.07	3.359	23.610	9.80	14.82	
Sternebra(e)- 5th	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00	
Sternebra(e)- 7th	0.113	0.346	94	0.036	0.00	0.000	2.727	0.00	0.00	
Sternebra(e)- Irregular Ossification	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00	
Sternebra(e)- Malaligned (Slight or Moderate)	1.193	0.960	94	0.099	1.00	0.000	4.462	0.53	1.58	
Sternebra(e)- Misshapen	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00	
Sternebra(e) with Thread-Like Attachment	0.847	0.801	94	0.083	0.76	0.000	4.192	0.00	1.25	
Talus- Unossified	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00	
Vertebra(e)- 25 Presacral	0.172	0.306	94	0.032	0.00	0.000	1.218	0.00	0.39	
Vertebra(e)- 27 Presacral	7.171	3.254	94	0.336	6.47	0.957	18.281	4.98	8.78	
Vertebra(e)- 6 Cervical	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00	
Vertebral Centra not Fully Ossified	0.056	0.183	94	0.019	0.00	0.000	1.058	0.00	0.00	
Vertebral Centra- Unco-ossified	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00	
Vertebral Centra Unossified	0.000	0.000	94	0.000	0.00	0.000	0.000	0.00	0.00	
Xyphoid Cartilage- Hole	0.010	0.100	94	0.010	0.00	0.000	0.966	0.00	0.00	

Modal Distribution of Fetal Body Weights

Number of Datasets in Historical Control

94

Range of Study Dates

Jan 2013 - Jul 2018

Number of Dams with Fetal Body Weight Data

2000

Dams with Fetal Body Weight Data with Live Fetuses

1995

Mean Fetal Body Weight Range (g)

38.831 - 44.520

Mean Fetal Body Weight (g)	< 36.0	36.0 - 36.9	37.0 - 37.9	38.0 - 38.9	39.0 - 39.9	40.0 - 40.9
Total No. Datasets	0	0	0	2	7	15
Mean Litter Size	NA	NA	NA	9.452	9.168	9.741
Litter Size Range	NA - NA	NA - NA	NA - NA	9.22 - 9.68	8.67 - 9.95	8.46 - 17.80
Mean Fetal Body Weight (g)	41.0 - 41.9	42.0 - 42.9	43.0 - 43.9	44.0 - 44.9	45.0 - 45.9	>= 46.0
Total No. Datasets	31	21	15	3	0	0
Mean Litter Size	8.959	8.683	8.573	8.256	NA	NA
Litter Size Range	8.40 - 9.77	7.81 - 9.61	7.68 - 9.10	7.90 - 8.86	NA - NA	NA - NA

Summary Incidence Malformations and Variations

(Total Number Fetuses/Litters Affected)

Ranked Uppermost to Nethermost

NO. OF DATASETS: 94	Fetuses	Litters
Total No. Examined Externally	17683	1995
Total No. Examined Viscerally	17683	1995
Total No. Examined Skeletally	17683	1995

MALFORMATIONS	Number	
	Fetuses	Litters
EXTERNAL		
Omphalocele	19	19
Carpal and/or Tarsal Flexure	13	12
Gastroschisis	6	6
Microphthalmia and/or Anophthalmia	5	5
Hydrocephaly with or without Dome Head	5	1
Tail- Short	4	3
Brachydactyly	3	3
Ectrodactyly	3	3
Eyelid(s)- Open	3	3
Limb(s)- Hyperextension	3	1
Polydactyly	2	2
Paw(s)- Malrotated	2	2
Micromelia	2	2
Macroglossia	2	2
Localized Fetal Edema	2	2
Arhinencephaly	2	2
Cleft Lip	1	1
Anal Atresia	1	1
Vertebral Agenesis	1	1
Umbilicus- Malpositioned	1	1
Tail- Bent	1	1
Maxillary Micrognathia	1	1
Cheilognathopalatoschisis	1	1
Head- Domed	1	1
Paw(s)- Hyperextension	1	1
Cleft Palate	1	1

Summary Incidence Malformations and Variations

(Total Number Fetuses/Litters Affected)

Ranked Uppermost to Nethermost

NO. OF DATASETS: 94

	Fetuses	Litters
Total No. Examined Externally	17683	1995
Total No. Examined Viscerally	17683	1995
Total No. Examined Skeletally	17683	1995

MALFORMATIONS	Number	
	Fetuses	Litters
EXTERNAL		
Naris- Single Present	1	1
Microtia	1	1
Cyclopia	1	1
Digit(s)- Malpositioned	1	1
Disseminated Subcutaneous Hemorrhage(s)	1	1
Exencephaly with or without Open Eyelid(s)	1	1
Spina Bifida	1	1
VISCERAL		
Lung(s)- Lobular Agenesis	262	183
Kidney(s)- Malpositioned	15	14
Aorta- Bulbous	13	13
Persistent Truncus Arteriosus	12	11
Interventricular Septal Defect	10	10
Diaphragmatic Hernia	6	6
Hydrocephaly	6	6
Great Vessel(s)- Transposed	5	5
Aortic Arch- Interrupted	4	4
Kidney(s) and/or Ureter(s)- Absent	4	4
Heart- Tetralogy of Fallot	4	4
Kidney(s)- Fused	3	3
Heart- Ventricle(s), Small	3	3
Thyroid Gland(s)- Absent	2	2
Pulmonary Trunk- Vestigial	2	2
Pulmonary Trunk- Stenotic	2	2
Heart- Three Chambered	2	2
Lung(s)- Lobular Dysgenesis	2	2

Summary Incidence Malformations and Variations

(Total Number Fetuses/Litters Affected)

Ranked Uppermost to Nethermost

NO. OF DATASETS: 94

	Fetuses	Litters
Total No. Examined Externally	17683	1995
Total No. Examined Viscerally	17683	1995
Total No. Examined Skeletally	17683	1995

MALFORMATIONS	Number	
	Fetuses	Litters
VISCERAL		
Pulmonary Trunk- Enlarged	1	1
Heart- Tricuspid Valve, Absent	1	1
Liver- Fused	1	1
Heart- Tricuspid Valve, Misshapen	1	1
Retina(s)- Folded	1	1
Heart- Tricuspid Valve, Small	1	1
Pulmonary Artery- Enlarged	1	1
Heart- Chordae Tendinae, Thickened	1	1
Heart- Bicuspid Valve, Large	1	1
Ductus Arteriosus- Narrow	1	1
Atria- Enlarged	1	1
Aortic Arch- Right-Sided	1	1
Aortic Arch- Narrow	1	1
Aortic Arch- Coarctation	1	1
Vena Cava- Malpositioned	1	1
SKELETAL		
Vertebral Anomaly with or without Associated Rib Anomaly	59	54
Costal Cartilage Anomaly	29	25
Sternebra(e)- Malaligned (Severe)	24	23
Sternebra(e)- Fused	23	21
Rib(s)- Anomaly	18	18
Vertebral Centra Anomaly	11	11
Skull Anomaly	8	8
Vertebra(e)- 8 Cervical	3	3
Rib(s)- Bent	3	3
Sternoschisis	3	3

Summary Incidence Malformations and Variations

(Total Number Fetuses/Litters Affected)

Ranked Uppermost to Nethermost

NO. OF DATASETS: 94	Fetuses	Litters
Total No. Examined Externally	17683	1995
Total No. Examined Viscerally	17683	1995
Total No. Examined Skeletally	17683	1995

MALFORMATIONS	Number	
	Fetuses	Litters
SKELETAL		
Vertebra(e)- 28 Presacral	2	2
Vertebra(e)- 6 Cervical	2	2
Pectoral Girdle- Bent	1	1
Caudal Vertebrae- Anomaly	1	1
Clavicle- Bent	1	1
Pelvic Girdle- Bent	1	1
Rib(s)- 11 Pairs	1	1
Scapula(e)- Bent	1	1
Sternebra(e)- Bent	1	1
Vertebra(e)- 5 Cervical	1	1

Summary Incidence Malformations and Variations

(Total Number Fetuses/Litters Affected)

Ranked Uppermost to Nethermost

NO. OF DATASETS: 94

	Fetuses	Litters
Total No. Examined Externally	17683	1995
Total No. Examined Viscerally	17683	1995
Total No. Examined Skeletally	17683	1995

VARIATIONS	Number	
	Fetuses	Litters
EXTERNAL		
Fat Pads- Extra	1	1
Abdomen- Distended	1	1
Adipose Tissue- Fat Pads, Extra	1	1
VISCERAL		
Spleen- Accessory	2965	1333
Blood Vessel(s), Major- Variation	1766	806
Gallbladder- Absent or Small	535	356
Heart- Extra Papillary Muscle	442	325
Ureter(s)- Retrocaval	287	222
Liver- Accessory Lobule(s)	75	59
Heart- Absent Papillary Muscle	46	35
Spleen- Small	42	37
Spleen- Pale	31	27
Iris- Hemorrhagic Ring	22	21
Renal Papilla(e) not Developed and/or Distended Ureter(s)	11	10
Gallbladder- Bilobed	11	10
Lung(s)- Small	10	8
Heart- Small	6	6
Heart- Misshapen	6	6
Liver- Misshapen	5	5
Kidney(s)- Pale	4	4
Adrenal Gland(s)- Enlarged	4	1
Thyroid Gland(s)- Small	3	3
Liver- Pale	3	2
Brachiocephalic Trunk- Short	3	2
Adrenal Gland(s)- Accessory	2	2

Summary Incidence Malformations and Variations

(Total Number Fetuses/Litters Affected)

Ranked Uppermost to Nethermost

NO. OF DATASETS: 94	Fetuses	Litters
Total No. Examined Externally	17683	1995
Total No. Examined Viscerally	17683	1995
Total No. Examined Skeletally	17683	1995

VARIATIONS	Number	
	Fetuses	Litters
VISCERAL		
Kidney(s)- Small	2	1
Heart- Papillary Muscle, Thickened	1	1
Liver- Swollen	1	1
Liver- Area(s), Yellow	1	1
Iris- Hemorrhagic	1	1
Heart- Small Atria	1	1
Heart- Papillary Muscle, Small	1	1
Gallbladder- Accessory	1	1
SKELETAL		
Rib(s)- 13th Full	5626	1571
Rib(s)- 13th Rudimentary	2965	1476
Sternebra(e) #5 and/or #6 Unossified	2215	1013
Vertebra(e)- 27 Presacral	1254	641
Hyoid Arch(es)- Bent	661	466
Extra Site of Ossification- Sternebra(e)	464	317
Rib(s)- 7th Cervical	444	275
Sternebra(e)- Malaligned (Slight or Moderate)	208	184
Sternebra(e) with Thread-Like Attachment	155	124
Skull Bone(s)- Accessory	56	52
Extra Site of Ossification- Vertebra(e)	37	32
Vertebra(e)- 25 Presacral	30	30
Hyoid Body and/or Arch(es)- Unossified	23	23
Reduced Ossification- Skull	22	14
Sternebra(e)- 7th	21	15
Vertebral Centra not Fully Ossified	10	9
Rib(s)- Spherical Enlargement	6	6

Summary Incidence Malformations and Variations

(Total Number Fetuses/Litters Affected)

Ranked Uppermost to Nethermost

NO. OF DATASETS: 94	Fetuses	Litters
Total No. Examined Externally	17683	1995
Total No. Examined Viscerally	17683	1995
Total No. Examined Skeletally	17683	1995

VARIATIONS	Number	
	Fetuses	Litters
SKELETAL		
Sternebra(e) #1, #2, #3 and/or #4 Unossified	4	4
Rib(s)- 8th Cervical	2	2
Pubis Unossified	2	2
Xyphoid Cartilage- Hole	2	1
Reduced Ossification- Rib(s)	1	1
Reduced Ossification- 12th Rib(s)	1	1
Extra Site of Ossification- Adjacent to Jugal	1	1