Physiological Parameters of Elephants

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Parameter	Value	Reference
Height (meters) Elephas maximus maximus (Sri Lanka) Elephas maximus indicus (Mainland) Elephas maximus sumatranus (Sumatran) Loxodanta africana africana (Bush) Loxodonta africana cyclotis (Forest)	 2.0 -.3.5 2.0 - 3.5 2.0 - 3.2 3.0 - 4.0 2.0 - 3.0	 Shoshani 1992
Weight (kg) Elephas maximus maximus (Sri Lanka) Elephas maximus indicus (Mainland) Elephas maximus sumatranus (Sumatran) Loxodanta africana africana (Bush) Loxodonta africana cyclotis (Forest)	 2,000 – 5,500 2,000 – 5,500 2,000 – 4,000 4,000 – 7,000 2,000 – 4,500	 Shoshani 1992
Life Span (years)	50 - 70	Wallach and Boever 1983 Kingdon 1979
Blood volume (% of body weight)	3.5 (n=1)	Shoshani 1982
Chromosome number	56	Hungerford 1966 Sakthikumar 1990 Suwattana 2000
Dental formula	I 1/0, C 0/0, PM 3/3, M 3/3	Shoshani 1994

	Total = 26	
Formula to estimate body weight (not accurate for young elephants)	Weight (kg) = 18.0 (heart girth in cm) – 3336.	Hile 1997
Skin thickness (cm)	1.9 - 3.2	Kock 1993
Vertebral formula	C-7, T-19, L-3, S-5, Cd –27; Total # bones 282	Shoshani 1982
Rectal temperature	36 - 37˚ C 97.5 - 99˚ F	Elder 1975 Kock 1993 Buss 1963 Bradstorm 1965
Heart rate (beats per minute)	25 - 30 (standing) 72 - 98 (lateral recumbency)	Kock 1993
Respiratory rate (breaths per minute)	4 -12	Schmitt 2003
Trunk capacity (liters) adult Asian	8.5	Shoshani 1992
Urine volume/24 hr (liters/day) Average volume / urination (liters) max	25-53 5.5 10.58	Dutta, 2003 Cheeran 2002 Benedict 1936 Simon 1958,1959 Benedict 1936
Frequency of urination/24 hr	5-10	Benedict 1936 Simon 1959
Fecal production (kg/day)	~110	Dutta, 2003
Defecations/day Asian Boluses/defecation Asian Wt/bolus Asian (kg)	12-20 5-8 1-2.5	Cheeran 2002
Defecation rate (h/defecation) African Wt/defecation African adult (kg) Total dung/24h African,adult female	1.41-1.91 10.36 100 kg	Coe 1972
Systolic blood pressure (standing) (mm Hg)	178.6 ± 2.94 (n = 7 Asian and 8 African elephants)	Honeyman 1992
Diastolic blood pressure (standing)	118.7 ± 3.10	Honeyman 1992

(mm Hg)	(n = 7 Asian and 8 African elephants)	
Mean blood pressure (standing) (mm Hg) (Note that blood pressure increases when elephants are in lateral recumbency)	144.6 ± 2.90 (n=7 Asian and 8 African elephants)	Honeyman 1992
Arterial PO2 (standing) (mm Hg)	96.2 ± 1.55 (n=7 Asian and 8 African elephants)	Honeyman 1992

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