

Elephant Vital Signs and Physiological Parameters

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Parameter	Value	Reference
Height (meters)		
<i>Elephas maximus maximus</i> (Sri Lanka)	2.0 - 3.5	Shoshani 1992
<i>Elephas maximus indicus</i> (Mainland)	2.0 - 3.5	
<i>Elephas maximus sumatranus</i> (Sumatran)	2.0 - 3.2	
<i>Loxodonta africana africana</i> (Bush)	3.0 - 4.0	
<i>Loxodonta africana cyclotis</i> (Forest)	2.0 - 3.0	
Weight (kg)		
<i>Elephas maximus maximus</i> (Sri Lanka)	2,000 – 5,500	Shoshani 1992
<i>Elephas maximus indicus</i> (Mainland)	2,000 – 5,500	
<i>Elephas maximus sumatranus</i> (Sumatran)	2,000 – 4,000	
<i>Loxodonta africana africana</i> (Bush)	4,000 – 7,000	
<i>Loxodonta africana cyclotis</i> (Forest)	2,000 – 4,500	
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 Total = 26	Shoshani 1994
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 1965 Brattstrom 1963
Heart rate (beats per minute)	25 - 30 (standing) 72 - 98 (lateral recumbency)	Kock 1993
Respiratory rate (breaths per minute)	12-Apr	Schmitt 2003
Trunk capacity (liters) adult Asian	8.5	Shoshani 1992
Urine volume/24 hr (liters/day)	25-53	Dutta, 2003 Cheeran 2002 Benedict 1936 Simon 1958,1959
Average volume / urination (liters) max	5.5 10.58	Benedict 1936
Frequency of urination/24 hr	10-May	Benedict 1936 Simon 1959
Fecal production (kg/day)	~110	Dutta, 2003
Defecations/day Asian Boluses/defecation Asian Wt/bolus Asian (kg)	20-Dec 8-May 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)	Honeyman 1992

	elephants)	
Diastolic blood pressure (standing) (mm Hg)	118.7 ± 3.10 (n = 7 Asian and 8 African elephants)	Honeyman 1992
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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