

The **heart** is a [myogenic muscular organ](#) found in all [animals](#) with a [circulatory system](#) (including all [vertebrates](#)), that is responsible for pumping [blood](#) throughout the [blood vessels](#) by repeated, rhythmic contractions. The term *cardiac* (as in [cardiology](#)) means "related to the heart" and comes from the [Greek](#) καρδιά, *kardia*, for "heart".

The vertebrate heart is composed of [cardiac muscle](#), which is an involuntary striated muscle tissue found only in this organ, and [connective tissue](#). The average human heart, beating at 72 beats per minute, will beat approximately 2.5 billion times during an average 66 year lifespan, and weighs approximately 250 to 300 grams (9 to 11 oz) in females and 300 to 350 grams (11 to 12 oz) in males.

In [invertebrates](#) that possess a circulatory system, the heart is typically a tube or small sac and pumps fluid that contains water and nutrients such as [proteins](#), [fats](#), and [sugars](#). In [insects](#), the "heart" is often called the **dorsal tube** and insect "blood" is almost always not oxygenated since they usually [respire](#) (breathe) directly from their body surfaces (internal and external) to air. However, the hearts of some other [arthropods](#) (including [spiders](#) and [crustaceans](#) such as [crabs](#) and [shrimp](#)) and some other animals pump [hemolymph](#), which contains the [copper](#)-based protein [hemocyanin](#) as an oxygen transporter similar to the [iron](#)-based [hemoglobin](#) in [red blood cells](#) found in [vertebrates](#).

The human heart is about the size of a fist and has a mass of between 250 and 350 grams. It is located anterior to the vertebral column and posterior to the sternum.

It is enclosed in a double-walled sac called the [pericardium](#). The superficial part of this sac is called the fibrous pericardium. This sac protects the heart, anchors its surrounding structures, and prevents overfilling of the heart with blood.

The outer wall of the human heart is composed of three layers.



surky●lātære sistim , tīl hΔt iz tipikle æ chob or smarl  
sok ond pumps floid tīot kāntænz wærtΛ ond  
ny●chreinas sach oz prōtenz , fōas , ond shægiz. in  
insekas , tīl "hΔt" iz ofin kārld tīl darsōl chob ond  
insekt "blad" iz æmōst æwæz not oxijinætid sins tīæ  
y●thilæ respīl (brēti) direktle from tīel bode surfΛsiz  
(inturnōl ond exturnōl) t● el . hooevl , tīl hΔas ov  
sam Λtīl ΔTīrōpōas (inklōdeð spīdiz ond krastæshinz  
sach oz krōbz ond shrimp) ond sam Λtīl onāmōlz  
pump hemōlif , wīch kāntænz tīl kopl bæst prōten  
hemōsīnen oz on oxājīn chrōnzpærtΛ simlΛ t● tīl Iīn  
bæst hemāglōbin in red blad sōlz fōond in vurtΛbrīas .  
tīl hy●min hΔt iz āboot tīl sīz ov æ fist ond hōz æ  
mōs ov bitwen 250 ond 350 grōmz . it iz lōkætid  
ontereΛ t● tīl vurtΛbrōl kolim ond postereΛ t● tīl  
sturnim . it iz inklōzd in æ dlabōl wārld sok kārld tīl  
perekΔdeim . tīl sōpāfishōl pΔt ov tīs sok iz kārld tīl  
fībris perekΔdeim. tīs sok prātēkas tīl hΔt , oḡkiz ias  
sārōondeð sjrakchīz , ond privenas ōvāflōweð ov tīl  
hΔt wītī blad . tīl ootΛ wārld ov tīl hy●min hΔt iz  
kompōzd ov tīre lœyīz . tīl ootΛ lœel iz kārld tīl  
eperekΔdeim , or visārōl perekΔdeim sins it iz ælsō tīl  
inΛ wārld ov tīl perekΔdeim. tīl midōl lœel iz kārld tīl  
mīyōkΔdeim ond iz kompōzd ov māsōl wīch  
konchrōkōs . tīl inΛ lœel iz kārld tīl endōkΔdeim ond iz  
in kontōkt wītī tīl blad tīot tīl hΔt pumps . ælsō , it  
mūjīz wītī tīl inΛ līneð (endōtīeleim) ov blad vesōlz  
ond klvīz hΔt vōlvz . tīl hy●min hΔt hōz fōr  
chæmbīz , t● sūpereΛ æchreΛ ond t● infereΛ  
venchrākōlz . tīl oechreΛ Δ tīl rāseveð chæmbīz ond  
tīl venchrākōlz Δ tīl dischΔjeð chæmbīz. tīl rIt  
venchrākōl dischΔjīz int● tīl lΛḡz t● oxājīnæct tīl  
blad. tīl left venchrākōl dischΔhīz ias blad tīwærd tīl

rest ov þil bode vīl þil θeartl. þil pθπwæ ov blad Þr●  
þil hy●min hΔt konsisθs ov æ polminere surkit ond æ  
sistemik surkit . blad flōz Þr● þil hΔt in wln dlrekstln  
, from þil æchrel t● þil venchrlkθlz , ond θot ov þil  
græet Δt lrez , or þil θeartl fθ exΔmpθl . þis iz dln  
bl fθ volvz wicl Δ þil chrlkaspid volv, þil mlchroθl  
vovl , þil θeartik volv , ond þil polmlnere volv.