TABLE 4
Myocardial Power Output in Selected Fishes at Rest and While Swimming

	Power output (mW/g)		Temperature	Body Mass	
	Rest	Exercise	(°C)	(kg)	Source
Temperate-water fishes					
Myxine glutinosa+	0.08	0.27	11	0.08	a
Triakis semifasciata	1.71	3.30	14–24	1.93	b
Scyliorhinus stellaris	1.43	2.46	19	2.6	c
Gadus morhua	1.77	3.29	10.5	0.4–0.8	d
Ophiodon elongatus	1.18	3.21	10	4.2	e
Hemitripterus americanus	1.16	3.13	10	1.2	f
Anguilla australis	1.08	2.19	16–20	0.9–1.1	g
Oncorhynchus mykiss	1.53	7.03	11	1.0	h
Oncorhynchus kisutch	1.22	5.97	5	1.4	i
Tropical fishes					
Katsuwanus pelamis	4.70	—	26	1–2	j
Thunnus albacares	5.60	—	26	1–2	j
Antarctic fishes					
Chaenocephalus aceratus	0.98	—	0.5–2	1.0	k
*Chionodraco hamatus**	—	1.6–3.4	0–2	0.29–0.47	l
Pagothenia borkgrevinki	1.05	2.00	0	0.06	m

Note: Where ventricle mass is not known values of 0.2 g/kg body and 0.08 g/kg body were assumed for elasmobranch and teleost species. Plus (+) denotes maximum value for postadrenaline infusion. Asterisk (*) denotes maximum value in a perfused heart preparation.

References: a, Axelsson et al. (1990) and Forster et al. (1991); b, Lai et al. (1989a, 1989b, 1990a); c, Piiper et al. (1977); d, Axelsson and Nilsson (1986); e, Farrell (1982); f, Axelsson et al. (1989) and Farrell et al. (1985); g, Hipkins (1985); h, Kiceniuk and Jones (1977); i, Davis (1966); j, Bushnell (1988); k, Hemmingsen and Douglas (1977); l, Tota et al. (1991); m, Axelsson et al. (1992).

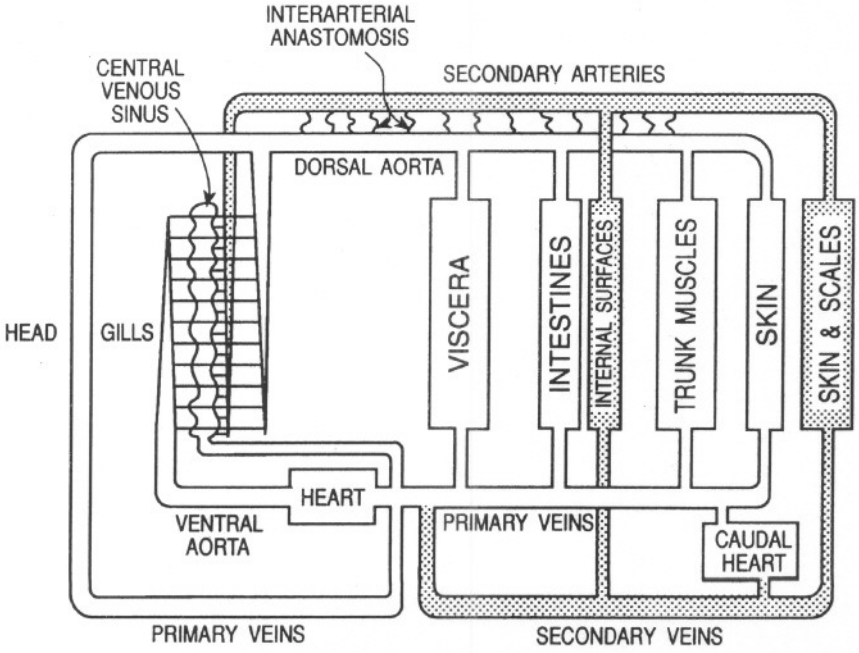

FIGURE 4. The general distribution pattern of the secondary circulation in teleost fish and its relationship to the primary circulation (adapted from Vogel, 1985).

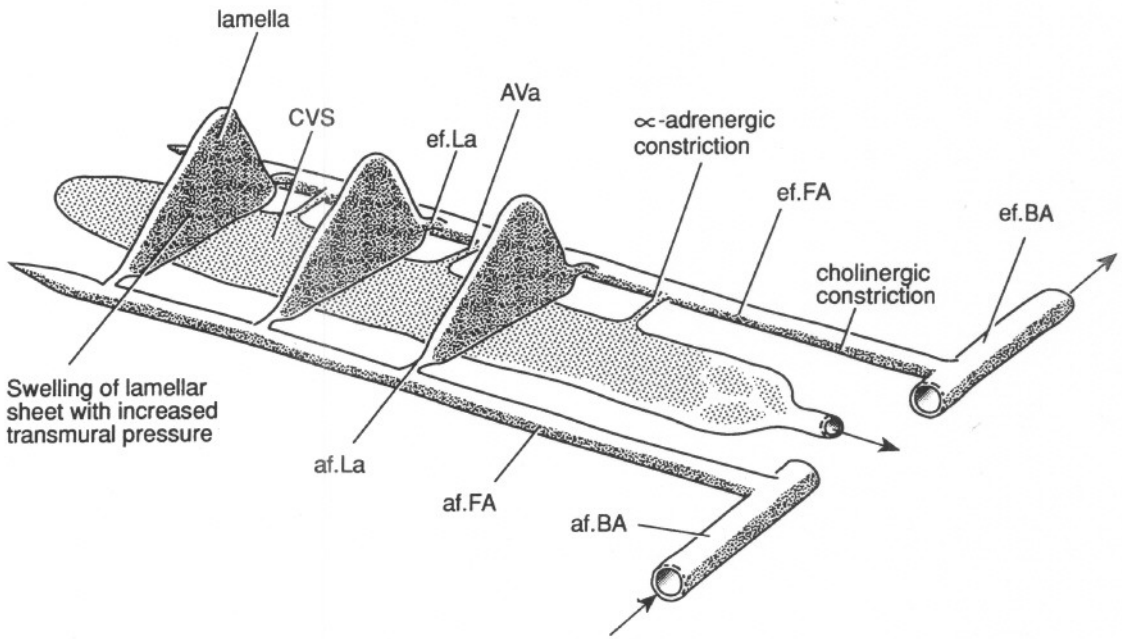

FIGURE 3. A schematic representation of the major vascular pathways in the gill filament of a teleo fish. Known sites for changes in vascular resistance or dimensions are indicated. The marked decrea in gill vascular resistance associated with β-adrenergic vasodilation may result from relaxation of *af.La* ar (or) *ef.La* (af, afferent; ef, efferent; BA, branchial artery; FA, filament artery; La, lamellar arteriole; AV arteriovenous anastomoses; CVS, central venous sinus; lamella, secondary lamella).

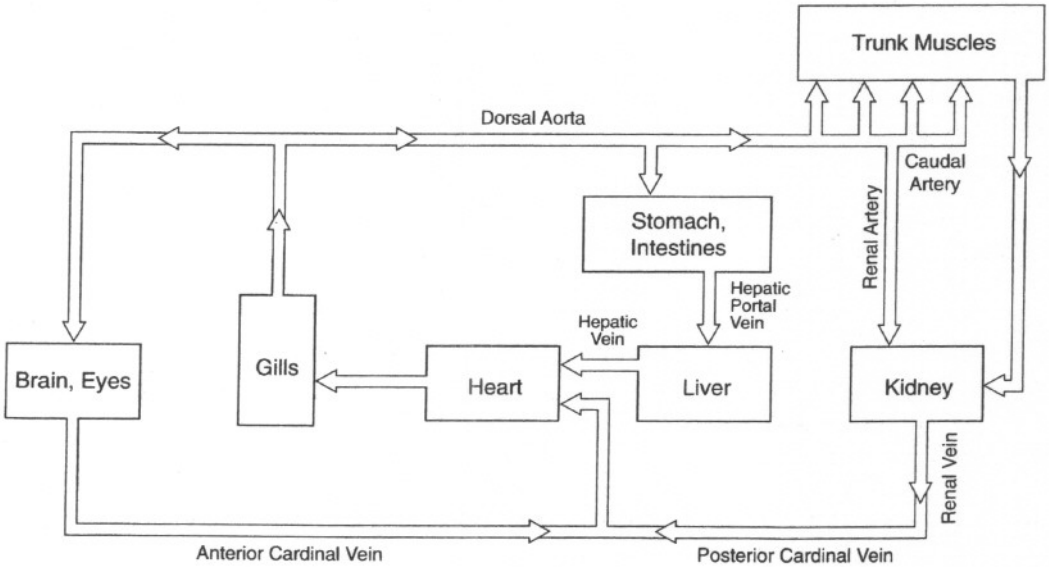

Figure 2.5. Simplified block diagram showing the major features of the fish circulatory system. Organs and tissues further from the heart must function with progressively less oxygen. Note the separate circulation of freshly oxygenated blood from the gills to the brain and return.

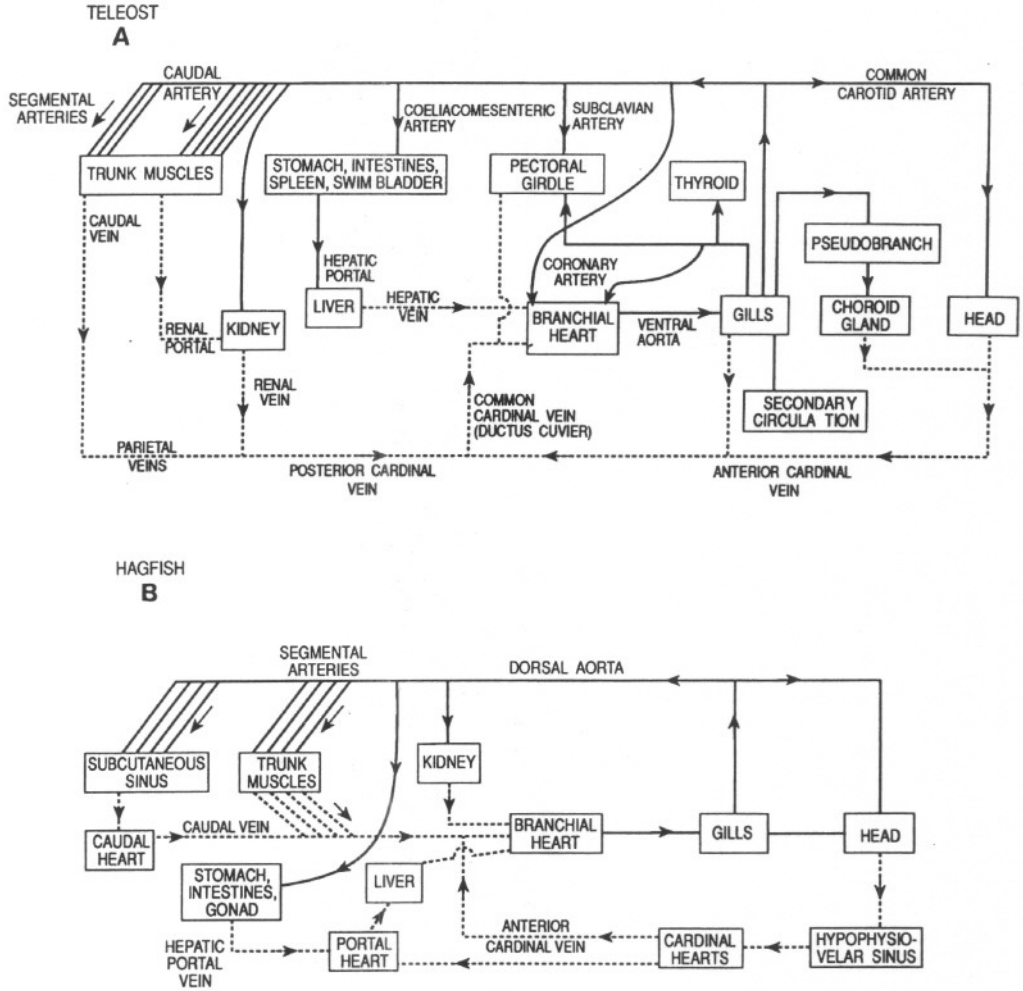

FIGURE 2. Schematic representations of the primary arterial (solid lines) and venous (broken lines) circulations in (A) a salmonid, as a representative of a teleost fish (adapted from Smith and Bell, 1976), and (B) a hagfish.