Figure 4.1.1. (a) Occluded femoral artery and other vessels; (b) typical below-knee femoropopliteal bypass (in red) to restore blood flow to the lower vasculature (Lamberth and Doty, 1984).
Figure 4.1.2. Peripheral arteries subject to occlusion and long-term patency rates after revascularization (from Gray and Sullivan, 1997).
Figure 4.1.3. (a) Illustration of a conventional end-to-side distal anastomosis. Arrows indicate direction of blood flow and shading depicts typical sites of hyperplasia development (Sottiurai, 1999); (b) A vein-cuff (or Miller cuff) has been constructed between the synthetic graft and artery to potentially reduce DAIH (Miller et al., 1984); (c) A vein-patch (Taylor patch) has been constructed (Taylor et al., 1987).

Figure 4.1.4. Realistic in vitro flow models from casts. (a) Model from canine iliofemoral grafts implemented by a variety of researchers, e.g., White et al. (1993) and Loth et al. (1997); (b) Models used by How et al. (2000) including a raised arterial floor in the region of the anastomosis.
Figure 4.2.1. Three widely used graft-end cuts for the construction of end-to-side anastomoses. Cuts are generally made with the graft pressed flat.

Figure 4.2.2. Geometric surface models of four commonly implemented anastomotic configurations. System geometry is largely influenced by the initial graft-end cut made by the vascular surgeon.
Figure 4.2.3. Representative post-anastomotic input waveform for the femoral bypass.
Figure 4.3.1. Midplane velocity vectors, contours of velocity magnitude, and streamlines of secondary motion for Grafts 1 through 4 during accelerating flow ($t_1$).
Figure 4.3.2. Midplane velocity vectors, contours of velocity magnitude, and streamlines of secondary motion for Grafts 1 through 4 during decelerating flow ($t_2$).
Figure 4.3.3a-b. Selected monocyte trajectories indicating transient vortical flow features for (a) Graft 1, and (b) Graft 2.
Figure 4.3.3c-d. Selected monocyte trajectories indicating transient vortical flow features for (c) Graft 3, and (d) Graft 4.
Figure 4.3.4. Wall shear stress based hemodynamic parameters for Graft 1.

Figure 4.3.5. Wall shear stress based hemodynamic parameters for Graft 2.
Figure 4.3.6. Wall shear stress based hemodynamic parameters for Graft 3.

Figure 4.3.7. Wall shear stress based hemodynamic parameters for Graft 4.
Figure 4.3.8. NWRT contours based on platelet trajectories in Grafts 1-4 with and without platelet stimulation history (PSH) and surface reactivity (SR) conditions.
Figure 4.3.9. NWRT contours based on monocyte trajectories for Grafts 1-4 with and without a WSS-limiter condition.