During jumping, a horse must produce enough power to clear the obstacle using both fore- and hind limbs. Contribution of the hind limbs to jumping has been reported, but initial observation suggested that the forelimb must also be important for providing the necessary power. To investigate the contribution of the forelimb during jumping, synchronized ground reaction forces (1000 Hz) and digital video (250 Hz) were recorded while three horses jumped an obstacle of 0.76 m. Inverse dynamic analysis was used to determine the joint moment, power and work generated during the stance phase of the takeoff stride for the joints of the forelimb: shoulder, elbow, carpus, metacarpophalangeal (MCP), and distal interphalangeal (DIP). The shoulder produced a brief net flexor moment early in stance and then an extensor moment the remainder of stance (peaks: -1.2 Nm/kg at 9% stance and 1.9 Nm/kg at 73% stance). The elbow and MCP joints produced extensor moments with peak values of 2.0 Nm/kg at 50% and 1.6 Nm/kg at 62% of stance. The average peak negative power was 7.6 W/kg at approximately 23% of stance and the average peak positive power was 9.5 W/kg and at 75% of stance. Total work done by the forelimb was found to be 0.29 J/kg, with 0.25 J/kg produced by the elbow. Additionally, a minor amount of positive work was created by the shoulder and MCP joints (0.057 and 0.063 J/kg respectively). Negative work was produced by the DIP (0.074 J/kg) and no net work was produced at the carpus. Of the total work done by the forelimb in a jump, it appears that the elbow joint makes the greatest contribution. Supported by NIH # S06 GM53933 to DFH & SJW.