

Physiologic and Nonphysiologic Sinus Tachycardia

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The sinus node is composed of a group of cells located in the lateral superior aspect of the junction between the right atrium and superior vena cava, within the superior aspect of the thick ridge of muscle known as the crista terminalis where the posterior smooth atrial wall derived from the sinus venosus meets the trabeculated anterior portion of the right atrium. Patients with sinus tachycardia will often seek medical attention with the uncomfortable awareness of their heartbeat as their chief complaint. Often, an arrhythmia is suspected because of the similar constellation of symptoms that accompanies supraventricular and ventricular tachycardia or atrial and ventricular ectopy. However, a careful review of the 12-lead electrocardiogram (ECG) reveals a characteristic P wave originating from the superior and lateral aspect of the right atrium with a positive deflection in leads I, II, and III and a biphasic morphology in lead V₁. Sinus P waves are characterized by a frontal plane axis directed inferiorly and leftward, with positive P waves in leads II, III, and aVF; a negative P wave in aVR; and an initially positive biphasic P wave in V₁. Normal sinus rhythm has a range of rates between 60 and 100 beats/min (**Fig. 247-1**).