Prevention of venous thromboembolism has become an integral component of trauma surgery treatment and consists of physical and pharmacological measures. The indications and choice of prophylaxis modalities depend on the patient’s individual risk profile which is determined by the combination of exposing and predisposing risk factors. The exposing risk is characterized by the type and extent of surgery or trauma, whereas the predisposing risk relates to patient inherent risk factors. This has also been considered in the compilation of the guidelines. This review summarizes the recommendations of the German S3 guidelines relating to trauma surgery and also discusses the amendment referring to the registration of the new oral anticoagulants rivaroxaban and dabigatran etexilate. The availability of these new compounds increases the spectrum of prophylaxis modalities thereby creating a need for new information in trauma surgery.