

The Erythrocyte Sedimentation Rate (ESR)

Western Diagnostic Pathology has traditionally offered an ESR as part of the Full Blood Count. No other lab in the state provides this routinely, but only on specific request for an ESR. A review of our work practices and the literature demonstrates that the ESR is a test of limited value. This review provides information to support a recommendation that the ESR not be performed routinely, and that it be requested only in specific clinical circumstances.

The Clinical Utility of the ESR

The ESR has been performed since the late 1880s with a time-honoured role. However the usefulness of this test has diminished as new methods of evaluating disease have been developed.

Factors affecting the ESR

Many factors affect the ESR making it extremely non-specific.

Increased ESR	Lower ESR	No effect
Old age	Extreme leucocytosis	Obesity
Female	Polycythaemia	Body temperature
Pregnancy	Spherocytosis, microcytosis	Recent meal
Anaemia	Hyperviscosity	Aspirin, NSAIDs
Paraprotein (myeloma) Hypergammaglobulinaemia	Low protein: fibrinogen, gammaglobulins	
Macrocytosis	Technical factors: dilution, clotted sample	
Elevated fibrinogen (infection, inflammation, malignancy)		
Technical factors: dilution, high temperature		

Uses of the ESR

- The ESR remains an important diagnostic criterion for only two diseases: polymyalgia rheumatica and temporal arteritis. However a normal ESR does not exclude these conditions.
- The ESR is useful in monitoring rheumatoid arthritis activity, PMR and temporal arteritis.
- An extremely elevated ESR (>100mm/hr) is associated with a low false-positive rate for serious underlying disease, most commonly infection, connective tissue disorders, myeloma, or metastatic malignancy. These disorders however are usually easily clinically diagnosed.
- An elevated ESR in the absence of other findings should not trigger an extensive laboratory or imaging evaluation.

PRACTICE POINTS

- ESR is a very non-specific test of inflammation and cancer
- CRP is a more sensitive early indicator of an acute phase response
- ESR should not be used to screen asymptomatic people
- A normal ESR does not exclude active disease
- ESR increases with age, pregnancy and anaemia
- ESR may be very high (>100) in myeloma, TB or temporal arteritis

ESR vs CRP

Test	Advantages	Disadvantages
ESR	Simple test	Not specific or sensitive. Limited utility
CRP	Earliest indicator of inflammation	Not very specific

**Consider using CRP as a more immediate marker of inflammation.
ESR will only be performed when specifically requested.**