

NOTE 4 Screening For The Absence Of An Acute DVT Using PPG

HOW TO USE THIS APPLICATION NOTE

- **PATIENT SYMPTOMS** Verify that your patient's symptoms correspond to one or more of those listed in Figure 1.
- **DOPPLEX® EQUIPMENT REQUIRED** Select the most appropriate **Dopplex®** Pocket unit to perform the examination. For suggestion of suitable **Dopplex®** equipment, refer to Figure 2.
- **PROCEDURE** Connect your **Rheo Dopplex® II** to the **Printa II** Package or **Reporter** Software Package (and a computer), and begin your examination, refer to Figure 3.
- **SENSOR POSITION** Figure 4 suggests position for sensor and correct position of patient
- **EXAMINATION RESULTS** Taking careful note of your **Rheo Dopplex® II** display and PPG waveforms, refer to Figure 5 overleaf and compare your examination results with those shown.
- **NOTES** Refer to Figure 6 overleaf for general notes relating to this form of examination for venous incompetence.
- It is **ESSENTIAL** that the PPG curve is used to confirm the Refill Time.

FIGURE 1 PATIENT SYMPTOMS

- SEVERE PAIN
- SWELLING OF LEG
- CELLULITIS
- REDDENING OF SKIN

FIGURE 2 EQUIPMENT REQUIRED

- **Rheo Dopplex® II**
- **Dopplex® Printa II** or **Dopplex® Reporter** Software Package



FIGURE 3 PROCEDURE

- Remove footwear and stockings.
- Place foot on insulated mat.
- Adjust height to minimize weight on feet.
- Obese patients should be reclined to reduce venous compression.
- Fit sensor 10cm above the medial malleolus (use length of blue cable).
- Ensure patient is stable, i.e., pulse rate normal
- Undertake exercise routine

FIGURE 4 TESTING POSITION

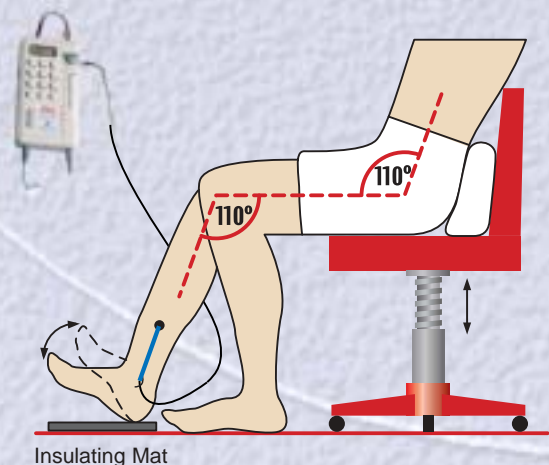
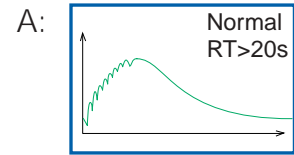


FIGURE 5 EXAMINATION

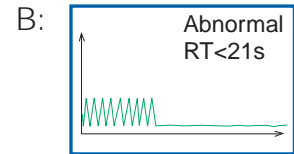
NORMAL

If the Refill Time (RT) is greater than 20 seconds, then the presence of a DVT is highly unlikely. (See Figure 6 below)



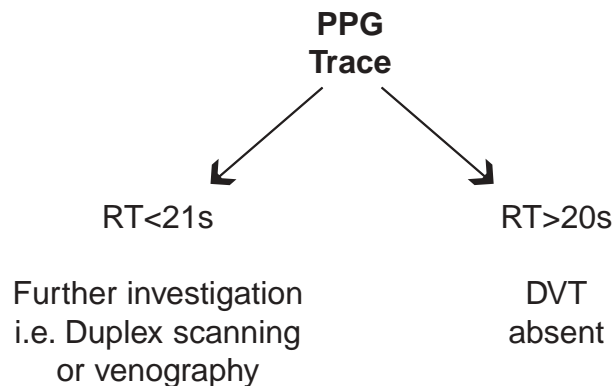
ABNORMAL

If the Refill Time (RT) is less than 21 seconds, then DVT or venous insufficiency may be present. The patient should then be referred for further investigation, i.e., Duplex scanning or venography.



Deep venous obstruction or insufficiency

DECISION MAKING FLOWCHART FOR DVT SCREENING



Do not compress limb if DVT is suspected

Flowchart is for guidance only

FIGURE 6 NOTES

The above procedure is only valid for clinically suspected lower limb DVT's. The PPG technique is not sensitive enough to detect a floating, non-occluding thrombosis. A distal (below knee) thrombosis may not be detected.

References: Tan Y, Da Silva AF, Digital photoplethysmography in the diagnosis of suspected lower limb DVT. *Euro Journ of Vasc and Endovasc Surg.* 1999 18:1, p71-79
Our thanks go to Dr. Mo Aslam, Dept of Surgery, Hammersmith Hospital, London, UK

EDUCATIONAL MATERIAL AVAILABLE FROM HUNTLEIGH DIAGNOSTICS

- Library of Sounds Audio Cassette
- Assessment & Treatment of Leg Ulcers Video
- Vascular Investigations Video
- Assessment of the Diabetic Foot Video
- ABPI & TBPI guides.

APPLICATION NOTES AVAILABLE FROM HUNTLEIGH DIAGNOSTICS

- NOTE 1** • Arterial Investigation Of The Lower Limb
- NOTE 2** • Venous Investigation Of The Lower Limb Using Doppler
- NOTE 3** • Venous Investigation Of The Lower Limb Using PPG
- NOTE 4** • Screening For The Absence Of An Acute DVT Using PPG
- NOTE 5** • Using A Hand Held Doppler To Assist With PICC Placement

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Vascular Assist with Doppler, PPG, PVR and BP.