



Automated Diabetic Foot Evaluation Lab

DIABETIK AUTOLAB



Features:

- ★ India's best all-in-one automated Diabetic Foot Evaluation Lab
- ★ ABI, TBI, Doppler Velocity Waveform, VPT, Plantar Pressure and Foot Temperature in one device
- ★ Easy ABI is free Upgrade (Optional)
- ★ PVR, Segmental Study, Penile Doppler (ED), Carotid Doppler software support
- ★ VPT & MF test in hands and penis (ED).
- ★ Master Report with Patient clinical history, medical history, physical examination with all measured data
- ★ Supports Windows operated computer
- ★ Supplied with Trolley and Scanner/Printer



Vascular Screening:

- ▶ Unidirectional 8MHz probe
- ▶ Photo-plethysmograph PPG Toe sensor
- ▶ Ankle Brachial Index(ABI)
- ▶ Toe Brachial Index(TBI)
- ▶ Doppler Velocity Waveform
- ▶ Venous Examination

Neuropathy Screening:

- ▶ Digital 0 to 50 Volts indicator
- ▶ Vibrator with Mute/Check & Record key
- ▶ Full solid-state design
- ▶ Monofilament Test in-built

Plantar Pressure measurement:

- ▶ Foot Imprinter Harris Mat FM1111
- ▶ Licensed software to scan and analysis greyscale image
- ▶ Report to include the footwear measurements
- ▶ Multi-color picture image indicates high pressure

IR Foot Temperature measurement:

- ▶ Simple one-handed operation
- ▶ Laser targeting °C / °F select switch, Accuracy +/- 2%
- ▶ Early marker for Charcot foot
- ▶ Can reduce risk of ulceration

Automated Diabetic Foot Evaluation Lab – AUTOLAB

Non-Invasive Testing Methods For PAD

Whenever one suspects Peripheral Arterial Disease (PAD), the clinician must perform few non-invasive vascular testing methods that are commercially available and widely implemented. They include the ankle brachial index (ABI), the toe-brachial index (TBI), segmental Pressure Study and pulse volume recording (PVR) and transcutaneous oxygen monitoring (TCPO2).

Ankle Brachial Index:

The ankle brachial index is the most well-known, non-invasive vascular testing tool. ABI test is performed with a Doppler and a blood pressure cuff. One calculates the ABI by dividing the ankle pressure by the brachial systolic pressure. An ABI of < 0.9 is abnormal and ABI values have a linear correlation with wound healing potential in lower extremity wounds. Patients with DM may have calcified and hardened lower extremity arterial walls that cannot be readily compressed and occluded with blood pressure cuffs. This produces falsely elevated ankle pressure readings that are often in the "normal ABI range" (0.9 to 1.4) or sometimes in the non-physiological range of above 1.4. However, Calcified leg arteries in Diabetes Mellitus or dialysis patients may yield falsely elevated ABI results.

Toe-Brachial Index:

The digital arteries in great toes are less affected by medial arterial calcification. One would calculate TBI by dividing the blood pressure of the great toe by the systolic brachial blood pressure. A TBI value of < 0.7 is considered abnormal. Absolute Toe pressure of > 55 mmHg is considered normal. Toe pressure < 30 mmHg is considered severely ischemic.

Testing Methods of Neuropathy

Diabetes can result in long-term health complications, with one of the most common being microvascular damage that leads to diabetic neuropathy (DN), that affects multiple body systems and increases amputation risk. A typical form of DN is diabetic peripheral neuropathy (DPN), which is known to be a primary cause of balance issues, sensation loss in the feet, and a major contributor to nontraumatic lower limb amputations. Earlier detection of DPN in at-risk individuals and in those with prediabetes (PD) or type 2 diabetes (T2D) allows for potential better management through optimal intervention and lifestyle changes. Various simple neurological tests have been reported to be used for screening for DPN, some of which have also been combined into composite scoring systems to enhance the accuracy in the detection of DPN.

Semmes Weinstein monofilament test (SWMT):

The SWMT is a common screening tool for assessing the sensory function and the loss of pressure sensation (light touch perception). A 10 g monofilament test (also referred to the 5.07 monofilament) is the most common in practice.

Biothesiometry:

Biothesiometry is a useful non-invasive tool for the detection of subclinical neuropathy in children and adolescents. The Biothesiometer is an instrument which

measures the threshold of appreciation of vibration sense and the amplitude of the stimulus (measured in volts) is gradually increased until the threshold of vibratory sensation is reached, and the stimulus is appreciated by the patient. Patients with the threshold > 25 volts are at a high risk to develop ulcers later. We are a pioneer in the manufacture and export of Digital Biothesiometer and more than 10000+ are supplied to 36 countries.

Understanding Plantar Pressure Systems:

Diabetic foot ulcer is a major source of morbidity and a leading cause of hospitalization. It is estimated that approximately 20% of hospital admissions among patients with diabetes mellitus are due to diabetic foot ulcer. It can lead to infection, gangrene, amputation, and even death if appropriate care is not provided. Overall, the lower limb amputation in diabetic patients is 15 times higher than in non-diabetics.

Understanding foot biomechanics is an important component in the evaluation of diabetic foot. The abnormal plantar pressure distribution play a key role in the formation of plantar calluses and diabetic foot ulcer. Abnormal value of foot pressure as well as neuropathy could play an important role in the formation of plantar ulcers independently.

Current international guidelines advocate achieving at least a 30 % reduction in maximum plantar pressure to reduce the risk of foot ulcers in people with diabetes. Multiple foot pressure mapping systems are available for measurement of plantar foot pressure. In shoe and platform methods are used widely for measuring plantar foot pressure.

Monitoring Temperature in foot can prevent Ulcers

Diabetic neuropathy consists of multiple clinical manifestations of which loss of sensation is most prominent. High temperatures under the foot coupled with reduced or complete loss of sensation can predispose the patient to foot ulceration. Not only is there a high incidence of ulcerations but fighting ulcers becomes a relentless battle secondary to the high ulcer recurrence rate. An estimated 40 percent of foot ulcerations will recur within one year, 60 percent will recur in three years and 65 percent will recur in five years.

As inflammation is a precipitating sign of ulceration, clinicians have sought techniques to identify inflammation using one of its most common symptoms, increased temperature. Randomized controlled trials have found that local areas of increased temperature, identified using simple infrared thermometers, indicate areas that are likely to ulcerate. This suggests that monitoring of foot and skin temperatures, along with subsequent offloading following observed areas of increased temperatures, can dramatically reduce the occurrence of ulcerations.

One identifies areas of increased temperature using asymmetry analysis, comparing temperatures between a pair of feet. The defined threshold reported in numerous studies is an asymmetrical difference of 4°F (2.2°C). Because most patients at risk for ulceration are also at risk for Charcot, monitoring foot temperature would be an effective tool.



Diabetic Foot Care India Pvt Limited

No.18/1, Kannappanagar, 3rd Main Road, Thiruvanniyur, Chennai - 600 041
Tel - 91-44-43564129 E-mail : mesmedi@gmail.com

Master Report

ID : 2345	Gender : Male
Name : Mr. Chandrasekar	Date : 29/Aug/2018 Visit: 1
AGE : 42	Referral : Dr. Narendran

CLINICAL HISTORY

Height /Weight : 168 cm/ 69.0 Kg BMI : 24.45 Kg/m² Sugar F/PP : 110.0/132.0 mg/dL HBA1C : 5.8 %
Total Cholesterol : 152.0 mg/dL HDL : 48.00 mg/dL LDL : 104.0 mg/dL Sys / Dia BP : 129 /80 mmHg

MEDICAL HISTORY

	CURRENT SYMPTOMS:	PAST MEDICAL HISTORY:
Type of DM : None	Intermittent claudication : No	Peripheral Neuropathy : No
Duration of DM :	Numbness, Tingling in feet : No	Nephropathy : No
History of amputation : No	Ulceration : No	Retinopathy : No
History of ulceration : No	Rest Pain : No	Vascular Disease : No
Smoking : No	Gangrene : No	Hypertension : No
Alcohol : No	Ingrown Toe nail : No	Dyslipidemia : No
Tobacco : No		Heart disease : No
		Stroke / TIA : No

PHYSICAL EXAMINATION

DERMATOLOGY EXAM:	MUSCULOSKELETAL EXAM:	VASCULAR EXAM:
Nail thick or Ingrown : Yes	Hammer toe deformity : No	Pedal hair growth : No
Skin thin, fragile or shiny : Yes	Clawfoot deformity : No	Varicosities present : No
Foot or Ankle swollen : No	Bunion deformity : No	Pedal pulse present : Yes
Callus or Fissures : No	MTH prominent : No	FOOTWEAR EXAM
Redness or Warmth : No	Ankle dorsiflexion : Yes	Appropriate Footwear : No
Maceration : No	Charcot deformities : No	Inserts/Orthotics used : No

MEASUREMENT & RESULTS:

Parameter	ABI/TBI Vascular Doppler Study		IR Dermal Thermometry- Monofilament 10gm Study				
	Right	Left	SPOT	Right	Left	Right	Left
Brachial	110	112	Great Toe	98.3	98.5	Present	Present
Posterior Tibial	126	126	I MTH	97.9	98	Present	Present
Dorsalis Pedis	146	132	III MTH	97.4	97	Present	Present
Great Toe	100	100	V MTH	98	97.5	Present	Present
Ankle Brachial Index (ABI)	1.30	1.18	Instep	99.1	100	Present	Present
Toe Brachial Index (TBI)	0.89	0.89	Heel	100	99.8	Present	Present
Biothesiometry- Volts (Average)	14	17	Dorsum	99.7	99.4		

ABI

Result	Right Leg - (1.30)	TASC II Guidelines:
Right: Normal Arterial Study		ABI: 0.91 - 1.40 - Normal Arterial Study
Left: Normal Arterial Study	Left Leg - (1.18)	0.71 - 0.90 - Mild PAD
		0.41 - 0.70 - Moderate PAD
		<0.41 - Severe PAD
		>1.41 - Incompressible artery
		TBI: >0.7 - Normal TBI Study
		<=0.7 - Abnormal

VPT

Result	Right Leg - (14 V)	VPT Guidelines:
Right: Normal Study		0 - 15 Volts - Normal Study
Left: Mild loss of Vibration Perception	Left Leg - (17)	15 - 20 Volts - Mild Loss of Vibratory Perception
		21 - 25 Volts - Moderate Loss of Vibratory Perception
		Above 25 Volts - Severe Loss of Vibratory Perception

Podiascan Remarks

NORMAL

Remarks

Normal ok

Consultant : Dr.Paneer Selvam

Specialisation: Diabetologist

Technician: A. Kumar

NR - Not Recorded

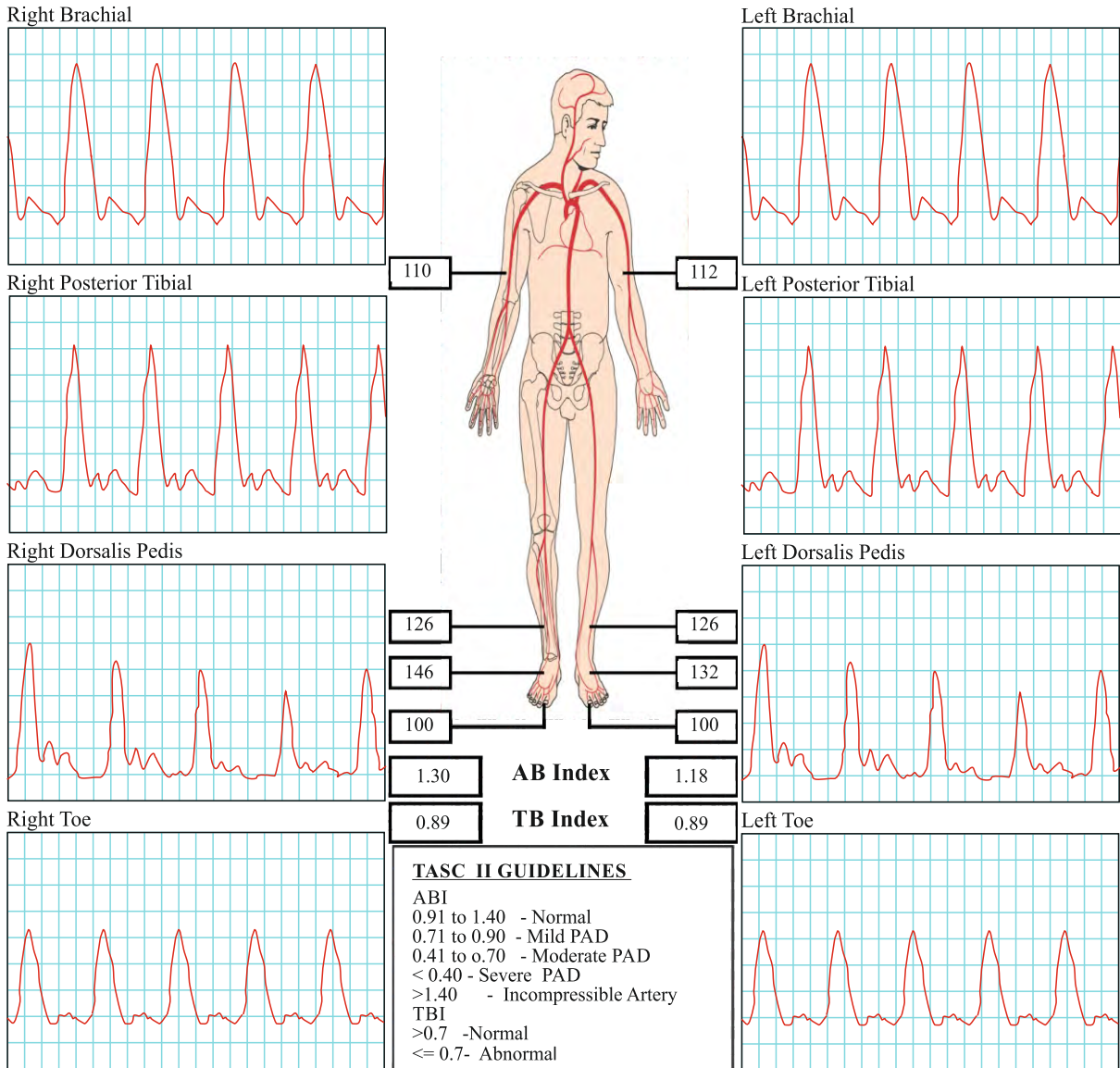


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Name : Mr. Chandrasekar	Date : 29/Aug/2018 Visit: 1
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Arterial Doppler Study for PAD



Interpretations

Right : Normal Arterial Study
 Left : Normal Arterial Study

Remarks :

Consultant : Dr.Paneer Selvam
 Specialisation: Diabetologist
 Autolab - Vascular Doppler Report

Technician: A. Kumar
 The result may be Clinically Correlated

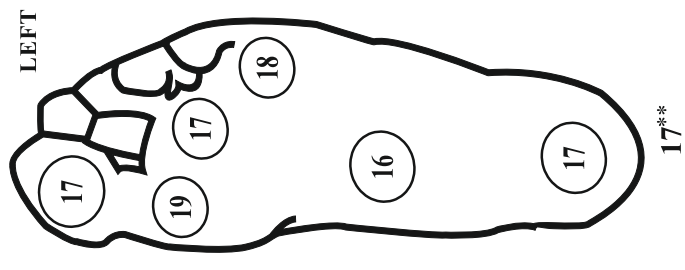
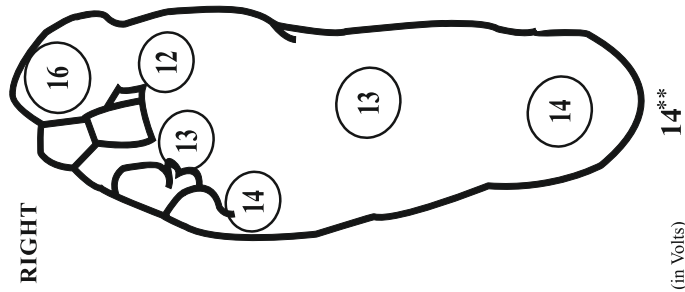
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AGE : 42	Referral : Dr. Narendran
	Visit: 1

DIGITAL BIOTHESIOMETRY STUDY FOR DPN



Average : (in Volts) **14****

Interpretations:
 Right: Normal Study
 Left: Mild Loss of Vibration Perception

Consultant: Dr. Panceer Selvam
 Specialisation: Diabetologist
 Autolab - Digital Biothesiometer Report

Technician: A. Kumar
 ** Clinically Correlated

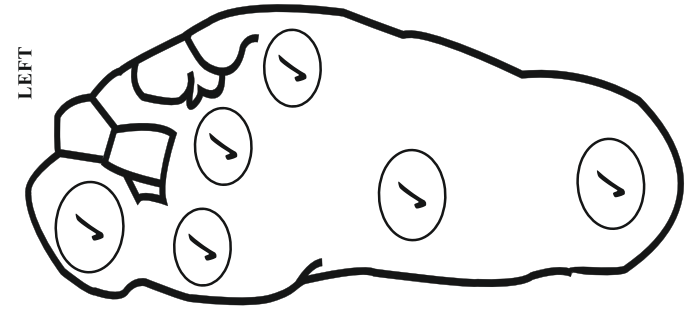
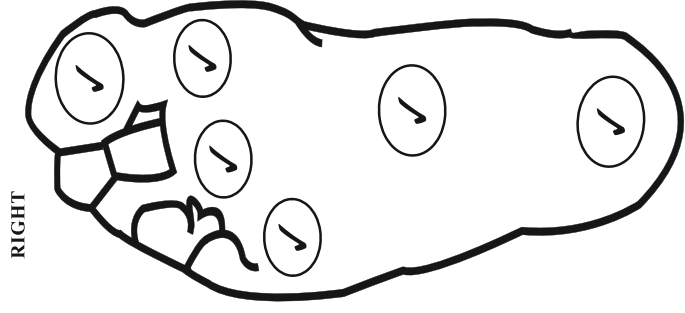
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AGE : 42	Referral : Dr. Narendran
	Visit: 1

Monofilament Study for DPN



✓ Present XX - Absent NR - Not Recorded

Remarks

Consultant : Dr.Panceer Selvam
 Specialisation: Diabetologist
 Autolab - Monofilament 10gm Report

Technician: A. Kumar
 The result may be Clinically Correlated

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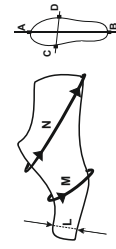
Gender : Male
 Date : 29/Aug/2018
 Referral : Dr. Narendran

Visit: 1

MINILAB Plantar Pressure Report

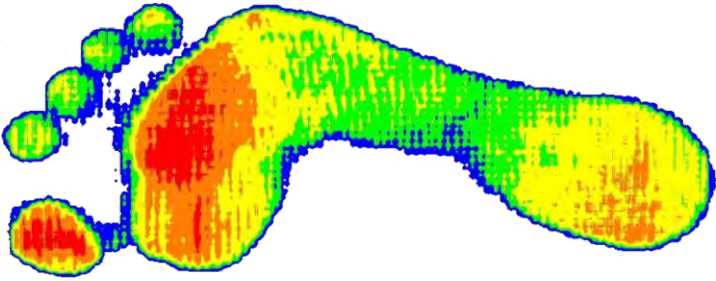
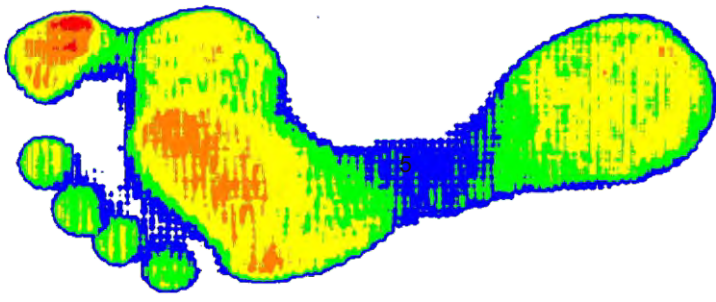
MEASUREMENT & RESULTS

	Footwear (cms)			
	AB	C-D	M	N
Right Foot	26.00	14.00	29.00	40.00
Left Foot	26.00	14.00	29.00	40.00



RIGHT Foot

LEFT Foot



Very High Pressure
 High Pressure
 Mild Pressure
 Normal Pressure
 Less Pressure
 No Contact Area

Remarks
 Normal ok

Consultant : Dr. Pancer Selvam
 Specialisation: Diabetologist
 Annalab - Podiatry Report

Technician: A. Kumar
 The result may be Clinically Correlated

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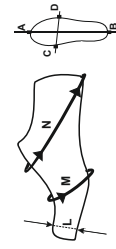
Gender : Male
 Date : 29/Aug/2018
 Referral : Dr. Narendran

Visit: 1

Plantar Pressure Report

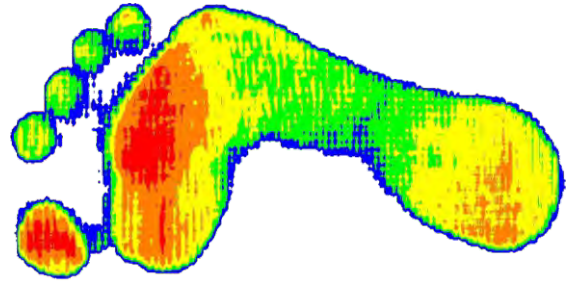
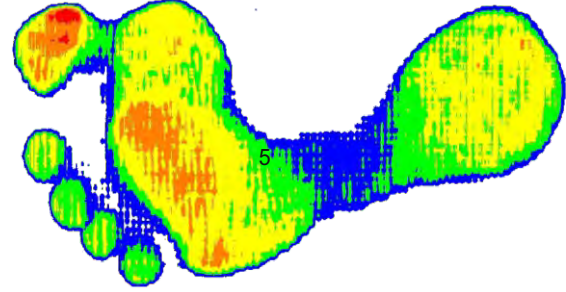
MEASUREMENT & RESULTS

	Footwear (cms)			
	AB	C-D	M	N
Right Foot	26.00	14.00	29.00	40.00
Left Foot	26.00	14.00	29.00	40.00



LEFT Foot

RIGHT Foot



Very High Pressure
 High Pressure
 Mild Pressure
 Normal Pressure
 Less Pressure
 No Contact Area

Remarks
 Normal ok

Consultant : Dr. Pancer Selvam
 Specialisation: Diabetologist
 Annalab - Podiatry Report

Technician: A. Kumar
 The result may be Clinically Correlated

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IR DERMAL THERMOMETRY

ID : 2345

Name : Mr. Chandrasekar

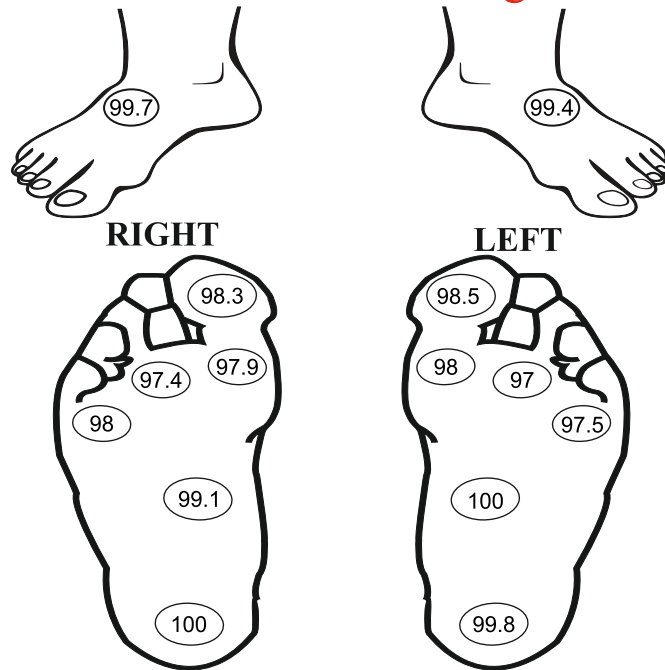
AGE : 42

Gender : Male

Date : 29/Aug/2018 Visit: 1

Referral : Dr. Narendran

Plantar Thermal Monitoring for DPN



Measurement Points	Right	Left	Difference	(°F)
Dorsum	99.7	99.4	0.3	
Great Toe	98.3	98.5	0.2	
I MTH	97.9	98	0.1	
III MTH	97.4	97	0.4	
V MTH	98	97.5	0.5	
Instep	99.1	100	0.9	
Heel	100	99.8	0.2	

(Elevated Temperature gradients between feet $> 4^{\circ} F (> 2.2^{\circ} C)$ were considered to be 'at risk' of ulceration due to inflammation.)

REMARKS :

Consultant : Dr. Dr.Paneerselvam

Specialisation : Diabetologist

Technician: A. Kumar

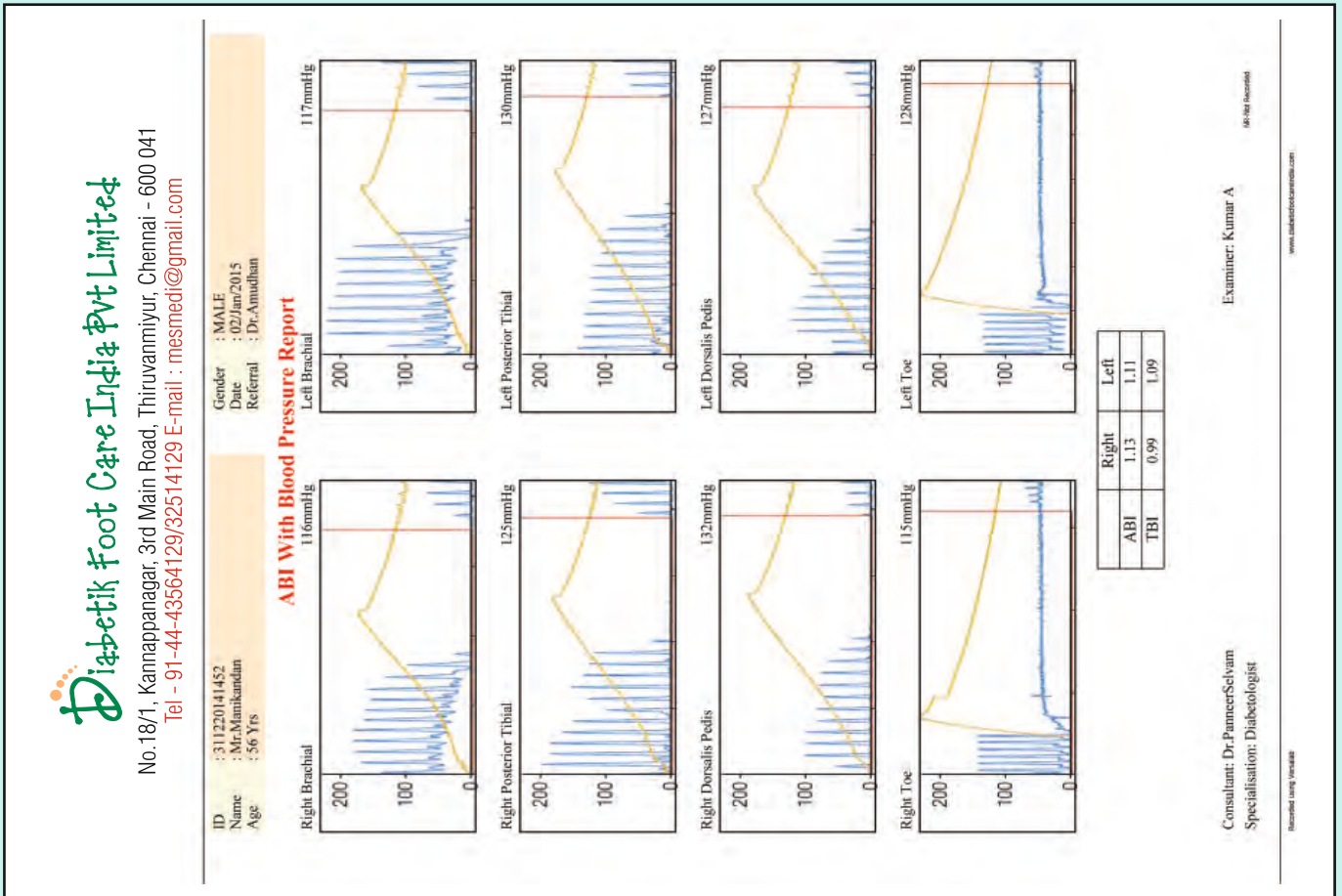
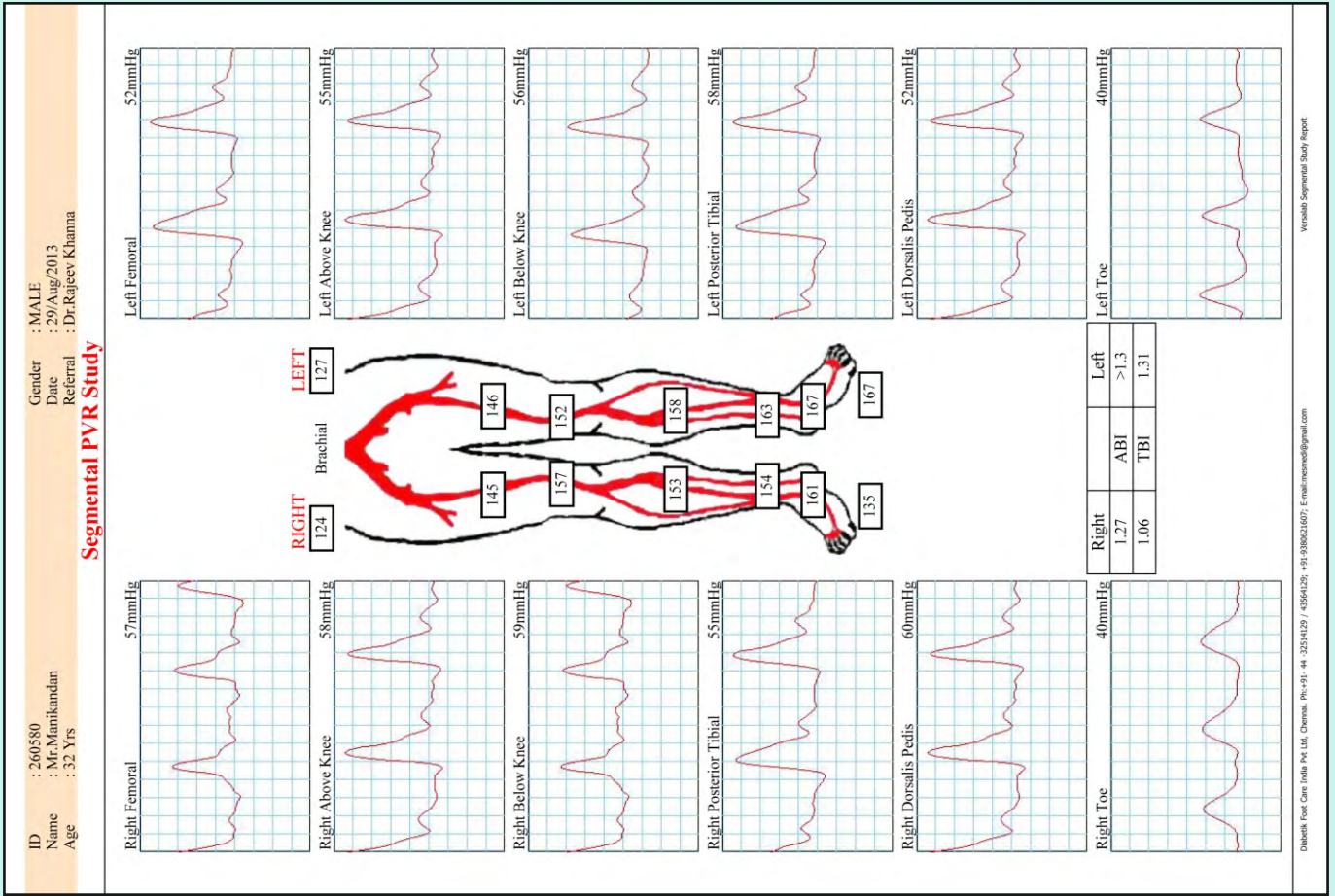
Autolab - IR Foot Temperature Report

The Result may be Clinically Correlated

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Additional Report

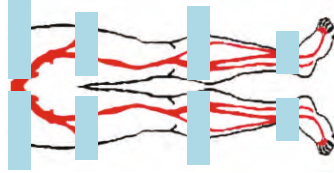
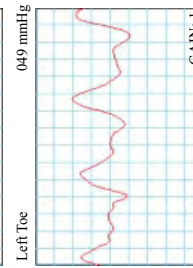
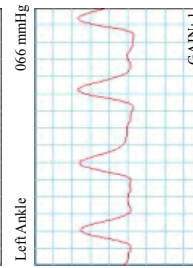
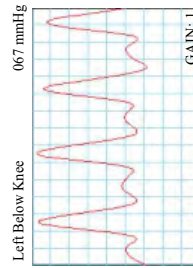
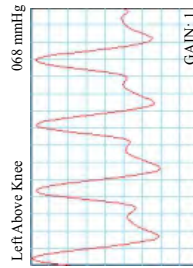
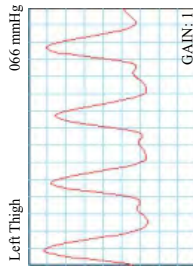
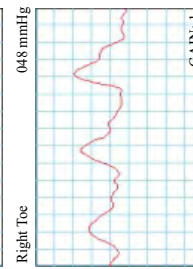
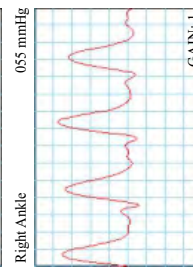
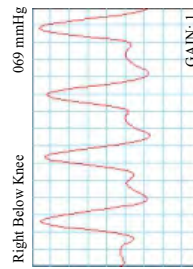
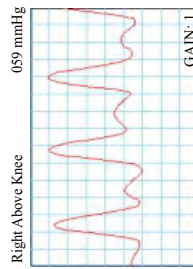
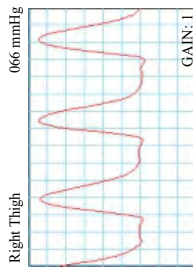
Segmental Doppler Report



ID : 311220141452
 Name : Mr.Mamankandan
 Age : 56 Yrs

Gender : MALE
 Date : 02/Jan/2015
 Referral : Dr.Amudhan

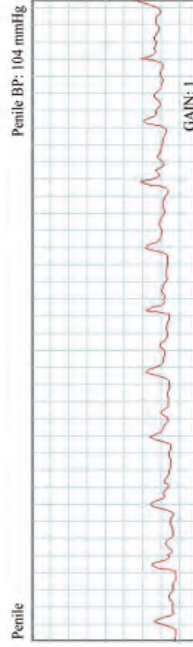
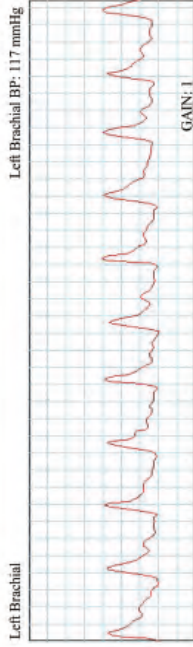
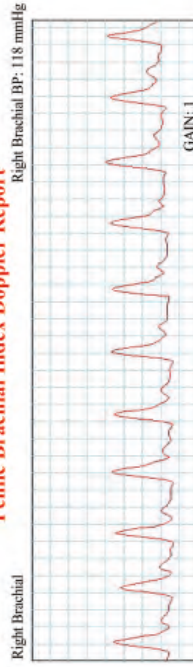
Segmental PVR Report



ID : 020120151628
 Name : Mr.Theri
 Age : 56 Yrs

Gender : MALE
 Date : 02/Jan/2015
 Referral : Dr.Amudhan

Penile Brachial Index Doppler Report



SITE	mmHg	PBI
R.Brachial	118	0.88
L.Brachial	117	
Penile	104	


PBI \geq 0.7 - Normal; PBI $<$ 0.7 - Abnormal

Consultant: Dr.Panneer Selvam
 Specialisation: Diabetologist

Examiner: Amudhan

Penile recorded

VPT & MF Testing in Hand Sample Report

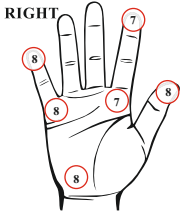


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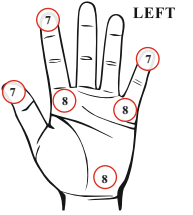
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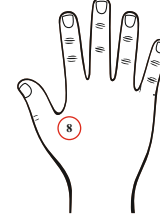
DIGITAL BIOTHESIOMETRY STUDY FOR HANDS

RIGHT

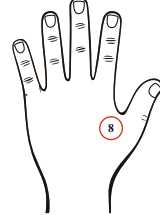


LEFT





8 Volts




8 Volts

Average : (in Volts)

Remarks:

Consultant: Dr. Paneer Selvam
Specialisation: Diabetologist
Autolab - Biothesiometer Hand Report

Technician:A. Kumar
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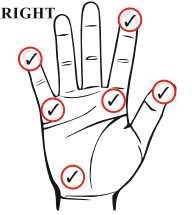


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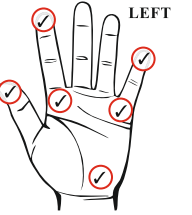
ID : 2345	Gender : Male	Visit: 1
Name : Mr. Chandrasekar	Date : 29/Aug/2018	Referral : Dr. Narendran
AGE : 42		


MONOFILAMENT STUDY FOR HANDS

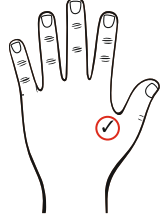
RIGHT



LEFT








Remarks:

Consultant: Dr. Paneer Selvam
Specialisation: Diabetologist
Autolab - Monofilament 10gm Hand Report


Technician:A. Kumar
www.diabeticfootcareindia.com

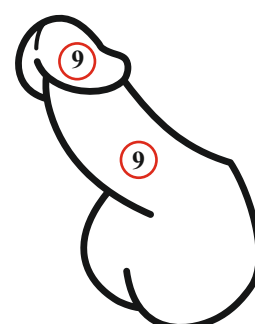


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 Tel - 91-44-43564129 E-mail : mesmedi@gmail.com

ID : 2345	Gender : Male	Visit: 1
Name : Mr. Chandrasekar	Date : 29/Aug/2018	Referral : Dr. Narendran
AGE : 42		

BIOTHESIOMETRY FOR PENILE IMPOTENCE STUDY






Remarks:

Consultant: Dr. Paneer Selvam
Specialisation: Diabetologist
Autolab - Biothesiometer Penile Report


Technician:A. Kumar
www.diabeticfootcareindia.com

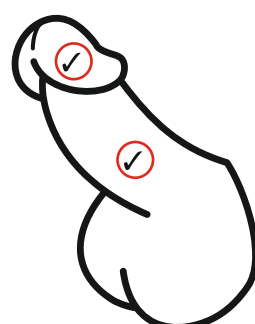


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ID : 2345	Gender : Male	Visit: 1
Name : Mr. Chandrasekar	Date : 29/Aug/2018	Referral : Dr. Narendran
AGE : 42		

MONOFILAMENT 10 mg FOR PENILE IMPOTENCE STUDY





Remarks:

Consultant: Dr. Paneer Selvam
Specialisation: Diabetologist
Autolab - Monofilament Penile Report

Technician:A. Kumar
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Penile VPT & MF Testing Sample Report



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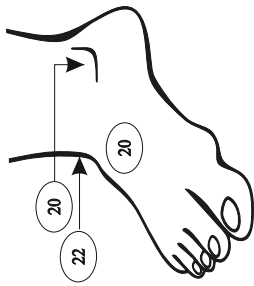
No.18/1, Kamappanagar, 3rd Main Road, Thiruvanniyur, Chennai - 600 041
 Tel - 91-44-43564129/E-mail : mesmedidi@gmail.com

ID : 2345
 Name : Mr. Chandrasekar
 AGE : 42

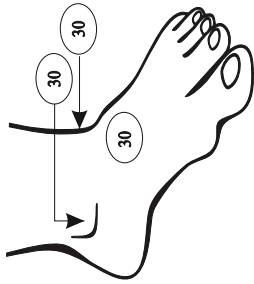
Gender : Male
 Date : 29/Aug/2018
 Referral : Dr. Narendran

Visit: I

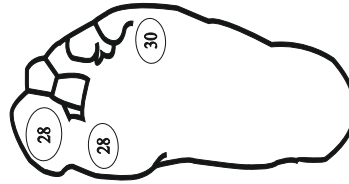
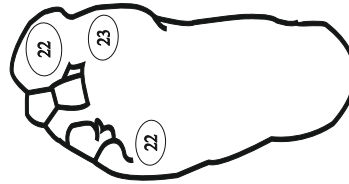
Digital Biothesiometry study for DPN



RIGHT



LEFT



REMARKS :

Consultant : Dr. Panerselvam
 Specialisation : Diabetologist
 Autolab - Biothesiometer Ankel Report

Technician: A. Kumar
 www.diabeticfootcareindia.com

The Result may be Clinically Correlated



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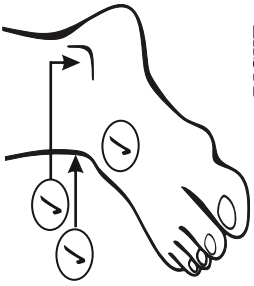
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ID : 2345
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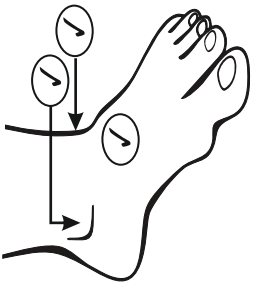
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 Date : 29/Aug/2018
 Referral : Dr. Narendran

Visit: I

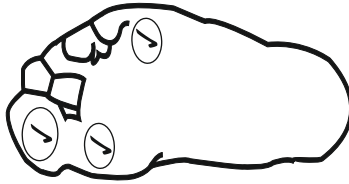
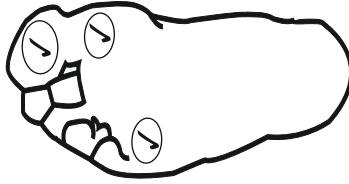
Monofilament 10mg study for DPN



RIGHT



LEFT



✓ - Present XX - Absent NR - Not Recorded

REMARKS :

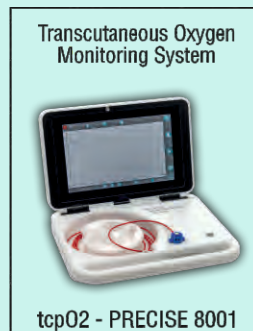
Consultant : Dr. Panerselvam
 Specialisation : Diabetologist
 Autolab - Monofilament 10gm Ankel Report

Technician: A. Kumar
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The Result may be Clinically Correlated

Our Product Range

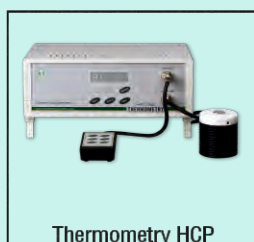
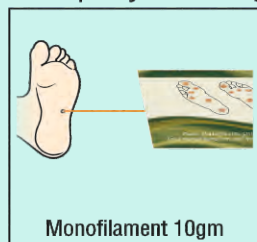
Complete Diabetic Foot Evaluation Lab



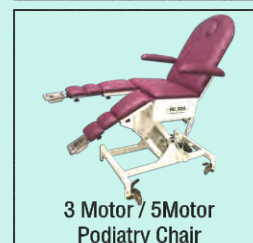
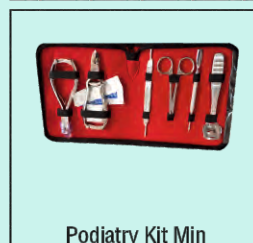
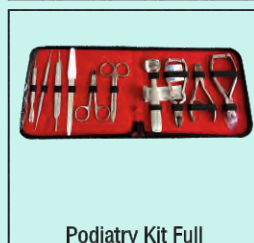
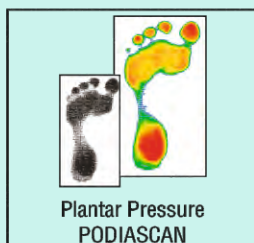
Vascular Screening Devices



Neuropathy Screening Products



Foot Pressure, Pain, Wound Care and Podiatry Products



Diabetic Foot Care India Pvt Limited

No.18/1, Kannappanagar, 3rd Main Road, Thiruvanmiyur, Chennai-41, INDIA.

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