TM-OXI & SUDOPATH SYSTEMS with ES Complex TSS Software



A brilliant, all-in-one, technological breakthrough by LD Technology

Autonomic Nervous System Test Sudomotor Function Test Endothelial Function Test

FDA Approved

Non-invasive

Attractive Insurance Reimbursement

Fast ROI

User-friendly

Customized Reports

Important Clinical Information and biological markers comparison at your finger tips!



TM-Oxi & SudoPath System





TM-OXI & SUDOPATH SYSTEMS - a brilliant breakthrough!

SudoPath ES Complex System is a breakthrough technology pioneered by **Dr. Albert Maarek**, a prominent Neuro-scientist and the founder of LD Technology in Florida, USA. Dr. Maarek's research and development, spanning over a period of 10 years (1996-2006), resulted in better understanding of Electro Interstitial Scan (EIS), and a patented process for sudopath measurements by LD Technology. Today, Dr. Maarek's all-in-one system is widely used by physicians around the world in performing Autonomic Nervous System & HRV tests, Sudomotor Function Assessment test, and Endothelial Function test in a seamless non-invasive ten minute process. The System embodies a brilliant combination of today's cutting-edge technologies and innovative information system algorithms – thereby producing comprehensive but easy-to-read reports that puts important clinical information and biological markers comparison at the fingertips of treating physicians.

ANS failure predicts complication of diabetes and increased risk of Hypoglycemia and Cardiovascular events; **Sudomotor dysfunction** is one of the earliest detectable neurophysiologic abnormalities in distal small fiber neuropathy; and **Endothelial dysfunction** precedes the development of artherosclerosis.

Finally, with Dr. Maarek's intuitive, accurate, and cost-effective SudoPath ES Complex System, the early detection and management of diabetes complications has never been that easy and effective as now!





TM-OXI & SudoPath ES Complex Systems



Components: TM-Oxi System SudoPath System ES Complex Software Aluminum Carrying Case

TM-Oxi System

Description

The TM-Oxi System is a programmable electro medical system comprising an oximeter and automatic non-invasive blood pressure device (NIBP) powered by a computer USB port. The TM-Oxi software analyzes, manages, and displays the measured data.

Features

Automatic non invasive blood pressure at baseline, at Valsalva maneuver, and at change in posture.

• Pulse oximeter displays SpO2%, pulse rate value, and vertical bar graph pulse amplitude. The photoelectrical plethysmography feature (PPG) analyzes the pulse waveform provided by the oximeter.

• HRV (Heart Rate Variability) evaluates the variation of the heart rate both in the time domain (statistical methods) and frequency domain (spectral analysis). Each QRS complex is detected and the so-called normal-to-normal (NN) or Rate-to-Rate (RR) intervals between adjacent QRS complexes result from sinus node depolarization.

• Ewing Tests (Valsalva maneuver, deep breathing, K30/15, and blood pressure response to standing).

Intended use and indications for use:

The TM-Oxi device is indicated for use in non-invasively measuring and displaying functional oxygen saturation of arterial hemoglobin (SpO2), pulse rate (PR), and the non-invasive measurement of blood pressure (NIBP) in adult patients.

FDA Clearance 510k number k130056

ES Complex Software



Description

The SudoPath system is a programmable electro medical system measuring galvanic skin response. It includes:

- USB plug and play hardware device including an electronic box, 2 reusable cables to connect the box to electrodes, and 4 reusable electrodes placed on the soles of the feet and paims of the hands.
- Software installed on a computer.

Features

As a galvanic skin response device, it measures skin resistance (i.e., conductance) and provides a measure of sympathetic cholinergic function. The data is transmitted via the USB port from the hardware device to a PC (software). Through the protocol communication, the software manages the time and sequence of measurements as follows:

- 1. Left to right foot 15 seconds / change polarity right to left foot 15 seconds
- 2. Right to left foot 15 seconds / change polarity left to right foot 15 seconds
- 3. Left to right hand 15 seconds / change polarity right to left hand 15 seconds
- 4. Right to left hand 15 seconds / change polarity left to right hand 15 seconds

The software displays the electrical measurements in real time, and then analyzes the data for amplitude (conductance and voltage) and delay of response (latency).

The data is stored in the backup system of the software, and the history of the data can be displayed for the same patient with different dates.

Intended use and indications for use

SudoPath is a medical device for the measurement of galvanic skin response. The SudoPath device provides values. It is the physician's responsibility to make proper judgments based on these numbers.

FDA Clearance 510k number k131568



FDA Clearance 510k number k113264

ES Complex Software has data management capabilities for use with a combination of FDA cleared devices. ES Complex Software is an optional software accessory. When used in combination with different devices, the ES Complex Software uploads the data of the devices, and then displays the data onto a computer screen for enhanced data management. The ES

System components:

Description

Regulation number: 21CFR 8701130: Non Invasive Blood Pressure measurement system, Class II; 21 CFR 870 2700: Oximeter, Class II; 21 CFR 882 1540: Galvanic Skin Response device Class II; 21 CFR 862 2100: Calculator/data processing module for clinical use, Class I, Product Codes: NXD, DQA, GZO, Classification: Class II, Classification Panel: Cardiology/Neurology.

Complex software is intended for use in clinical settings as an aid for health care professionals to review, analyze and evaluate the historical test results.

Coding & Reimbursement

NUMBER OF TESTS PER WEEK

Tests per week		1 Year revenue		5 Year revenue
5		\$71,240.00		\$356,200
10		\$142,480.00		\$712,400
15		\$213,720.00		\$1,068,600
ased on average reimbu	rsement of \$274 (tot	tal of 95923 & 95943)		
ROI	YEAR-1	200%	YEAR-5	1000%

CPT Codes			
95921	Testing of autonomic nervous system function; cardiovagal innervation (parasympathetic function), including two or more of the following: heart rate respons to deep breathing with recorded R-R interval, Valsalva maneuver and 30:15 ratio.		
95923	Testing of autonomic nervous system function; sudomotor, including 1 or more of the following: quantitative sudomotor axon reflex test (QSART), silastic sweat imprint, thermoregulatory sweat test, and changes in sympathetic skin potential		
95943	Simultaneous, independent, quantitative measures of both parasympathetic function and sympathetic function, based on time-frequency analysis of heart rate variability concurrent with time-frequency analysis of continuous respiratory activity, with mean heart rate and blood pressure measures, during rest, paced (deep) breathing, Vals- alva maneuvers, and head-up postural change		
ICD-9 Codes			
ANS TESTING			
337.0	Disorders of the autonomic nervous system		
337.0	Idiopathic peripheral autonomic neuropathy		
337.1	Other idiopathic peripheral autonomic neuropathy		
337.1	Peripheral autonomic neuropathy in disorders classified elsewhere		
337.9			
	Unspecified disorder of autonomic nervous system		
250.6-250.63	Diabetes mellitus with neurological manifestations		
250.6-250.63 337.0-337.9	Diabetes mellitus with neurological manifestations Disorders of autonomic nervous system		
250.6-250.63 337.0-337.9 340.0	Diabetes mellitus with neurological manifestations Disorders of autonomic nervous system Multiple sclerosis		
250.6-250.63 337.0-337.9 340.0 350.4;355.71	Diabetes mellitus with neurological manifestations Disorders of autonomic nervous system Multiple sclerosis Causalgia		
250.6-250.63 337.0-337.9 340.0 350.4;355.71 358.1	Diabetes mellitus with neurological manifestations Disorders of autonomic nervous system Multiple sclerosis Causalgia Myasthenic syndromes (Eaton-Lambert)		
250.6-250.63 337.0-337.9 340.0 350.4;355.71 358.1 458.0-458.1	Diabetes mellitus with neurological manifestations Disorders of autonomic nervous system Multiple sclerosis Causalgia Myasthenic syndromes (Eaton-Lambert) Hypertension		
337.0-337.9 340.0 350.4;355.71 358.1	Diabetes mellitus with neurological manifestations Disorders of autonomic nervous system Multiple sclerosis Causalgia Myasthenic syndromes (Eaton-Lambert)		

Professional Coder before billing. LD Technology & MedPro Movil LLC does not assume any responsibility for the use of these codes by Practitioners.



IRS Section 179 Tax Deduction - 2014

Take advantage of IRS 179 Tax Deduction. Equipments bought or leased (non-tax/capital lease) and put into operation in 2014 qualify for a \$25,000 outright tax deduction. See the example below:

Cost of Equipment	Section 179 Deduction	Cash Savings assuming 35% Marginal Tax Bracket	Lowered Cost of Equipment after Tax Savings
\$35,000	\$25,000	\$8,750	\$26,250

The saving lowers the cost of owning the equipments, thereby resulting in less cost-per-test and increased ROI (Return on Investment)

The Finer Print : Tax Code Section 179 & Election to Expense

Election to expense, explained and filed on Form 4562, affects only the specific year that the equipment was put into service. You could also file an amended return within the legal amount of time. The cost of your entire equipment purchase to be depreciated for any year should not exceed your total taxable income. The defination of Section 179 equipment is specifically defined as property acquired by a purchase and intended to be utilized in your business. You may want to reference Publication 946 to read more about eligibility requirements. The Section 179 deduction is intended for taxpayers, not including trusts, estates and some specific non-corporate lessors who elect to treat the cost of qualifying property as an expense rather that a capital expenditure. Under these rules, your equipment costs may be deducted from your taxable income up to the approved amount for any specific year. The equipment must be installed by December 31, 2014. Any non-tax lease qualifies for this accelerated depreciation rule on equipment during the first year of use. Please remember that not every State follows this federal law. Please ask your tax adviser for additional information, or visit www.irs.gov for more details on this subject.

Information stated above is informational only and may change.

Purchase / Leasing Options

MedPro, in partnership with carefully selected and reliable leasing companies, offers most cost-effective and convenient leasing options to physicians. Please identify to our representative which of the following purchase / leasing options is most preferred by you:

Cash Purchase:						
Check	Wire-transfer	Credit Cards	PayPal			
Capital Lease:						
24 Month	ns 36 Months	48 Months	☐ 60 Months			
MedPro Movil LLC Financing:						
In select cases MedPro Movil will finance your purchase. Pay 50% Down, and the remaining balance in						

10 equal monthly installments.



SCIENTIFIC VALIDATION OF TM-OXI & SUDOPATH SYSTEMS & ABSTRACTS FROM CLINICAL STUDIES

Below are conclusions from Scientific Validation Studies carried out by medical institutions around the world, validating accuracy and effectiveness of LD Technology's SudoPath ES Complex System. For copies of all such scientific studies, and other Clinical Abstracts and Peer Review Studies, please contact our representative or fax your request to 1-800-732-1219:

New approach in treatment management and early detection of foot neuropathy in diabetic population. Dr Pratiksha G Gandhi, Cardiologist, Mumbai, India

Conclusion: PTGVLFi and CMR Scores provided by the TM-Oxi system have very high sensitivity and specificity to detect diabetes and should be used as new markers in screening and treatment management of diabetic patients. Comparing Diabetes patients and healthy subjects, SMR score, ANR Score and EndoTscore have a high sensitivity and specificity to detect diabetes complications such as foot neuropathy symptoms, autonomic neuropathy symptoms and endothelial dysfunction. Comparing the diabetes patients with or without foot pain or autonomic neuropathy symptoms, SMR score and ANR score will be useful in the early detection of such complications in diabetes patients. In conclusion, these results will be a useful tool to assess the susceptibility of patients with risk factors, and will also ensure better monitoring of diabetes treatment in adjunct of A1C. Furthermore, these results provide a useful tool to assess the susceptibility of patients with risk factors of diabetes complications, and thereby reducing their occurrence in the long term. These findings have to be confirmed by large scale studies using TM-Oxi and SudoPath system.

Mumbai, India

Spectral Analysis of PhotoPlethysmography in screening of atherosclerosis Dr Pratiksha G Gandhi, Cardiologist, Mumbai, India

Conclusion: PTGi parameter and EndoT Score have high sensitivity and specificity to detect atherosclerosis and will be useful as new markers of endothelial dysfunction. PTG VLF has a good sensitivity and remarkable 100% specificity to detect the benefits of coronary surgery. TM-Oxi parameter and Score will be a useful tool to assess the susceptibility of patients with risk factors, and ensures better monitoring of atherosclerosis and surgery, thus reducing the occurrence of cardiovascular events in the long term. Mumbai, India

New approach of Diabetes diagnosis by comparing TM-Oxi Cardiometabolic Score and Oral Glucose Tolerance Test results John Lewis, Laura Lantigua. University of Miami. Presentation at UM symposium

Conclusion: CMRS effectively detects health status as effectively as OGTT lab tests while using TM-Oxi specific markers, and also taking into account individualized factors such as BMI, blood pressure and fat mass. Physicians can detect if a patient has a potential risk for becoming diabetic and make more personalized treatment plans earlier. Encourages consideration of factors that go beyond the set of traditional risk factors.

University of Miami

Comparing the accuracy of ES-BC, EIS-GS, and ES Oxi on body composition, autonomic nervous system activity, and cardiac output to standardized assessments

John E Lewis1, Stacey L Tannenbaum1, Jinrun Gao3, Angelica B Melillo1, Evan G Long1, Yaima Alonso2, Janet Konefal1

Judi M Woolger2, Susanna Leonard1, Prabjot K Singh1, Lawrence Chen1, Eduard Tiozzo1,

Department of Psychiatry and Behavioral Sciences, Department of Medicine, University of Miami Miller, School of Medicine, Miami, FL, State, Farm Insurance, Bloomington, IL, USA

Conclusion: ES-BC and ES Oxi accurately assessed body composition and cardiac output compared to standardized instruments, whereas EIS-GS showed marginal predictive ability for autonomic nervous system activity. The ESC software managing the three devices would be useful to help detect complications related to metabolic syndrome, diabetes, and cardiovascular disease and to noninvasively and rapidly manage treatment follow-up.

Given that many Americans are suffering from metabolic syndrome and the related maladies of CVD, hypertension, and diabetes, the ability to effectively manage these conditions with accuracy, speed, and reliability is necessary. A noninvasive and very low-risk device that can accurately and quickly portray a patient's current condition especially with an emphasis on body composition, autonomic nervous system activity, and cardiac output will enable the clinician to assist in planning initial and monitoring follow-up treatment. The ES-BC, EIS-GS, and ES Oxi devices managed with the ESC software demonstrated overall accuracy with a rapid assessment (measurements can be taken in 5 minutes) compared to accepted standard methods for body composition, autonomic nervous system activity, and cardiac output without reports of any adverse events. The results of the study suggest that ES-BC and ES Oxi demonstrate the ability to accurately assess body composition and cardiac output compared to standardized instruments, whereas EIS-GS showed marginal predictive ability for autonomic nervous system activity as measured by HRV and requires further testing. Thus, according to other studies, 33, 34 it seems that EIS-GS measurements are dependent on more than just autonomic nervous system activity. Dovepress, Medical Devices: Evidence and Research 2011:4 169-177

Correlations of HOMA2-IR and HbA1c with Algorithms Derived from Bioimpedance and Spectrophotometric Devices Chaim Elinton Adami & Renata Cristina Gobato & Martinho Antonio Gestic & Everton Cazzo & Murilo Utrini Pimentel & Marcelo de Carvalho Ramos

Conclusion : The results obtained in this study are encouraging. We believe that the ES complex algorithms will be useful for large-scale screening of IR, MetS, and diabetes treatment failure in Brazilian obese populations. Additional studies are needed to confirm these results in non-obese subjects and in other ethnic groups.

OBES SURG DOI 10.1007/11695-012-0683-3 Insulin resistance detection using spectral analysis of arterial plethysmography versus Hyperinsulinemic Euglycemic Clamp

Sarah Monte Alegre and Aglécio Luiz de Souza, Department of Internal Medicine, Faculty of Medical Sciences of Campinas State University – UNICAMP Address: Cidade Universitária Zeferino Vaz, Barão Geraldo, Brazil.

Conclusion: PTG TP parameter has the best AUC (0.95) comparing with the other existing available tests to detect the M value < 4.5 of the HE clamp. Therefore, PTG TP provided by the ES Complex system represents a novel parameter of screening and follow ups for insulin resistance on large scale population. This parameter is independent factor of risk for T2DM and cardiovascular diseases. Such a tool, which is easy to use, non-invasive, and cost-effective, would be of great benefit for the control of pandemic diabetes diseases and its complications. A new study is underway to confirm the results with 100 patients.

New approach to beta cell function screening by nitric oxide assessment of obese individuals at the population level Elinton Adami Chaim, Renata Cristina Gobato, University of Campinas (UNICAMP), Faculty of Medical Sciences, Department of Surgery, Cidade, Universitária Zeferino Vaz, Barão, Geraldo, Brazil.

Conclusion: The ESC% ß algorithm has a high predictive correlation with HOMA2% ß, and good specificity and sensitivity to detect a HOMA 2% ß value, 100. Therefore, the Electro Sensor complex enabling nitric oxide assessment represents a novel method of screening for beta cell function in the obese population on a large scale. Such a tool, which is easy to administer, noninvasive, and cost-effective, would be of great benefit for widespread screening of beta cell function in obese patients.

The ESC% β algorithm has a high predictive correlation with the HOMA2% β, and good specificity and sensitivity to detect a HOMA2% β value , 100, so the Electro Sensor complex system providing nitric oxide assessment would be a new method of screening for beta cell function in the obese population on a large scale. A tool which is easy to administer, noninvasive, and cost-effective would be of advantage and of great benefit for beta cell function screening.

International Journal of General Medicine 2012:5 449-454

Assessment after six months of bariatric surgery

Renata Cristina Gobato, Nutricionist Postgraduate in Nutrition in the Digestive System (UNICAMP) Faculdade de Ciências Médicas- Departamento de Cirurgia do Hospital de Clínicas UNICAMP, Daniela Fojo Seixas Chaves PhD, Laboratório de Nutrição e Metabolismo- Departamento de Biodinâmica do Movimento Humano- Escola de Educação Física e Esporte – USP, Elinton Adami Chaim PhD, Faculdade de Ciências Médicas- Departamento de Cirurgia do Hospital de Clínicas UNICAMP

Conclusions: Despite the improvement of the autonomic nervous system balance, as well as the markers of stiffness Index and Insulin resistance, we found a high prevalence of hypozincaemia after 6 months of RYGB and protein supplements are needed to maintain an adequate protein intake up to 6 months after surgery.

This study shows improvement of the autonomic nervous system balance, as well as the markers of stiffness Index and Insulin resistance but also frequently hypozincaemia after 6 months of RYGB and that 7mg/day of zinc oxide supplementation is not enough to prevent low serum levels of Zn and suggests that protein supplements are needed to maintain an adequate protein intake up to 6 months after surgery. After RYGB, frequent monitoring to prevent nutritional disorders and consumption of vitamins and minerals supplements with good bioavailability is needed.



Cardiovascular Autonomic Dysfunction Predicts Severe Hypoglycemia in Patients With Type 2 Diabetes: A 10-Year FOLLOW-UP STUDY

JAE-SEUNG YUN, JI-HYUN KIM, KI-HO SONG,YU-BAE AHN,1 KUN-HO YOON, KI-DONG YOO, YONG-MOON PARK, AND SEUNG-HYUN KO, THE CATHOLIC UNIVERSITY OF KOREA, SEOUL, REPUBLIC OF KOREA

Conclusions: Definite CAN was an independent prognostic factor for the development of SH in patients with type 2 diabetes.

Diabetes Care Volume 37, January 2014

Diabetic Autonomic Neuropathy

AARON I. VINIK, MD, PHD, RAELENE E. MASER, PHD, BRAXTON D. MITCHELL, PHD, ROY FREEMAN, MD

Summary: Autonomic dysfunction is a prevalent and serious complication for individuals with diabetes. The clinical manifestations of autonomic dysfunction can affect daily activities (e.g., exercise), produce troubling symptoms (e.g., syncope), and cause lethal outcomes. The patient's history and physical examination are ineffective for early indications of autonomic nerve dysfunction, and thus recommendations for the use of noninvasive tests that have demonstrated efficacy are warranted.

The economic impact of the recommendation to use autonomic function testing is minimal compared with the economic impact of the catastrophic events related to advanced cardiovascular, cerebrovascular, and renal complications. The relative cost of testing will always be less than the incremental costs of treating either a detected complication or the more catastrophic event that could eventually occur. Despite research evidence that clinical observations (whether they be symptoms or routine vital signs) should not be the sole basis for the diagnosis of cardiovascular autonomic dysfunction, screening for abnormalities is infrequently done. This is also despite the fact that office- based commercially available instrumentation for detection is readily available. Given the clinical and economic impact of this complication, testing of diabetic individuals for cardiovascular autonomic dysfunction should be part of their standard of care. Such a recommendation does not diminish the importance of clinical evaluation and patient observation; rather, it enhances the clinical assessment of the diabetic patient by providing an objective, quantifiable, and reproducible measure of autonomic function.

Diabetes Care Volume 26, Number 5, May 2003

Diabetes, Glucose, Insulin, and Heart Rate Variability The Atherosclerosis Risk in Communities (ARIC) study EMILY B. SCHROEDER, PHD, LLOYD E. CHAMBLESS, PHD, DUANPING LIAO, MD, PHD, RONALD J. PRINEAS, MD, PHD,

GREGORY W. EVANS, MA, WAYNE D. ROSAMOND, PHD, GERARDO HEISS, MD, PHD

Conclusions: Cardiac autonomic impairment appears to be present at early stages of diabetic metabolic impairment, and progressive worsening of autonomic cardiac function over 9 years was observed in diabetic subjects. The degree to which pre-diabetic metabolic impairments in insulin and glucose metabolism contribute to decreases in cardiac autonomic function remains to be determined.

Diabetes Care Volume 28, Number 3, March 2005

Diagnosis and management of diabetic autonomic neuropathy

D J EWING, Wellcome Trust senior lecturer, B F CLARKE, Consultant physician, University Department of Medicine and Diabetic, and Dietetic Department, Royal Infirmary, Edinburgh EH3 9YW, Ewing

Conclusions: Subclinical autonomic nerve damage occurs more widely in diabetics than was hitherto suspected and is assuming greater importance because of the implications for morbidity and mortality. Symptomatic autonomic neuropathy carries a worse prognosis than any other complication of diabetes. 2 The simple bedside tests described above can provide an objective guide to whether or not autonomic damage is present, and to what degree. Some of the troublesome symptoms in the later stages can now be more successfully treated than before. The longer-term aim of management should, however, be the prevention or reversal of autonomic damage, particularly in its early stages.

British Medical Journal, Volume 285, 2 October, 1982

Heart rate variability

Standards of measurement, physiological interpretation, and clinical use

Task Force of The European Society of Cardiology and The North American Society of Pacing and Electrophysiology (Membership of the Task Force listed in the Appendix)

Conclusion: Heart rate variability has considerable potential to assess the role of autonomic nervous system fluctuations in normal healthy individuals and in patients with various cardiovascular and non-cardiovascular disorders. HRV studies should enhance our understanding of physiological phenomena, the actions of medications, and disease mechanisms. Large prospective longitudinal studies are needed to determine the sensitivity, specificity, and predictive value of HRV in the identification on ndividuals at risk for subsequent morbid and mortal events.

European Heart Journal (1996) 17, 354-381

On the Analysis of Fingertip Photoplethysmogram Signals

Mohamed Elgendi*

School of Engineering and Information Technology, Charles Darwin University, Australia, School of Electrical and Electronic Engineering, Nanyang Technological University, Singapore, Institute of Media Innovation, Nanyang Technological University, Singapore, Affiliated with Royal Darwin Hospital, Darwin, Australia

Conclusion: This review discussed the photoplethysmography technology and demonstrated their potential diagnostic applications. A common structure of any PPG diagnostic system consists of three stages preprocessing, feature extraction, and diagnosis. The main focus of this review was the preprocessing and feature extraction stages. In the preprocessing stage, different artifact sources affecting the PPG signal are described. The sources of artifact can be the power line interface, motion artifacts, low amplitude, and the existence of arrhythmia. In the feature extraction stage, the characteristics of the PPG waveform and its derivatives have been clarified. Features of the PPG signal have been discussed. These features may be calculated based on the original signal or on the first or second derivative of the PPG signal. Taking the first and second derivatives of the PPG signals may help in detecting the informative inflection points more accurately. Different features have been used as indicators for the same physiological variables. Several vascular stiffness and aging indices have been described and it is currently not clear which of these is most informative. Some features have been used as indicators of different but potentially related cardiovascular variables. Features of the second derivative of the PPG have also been described in literature as indicators for the general state of health. Moreover, the paper presented the most common PPG indexes in the clinical assessment. There is no doubt that these indexes have the potential to be applied to many other pathological studies. Photoplethysmography is a promising technology due to its simplicity, low cost and non-invasiveness. It has potential for early screening for various atherosclerotic pathologies and could be useful for regular GP-assessment or even selfmoni-toring. However, a full understanding of the diagnostic value of the different features is still lacking and more research is needed.

Current Cardiology Reviews, 2012, 8, 14-25

Quantitative measures of sympathetic skin response in diabetes: relation to sudomotor and neurological function D M Levy, G Reid, D A Rowley, R R Abraham

Summary: this study has confirmed that if attention is paid to methodological detail, SSR can be quantified in most diabetic patients. Latency measurement is an objective and reproducible measure of conduction in a long multineuronal pathway and may therefore be complementary to semiquantitative psychophysical measurements. In itself, measurement of SSR amplitude seems to be no more sensitive than other measurements as a diagnostic tool in diabetic neuropathy, but it has

acceptable reproducibility and can be easily measured in the EMG laboratory; we have confirmed that it is a valid measure of sweat gland innervation. Like other neurophysiological measurements, however, it varies with surface temperature, and alternative, more direct measures of peripheral sympathetic innervation may be preferable for detailed diagnosis.



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LD Tech TM-OXI & SudoPath with ES Complex TSS Software





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