

## R E S U M E

HOW TO USE COMPUTER ANALYSIS OF HEART RATE IN SPORT  
 Prof. d-r Sv. Danev doct.med.sc., NIHPZ-Med.Acad. Sofia

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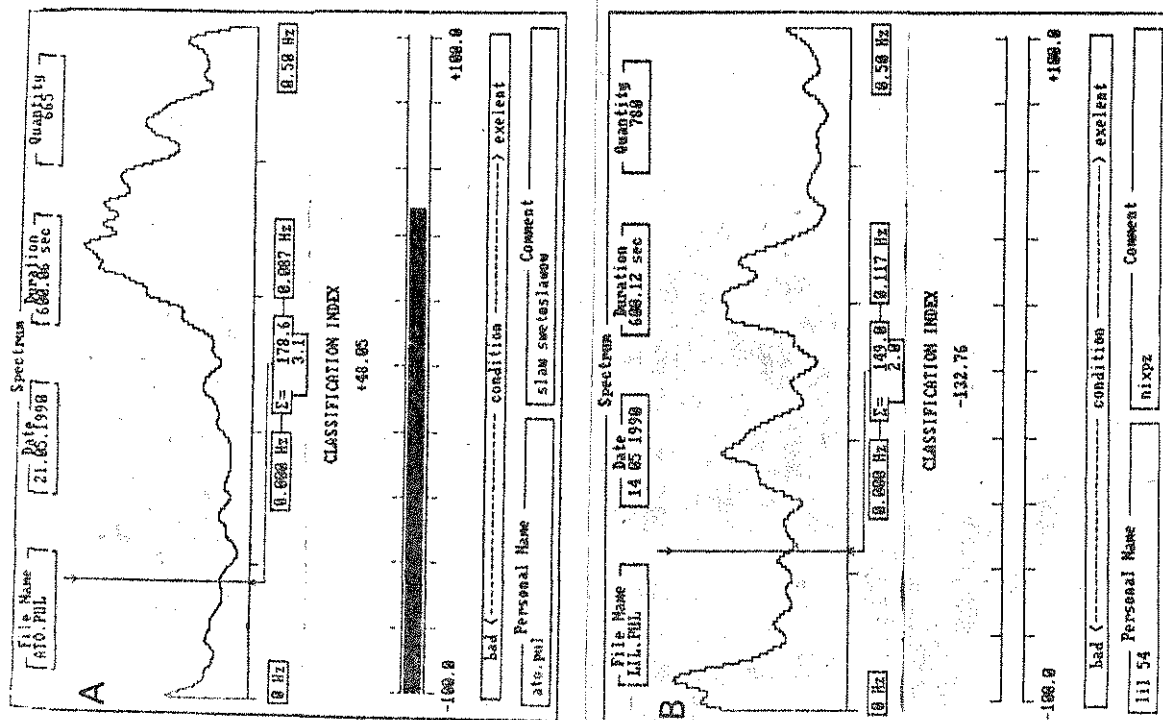


Fig. 1: Spectral analyses and CI in:  
 A: Subject in "good" functional state  
 B: Subject in "bad" functional state.

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METHODE D'ORDINATEUR POUR DETERMINER L'ETAT FONCTIONNEL  
DES INDIVIDUS SAINS ET MALADES

Le methode comprend une analyse d'ordinateur de l'information  
contenue dans le rythme cardiaque. Elle a ete creee par nous pendant  
les annees 60 lors de mon sejour de plusieurs annees en Prague et  
Laiden. Par la suite cette methode a ete developpee jusqu'au bout  
en Hollande, USA, Angleterre et Allemagne. Ces derniers temps elle  
est tres populaire en Union sovietique.

La methode est basee sur le phenomene physiologique bien elucide  
suivant: chez des personnes dont les reserves d'adaptation sont dimi-  
nuees, la frequence de pouls augmente; la deviation standard diminue;  
la distribution de frequence des cardiointervalles devient plus or-  
ganisee et la mode se deplace a gauche de l'abside; l'amplitude de  
la mode augmente en nombre et en pourcentage par rapport a l'ex-  
trait general des cardiointervalles; la part lentement ondulee dans le  
spectre de frequence du rythme cardiaque augmente quant a l'amplitude  
et la puissance spectrale; la fonction d'autocorrelation a tendance  
a la baisse; la skatergramme/le nuage de correlation/est plus dense  
et situee plus pres du debut du systeme de coordination.

Le degre d'expression de ces changements statistique est utilise  
pour diagnostiquer plus objectivement l'effet fonctionnel pendant un  
enregistrement de 15 min. du signal ECG et son usinage statistique a  
l'aide du paquet specialise de produits descriptifs destines /a/  
pour le travail avec des ordinateurs de toutes les classes. Tout  
une multitude d'index, d'indices et de monogrammes, prouves dans la  
pratique ont ete creees. Au moyen d'eux chaque personne nouvellement  
examinee peut etre classifiee d'apres la continuite "sante-maladie"  
par seule valeur numerique, nomme "classification index"/CI/.

Le systeme propose peut etre utilise par des personnes sans une  
instruction medicale pour les besoins du controle de tous les jours  
et par mois sur leur propre etat de sante. Le systeme est tres utile  
pour le controle sur le degre de narcose lors d'une intervention  
chirurgicale; pour un diagnostique precoce de l'hypertonie, du diabete,  
des processus neoplasmes et des autres maladies somatiques qui ont  
une influence sur le status somatique general. Il est prouve comme  
tres efficace dans la medecine cosmique/pour les besoins de la se-  
lection preliminaire;/ dans le sport/pour diagnostiquer l'effet phy-  
siologique du dopping;/ dans la medecine de transport et de travail  
/pour apprecier le degre de fatigue et de surmenage;/ dans la pra-  
tique medico-militaire/pour etablir l'aptitude physique generale/etc.

L'utilisation du systeme est tres reussi pendant les examens pro-  
phylactiques de la population; pour le controle de l'etat de sante  
chez des personnes des groupes de risque etc.

Les resultats obtenus lors de cette methode ont l'avantage de  
reprenter l'etat d'adaptation generale et ressources physiologiques  
de l'organisme tout entier; la decouverte precoce du disbalance phy-  
siologique; le lien correlatif avec un grand nombre de dimensions  
psychologiques comme la nevrose, la depression, l'astenie psychique etc.

## RESUME

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de meme qu'avec plusieurs indices cliniques et paracliniques, ces derniers ne se manifestant pres si tot.

Outre chez des personnes en repos, la methode est utilisee pour caracteriser l'activite des differents etages du centre cardiac pendant un chargement physique dose; pour le depistage des troubles du rythme de l'activite cardiaque, etc.

La continuite de l'enregistrement varie de quelques seconds a quelques heures.

La manipulation avec la systeme est facile, accessible et rapide.

Toutes les exigences quant a la surete electrique sont observees par la division galvanique entre l'individu et l'ordinateur.

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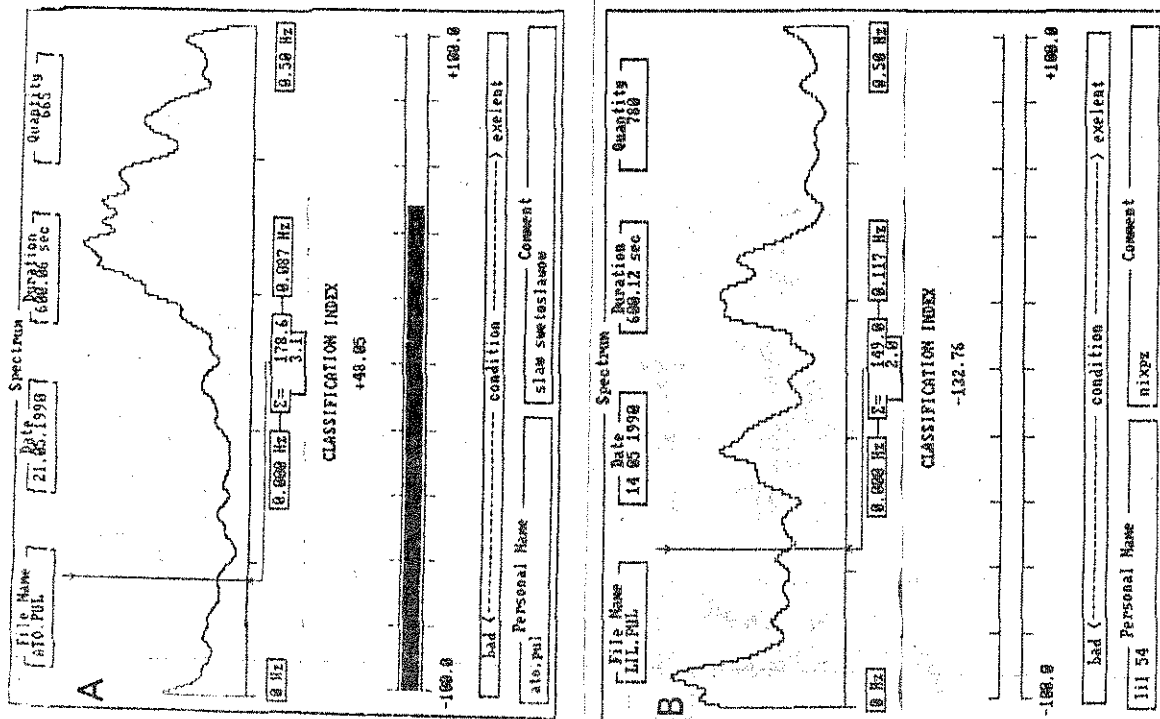


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