

How to use STATERA for healthy people?

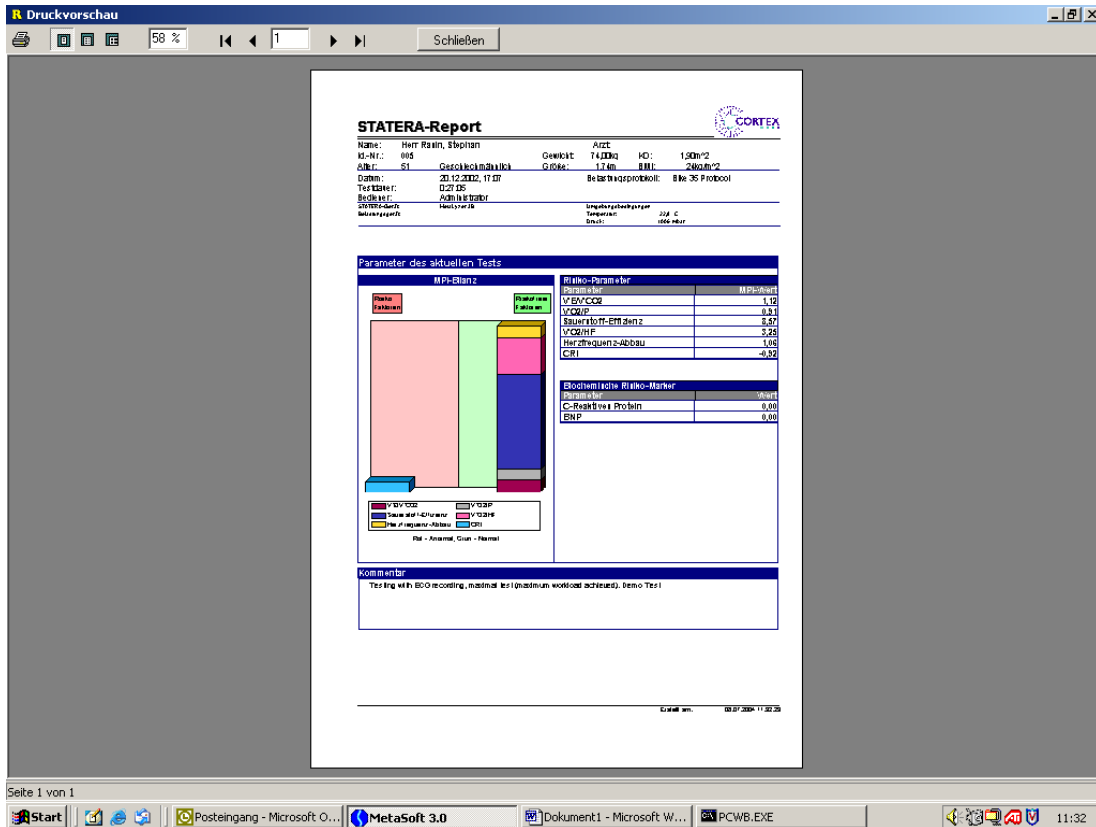
STATERA is a software for cardiac risk assessment based on non-invasive CPX-Testing. It can be used for early recognition of cardiac risk indicators and for assessment of severity and stratification of risk.

Apart from usage for cardiac patients STATERA delivers useful information in testing of healthy people and is a very powerful instrument in combination with Cortex “Zone Trainer” and “Nutritional assessment” software. The main reason is that for all STATERA parameters an improvement (increase of positive MPI values) will to be seen with appropriate training, even if they are completely on the non-risk side of assessment. This makes it possible to:

- recognize whether the parameters are very close to the risk side or even one or two of them already indicate a possible cardiac risk,
- document the tendency of development in exercise tolerance due to therapeutic inventions or training.

The following steps are to show a possible way of STATERA usage for a healthy individual in combination with the other parts of Cortex software:

1. With a healthy individual a VO₂max test should be done because it delivers the highest information density. We recommend a ramp test with continuously increasing load for that purpose with at least 2 min of recovery measurement. The increase should be suitable to reach the VO₂max within 8 – 12 min.
2. Now the STATERA parameters should be calculated in analysis mode. The results can be documented by means of the “MPI-Values” report.



STATERA-Report

Name: Herr Rein, Stephan Alter: 65
 M-Nr.: 005 Gewicht: 74,00kg KO: 1,90m/2
 Adr.: S1 Gasolkolmühlstra. GR064: 1,7 km BMI: 20,0m/2
 Datum: 20.12.2012, 17:07 Behandlungsprotokoll: 8 bis 36 Protocol
 Testdauer: 0:27:35
 Bediener: Achille Hübner
 SPO2-Sensordr.: Neuchâtel
 Sauerstoffsättigung: 98%
 Temperatur: 37,2 °C
 Druck: 100 mmHg

Parameter des aktuellen Tests

MPI-Blanz		Risiko-Parameter	
Fluss	Stabil	VO2max	1,12
Faktor	Stabil	VVO2max	0,81
		VCO2	0,27
		Stauer/VO2max	3,24
		VCO2/VO2max	1,05
		CRP	0,22

Elektrolytische Risiko-Marker

Parameter	Wert
C-Reactive Protein	0,00
BNP	0,00

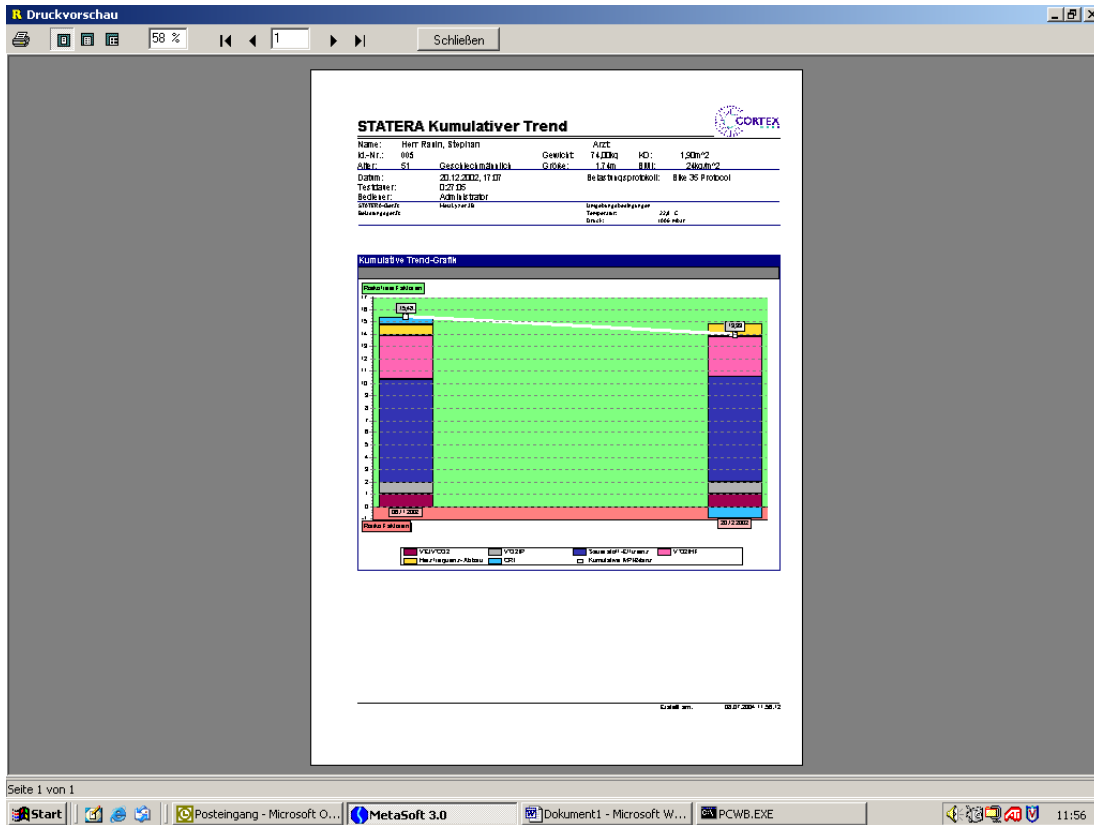
Kommentar

Testing with ECG recording, maximal test (maximum workload achieved), 60min Test

Seite 1 von 1

Start | Posteingang - Microsoft O... | MetaSoft 3.0 | Dokument1 - Microsoft W... | PCWB.EXE | 11:32

If one or more of the parameters are on the “risk” side (see above picture), indicating an underlying cause for the abnormal value(s), further diagnosis and interpretation is required. The risk must not be necessarily caused by CHF. It can also be related to pulmonary limitations or obesity coupled with deconditioning. In the case when more than one test has been completed with this subject, a trend report of MPI values can be printed as well:



The above trend would indicate a minor change for the worse. It can be discussed and handed over to the test subject for information and motivation. So he can watch both positive training effects and negative effects of inactivity.

3. VO₂max and AT should be calculated now by means of the corresponding functions of the analysis module. Based on these parameters, the “Zone Trainer” dialog can be opened, and other useful reports are available.

The “V'O₂-Peak” report gives some more detailed information about how to rate the exercise performance of the subject (below normal, normal, above normal or elite) with regard to different parameters characterizing the training status. Furthermore a BMI- and Body-Fat-Scaling is added. The Body-Fat value can be entered manually if measured by means of an appropriated device.

The “Training Zone” report shows the individual HR ranges of the different training zones, calculated based on the determined AT. A short explanation of each training zone and when to use it is given in the report. Based on that information, a very efficient training program can be established, adapted to the status of the test person and the training objectives.

See both reports on next page.

Druckvorschau | 58% | Schließen

Trainings-Assistent: V'O2-Peak

Patienten-Daten:
 Identifikation: 011 Herr Müllermann, Hans-Gösta | Gewicht: 81.65kg | Arzt: 2231m/2
 Name: Herr Müllermann, Hans-Gösta | 121m | HÖ: 253kg/m²
 Geschlecht: männlich | Alter: 77 | BMI
 Datum: 03.07.2023, 16:11 | Belastungsprotokoll: Rampe+Flachlauf (12 min, 6-12 km/h, D-10*)
 Testdauer: 0:12:39 | ABW in %: 100%
 Bestreuer: Jörn Heider | Umklekabinennummer: 278 | Temperatur: 36.8 °C
 SSTR-Deckel: Heider, Jörn | Datum: 03.07.2023

Sportler-Sollwerte

Parameter	Einheit	Wert	ATL V'O2-Peak
Kardiovaskulär			
HR	1/min	116	162
V'O2max	ml	5.49	4.41
Ventilation			
Af	l/min	17.6	30.2
V'E	l/min	17.23	63.17
Gasanalyse			
V'O2 (STP)	l/min	0.628	2.296
V'O2ig	ml/min/kg	7.88	27.68
V'O2 (STP)	l/min	0.996	2.280
R	l/min	0.563	0.560
La	ml/min	-	-

Leistungsindizes

Parameter	Einheit	Wert	Skala
Maximale Leistung - V'O2-Peak	ml/min	5.49	10
V'O2max	ml/min/kg	7.88	30
HRmax	1/min	116	5

Erholungsindizes

Parameter	Einheit	Wert	Skala
HRmax	1/min	116	100

Statische Parameter

Parameter	Einheit	Wert	Skala
HRmax	1/min	116	100
V'O2max	ml/min/kg	7.88	30
HRmax	1/min	116	100
V'O2max	ml/min/kg	7.88	30

Startzeit: 16:11:39 | Endzeit: 16:24:18

Druckvorschau | 58% | Schließen

Trainings-Assistent: HF-Trainingsbereiche

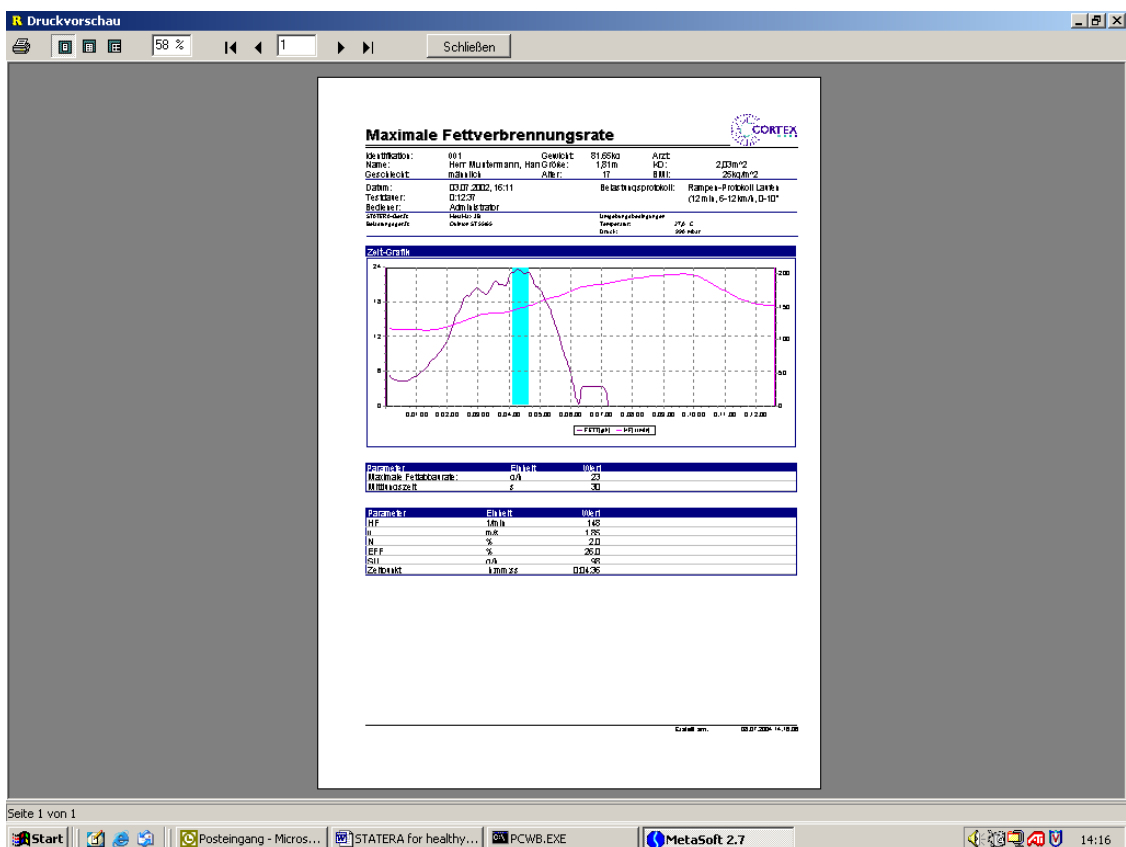
Patienten-Daten:
 Identifikation: 011 Herr Müllermann, Hans-Gösta | Gewicht: 81.65kg | Arzt: 2231m/2
 Name: Herr Müllermann, Hans-Gösta | 121m | HÖ: 253kg/m²
 Geschlecht: männlich | Alter: 77 | BMI
 Datum: 03.07.2023, 16:11 | Belastungsprotokoll: Rampe+Flachlauf (12 min, 6-12 km/h, D-10*)
 Testdauer: 0:12:39 | ABW in %: 100%
 Bestreuer: Jörn Heider | Umklekabinennummer: 278 | Temperatur: 36.8 °C
 SSTR-Deckel: Heider, Jörn | Datum: 03.07.2023

Trainingsebenen

Zone	HR-Bereich	Beschreibung
A	> 165%	Sehr hohe bis maximale Intensität zur Erreichung des Schwelldruckes sowie zur Verbesserung der maximalen Leistungsfähigkeit. In diesem Bereich sollte nur von Spezialisten trainiert werden, da ein Ventilationslimitieren und damit einhergehend.
B	155-165%	Hohe Intensität zur Erreichung der maximalen Leistungsfähigkeit. In diesem Bereich sollte nur von Spezialisten trainiert werden, da ein Ventilationslimitieren und damit einhergehend.
C	145-155%	Mittlere Intensität zur Erreichung der maximalen Leistungsfähigkeit. In diesem Bereich sollte nur von Spezialisten trainiert werden, da ein Ventilationslimitieren und damit einhergehend.
D	135-145%	Niedrige Intensität zur Erreichung der maximalen Leistungsfähigkeit. In diesem Bereich sollte nur von Spezialisten trainiert werden, da ein Ventilationslimitieren und damit einhergehend.
E	125-135%	Sehr niedrige bis niedrige Intensität zur Erreichung der maximalen Leistungsfähigkeit. In diesem Bereich sollte nur von Spezialisten trainiert werden, da ein Ventilationslimitieren und damit einhergehend.

Startzeit: 16:11:39 | Endzeit: 16:24:18

- If the test subject is an obesity person, it could be useful to calculate the maximum fat-burning zone and the related heart rate for efficient weight loss training. This is possible based on “Nutritional Assessment” option. By means of the dialog box “Calculate / FATmax” in analysis module, the substrate utilization trace for fat in [g/h] is shown together with the HR trace for the whole test, and the maximum fat utilization can be determined together with the related HR. Very individual training advices can be given to the test person based on that information and a corresponding report can be printed.



- A BMR/RMR test could be added for an obesity person to show the low value compared to the predicted one and to demonstrate its increase in case of muscle mass development by appropriate training.

