



PTY LIMITED

Amtronix

Amtronix - breaking the sound barrier

P O Box 26318
East Rand 1462
Gauteng, South Africa
Tel: 0861 Amtronix
0861 268 766
+27 11 973 2684
Fax: +27 11 395 2598
info@amtronix.co.za
www.amtronix.co.za

NeuroCom Balance Assessment and Rehabilitation



NeuroCom®
International, Inc.



SMART EquiTest®



Physical Dimensions:

	(W x D x H)	
	in	cm
Assembled dimensions	53 x 61* x 94	135 x 155* x 239
Base	53 x 61 x 6	135 x 155 x 15
System cart	25 x 24 x 44-57**	64 x 61 x 112-145**
Dual forceplate	18 x 18	46 x 46
Step height	6	15
Visual surround	42 x 36 x 74	107 x 91 x 188
Maximum subject height	80	203
*Depth extends to 64 in / 163 cm with surround in resting position. **Minimum-maximum monitor extension height.		
Minimum footprint required	96 x 75	244 x 191
Minimum ceiling height	95	242
Total system weight	810 lbs.	370 kg.

Electrical Characteristics:

- 100-240 volt / 50-60 Hz / 1200 Watt
- Conforms to UL STD 2601-1
- Certified to CAN/CSA STD C22.2 No. 601.1
- Compliant to CE standards



Performance Characteristics:

Rotation of the dual forceplate and visual surround is controlled by independent direct current servomotors. A separate servomotor controls the horizontal translation of the forceplate.

- Forceplate rotation $\pm 10^\circ$, maximum velocity 50°/sec.
- Forceplate translation ± 62.5 in (6.35 cm) maximum velocity 6.2 in/sec. (15 cm/sec.)
- Visual surround rotation $\pm 10^\circ$, maximum velocity 15°/sec.

Components:

- SMART EquiTest® system software
- Moveable dual forceplate (rotate and translate)
- Moveable visual surround with illumination
- Overhead support bar with patient harness set
- IBM compatible computer
- Two flat panel LCD monitors
- Color printer
- Wireless mouse
- Mobile computer cart

Accessories Included:

- Rocker board
- Step-up blocks: 4 in (10 cm) and 6 in (15 cm)
- Leveling block: 2 in (5 cm)
- Heel/toe wedges: 6° and 12° A/P
- Inversion/eversion wedges: 3° and 6° M/L
- Foam pad: 18 x 18 x 5 in (46 x 46 x 13 cm)

Options:

- *inVision*™
- Head Shake-Sensory Organization Test (HS-SOT)
- EMG/Postural Evoked Response (PER)
- Pressure Test
- D.A.T.a™
- NeuroGames™
- 18" x 60" static forceplate
- Laptop configuration

See Individual Specification Sheets for Details

Specifications subject to change without notice.



SMART EquiTest®

Standardized Assessment Protocols:

Sensory Organization Test (SOT) The SOT is a six-condition assessment providing information about interactions among the three sensory systems contributing to postural control. The SOT isolates and quantifies impairments in the patient's use of somatosensory, visual, and vestibular inputs to balance, and impairments related to the patient's use of specific sensory input when it is incorrect. The SOT also quantifies secondary maladaptive impairments related to the patient's ability to select appropriate movement strategies and to accurately align their center of gravity (COG) relative to their base of support.

Motor Control Test (MCT) The MCT assesses the ability of the automatic motor system to quickly and effectively recover following unexpected support surface disturbances. The MCT isolates and quantifies impairments in the timing and strength of the automatic response in each leg, as well as impairments in coordination of responses between the two legs and movement directions.

Adaptation Test (ADT) The ADT is an assessment of the automatic motor system that quantifies impairments in the patient's ability to adapt automatic responses to minimize sway when exposed to surface irregularities and unexpected changes in support surface inclination. The ADT quantifies the patient's ability to systematically reduce their sway energy during repeated exposure to the same surface tilt disturbance.

Limits of Stability (LOS) The LOS is an assessment of the voluntary motor system that quantifies impairments in ability to intentionally displace the COG to the patient's stability limits without losing balance. The patient performs the task while viewing a real-time display of their COG position in relation to targets placed at the center of the base of support and at the stability limits. For each of eight directions, the test measures movement reaction time, movement velocity, movement distance, and movement directional control.

Rhythmic Weight Shift (RWS) The RWS quantifies the patient's ability to perform rhythmic movements of their COG from left to right and forward to backward at three distinct paces. During performance of each task, the patient views a real time display of their COG position relative to a target moving at the desired pace and amplitude. For each direction and pace, the RWS measures movement velocity and directional control.

Weight Bearing Squat (WBS) The WBS quantifies the patient's ability to perform squats with the knees flexed at 0°, 30°, 60°, and 90°, while maintaining equal weight on the two legs.

Unilateral Stance (US) The US is a performance test quantifying the patient's ability to maintain postural stability while standing on one leg at a time with the eyes open and closed. The US enhances the observational testing of single leg stance performance by providing an objective measure of patient sway velocity for each of the four task conditions.



EquiTest®



Components:

- EquiTest® system software
- Moveable dual forceplate (rotate and translate)
- Moveable visual surround with illumination
- Overhead support bar with patient harness set
- IBM compatible computer
- Flat panel LCD monitor
- Color printer
- Wireless mouse
- Mobile computer cart

Performance Characteristics:

Rotation of the dual forceplate and visual surround is controlled by independent direct current servomotors. A separate servomotor controls the horizontal translation of the forceplate.

- Forceplate rotation $\pm 10^\circ$, maximum velocity 50°/sec.
- Forceplate translation ± 62.5 in (6.35 cm) maximum velocity 6.2 in/sec. (15 cm/sec.)
- Visual surround rotation $\pm 10^\circ$, maximum velocity 15°/sec.

Physical Dimensions:

	(W x D x H)	
	in	cm
Assembled dimensions	53 x 61* x 94	135 x 155* x 239
Base	53 x 61 x 6	135 x 155 x 15
System cart	25 x 24 x 44-57**	64 x 61 x 112-145**
Dual forceplate	18 x 18	46 x 46
Step height	6	15
Visual surround	42 x 36 x 74	107 x 91 x 188
Maximum subject height	80	203
*Depth extends to 64 in / 163 cm with surround in resting position.		
**Minimum-maximum monitor extension height.		
Minimum footprint required	96 x 75	244 x 191
Minimum ceiling height	95	242
Total system weight	775 lbs.	352 kg.

Electrical Characteristics:

- 100-240 volt / 50-60 Hz / 1200 Watt
- Conforms to UL STD 2601-1
- Certified to CAN/CSA STD C22.2 No. 601.1
- Compliant to CE standards



Options:

- *inVision*™
- Head Shake-Sensory Organization Test (HS-SOT)
- EMG/Postural Evoked Response (PER)
- Pressure Test
- D.A.T.a™
- NeuroGames™
- 18" x 60" static forceplate
- Laptop configuration
- Also available as a Clinical Research System™

See Individual Specification
Sheets for Details

Specifications subject to change without notice.



EquiTest®

Standardized Assessment Protocols:

Sensory Organization Test (SOT) The SOT is a six-condition assessment providing information about interactions among the three sensory systems contributing to postural control. The SOT isolates and quantifies impairments in the patient's use of somatosensory, visual, and vestibular inputs to balance, and impairments related to the patient's use of specific sensory input when it is incorrect. The SOT also quantifies secondary maladaptive impairments related to the patient's ability to select appropriate movement strategies and to accurately align their center of gravity (COG) relative to their base of support.

Motor Control Test (MCT) The MCT assesses the ability of the automatic motor system to quickly and effectively recover following unexpected support surface disturbances. The MCT isolates and quantifies impairments in the timing and strength of the automatic response in each leg, as well as impairments in coordination of responses between the two legs and movement directions.

Adaptation Test (ADT) The ADT is an assessment of the automatic motor system that quantifies impairments in the patient's ability to adapt automatic responses to minimize sway when exposed to surface irregularities and unexpected changes in support surface inclination. The ADT quantifies the patient's ability to systematically reduce their sway energy during repeated exposure to the same surface tilt disturbance.

Weight Bearing Squat (WBS) The WBS quantifies the patient's ability to perform squats with the knees flexed at 0°, 30°, 60°, and 90°, while maintaining equal weight on the two legs.

Unilateral Stance (US) The US is a performance test quantifying the patient's ability to maintain postural stability while standing on one leg at a time with the eyes open and closed. The US enhances the observational testing of single leg stance performance by providing an objective measure of patient sway velocity for each of the four task conditions.



SMART Balance Master®



Physical Dimensions:

	(W x D x H)	
	in	cm
Assembled dimensions	53 x 61* x 94	135 x 155 x 239
Base	53 x 61 x 6	135 x 155 x 15
System cart	25 x 24 x 44-57**	64 x 61 x 112-145**
Dual forceplate	18 x 18	46 x 46
Step height	6	15
Visual surround	42 x 36 x 74	107 x 91 x 188
Maximum subject height	80	203
*Depth extends to 64 in / 163 cm with surround in resting position.		
**Minimum-maximum monitor extension height.		
Minimum footprint required	96 x 75	244 x 191
Minimum ceiling height	95	242
Total system weight	710 lbs.	325 kg.

Components:

- SMART Balance Master® system software
- Moveable dual forceplate (rotate)
- Moveable visual surround with illumination
- Overhead support bar with patient harness set
- IBM compatible computer
- Two flat panel LCD monitors
- Color printer
- Wireless mouse
- Mobile computer cart

Accessories Included:

- Rocker board
- Step-up blocks: 4 in (10 cm) and 6 in (15 cm)
- Leveling block: 2 in (5 cm)
- Heel/toe wedges: 6° and 12° A/P
- Inversion/eversion wedges: 3° and 6° M/L
- Foam pad: 18 x 18 x 5 in (46 x 46 x 13 cm)

Specifications subject to change without notice.

Electrical Characteristics:

- 100-240 volt / 50-60 Hz / 1200 Watt
- Conforms to UL STD 2601-1
- Certified to CAN/CSA STD C22.2 No. 601.1
- Compliant to CE standards



Performance Characteristics:

Rotation of the dual forceplate and visual surround is controlled by independent direct current servomotors.

- Forceplate rotation $\pm 10^\circ$, maximum velocity $50^\circ/\text{sec}$.
- Visual surround rotation $\pm 10^\circ$, maximum velocity $15^\circ/\text{sec}$.

Options:

- *inVision*™
- Head Shake-Sensory Organization Test (HS-SOT)
- EMG/Postural Evoked Response (PER)
- Pressure Test
- D.A.T.a™
- NeuroGames™
- 18" x 60" static forceplate
- Laptop configuration

See Individual Specification
Sheets for Details



SMART Balance Master®

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Sensory Organization Test (SOT) The SOT is a six-condition assessment providing information about interactions among the three sensory systems contributing to postural control. The SOT isolates and quantifies impairments in the patient's use of somatosensory, visual, and vestibular inputs to balance, and impairments related to the patient's use of specific sensory input when it is incorrect. The SOT also quantifies secondary maladaptive impairments related to the patient's ability to select appropriate movement strategies and to accurately align their center of gravity (COG) relative to their base of support.

Adaptation Test (ADT) The ADT is an assessment of the automatic motor system that quantifies impairments in the patient's ability to adapt automatic responses to minimize sway when exposed to surface irregularities and unexpected changes in support surface inclination. The ADT quantifies the patient's ability to systematically reduce their sway energy during repeated exposure to the same surface tilt disturbance.

Limits of Stability (LOS) The LOS is an assessment of the voluntary motor system that quantifies impairments in ability to intentionally displace the COG to the patient's stability limits without losing balance. The patient performs the task while viewing a real-time display of their COG position in relation to targets placed at the center of the base of support and at the stability limits. For each of eight directions, the test measures movement reaction time, movement velocity, movement distance, and movement directional control.

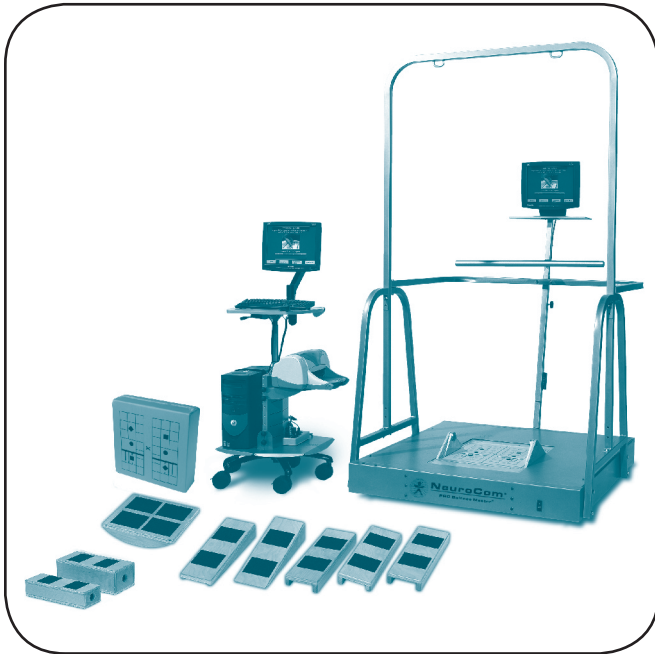
Rhythmic Weight Shift (RWS) The RWS quantifies the patient's ability to perform rhythmic movements of their COG from left to right and forward to backward at three distinct paces. During performance of each task, the patient views a real time display of their COG position relative to a target moving at the desired pace and amplitude. For each direction and pace, the RWS measures movement velocity and directional control.

Weight Bearing Squat (WBS) The WBS quantifies the patient's ability to perform squats with the knees flexed at 0°, 30°, 60°, and 90°, while maintaining equal weight on the two legs.

Unilateral Stance (US) The US is a performance test quantifying the patient's ability to maintain postural stability while standing on one leg at a time with the eyes open and closed. The US enhances the observational testing of single leg stance performance by providing an objective measure of patient sway velocity for each of the four task conditions.



PRO Balance Master®



Components:

- PRO Balance Master® system software
- Moveable dual forceplate (rotate)
- Overhead patient support bar with harness set
- IBM compatible computer
- Two flat panel LCD monitors
- Color printer
- Wireless mouse
- Mobile computer cart

Accessories Included:

- Rocker board
- Step-up blocks: 4 in (10 cm) and 6 in (15 cm)
- Leveling block: 2 in (5 cm)
- Heel/toe wedges: 6° and 12° A/P
- Inversion/eversion wedges: 3° and 6° M/L
- Foam pad: 18 x 18 x 5 in (46 x 46 x 13 cm)

Specifications subject to change without notice.

Physical Dimensions:

	(W x D x H)	
	in	cm
Assembled dimensions	53 x 61 x 94	135 x 155 x 239
Base	53 x 61 x 6	135 x 155 x 15
System cart	25 x 24 x 44-57*	64 x 61 x 112-145*
Dual forceplate	18 x 18	46 x 46
Step height	6	15
*Minimum-maximum monitor extension height.		
Maximum subject height	80	203
Minimum footprint required	94 x 75	239 x 191
Minimum ceiling height	95	242
Total system weight	660 lbs.	300 kg.

Electrical Characteristics:

- 100-240 volt / 50-60 Hz / 1200 Watt
- Conforms to UL STD 2601-1
- Certified to CAN/CSA STD C22.2 No. 601.1
- Compliant to CE standards



Performance Characteristics:

Rotation of the dual forceplate is controlled by a direct current servomotor.

- Forceplate rotation $\pm 10^\circ$, maximum velocity 50°/sec.

Options:

- *inVision*™
- Head Shake-Sensory Organization Test (HS-SOT)
- EMG/Postural Evoked Response (PER)
- Pressure Test
- D.A.T.a™
- NeuroGames™
- 18" x 60" static forceplate
- Laptop configuration

See Individual Specification Sheets for Details



PRO Balance Master®

Standardized Assessment Protocols:

Adaptation Test (ADT) The ADT is an assessment of the automatic motor system that quantifies impairments in the patient's ability to adapt automatic responses to minimize sway when exposed to surface irregularities and unexpected changes in support surface inclination. The ADT quantifies the patient's ability to systematically reduce their sway energy during repeated exposure to the same surface tilt disturbance.

Limits of Stability (LOS) The LOS is an assessment of the voluntary motor system that quantifies impairments in ability to intentionally displace the COG to the patient's stability limits without losing balance. The patient performs the task while viewing a real-time display of their COG position in relation to targets placed at the center of the base of support and at the stability limits. For each of eight directions, the test measures movement reaction time, movement velocity, movement distance, and movement directional control.

modified Sensory Organization Test (mSOT) The mSOT is a subset of the SOT that includes SOT conditions 1, 2, 4, and 5. The mSOT isolates and quantifies impairments in the patient's use of somatosensory, visual, and vestibular inputs to balance, as well as quantifying secondary maladaptive impairments related to the patient's ability to select appropriate movement strategies and to accurately align their center of gravity (COG) relative to their base of support. The mSOT does not provide information related to inappropriate use of inputs providing incorrect information.

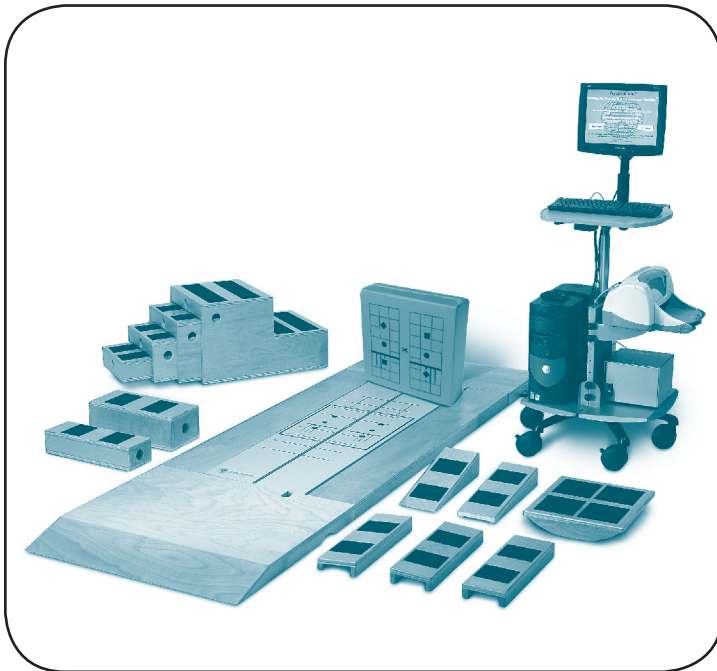
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Weight Bearing Squat (WBS) The WBS quantifies the patient's ability to perform squats with the knees flexed at 0°, 30°, 60°, and 90°, while maintaining equal weight on the two legs.

Unilateral Stance (US) The US is a performance test quantifying the patient's ability to maintain postural stability while standing on one leg at a time with the eyes open and closed. The US enhances the observational testing of single leg stance performance by providing an objective measure of patient sway velocity for each of the four task conditions.



Balance Master®



Physical Dimensions:

	in	(W x D x H)	cm
Dual forceplate	18 x 60 x 2		46 x 152 x 5
System cart	25 x 24 x 44-57*		64 x 61 x 112-145*
Apron:			
Side pieces	8 x 60 x 2		20 x 152 x 5
Entry end pieces	35 x 32 x 2		89 x 81 x 5
Exit end pieces	35 x 23 x 2		89 x 58 x 5
Alternate exit end	35 x 8 x 2		89 x 20 x 5
Assembled dimensions	35 x 95-115** x 2		89 x 231-292** x 5

* Minimum-maximum monitor extension height.

**Minimum-maximum depth depending on exit piece used.

Minimum footprint required	120 x 72	305 x 183
Total system weight	340 lbs.	154 kg.

Components:

- Balance Master® system software
- Dual forceplate
- Forceplate apron
- IBM compatible computer
- Flat panel LCD monitor
- Color printer
- Wireless mouse
- Mobile computer cart
- Electrical isolation transformer

Options:

- inVision™
- Laptop configuration
- NeuroGames™
- D.A.T.a™

Specifications subject to change without notice.

Electrical Characteristics:

- 100-240 volt / 50-60 Hz / 500 Watt
- Conforms to UL STD 2601-1
- Certified to CAN/CSA STD C22.2 No. 601.1
- Compliant to CE standards



Accessories Included:

- Rocker board
- Step-up blocks: 4 in (10 cm) and 6 in (15 cm)
- Leveling block: 2 in (5 cm)
- Heel/toe wedges: 6° and 12° A/P
- Inversion/eversion wedges: 3° and 6° M/L
- Foam pad: 18 x 18 x 5 in (46 x 46 x 13 cm)
- Four piece step/stair set:

	in	(W x D x H)	cm
Low step	18 x 14 x 4		46 x 36 x 10
Medium step	18 x 16 x 8		46 x 40 x 20
High step	18 x 17 x 12		46 x 43 x 31
Two-step stair	18 x 27 x 8 x 2		46 x 69 x 20 x 5



Balance Master®

Standardized Assessment Protocols:

Limits of Stability (LOS) The LOS is an assessment of the voluntary motor system that quantifies impairments in ability to intentionally displace the COG to the patient's stability limits without losing balance. The patient performs the task while viewing a real-time display of their COG position in relation to targets placed at the center of the base of support and at the stability limits. For each of eight directions, the test measures movement reaction time, movement velocity, movement distance, and movement directional control.

modified Clinical Test of Sensory Interaction on Balance (mCTSIB) The mCTSIB is a modification of the original CTSIB that provides information about the patient's ability to maintain postural stability under eyes open firm surface, eyes closed firm surface, eyes open on foam, and eyes closed on foam surface conditions. The mCTSIB enhances an observational test also known as the "Foam and Dome" test by providing an objective measure of patient sway velocity for each of the four task conditions.

Rhythmic Weight Shift (RWS) The RWS quantifies the patient's ability to perform rhythmic movements of their COG from left to right and forward to backward at three distinct paces. During performance of each task, the patient views a real time display of their COG position relative to a target moving at the desired pace and amplitude. For each direction and pace, the RWS measures movement velocity and directional control.

Weight Bearing Squat (WBS) The WBS quantifies the patient's ability to perform squats with the knees flexed at 0°, 30°, 60°, and 90°, while maintaining equal weight on the two legs.

Unilateral Stance (US) The US is a performance test quantifying the patient's ability to maintain postural stability while standing on one leg at a time with the eyes open and closed. The US enhances the observational testing of single leg stance performance by providing an objective measure of patient sway velocity for each of the four task conditions.

Sit-To-Stand (STS) The STS is a performance test quantifying the patient's ability, on command, to quickly rise from a seated to a standing position. The STS quantifies time required to transfer weight from the buttock to the feet (weight transfer time), the strength of the rise (rising index), the symmetry of the rising effort between the left and right legs (weight symmetry), and the COG sway velocity in the standing position.

Walk Across (WA) The WA is a performance test that quantifies the patient's steady state gait while walking across the forceplate. The WA enhances observational testing of gait by measuring the average width and length of the patient's steps on the forceplate, the symmetry of left and right leg step lengths, and the patient's gait speed across the forceplate.

Tandem Walk (TW) The TW is a performance test that quantifies the stability and speed of the patient's gait while placing one foot directly in front of the other. The patient is instructed to walk heel to toe from one end of the forceplate to the other as quickly as possible and then stop. The TW measures the average width of the patient's steps on the forceplate, the speed of the gait, and the patient's COG sway velocity following termination of the gait.

Step-Quick-Turn (SQT) The SQT is a performance test that quantifies turn performance characteristics. The patient is instructed to take two forward steps on command, and then quickly turn 180° to either the left or right and return to the starting point. The SQT enhances commonly used observational tests for turn stability by measuring separately for each direction of turning, the time required to execute the turn, and the velocity of COG sway during the turn.

Step-Up-and-Over (SUO) The SUO is a performance test that quantifies the patient's ability to control their body weight and postural stability while stepping up and down over a curb. The patient is instructed to step up onto a curb on command with one foot, swing the other foot over the curb while lifting the body through an erect standing position as quickly as possible, and then lower the body weight to land the swing leg as gently as possible. The SUO measures, for each leg, the strength of the rise (lift-up index), the movement time, and the impact of the swing leg landing (impact index).

Forward Lunge (FL) The FL is a performance test that quantifies the patient's ability to control body weight while lunging forward with one leg. The patient is instructed to, on command, lunge/step forward onto one leg, then push backward with that leg to the original standing position. The FL measures separately for each leg, the distance of the lunge as well as the profile of the vertical force exerted by the lunging leg (force impulse) during the landing and push off phases of the maneuver.



BASIC Balance Master®



Physical Dimensions:

	(W x D x H)	
	in	cm
Dual forceplate	18 x 18 x 2	46 x 46 x 5
System cart	25 x 24 x 44-57*	64 x 61 x 112-145*
*Minimum-maximum monitor extension height.		
Minimum footprint required	36 x 78	92 x 199
Total system weight	170 lbs.	77 kg.

Electrical Characteristics:

- 100-240 volt / 50-60 Hz / 500 Watt
- Conforms to UL STD 2601-1
- Certified to CAN/CSA STD C22.2 No. 601.1
- Compliant to CE Standards



Options:

- *inVision*™
- Laptop configuration
- *NeuroGames*™
- *D.A.T.a*™

Components:

- BASIC Balance Master® system software
- Dual forceplate
- IBM compatible computer
- Flat panel LCD monitor
- Color printer
- Wireless mouse
- Mobile computer cart
- Electrical isolation transformer

Accessories Included:

- Rocker board
- Step-up blocks: 4 in (10 cm) and 6 in (15 cm)
- Leveling block: 2 in (5 cm)
- Heel/toe wedges: 6° and 12° A/P
- Inversion/eversion wedges: 3° and 6° M/L
- Foam pad: 18 x 18 x 5 in (46 x 46 x 13 cm)

Specifications subject to change without notice.



BASIC Balance Master®

Standardized Assessment Protocols:

Limits of Stability (LOS) The LOS is an assessment of the voluntary motor system that quantifies impairments in ability to intentionally displace the COG to the patient's stability limits without losing balance. The patient performs the task while viewing a real-time display of their COG position in relation to targets placed at the center of the base of support and at the stability limits. For each of eight directions, the test measures movement reaction time, movement velocity, movement distance, and movement directional control.

modified Clinical Test of Sensory Interaction on Balance (mCTSIB) The mCTSIB is a modification of the original CTSIB that provides information about the patient's ability to maintain postural stability under eyes open firm surface, eyes closed firm surface, eyes open on foam, and eyes closed on foam surface conditions. The mCTSIB enhances an observational test also known as the "Foam and Dome" test by providing an objective measure of patient sway velocity for each of the four task conditions.

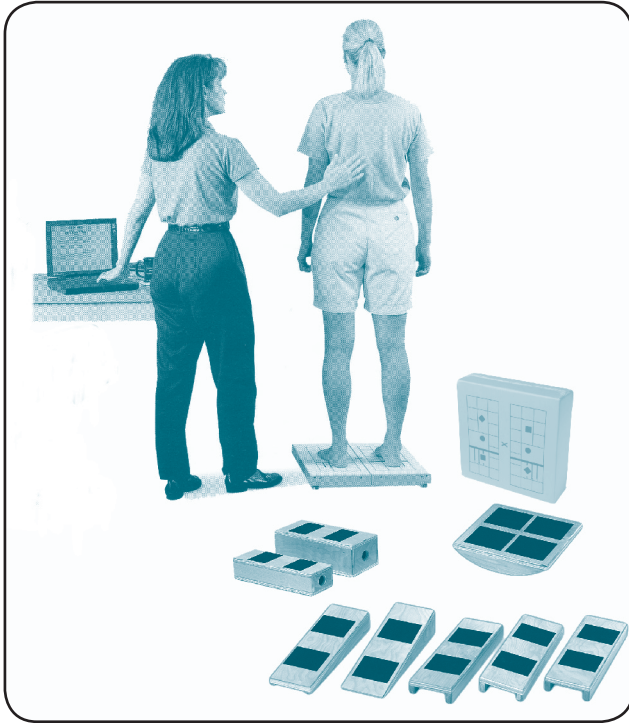
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Weight Bearing Squat (WBS) The WBS quantifies the patient's ability to perform squats with the knees flexed at 0°, 30°, 60°, and 90°, while maintaining equal weight on the two legs.

Unilateral Stance (US) The US is a performance test quantifying the patient's ability to maintain postural stability while standing on one leg at a time with the eyes open and closed. The US enhances the observational testing of single leg stance performance by providing an objective measure of patient sway velocity for each of the four task conditions.



Portable BASIC Balance Master®



Physical Dimensions:

	in (W x D x H)	cm
Dual forceplate	18 x 18 x 2	46 x 46 x 5
Dual forceplate weight	20 lbs.	9 kg.

Electrical Characteristics:

- 100-240 volt / 50-60 Hz / 500 Watt
- Conforms to UL STD 2601-1
- Certified to CAN/CSA STD C22.2 No. 601.1
- Compliant to CE Standards



Options:

- *inVision*™
- *NeuroGames*™
- *D.A.T.a*™

Components:

- BASIC Balance Master® system software
- Dual forceplate
- IBM compatible laptop computer
- Color printer
- Wireless mouse
- Electrical isolation transformer

Accessories Included:

- Rocker board
- Step-up blocks: 4 in (10 cm) and 6 in (15 cm)
- Leveling block: 2 in (5 cm)
- Heel/toe wedges: 6° and 12° A/P
- Inversion/eversion wedges: 3° and 6° M/L
- Foam pad: 18 x 18 x 5 in (46 x 46 x 13 cm)

Specifications subject to change without notice.



Portable BASIC Balance Master®

Standardized Assessment Protocols:

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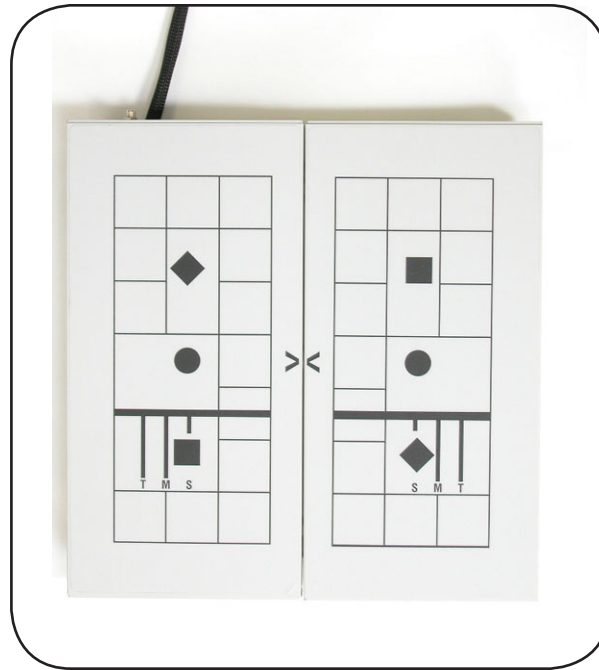
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NEUROCOM® SHORT FORCEPLATE



Physical Dimensions:

(W x D x H)	in	cm
Dual forceplate	18 x 18 x 2	46 x 46 x 5

Electrical Characteristics:

- 115 volt/60 Hz or 230 volt/ 50 Hz
- Designed to meet UL544 specifications
- Complies with ETL requirements
- Complies with CE regulations

Forceplate:

The patient stands on the forceplate. Force sensors under the forceplate measure the vertical forces exerted by the patient's feet. A cable carries this information from the forceplate to the computer.

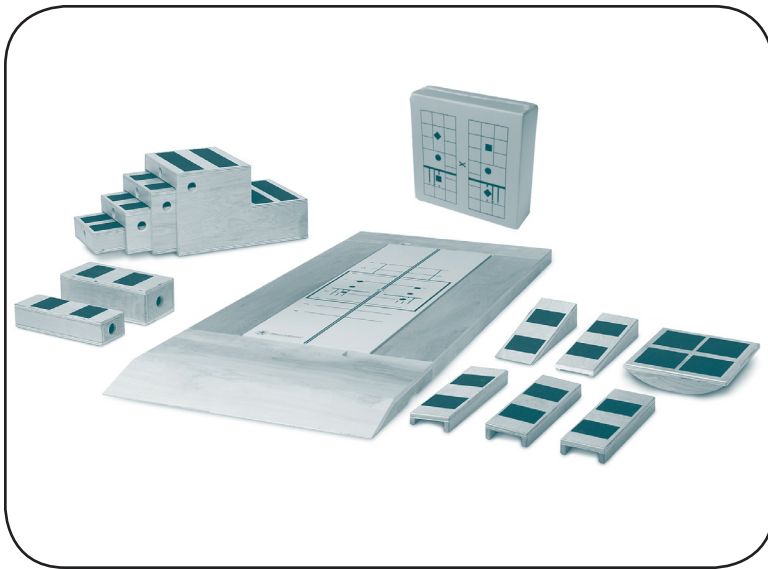
Weight/Height Criteria:

The normative data set and analysis algorithms assume that the patient weighs between 40 and 300 pounds (18-136 kg) and stands from 30 to 80 inches (76-203 cm) in height. The platform can be used to test patients outside these physical limits, but the results may be less accurate.

Complete specifications available upon request. Specifications subject to change without notice.



Static Long Forceplate Option



Physical Dimensions:

	in	(W x D x H)	cm
Dual forceplate	18 x 60 x 2		46 x 152 x 5
Apron:			
Side pieces	8 x 60 x 2		20 x 152 x 5
Entry end pieces	35 x 32 x 2		89 x 81 x 5
Exit end pieces	35 x 23 x 2		89 x 58 x 5
Alternate exit end	35 x 8 x 2		89 x 20 x 5
Assembled dimensions	35 x 95-115*	x 2	89 x 231-292* x 5
Minimum footprint required	58 x 105		148 x 267
Total system weight	200 lbs.		90 kg.

*Minimum-maximum depth depending on exit piece used.

Electrical Characteristics:

- 100-240 volt / 50-60 Hz / 500 Watt
- Conforms to UL STD 2601-1
- Certified to CAN/CSA STD C22.2 No. 601.1
- Compliant to CE standards



System Requirements:

The Static Long Forceplate is available on the following NeuroCom systems:

- EquiTest®
- SMART EquiTest®
- SMART Balance Master®
- PRO Balance Master®

The Static Long Forceplate requires software Version 8.0 or higher.

Accessories Included (if not already supplied with base system):

- Rocker board
- Step-up blocks: 4 in (10 cm) and 6 in (15 cm)
- Leveling block: 2 in (5 cm)
- Heel/toe wedges: 6° and 12° A/P
- Inversion/eversion wedges: 3° and 6° M/L
- Foam pad: 18 x 18 x 5 in (46 x 46 x 13 cm)
- Four piece step/stair set:

	in	(W x D x H)	cm
Low step	18 x 14 x 4		46 x 36 x 10
Medium step	18 x 16 x 8		46 x 40 x 20
High step	18 x 17 x 12		46 x 43 x 31
Two-step stair	18 x 27 x 8 x 2		46 x 69 x 20 x 5

Specifications subject to change without notice.



Static Long Forceplate Option

Standardized Assessment Protocols:

Limits of Stability (LOS) The LOS is an assessment of the voluntary motor system that quantifies impairments in ability to intentionally displace the COG to the patient's stability limits without losing balance. The patient performs the task while viewing a real-time display of their COG position in relation to targets placed at the center of the base of support and at the stability limits. For each of eight directions, the test measures movement reaction time, movement velocity, movement distance, and movement directional control.

modified Clinical Test of Sensory Interaction on Balance (mCTSIB) The mCTSIB is a modification of the original CTSIB that provides information about the patient's ability to maintain postural stability under eyes open firm surface, eyes closed firm surface, eyes open on foam, and eyes closed on foam surface conditions. The mCTSIB enhances an observational test also known as the "Foam and Dome" test by providing an objective measure of patient sway velocity for each of the four task conditions.

Rhythmic Weight Shift (RWS) The RWS quantifies the patient's ability to perform rhythmic movements of their COG from left to right and forward to backward at three distinct paces. During performance of each task, the patient views a real time display of their COG position relative to a target moving at the desired pace and amplitude. For each direction and pace, the RWS measures movement velocity and directional control.

Weight Bearing Squat (WBS) The WBS quantifies the patient's ability to perform squats with the knees flexed at 0°, 30°, 60°, and 90°, while maintaining equal weight on the two legs.

Unilateral Stance (US) The US is a performance test quantifying the patient's ability to maintain postural stability while standing on one leg at a time with the eyes open and closed. The US enhances the observational testing of single leg stance performance by providing an objective measure of patient sway velocity for each of the four task conditions.

Sit-To-Stand (STS) The STS is a performance test quantifying the patient's ability, on command, to quickly rise from a seated to a standing position. The STS quantifies time required to transfer weight from the buttock to the feet (weight transfer time), the strength of the rise (rising index), the symmetry of the rising effort between the left and right legs (weight symmetry), and the COG sway velocity in the standing position.

Walk Across (WA) The WA is a performance test that quantifies the patient's steady state gait while walking across the forceplate. The WA enhances observational testing of gait by measuring the average width and length of the patient's steps on the forceplate, the symmetry of left and right leg step lengths, and the patient's gait speed across the forceplate.

Tandem Walk (TW) The TW is a performance test that quantifies the stability and speed of the patient's gait while placing one foot directly in front of the other. The patient is instructed to walk heel to toe from one end of the forceplate to the other as quickly as possible and then stop. The TW measures the average width of the patient's steps on the forceplate, the speed of the gait, and the patient's COG sway velocity following termination of the gait.

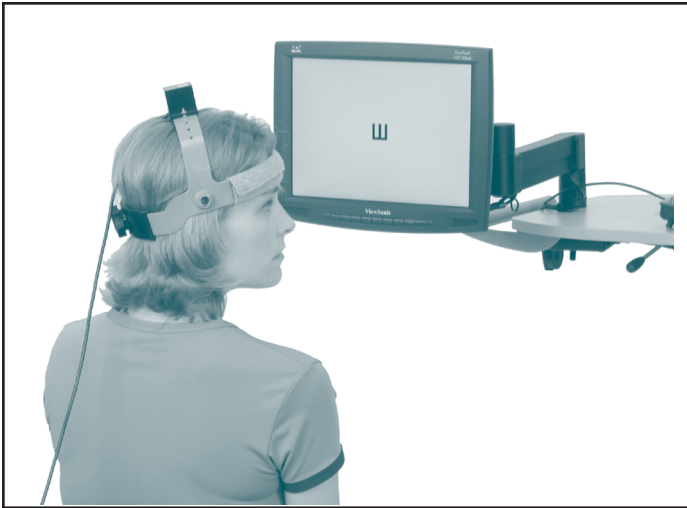
Step-Quick-Turn (SQT) The SQT is a performance test that quantifies turn performance characteristics. The patient is instructed to take two forward steps on command, and then quickly turn 180° to either the left or right and return to the starting point. The SQT enhances commonly used observational tests for turn stability by measuring separately for each direction of turning, the time required to execute the turn, and the velocity of COG sway during the turn.

Step-Up-and-Over (SUO) The SUO is a performance test that quantifies the patient's ability to control their body weight and postural stability while stepping up and down over a curb. The patient is instructed to step up onto a curb on command with one foot, swing the other foot over the curb while lifting the body through an erect standing position as quickly as possible, and then lower the body weight to land the swing leg as gently as possible. The SUO measures, for each leg, the strength of the rise (lift-up index), the movement time, and the impact of the swing leg landing (impact index).

Forward Lunge (FL) The FL is a performance test that quantifies the patient's ability to control body weight while lunging forward with one leg. The patient is instructed to, on command, lunge/step forward onto one leg, then push backward with that leg to the original standing position. The FL measures separately for each leg, the distance of the lunge as well as the profile of the vertical force exerted by the lunging leg (force impulse) during the landing and push off phases of the maneuver.



inVision™



Components:

- inVision™ system software
- IBM compatible computer
- Flat panel LCD monitor
- Color printer
- Wireless mouse
- System cart
- InterSense InertiaCube², 3-axis, integrating gyro mounted on a headband
- Flexible patient cable

Physical Dimensions:

	in	cm
System cart	25 x 24 x 44-57*	64 x 61 x 112-145*
*Minimum-maximum monitor extension height.		
Minimum footprint required	36 x 60	92 x 153
Total system weight	142 lbs.	64 kg.

Electrical Characteristics:

- 100-240 volt / 50-60 Hz / 500 Watt
- Conforms to UL STD 2601-1
- Certified to CAN/CSA STD C22.2 No. 601.1
- Compliant to CE standards



Options:

- Laptop configuration
- Also available on other NeuroCom systems

Specifications subject to change without notice.



inVision™

The *inVision* system from NeuroCom® quantifies a patient's ability to maintain visual acuity and stable gaze while actively moving the head. The *inVision* system includes:

- **DYNAMIC VISUAL ACUITY (DVA) TEST**
Quantifies the impact of vestibular ocular reflex (VOR) system impairment on a patient's ability to perceive objects accurately while moving the head at a given velocity on a given axis.
- **GAZE STABILIZATION TEST (GST)**
Quantifies the range of head movement velocities on a given axis over which a patient is able to maintain an acceptable level of visual acuity.

Effective image stabilization during head movement (at velocities up to 120° per second), is a key factor in performing activities of daily living. This process can be severely impacted by vestibular deficits with the ability to stabilize gaze and maintain visual acuity decreasing as the severity of a vestibular deficit increases. Image stabilization deficits are usually greater when a patient is moving the head toward the more severely impaired ear, particularly in the presence of a unilateral peripheral loss. Thus, the assessment of a patient's ability to perform visual tasks requiring image stabilization are considered complementary to physiological tests of the VOR system.

DYNAMIC VISUAL ACUITY (DVA) TEST

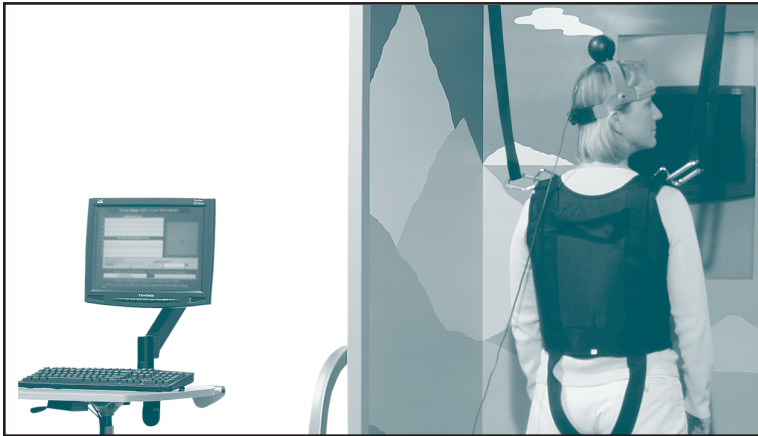
- Quantifies the extent of visual acuity loss due to the combined influences of underlying vestibular pathology and adaptive responses on image stabilization.
- Provides information relative to the probable side of lesion in a patient with a suspected unilateral peripheral vestibular deficit. An approach complementary to nystagmography.
- Helps clinicians identify those patients most likely to benefit from vestibular rehabilitation and to focus rehabilitation exercises accordingly.
- As a direct indication of impairment, the DVA is an excellent objective measure of the outcome of vestibular rehabilitation.

GAZE STABILIZATION TEST (GST)

- Provides impairment information specific to the direction and velocity of head movements impacting gaze stabilization.
- Quantifies the velocity range over which VOR compensation is effective for a given head movement.
- Helps target treatment by demonstrating the specific direction(s) and velocity of head movements most likely to achieve the maximum benefit.
- Aids in determining disability ratings by comparing the head movements over which gaze stabilization can be maintained relative to movements required by the daily life task.



Head Shake - Sensory Organization Test (HS-SOT)



Components:

- HS-SOT software
- InterSense InertiaCube², 3-axis, integrating gyro mounted on a headband

System Requirements:

The HS-SOT option is available on the following NeuroCom systems:

- EquiTest®
- SMART EquiTest®
- SMART Balance Master®
- PRO Balance Master®

The HS-SOT option requires software Version 8.0 or higher.

Electrical Characteristics:

- Conforms to UL STD 2601-1
- Certified to CAN/CSA STD C22.2 No. 601.1
- Compliant to CE standards



Specifications subject to change without notice.

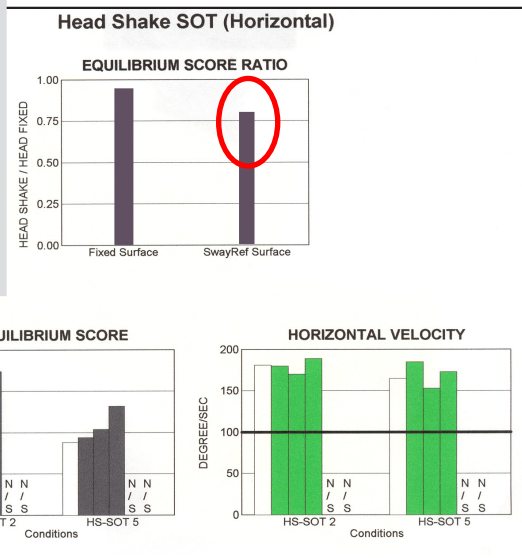


Head Shake - Sensory Organization Test (HS-SOT)

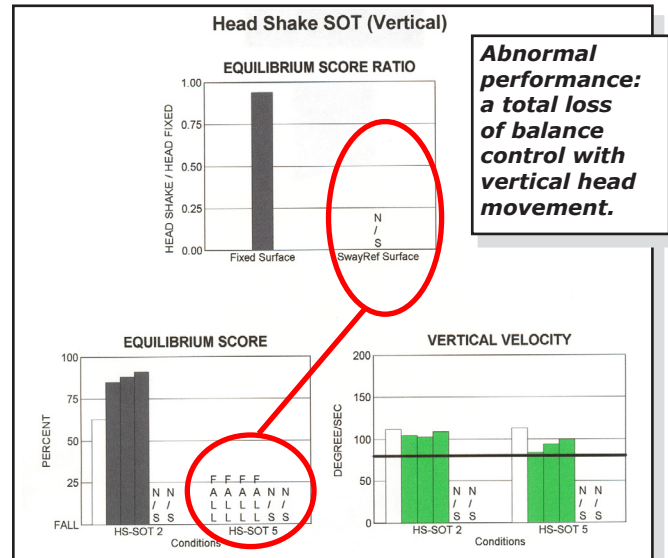
Standardized Assessment Protocols:

Head Shake-Sensory Organization Test (HS-SOT) The HS-SOT identifies impairments in the patient's effective use of vestibular inputs to balance during more complex task conditions in which the patient is both maintaining balance and performing an active head movement task.

Normal test: patient experienced a minimal 10% decline in balance control with maximum vestibular challenge in the horizontal plane.



Normal function in the horizontal movement plane of the head shake subtest.



Abnormal performance: a total loss of balance control with vertical head movement.

Impaired function (falls) with head movement in the vertical movement plane of the head shake subtest.



VSR™



Components:

- VSR™ system software
- Dual forceplate
- IBM compatible computer
- Flat panel LCD monitor
- Color printer
- Wireless mouse
- Mobile computer cart
- Electrical isolation transformer

Accessories Included:

- Foam Pad: 18 x 18 x 5 in (46 x 46 x 13 cm)

Physical Dimensions:

	in	(W x D x H)	cm
Dual forceplate	18 x 18 x 2		46 x 46 x 5
System cart	25 x 24 x 44-57*		64 x 61 x 112-145*
*Minimum-maximum monitor extension height.			
Minimum footprint required	36 x 60		92 x 153
Total system weight	165 lbs.		75 kg.

Electrical Characteristics:

- 100-240 volt / 50-60 Hz / 500 Watt
- Conforms to UL STD 2601-1
- Certified to CAN/CSA STD C22.2 No. 601.1
- Compliant to CE Standards



Options:

- *inVision*™
- Laptop configuration
- NeuroGames™
- D.A.T.a™

Specifications subject to change without notice.



VSR™

Standardized Assessment Protocols:

Limits of Stability (LOS) The LOS is an assessment of the voluntary motor system that quantifies impairments in ability to intentionally displace the COG to the patient's stability limits without losing balance. The patient performs the task while viewing a real-time display of their COG position in relation to targets placed at the center of the base of support and at the stability limits. For each of eight directions, the test measures movement reaction time, movement velocity, movement distance, and movement directional control.

modified Clinical Test of Sensory Interaction on Balance (mCTSIB) The mCTSIB is a modification of the original CTSIB that provides information about the patient's ability to maintain postural stability under eyes open firm surface, eyes closed firm surface, eyes open on foam, and eyes closed on foam surface conditions. The mCTSIB enhances an observational test also known as the "Foam and Dome" test by providing an objective measure of patient sway velocity for each of the four task conditions.



EMG/Postural Evoked Response (PER)



System Requirements:

The EMG option is available on the following NeuroCom systems:

- EquiTest®
- SMART EquiTest®
- SMART Balance Master®
- PRO Balance Master®

The EMG option requires software Version 8.0 or higher.

Components:

- Data acquisition and analysis software
- Compact amplifier providing isolated power and band-pass filtering
- Active recording electrodes
- Lightweight belt-mounted interface box
- Flexible patient cable

Specifications:

- Optically isolated 8 channel buffer amplifier
- Four-channel belt box standard/ 8 optional
- Bandpass: 10-500 Hz, 3dB down
- Gain: 5,000
- A/D resolution: 12 bit, 1KHz

Stimuli: Toes-up/toes-down platform rotations at 25°/sec. or 50°/sec. through 2°, 4°, or 8° arc are standard. Additional backward/forward platform translations are standard on the EquiTest® and SMART EquiTest® systems.

Electrodes: Active surface electrodes with built-in amplification eliminate cable artifacts and enhance signal quality.

Display: Real time display for monitoring electrode placement and data collection.

Data Review: Individual trials can be accepted or rejected prior to calculation of the rectified average.

Data Analysis: Interactive cursor routine for labeling waveforms. Absolute latencies, response amplitudes, and area under the curve are calculated accordingly.

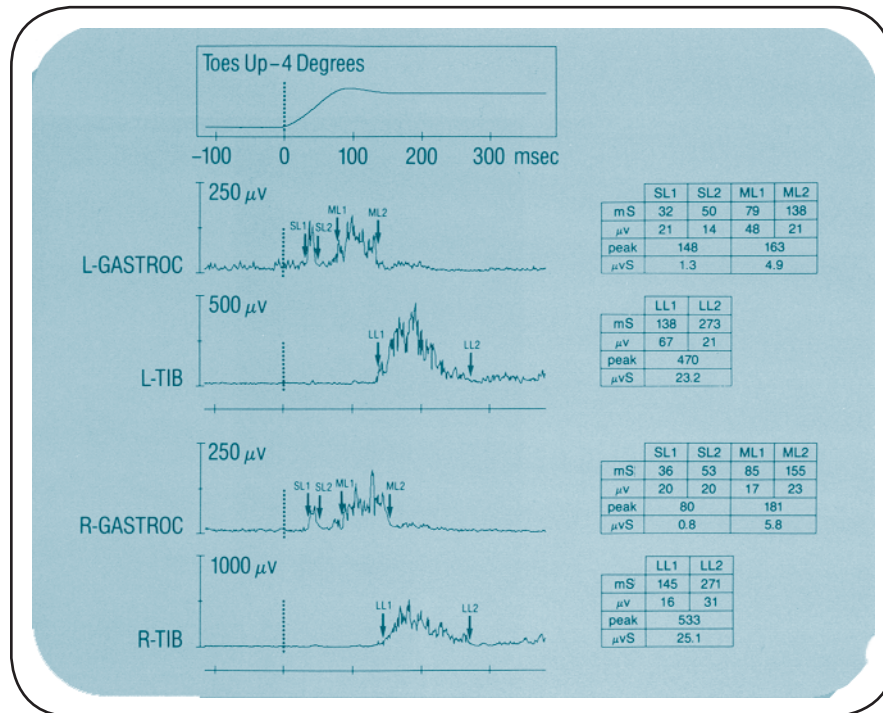
Hard Copy Printout: Results are immediately available for inclusion in medical charts.

Specifications subject to change without notice.



EMG/Postural Evoked Response (PER)

EMG/Postural Evoked Response (PER) The EMG/PER test quantifies impairments in timing within the automatic motor system of balance. The EMG/PER test utilizes active surface electrodes to record the short, medium, and long latency stretch reflex responses of the gastrocnemius and tibialis muscles to unexpected and rapid toes up or toes down disturbances of the support surface.



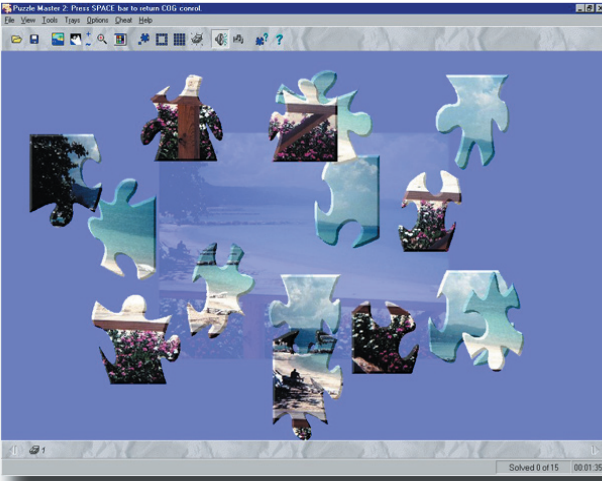
Typical EMG recording documenting short (SL1, SL2), medium (ML1, ML2) and long (LL1, LL2) latency components of the Postural Evoked Response (PER).

Abbreviations:

L-Gastroc Left Gastrocnemius
 L-Tib Left Tibialis
 R-Gastroc Right Gastrocnemius
 R-Tib Right Tibialis

NeuroGames™

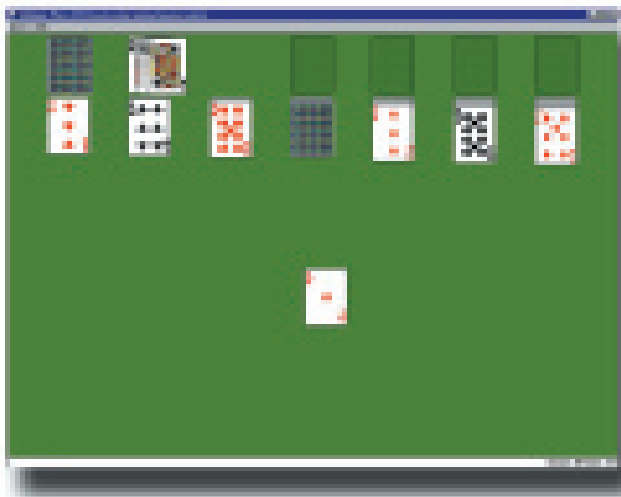
NeuroGames™ provides fun and motivating goal-directed activities to enhance rehabilitation and training of balance and mobility. The NeuroGames package includes three computerized games that patients “play” by shifting their center of gravity (COG) to control the game pieces.



Puzzle Master™ – Published by eGames, Inc., Puzzle Master tasks the patient to select and move individual pieces to assemble a complete jigsaw puzzle. Multiple puzzles are available, with the number of pieces per puzzle selectable.



NeuroPong™ – Developed by NeuroCom International, Inc., NeuroPong was modeled after the original Pong™ video game. The patient’s COG movements control the position of various sports figures to return a ball as it bounces across the screen. Gaming options include soccer, tennis, hockey and basketball.



Solitaire – The classic favorite. The standard solitaire game found on all Windows® systems, offers a new twist to an old game where patients must shift their COG to select and move the cards.



Game Play

Actions within each game are controlled by the patient's movements on the forceplate, which facilitates functional control of the center of gravity (COG) over the base of support (limits of stability) in a goal-directed activity. Movement timing and accuracy, as well as adequate strength, range and endurance for upright activity are also facilitated. The difficulty level and the movement range of each game can be adjusted to meet the specific needs and performance capabilities of the individual patient.

Game Variables

In **NeuroPong**, the patient controls an on-screen "paddle" by shifting their weight right-left or forward-back to "bounce" a ball across a field of play. The ball and field can be chosen from a selection of themes such as basketball, soccer, etc. The number of on screen players and the size and speed of the ball can be adjusted to increase or decrease difficulty level.

In **Puzzle Master**, the number of pieces in the puzzle, piece size, type of puzzle, background music, etc. can be changed. The patient moves puzzle pieces to complete the jigsaw puzzle by shifting their COG on the forceplate. The size and number of puzzle pieces can be adjusted for the individual patient's ability. The clinician may also "place" the loose pieces on the screen to focus on specific areas in the patient's base of support. Any digital picture can be converted to a puzzle; the patient's own photographs can be scanned and entered into the game for increased interest and motivation.

Solitaire is "played" just as it exists on the average computer desktop. The patient is required to move their COG over their base of support in order to select and move cards.

NeuroGames enhances retraining of balance and mobility by reinforcing movement timing and accuracy (motor control), and limits of stability, and by providing additional motivation for the patient in a fun environment.

NeuroGames is independent of the NeuroCom® clinical operating system and runs under a separate icon on the desktop. It does not require the entry of any demographic data, nor does it retain any forceplate measures.

For more information about NeuroGames, please contact NeuroCom International, Inc. at (800) 767-6744 or (503) 653-2144.



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NeuroCom® International, Inc. • 9570 SE Lawnfield Rd. • Clackamas, OR 97015 • (800) 767-6744 (USA only) • (503) 653-2144 • (503) 653-1991 (fax) • www.onbalance.com