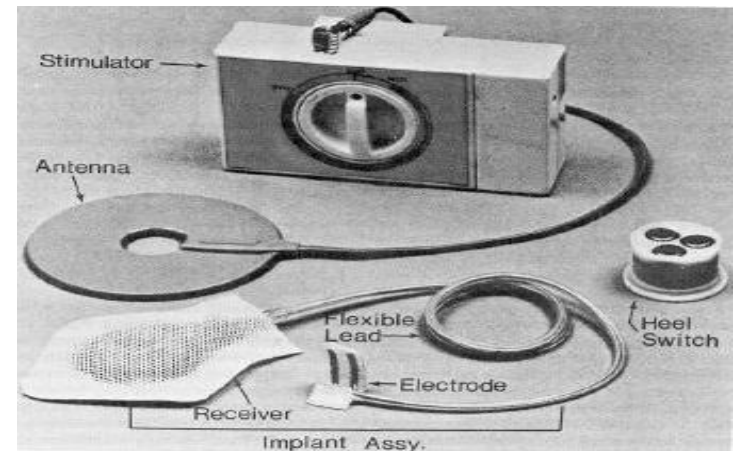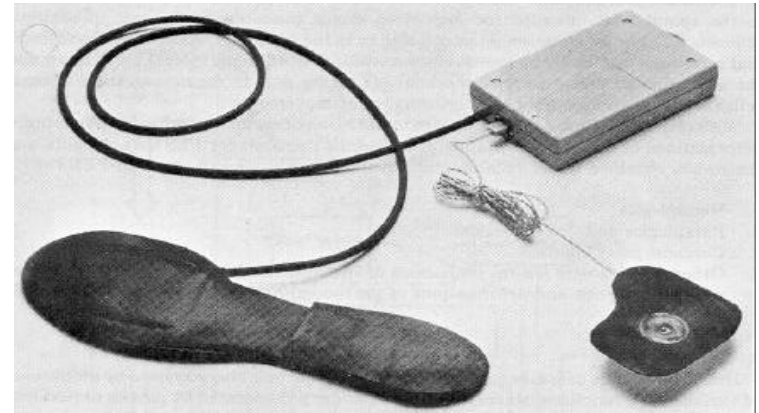# The WalkAide® System

Module 1: FES History and Research

FES has been used in rehab for decades.

- Previously there were preferred conventional alternatives (i.e. AFO)
- Cost-benefit ratio was better for AFOs
- Reliability of FES low
- ***Complexity of FES high***
- The device was large and heavy; the electrodes messy and uncomfortable
- ***Cosmesis of FES was poor***

Why the renewed interest in dorsiflexion assist FES systems?

- Changes in types of stimulation have improved comfort and performance. Waveforms are more similar to physiologic electrical activity, more comfortable and less fatiguing.

- Improvements with FES systems have increased reliability and create custom gait programs for patients.

- A tremendous amount of engineering and platform enhancements have created a technology that is efficacious, durable, comfortable, easy to use and safe.

Neuroplasticity

- CNS after injury has all the tools necessary to restore function, but no plans or blueprints!

- Plans have to be **supplied**
  - Via functional training, tone management, balance training, training for recovery of equilibrium, facilitation of proper movement synergies, etc.

- AND plans have to be **correct**
  - Training must be **functional**, **task specific** and provide **appropriate proprioceptive and kinesthetic cues.**
    - Passive support, PROM and mass activation of muscles with NMES are **not** sufficient

Utilization of a Neuroprosthesis vs. an AFO

	AFO	WalkAide
●Improve stability	x	x
●Improve mobility	x	x
●Improve strength and endurance		x
●Reduce / delay / reverse muscle atrophy		x
●Increase circulation		x
●Reduce hypertonicity	x	
●Maintain / increase range of motion		x
●Maintain / increase bone density		x
●Improve sensory awareness		x
●Muscle re-education & facilitation		x
●Treat entire neuro-musculoskeletal system		x

The WalkAide® System

Research Supporting FES in used for Neurorehabilitation

What are the outcomes noted in the literature?

- Decrease in abnormal tone
  - Measured by physiologic measures of spasticity (EMG, H Reflex and M Wave Ratio) and by clinical measures (MAS, Fugel Myer Score)
- Neuroplastic changes
  - Measured by changes in Motor Evoked Potentials, Cortical Activation, and Spinal Reflex activity
- Changes in other systems
  - Cardiovascular function, bone density, muscular atrophy

What is the support for proposed FES outcomes?

- Support for improved gait outcomes post FES
  - **Increased Gait Speed**
    - Support is strongest for this outcome. Speed changes have been seen in all populations over ground, on treadmill, and with subjects' preferred speed. Speed improvements have been noted over short distances (10 and 25 meter tests) and over longer distances (3 and 6 minute walk tests) suggesting that the improvements are functional and relate to greater endurance as well.

What is the support for proposed FES outcomes?

- Support for improved gait outcomes post FES
  - **Increased Symmetry of swing and stance phases**
    - Changes seen most often are increased step and stride length. Outcomes with less support include stride width variability, stride time measures and inter limb coordination scores.
  - **Improved Balance/functional ambulation**
    - Balance is rarely investigated directly. Three studies have used Timed Up and Go (2 used the TUG component of the Modified Emory Functional Ambulation Profile). Other indirect measures used were Barthel Index and gait component of the Tinetti gait scale.

- Support for improved gait outcomes post FES
  - **Increased endurance / decreased physiological cost**
    - Moderate support is in the literature for this outcome. Several studies have found a decrease in the Physiological Cost Index, an indirect measure of gait "effort". One MS study used true respiratory measures and found a decrease in oxygen uptake per unit distance walked with FES.
    - Several studies have found improved distances in the 6 Minute and 3 Minute Walk tests.

What is the support for proposed FES outcomes?

- Support for facilitation of neuroplastic changes
  - **Carry over effects post FES**
    - These have been noted since the original peroneal nerve stimulation study was done in 1961. No "dose-response" trends have been found due to the wide ranges in study protocols.
  - **Improved Motor Evoked Potentials**
    - There are two studies that directly document cortical changes in patients post peroneal nerve FES (*measured with Transcranial Magnetic Stimulation*).

What is the support for proposed FES outcomes?

- Support for facilitation of neuroplastic changes
  - **Normalized spinal reflexes**
    - Two studies have shown normalization of spinal reflexes (most notably restored Reciprocal Inhibition) after FES. These studies suggest that the spinal cord's plasticity and its role in gait are stronger than previously thought.
  - **Normalization of cortical activation patterns**
    - Transcranial Magnetic Stimulation has documented cortical changes, specifically re-activation of areas lost post Brain insult.

What is the support for proposed FES outcomes?

- We can provide you with complete clinical study summations, bibliographies and the actual clinical studies upon request.

- The WalkAide has been a part of over 20 studies in patients with stroke, MS and CP.

- The clinical data is compelling and consistent in regards to faster walking speeds with reduced effort.

Indications, Contraindications and Considerations

- **Indications: UMN lesions**
- Contraindications:
  - LMN lesions (ie. peripheral nerve damage from injury, disease or surgery, GB, CMT and Polio)
  - * Pacemakers
  - * Seizures
  - * Pregnancy
  - Malignant tumors in the LE
  - Deep vein thrombosis
  - Inappropriate response to stimulation
  - Chronic Skin conditions or poor skin integrity

  (* Insufficient evidence exists to confirm or deny that FES is contraindicated in these circumstances. Medical clearance from a Physician is necessary for considering use of FES with these conditions.)

Considerations

- Other considerations:
  - Presence of other electrically controlled devices
    - Baclofen pumps, Deep Brain Stimulators or Indwelling Pain control devices
  - Morbid Obesity (fat tissue is too insulating for stim to be effective)
  - Unstable Cardiovascular status/HTN
  - Severe Balance deficits/Vestibular Issues
  - Severe sensory deficit
  - Chronic infectious disease
  - Neurogenic Pain syndromes

Review Quesitons – FES Module 1

1. Which of the following patients would <u>not</u> be an appropriate candidate for the WalkAide?

    a. CVA

    b. SCI

    c. Degenerative disc disease at L5-S1

    d. MS

    e. All of the above

2. In the research literature supporting the positive outcomes of FES, the strongest evidence is for:

    a. Increased gait speed

    b. Increased endurance

    c. Increased muscle strength

    d. Improved balance

3. The WalkAide facilitates neuroplasticity by producing appropriate, repetitive muscle contractions during a functional task and by improving sensory input.

> True or False?

4. Research shows that compliance and tolerability are issues with use of the WalkAide by pediatric patients.
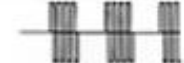
> True or False?

The WalkAide® System

Module 2:
WalkAide® System

Types of Waveforms

WAVEFORMS USED IN TISSUE AND NERVE STIMULATION

DATE POPULARIZED	WAVEFORM		DESCRIPTION	FREQUENCY RANGE	APPLICATION
1850-1960's	DC		Galvanic LIDC	Continuous	Pain, Edema, Iontophoresis, Denervated Muscle, Wound Healing
1970's	LVPC		TENS NMES (LVPC Asym & Sym Bi)	4 or 80-100 PPS 35-50 PPS	Superficial Pain Small and Medium Muscle NMES
1970's	HVPC		High Volt Pulsed Current	120 PPS	Wound Healing and Edema Reduction
1980's	IFC - PREMOD		Interferential Current – Premodulated	1-100BPS 2500 – 5000 Hz	Superficial and Deep Pain
1980's	MFAC		Medium Frequency AC "Russian Stimulation"	50 BPS 2500 Hz	Large Muscle NMES
1990's	PENS		EMG Patterned Stimulation	50PPS EMG pattern	Neuromuscular Re-ed

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How are the Waveforms Used?

WAVEFORMS USED IN TISSUE AND NERVE STIMULATION

DATE POPULARIZED	WAVEFORM		DESCRIPTION	FREQUENCY RANGE	APPLICATION
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1990's	PENS		EMG Patterned Stimulation	50PPS EMG pattern	Neuromuscular Re-ed

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Waveforms – patient responses
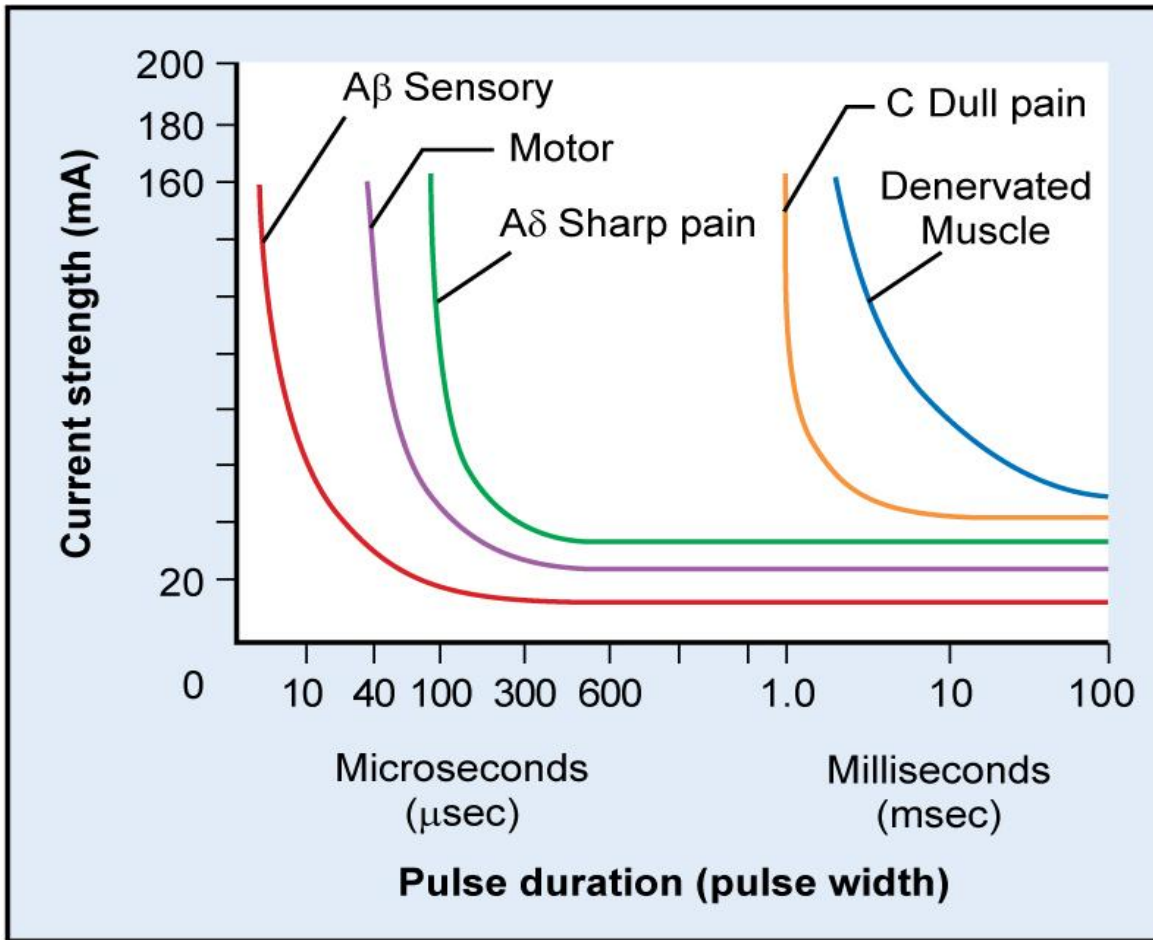
Fig. 8-3. Strength-duration curve.

Bioness L300

Thigh FS Cuff

L300 FS Leg Cuff

Intelli-Sense Gait Sensor

Control Unit

Types of FES foot drop Technologies

XFT

Neucognic

Pace Odstock Medical

WalkAide

Keep in Mind

The WalkAide is not an instant cure. The best clinical outcome is attained over time in conjunction with physical therapy.

Patient Subsets

You will see three subsets of patients when you are working with the Walkaide.

1. The patient that has immediate dramatic improvements in gait when they first put on the WalkAide.
2. The patient that does not tolerate the stim or is not a candidate, at least not yet.
3. The biggest subset of patients is the one where you apply the WalkAide and give them time and they see slow but profound improvements in their gait.

It takes time!

WalkAide Control Unit

Design Criteria

- Self-contained
- Built-in sensors
- Self-aligning
- Comfortable
- Low-profile
- Lightweight
- Adaptations for visual and hearing impaired users
- 2-year warranty

Bi-Flex Cuff

Easy to fit

- Self-aligning
- Light-weight & comfortable
- One-hand donning/doffing
- Electrode markers for placement
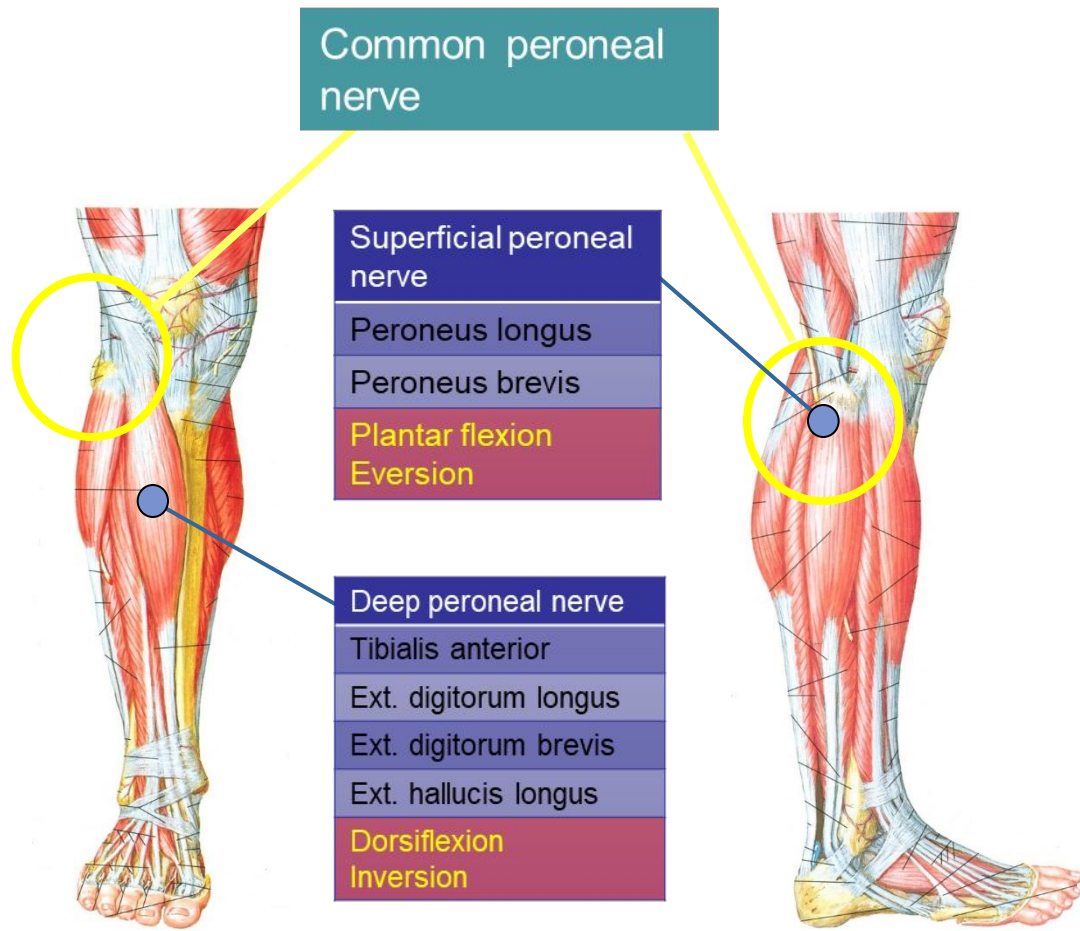- Adjustable
- Universal R/L cuff

Dorsiflexion of the ankle at the optimal time during the gait cycle to improve limb clearance during swing phase.

Peripheral Nerve Stimulation

Common peroneal nerve

Superficial peroneal nerve
Peroneus longus
Peroneus brevis
Plantar flexion
Eversion

Deep peroneal nerve
Tibialis anterior
Ext. digitorum longus
Ext. digitorum brevis
Ext. hallucis longus
Dorsiflexion
Inversion

Controlled amounts of electrical currents are applied to the Peroneal Nerve in order to promote functional dorsiflexion.
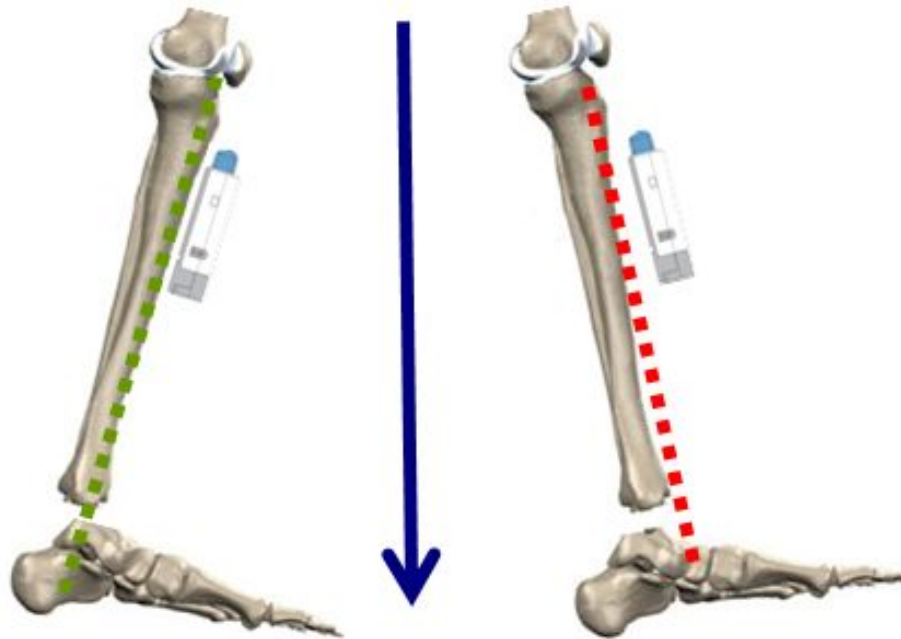
*An intact peroneal nerve pathway is required.

Unique Design Features: *Inclinometer*

Measures tilt angle from a vertical reference (angular displacement)

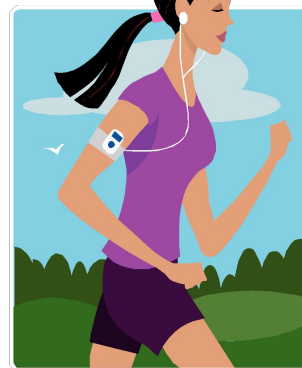Eliminates the need to rely on a heel trigger

Tilt ON Threshold

Tilt OFF Threshold
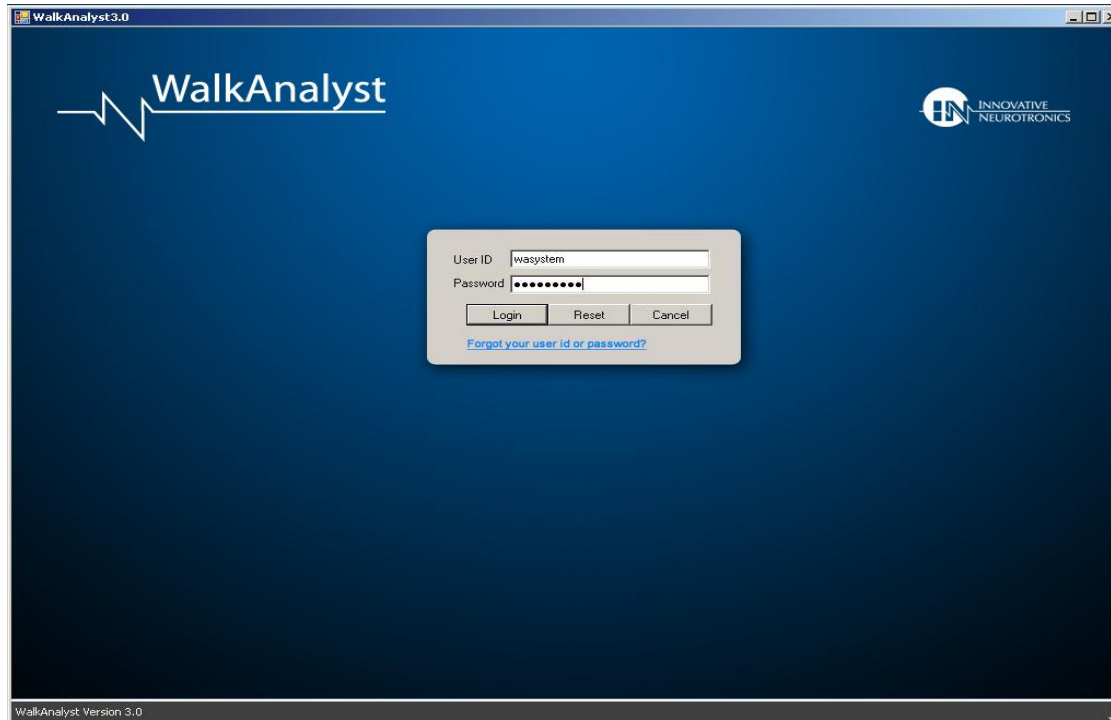
Accelerometer

- Measures changes in speed of movement
- Allows WalkAide to adapt to variations in gait speed

WalkAnalyst® Software

Sophisticated patient management software that analyzes individual walking data and selects customized programming for optimal outcomes
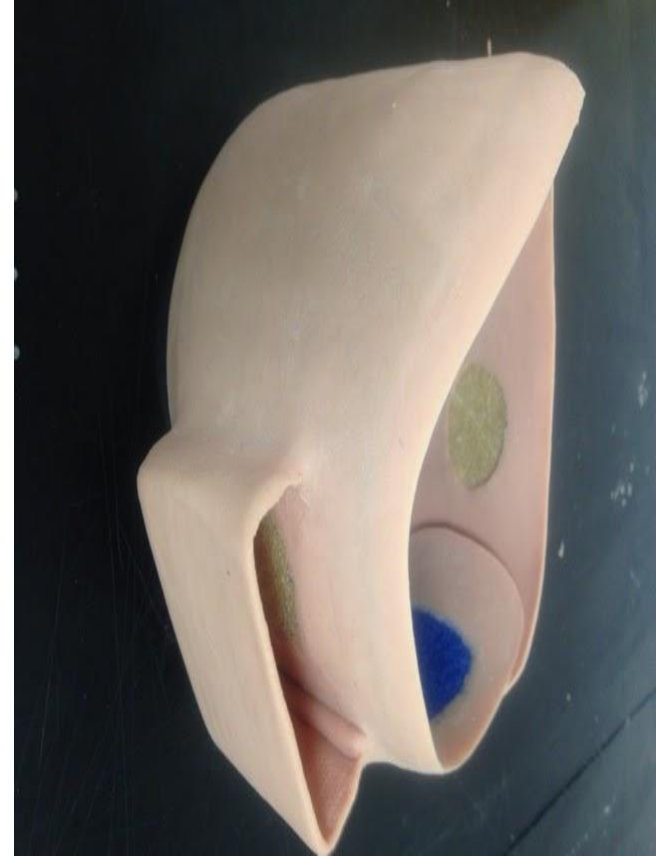
WalkAide Customization – Combo Therapy – Knee Brace/AFO

WalkAide Customization - Silicone

WalkAide Customization – Pediatric Cuffs

Gadget helping partially paralyzed
ASU triathlete beat the odds

WalkAide Customization – Adult Cuffs

Carbon Fiber Cover

Customized cuff for an extra large calf

WalkAide Accessory – Silicon Cover

WalkAide is Unique

Patient Benefits

– Adapts to step length & speed variations
– Facilitates sagittal plane swing
– Works with any initial foot position
– No heel strike needed
– Works on stairs, inclines, declines, or side/back-stepping
– Relieves footwear restrictions; can be worn barefoot
– Minimizes skin irritation via balanced charge recovery circuitry
– Collects & analyzes patient data via wireless Bluetooth technology
– Built-in exercise mode

Potential WalkAide Candidates

Upper Motor Neuron Deficits

- – Incomplete Spinal Cord Injury (iSCI)
- – Traumatic Brain Injury (TBI)
- – Stroke (CVA)
- – Multiple Sclerosis (MS)
- – Cerebral Palsy (CP)
- – Familial Hereditary Spastic Parapelgia (FSP)

Contraindications

Peripheral Nerve Damage (examples)

- Secondary complications of back, hip or knee surgery
- Traumatic accidents to the leg
- Sciatica
- Peripheral neuropathy
- Spinal stenosis
- Post-polio syndrome
- Guillain-Barre

NOTE: People with pacemakers, are pregnant or who suffer from seizures should not use WalkAide.

1. The WalkAide$^®$ System is Neuroprosthetic technology that utilizes peroneal nerve stimulation to achieve functional dorsiflexion.
   True or False?

2. WalkAide Unique Design Features include:
   a. Accelerometer
   b. Inclinometer
   c. PC based patient management software
   d. Reporting and quantification of patient outcomes
   e. All of the above

3.   The WalkAide adapts to step length and speed
      variations but does not work with inclines, declines or side
      stepping.
      True or False?

4.   Electrode placement determines all of the following <u>except</u>:
      a. WA System efficiency
      b. Effective stimulation
      c. Stimulation timing
      d. Functional foot lift
      e. Patient comfort

The WalkAide® System

Module 3:
Therapeutic Effects

Theories Regarding Therapeutic Effects of FES

The effect of FES on sensorimotor function

- **Stimulation of motor nerves creates feedback.**
  - Proprioceptive and kinesthetic feedback from muscle spindle, GTO and joint receptors as muscle contracts
  - This intrinsic feedback goes to the Cerebellum and Basal Ganglia allowing the brain to make better motor decisions and for produce better quality movement.

Theories Regarding Therapeutic Effects of FES

The effect of FES on sensorimotor function

- **Stimulation of spinal interneurons affects the contractile state of muscle and antagonists.**
  - Stimulation adds to sensory feedback (i.e. to the intrinsic information in the system) and allows for a better balance of muscle effort/tone across the joint.
  - FES affects muscles grouped in synergistic patterns; as sensory info is improved, the brain "remembers" how to effectively group muscles in <u>normal</u> synergies to increase efficiency of movement.

Theories Regarding Therapeutic Effects of FES

The effect of FES on CNS tone management

- The restoration of the reciprocal inhibition reflex is key. Contraction of the Anterior Tibialis and Peroneals leads to inhibition of the spastic gastroc-soleus and invertor muscle groups.

- A normal balance of muscle effort facilitates <u>normal</u> synergistic grouping of muscles

- Improved sensory input leads to improved quality of motor output and improved motor planning.

- Functionally, tone will decrease as movement improves: Improved gait ☐ decreased effort ☐ decreased tone

FES as a Therapeutic Intervention

- Summary

  - At the least, FES can:
    - Decrease compensations during gait training
    - Facilitate swing appropriately and *consistently* without distal handling

  - At most, FES can:
    - Inhibit abnormal tone
    - Facilitate normal synergistic motion
    - Improve sensory feedback to the brain and spinal cord
    - Encourage motor effort, improved motor planning and improved motor coordination
    - STIMULATE NEUROPLASTICITY like nothing else can

FES Skin Irritation

FES Skin Irritation

1. Skin has to be **completely healthy** <u>before</u> reapplying the technology.
2. Address hygiene and conductivity:
- Natural soap (no lotion, antibacterial or deodorant in the soap)
- No lotion unless absolutely necessary in electrode area; use a light lotion at night and clean area with natural soap before applying electrodes.
- Drink plenty of water daily to hydrate skin and tissues without a need for lotion.
3. Address electrode care:
- Wet electrodes
- Optimal placement
- Change every 2 weeks or sooner if electrodes get dry/smooth/shiny/dirty or become less effective.
4. Use the lowest intensity possible to get necessary foot lift.
5. New wearing schedule:
- Short duration with device on the leg and power on; take device off the leg for an equal duration; repeat throughout the day ONLY IF SKIN IS HEALTHY and there is no sign of irritation.
- Add 5 minutes to 'on time' and continue ONLY IF SKIN IS HEALTHY and there is no sign of irritation.
- Proceed with this plan until patient's skin is healthy for all day use.
6. Clean the cuff with every electrode change or more frequently if desired.
7. Large gel electrodes or cloth electrodes would be best to distribute stimulation over a greater area of skin and to preserve skin integrity.
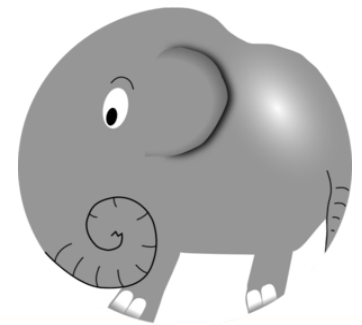
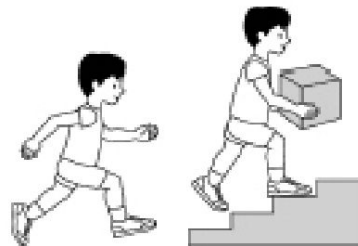# FES Home Exercise Program
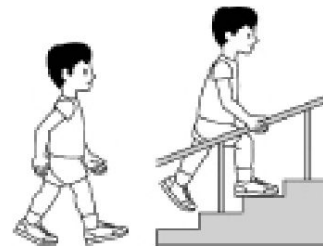
Pediatric Candidates

- **Upper Motor Neuron Deficit**
- **Gait Dysfunction / Dropfoot**
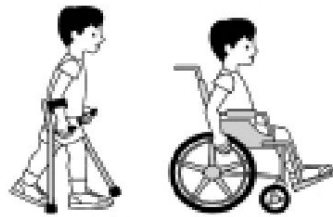- **GMFCS: I-III (IV) Gross Motor Function Classification System**
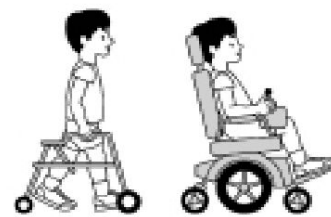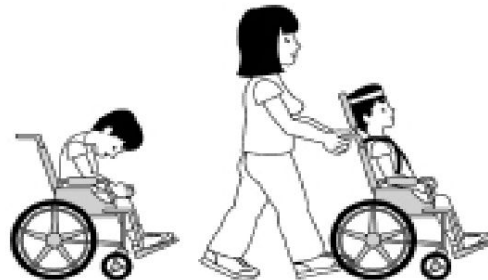- **Youngest: 3 yrs**

GMFCS Level I

GMFCS Level II

GMFCS Level III

GMFCS Level IV

GMFCS Level V

WalkAide.
Independence. One step at a time.

Treatment Balance

Mobility vs **Stability**

Maximum Function vs **Deformity Prevention**

Manage Deformity vs **Influence Recovery**

Why Early Intervention

- Prevent Deformity
- Prevent or Delay Surgery
- Promote Motor Learning
- Substitute Involuntary Control
- Prevent learned non-use
- Reduce Long-Term Physiological Overload
- Prevent Premature Degeneration
- Input outside of Rehab
- Adaptable Programming with Growth
- Application of Neuroscientific Principles

Positive Feedback with Every Step

• Kid-Friendly Programming Options

– **Pediatric Parameters provide a well-tolerated stimulus**

– **Adjustability in:**

  • **Amplitude**

  • **Ramping**

  • **Frequency**

  • *Pulse Duration to 25 microseconds*

– **Adaptable through growth, maturation and recovery**

- # Kid-Friendly Electrode Options
  - **Smallest FES electrodes available**
  - **Well-tolerated and durable**
    - **1.25" Standard and Premium Options**
    - **1.87" Standard and Premium Options**
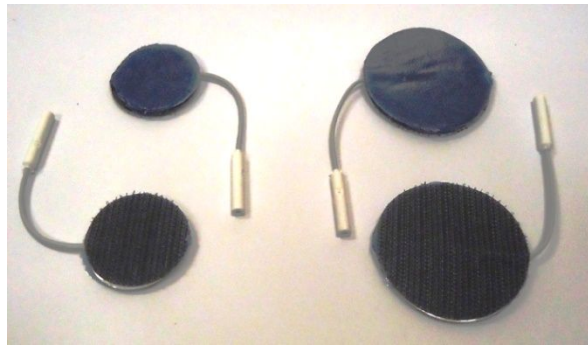
Encourage Kids to be Kids

1. Restoring the reciprocal inhibition reflex does which of the following?
    a. Allows for inhibition of a spastic antagonist
    b. Restores muscle effort across the joint
    c. Allows for improved sensory feedback to the brain leading to improved motor planning and motor effort
    d. All of the above
    e. A and B only

2. Why does FES seem to improve tone and motion in the whole LE even though only the ankle muscles are receiving stimulation?
    a. The facilitation of a swing allows for decreased compensations and decreased use of "abnormal" synergies.
    b. Improved sensory feedback allows for better motor planning which promotes normalized synergies.
    c. Dorsiflexion is the key component of a swing, and if it is facilitated everything else will work normally as well.
    d. All of the above
    e. A and B only

3. It is okay to continue using the WalkAide if you have skin irritation as long as you are using a dermatologic cream on the electrodes.
   True or false

4. What is NOT a primary reason for using the WalkAide with CP pediatric patients?
   a. To prevent further tissue deformity and loss of ankle ROM
   b. To prevent disuse atrophy
   c. To reduce energy expenditure during gait
   d. To eliminate the need for night splints

Module 4: Building a Successful WalkAide Business

WALKAIDE BRANDING

- **Educate the entire office on the WalkAide. Have them try it on. The whole staff can answer basic questions and can direct patients to someone who can answer all there questions.**

- **We always have a display with WalkAide visible to the customers. Have a video loop playing in the lobby. Have a WalkAide poster in the lobby.**

- **Display a Mannequin leg in the treatment room.**

- **Always have patient education CDs and marketing collaterals available for the patient.**

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WALKAIDE BRANDING

- **Always think WalkAide first during a foot drop evaluation. Stim first and brace second.**

- **Make sure your WalkAide equipment is in working order and that you have demo equipment available at all times.**

- **Take the time to educate your customer on the difference of WalkAide vs. AFO**

YOUR WALKAIDE EQUIPMENT

- **Have a dedicated laptop for the WalkAide. Medical device software sometimes do not play well together.**

- **Have an adequate number of cuff, electrodes and WalkAide demos on hand to provide for home assessment programs.**

- **Keep all your equipment in one place/room for easy storage and location.**

- **Have your equipment all set up before the patient enters the room if you know it is an UMN foot drop patient.**

ENHANCE CLINICAL OUTCOMES

- **Adopt the Home Assessment Program. What is the HAP?**

- **Almost 60% of the patients that take the WalkAide home for a Trial purchase the device.**

- **Contact the patient during the HAP.**

- **Visit the patient during a physical therapy visit during the HAP.**

- **Set the patient up with a home exercise program during the HAP.**

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The WalkAide® System

INNOVATIVE NEUROTRONICS

Where are the Patients?

THE FOOT DROP MARKET IS HUGE!

- **14% of the United States is over age 65.**

- **Median Income of the top 10% of the United States: $140,001.00. The top 25%: $89,125.00.**

- **IN Inc and Bioness together are only about 3-4% penetrated.**

- **1 in 7 will have a stroke in there lifetime. 35% under the age of 65.**

- **730,000 strokes each year. 20% of the survivors will have foot drop.**

Reimagining ACP

CREATE A MARKETING PLAN

- **Utilizing your RSS in the development of your marketing program is essential.**

- **Set up an on-going strategic marketing plan.**

- **Review the marketing plan each quarter and its ROI.**

- **Market to: Neurologists, Physiatrists, Rehab Hospitals, Outpatient Rehab Clinics, Patient Support Groups.**

- **Conduct physical therapy CEU programs.**

Reimagining ACP

ORTHOTIC SYMPOSIUM

Wednesday, April 16, 2014
Check In: 5:00 p.m. | Lecture 5:30 – 8:30 p.m. | Dinner Provided

Continuing Education | 3 Contact Hours

All participants are required to sign in and must be present at the end of the course to receive a completion certificate.

Cost: Free of Charge

This event is free of charge and includes dinner.

Registration

To RSVP, please contact
Samira Luchian
(t) 386.274.4907 | (f) 386.274.1229
email sluchian@hanger.com

When leaving a message, please provide your full name, credentials, job title and telephone number to contact you with any updates.

This course is taught by a panel of certified orthotists and prosthetists. The content of the course is designed to educate health care providers, case managers, and patients on the benefits of new technology and the necessity of multi-disciplinary approach to treatment modalities with a special focus on improving a patient's mobility. Included are appropriate patient selection criteria, benefits of stance control versus locked knee orthoses, and componentry features, benefits, and unique characteristics.

The course explains FES and reviews foot drop, functional gait impact, and orthotic protocols. Case demonstrations and discussion of long term outcomes and goals will aid in learner's understanding of patient selection criteria and proper orthoses selection.

Location

Holiday Inn Daytona Beach LPGA
137 Automall Circle
Daytona Beach, Florida 32124

Hanger CLINIC

CREATE A MARKETING PLAN

- **You must take at least a half day per month to market the WalkAide.**

- **Target marketing/referral opportunities. Track your efforts. Follow up with your referral network. Thank you for the referral. Share success stories.**

- **Send all your WalkAide patients to physical therapy. Create a back and forth referral relationship.**

- **Loan the physical therapy department a WalkAide clinician's kit and train them. They more they use the WalkAide the more WalkAide referrals you will get.**

CREATE A MARKETING PLAN

The role of the RSS:

- The RSS will offer on-going clinical and marketing support.
  Realize they are covering large territories and there is only one of them. Most of this responsibility falls on you but you will also realize the most benefit.

- Have them assist you with hard to fit patients.

- Use the RSS as part of your CEU programs.

- Have them provide basic and advanced trainings as you need them.

- Have them assist on a few financial discussions to give you

CREATE A MARKETING PLAN

What is IN Inc. doing for Marketing:

- **Direct to consumer ads in MS and Stroke magazines.**

- **Hired a consultant for our Facebook page.**

- **Paying Google Ads for better search placement of www.walkaide.com.**

- **Sending website and magazine 1-800 leads to you.**

- **Assisting you with CEU programs and lunch and learn activities.**

- **Stay tunes for more initiatives as they are approved.**

Reimagining ACP

WALKAIDE PEDIATRIC MARKET

- **If anyone is going to purchase a WalkAide, it will be a parent purchasing for their child!**

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WALKAIDE PEDIATRIC MARKET

- **Set up an on-going Gait Clinic or WalkAide Screening Clinic:**

Has Foot Drop limited your mobility?
WalkAide has been proven effective for Foot Drop treatment.

Please join us for a **FREE consultation** featuring the WalkAide System.
(No purchase necessary)

Consultation will include:
- WalkAide Assessment
- Custom fitting of the WalkAide
- WalkAide Trial & Clinical Evaluation
- Computer Diagnostics

When:

Space is limited, please call:

Where:

Remember to ask about the Home Assessment Program

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The **WalkAide®** System

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CREATE SOME WALKAIDE CLINICS

- **Gait Clinics, Referral Model (at the Physician or Physical Therapy Center)**

Mobility Clinic - For Orthotic and Walk-Aide Eligibility and Trial Program
A multidisciplinary approach to neuro-prosthetic management through the collaboration of

Peter A DiPaolo, LPO, CPO, Area Clinic Manager, Hanger Ft. Myers
Astrid González-Parrilla, MBA, OTR/L, FACHE, C/NDT, Therapy Manager, Lee Memorial

Purpose: To create, educate, and promote a multi-disciplinary approach to neuro-prosthetic management through the collaboration of physical medicine and rehabilitation, physical therapy, orthotics and prosthetics. With a combined effort, this program will demonstrate enhanced outcomes for the child with respect to ambulation and improved reimbursement for medically necessary equipment to minimize the patient's expense.

Benefits and Outcomes:
- Multidisciplinary approach leading to maximized outcomes for the child
- Increased gait speed
- Improved gait kinematics
- Spasticity reduction
- Increased functional status
- Decreased energy expenditure providing significant increases in endurance
- Improved insurance reimbursement via standardized objective data

WalkAide Billing Codes for Reimbursement

WalkAide® System   E0770

*This code represents the 'Patient Kit', including the WalkAide control unit, lead wires and 1 package of electrodes, and the Bi-Flex Cuff.

WalkAide Electrodes   A4595

*This code represents 1 pair of electrodes. A package contains 2 pairs of electrodes that will last approximately 1 month, therefore the proper billing for 1 package of electrodes is A4595 x 2.

WalkAide Modality & Coding for Rehab

PT Evaluation	97001
Electrical Stimulation	97032
Therapeutic Exercise	97110
Neuromuscular Re-Ed	97112
Gait Training	97116
Therapeutic Activities	97530

Examples of billable codes for treatment involving WalkAide

Medicare Reimbursement

- Medicare approved coverage for WalkAide as treatment for the diagnosis of iSCI on 1/1/09.
- Guidelines for coverage are very specific, and require a patient with the diagnosis of iSCI to attend 32 sessions of Physical Therapy with the WalkAide for gait training.
- 2009 Medicare cap on Physical Therapy and Speech Therapy combined is $1840.00. Medicare guidelines indicate that coverage for the required 32 sessions of Physical Therapy with the WalkAide may extend beyond and is not limited by this therapy cap.

*An opportunity to greatly benefit the patients
and for the rehab facility to profit.*

WALKAIDE REIMBURSEMENT

- **Medicare: iSCI**

- **Medicaid**

- **VA, DOD and Tricare**

- **Vocational Rehabilitation**

- **Workers Compensation**

- **Private Pay**

- **Auto Pay**

- **Private insurance coverage is policy-dependent**

WALKAIDE FINANCIAL DISCUSSION

- **Who will have that discussion?**

- **This can be a clinician, an OA or the RSS.**

- **How to have the financial discussion.**

- **Be organized, confident and empathetic. Help the patient feel good about solving there foot drop problem. Listen and understand their needs.**

Reimagining ACP

WALKAIDE FINANCIAL DISCUSSION

- **Make it real life to them.**

- **Crossing the street when the light changes.**

- **Walking in the mall with your loved one.**

- **Not being stared at when you walk in public.**

- **Replacing your AFO.**

- **Going to your child's ball game.**

WALKAIDE FINANCIAL DISCUSSION

	AFO	WalkAide
•Improve stability	x	x
•Improve mobility	x	x
•Improve strength and endurance		x
•Reduce / delay / reverse muscle atrophy		x
•Increase circulation		x
•Reduce hypertonicity	x	
•Maintain / increase range of motion		x
•Maintain / increase bone density		x
•Improve sensory awareness		x
•Muscle re-education & facilitation		x
•Treat entire neuro-musculoskeletal system		x

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WALKAIDE FINANCIAL DISCUSSION

- **How can you put a price on the ability to walk?**

- **The WalkAide is doing so much more than just lifting your foot.**

- **This is an investment in your recovery. Short and long term.**

- **If it was a relative of mine, Yes I would want them to have the WalkAide!**

- **Functional change is good, Neuroplasticity is great!**

WALKAIDE FINANCIAL OPTIONS AND FUNDING RESOURCES

- **WalkAide Fundraising Guide**

- **Payment plan options (i.e. CareCredit)**

- **L** s

Insurance coverage for medical devices can vary by state and by individual insurance plans. We have created this guide to bring awareness to many funding alternatives that are available.

CROWD FUNDING

The internet and social media have proven to be a valuable resource for alternative financing and raising money. "Crowd Funding" is a network where individuals and/or organizations collaborate to provide funding for many different purposes, including helping others by contributing money to worthy goals, such as paying for assistive devices and related services. We encourage you to visit the following websites as they provide simple steps to create personal online fundraiser campaigns:

gofundme
www.gofundme.com

YouCaring.com
free online fundraising
www.youcaring.com

Giveforward
www.giveforward.com

FINANCING

CareCredit is a credit card – line of credit to be used exclusively for healthcare services.
www.carecredit.com

WALKAIDE FINANCIAL OPTIONS AND FUNDING RESOURCES

- **One Women's WalkAide passion: Daisy Vega not only paid for her own WalkAide. She started the non-profit Foundation: Freedom to Walk Foundation to help pay for others. Read her story at www.freedomtowalkfoundation.com**

© Vargas Photography Studio

1.   Which are the major reasons that more WalkAides are not sold?

        a. There are not enough foot drop patients in my practice.
        b. Clinicians do not consistently use the technology.
        c. Reimbursement is poor and the patients cannot afford to pay cash.
        d. b and c
        e. all of the above

2.   The HAP program reduces buyer's remorse buy giving patients an opportunity to realize the value of the technology while performing their activities of daily living.
        True or False

3.   To make my WalkAide program successful I need to:
        a. rule patients out, not in
        b. have an ongoing marketing program dedicated to the WalkAide
        c. need to enhance my WalkAide clinical skills to offer the best
           clinical outcome
        d. need to be comfortable having a financial discussion that presents
            options to my patents
        e. all the above

4.   Creating an ongoing foot drop clinic with my PT/O&P colleagues is an excellent way to grow my WalkAide program.
        True or False

A faster, easier way to program.

WalkAnalyst 5.1

WalkAnalyst 5.1 is designed to be quick, simple, customizable and effective for you and your patients.

- Compatible with Windows 7, 8 and 10 as well as Windows based tablets and touch screens

- Translation into a variety of languages

- Express Adult and Express Pediatric options accommodate most gait patterns without additional programming steps

- Rapid[+] Program offers control during programming for more challenging gait patterns

- Explanations and examples to guide program customization

- East to access and change between Tilt, Heel or Hand modes to trigger the stimulation

- Program recovery, transfer or adjustment

- Sample programs for gait patterns related to specific diagnoses

WalkAnalyst 5.1 Download

- Download WalkAnlayst 5.1 from the www.walkaide.com website for FREE.

- From the top of the home page, select *Support.*

- S...t...D...l...f...t...n...down
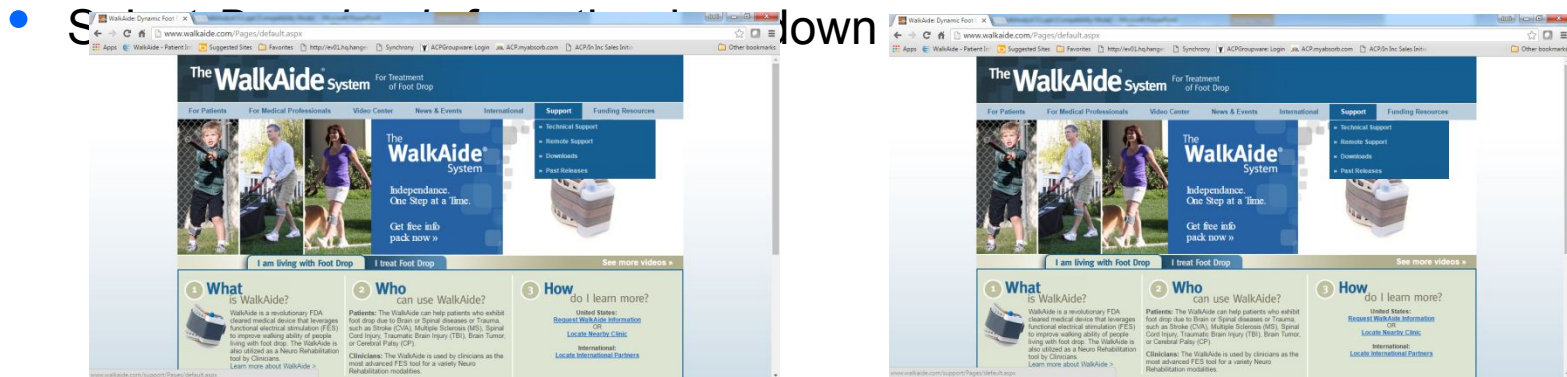
- Under *WalkAide Products,* find WalkAnalyst 5.1 and select *Click Here* to download.

- You will be asked to select a language for your software (i.e. English, German, Spanish).

- All current patient files will be saved and updated to the new WalkAnalyst 5.1 version.

Patient Profiles
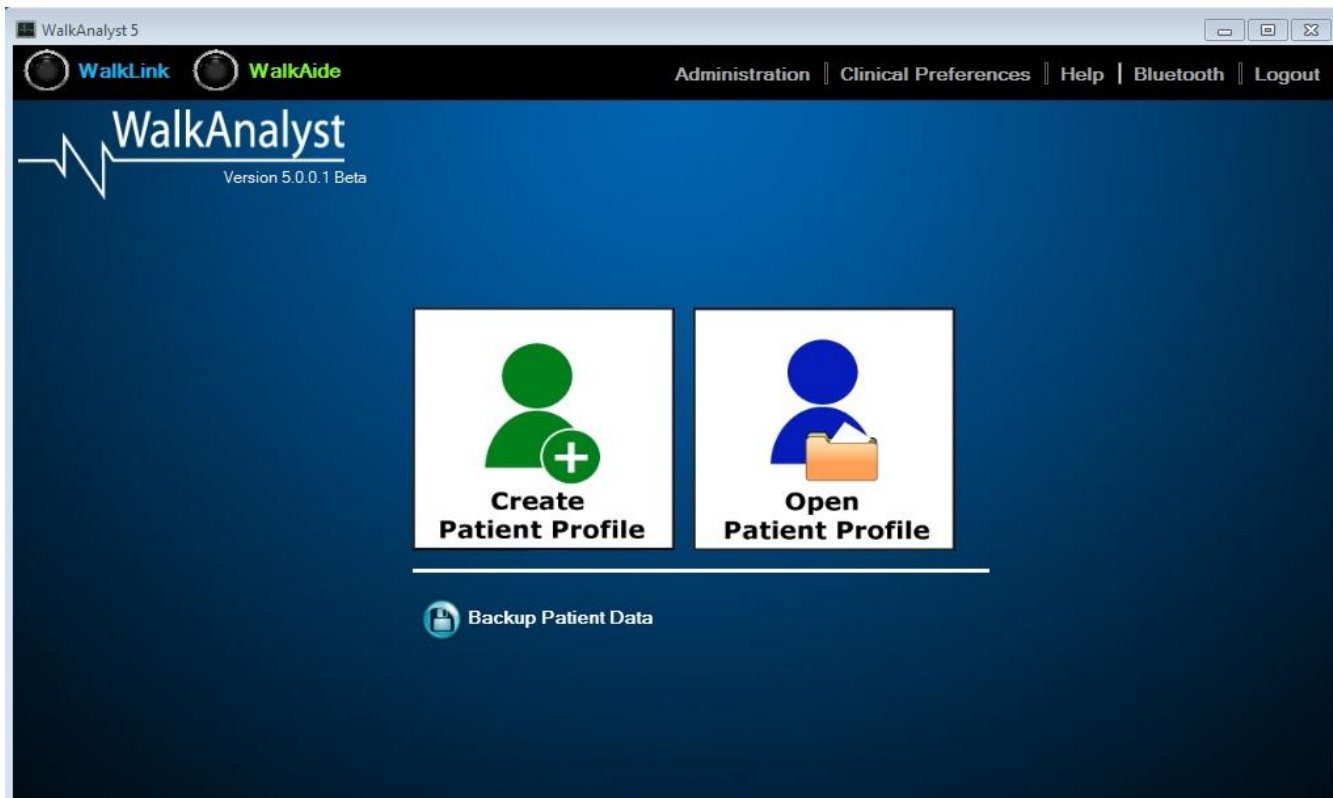
- Create Patient Profile – Create a profile for a new patient.

- Open Patient Profile – Open a profile for follow up with a previously seen patient.

Begin Programming or Recover a Program from the WalkAide of a Current User
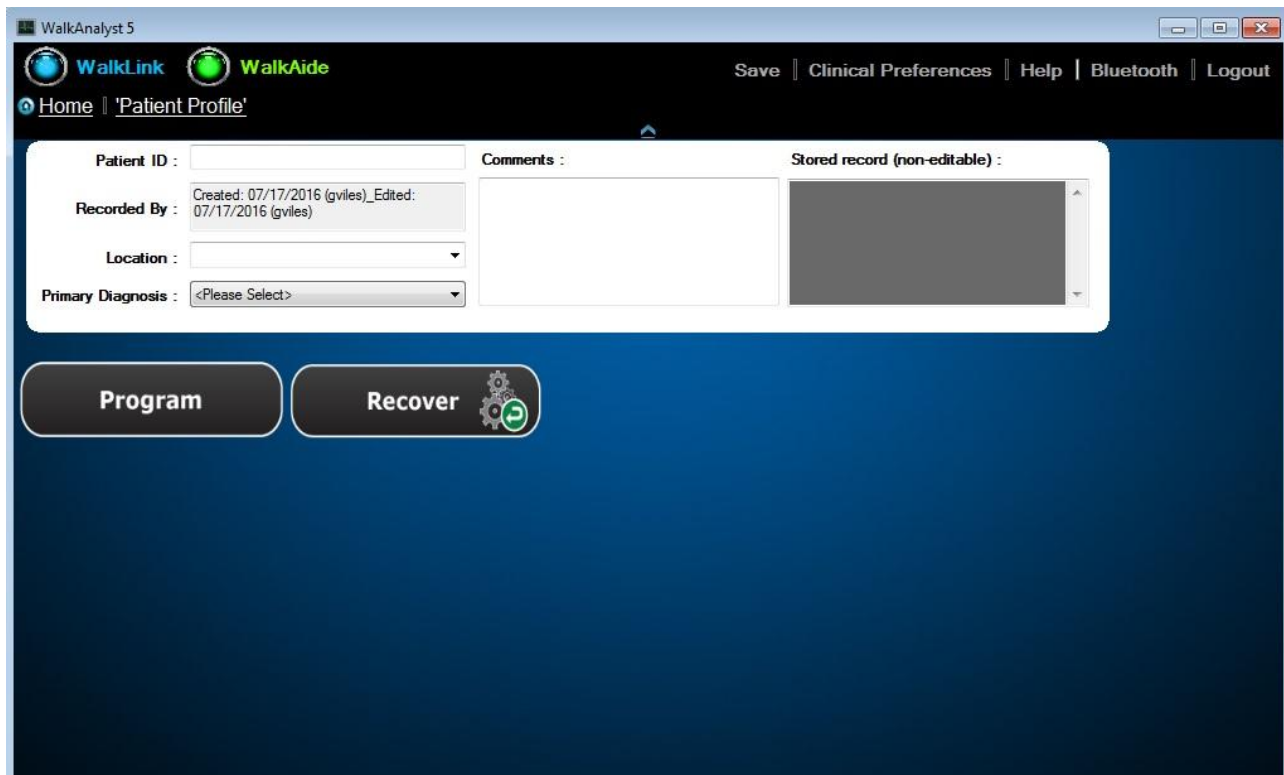
- Program – Select an option to program a WalkAide.

- Recover – Obtain data from a previously programmed WalkAide and save it for review/adjustment.

Rapid⁺ Program or Express Programming
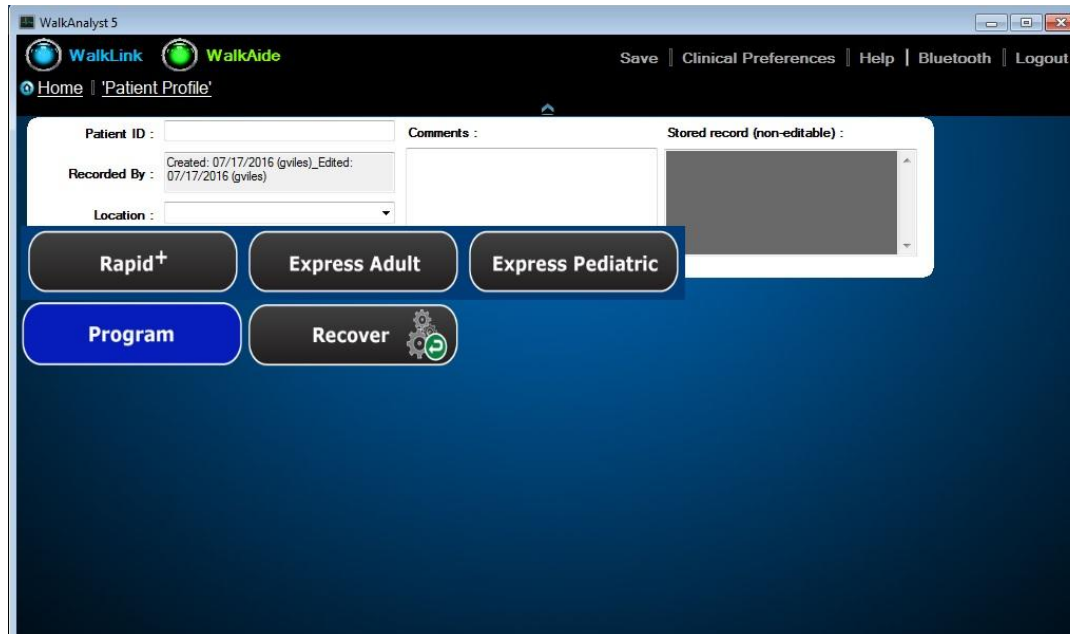
Hover over *Program* to see 3 programming options.

- Rapid⁺ Program – Collect data and create a custom program using clinical input.

- Express Adult – Without collecting data, send a basic WalkAide program to the device and customize as needed.

- Express Pediatric - Without collecting data, send a basic WalkAide program to the device and customize as needed.

Stimulus Settings
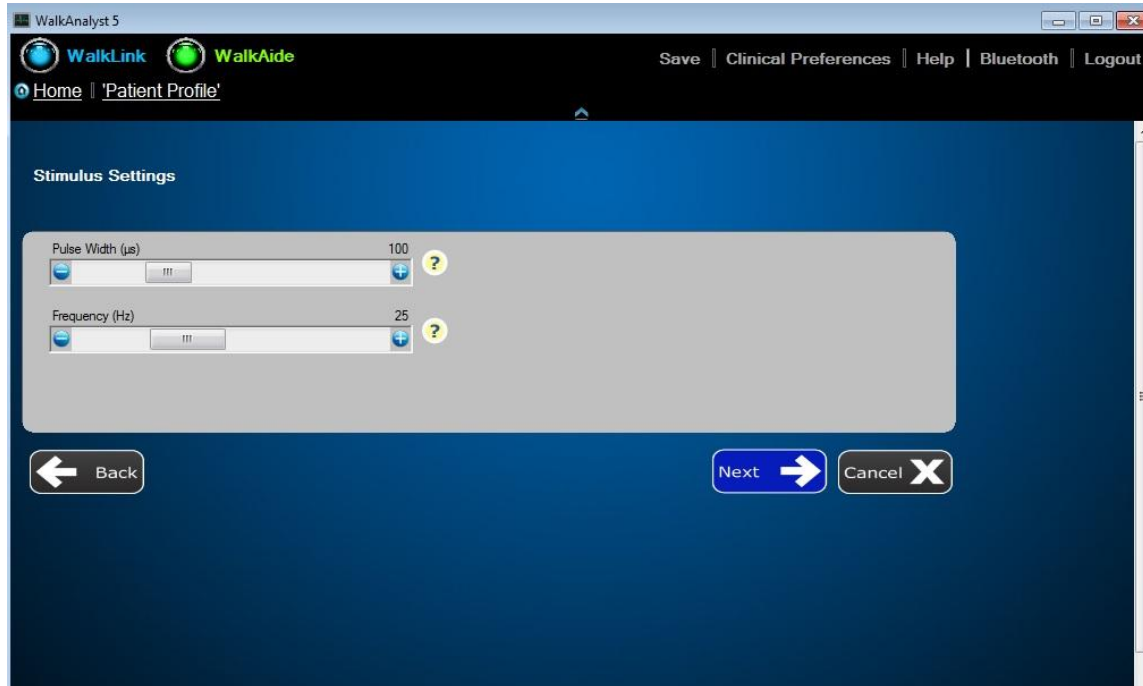
- Pulse Width – An increase or decrease affects power and functional response.
- Frequency – An increase enhances comfort and controls functional response.

Express Adult
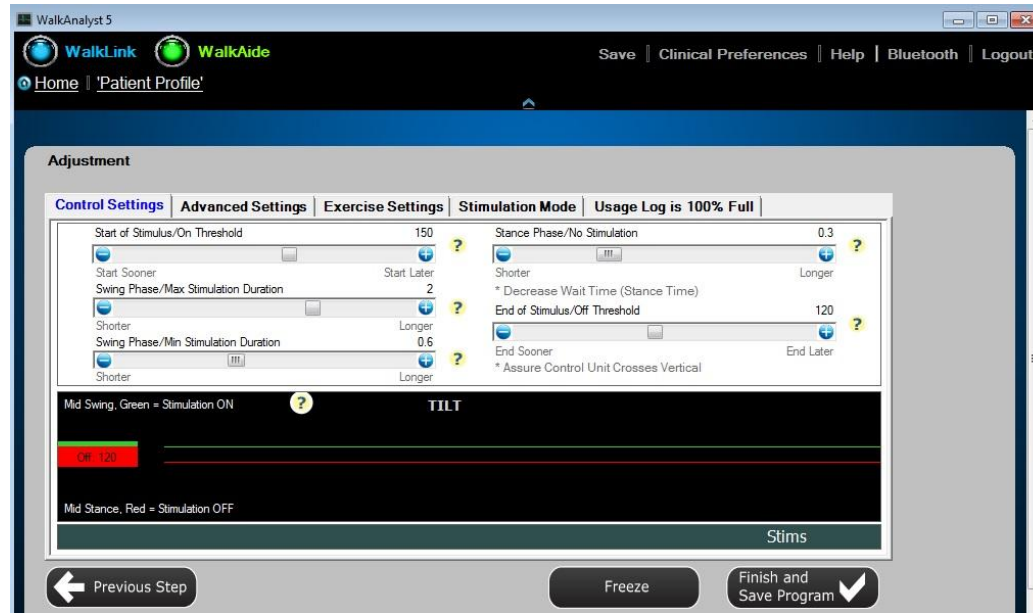
- Express Adult - A WalkAide program with control times adequate for most adult patients is sent to the WalkAide.

- Watch the patient walk using the Tilt Sensor and make adjustments as needed.

- Freeze the graph to review.

- Select *Finish and Save Program* when the walking program is ready for use.

Express Pediatric
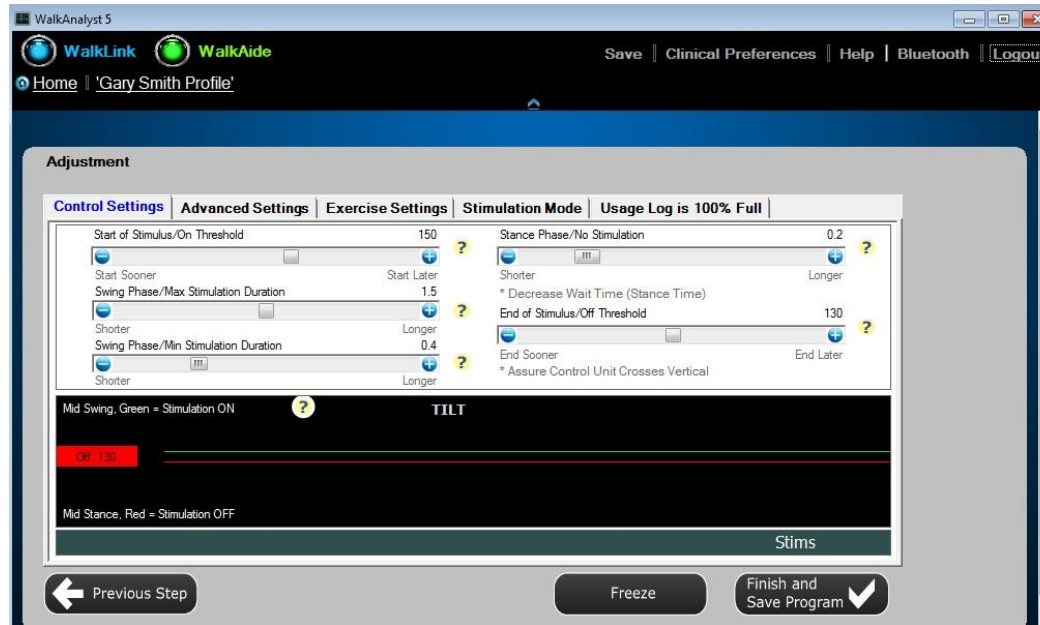
- Express Pediatric - A WalkAide program with control times adequate for most pediatric patients is sent to the WalkAide.

- Watch the patient walk using the Tilt Sensor and make adjustments as needed.

- Freeze the graph to review.

- Select *Finish and Save Program* when the walking program is ready for use.

Adjustment, Transfer, Evaluation & Reports
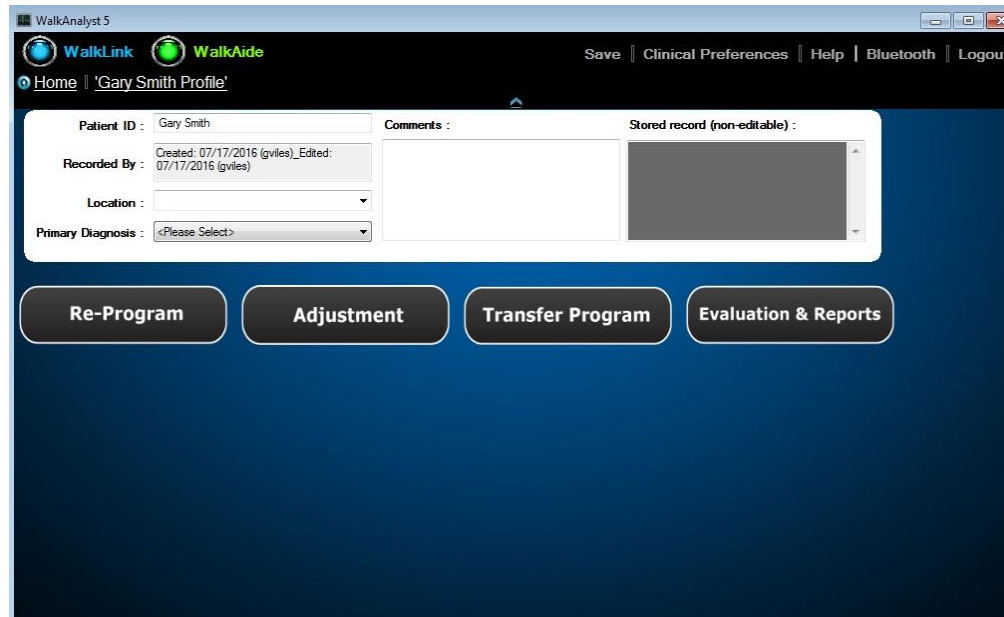
- Re-Program – Start over to create a new walking program.

- Adjustment – Review and adjust WalkAide programming.

- Transfer Program – Send a WalkAide program to a device or transfer it from one device to another.

- Evaluation & Reports – Collect objective data and create reports to show comparisons, patient progress and value of the technology. Save and Print.

Options to Create a New Program
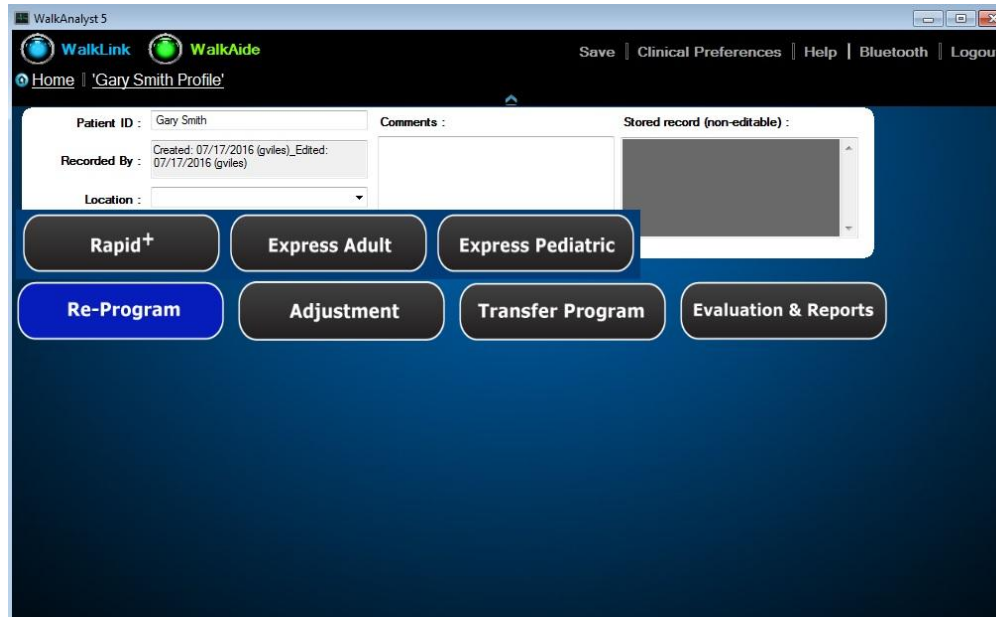
Hover over *Re-Program* to see multiple programming options when programming has already been completed.

- Create a new walking program using *Rapid⁺*, *Express Adult* or *Express Pediatric*.

- **These options remove the program currently in the WalkAide.**

Transfer Program
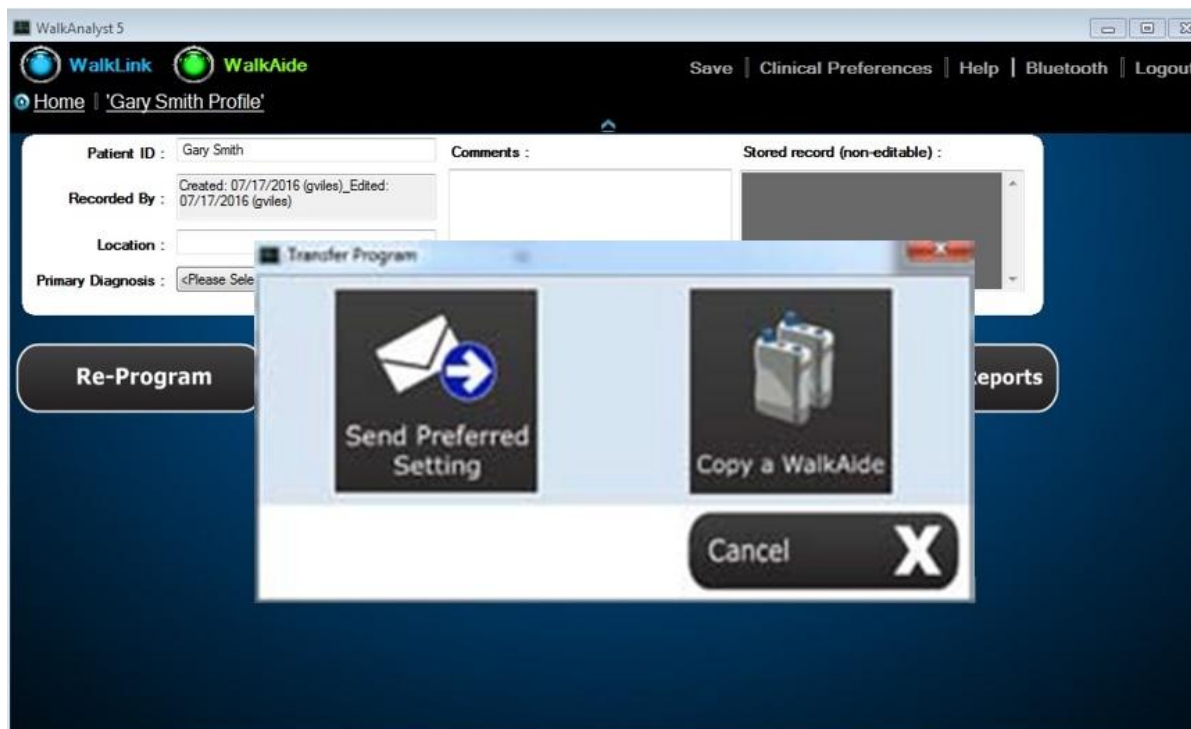
- **Send Preferred Setting** – Choose a past WalkAide program to send to the device.

- **Copy a WalkAide** – Copy a program from one device and send it to another (i.e. take a program used in a demo unit for a home assessment and send it to the device purchased by a patient).

Advanced Settings
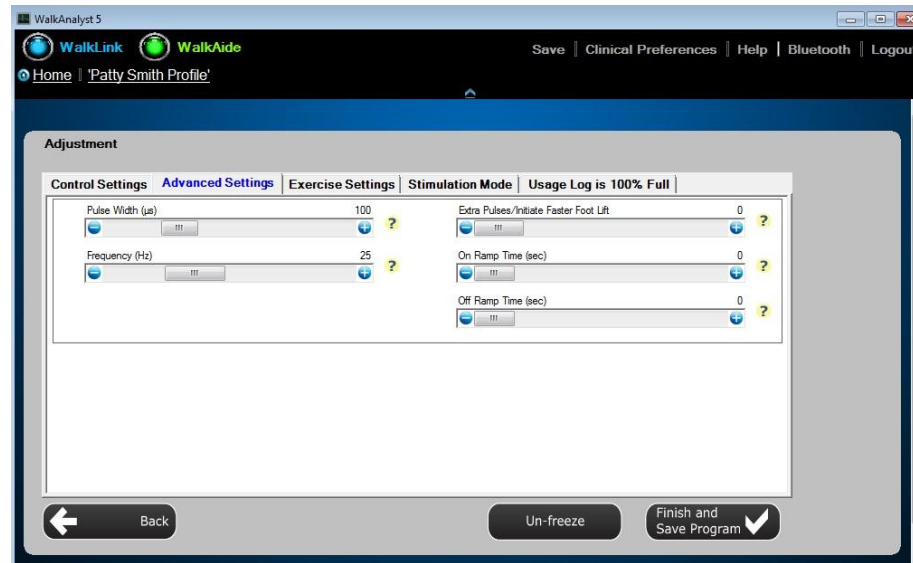
Adjust the stimulation parameters for comfort and function as needed.

- Pulse Width – An increase or decrease affects power and functional response.

- Frequency – An increase enhances comfort and controls functional response.

- Extra Pulses – Encourage an immediate response to stimulation.

- ON Ramp Time – When stimulation starts, intensity slowly increases to full power.

- OFF Ramp Time – Stimulation intensity gradually diminishes at the end of a step.

Exercise Program
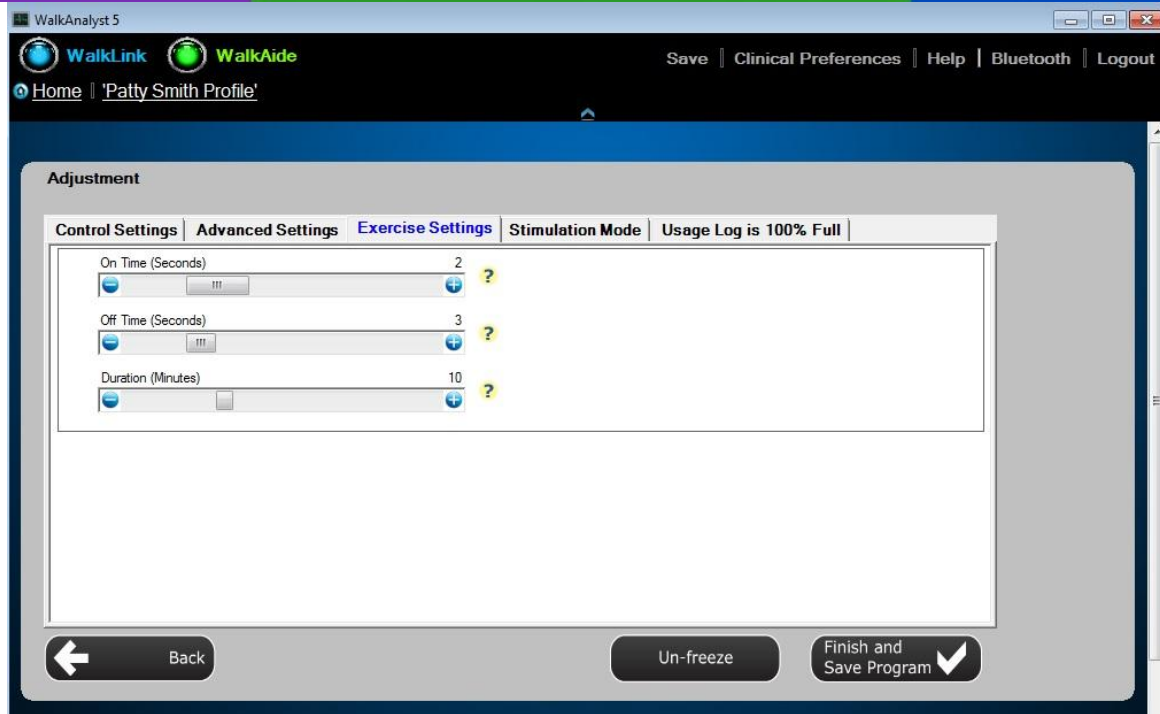
Use or customize an exercise program to enhance strength and endurance.

- On Time – Stimulation is ON for this duration to facilitate nerve and muscle function.

- Off Time – Stimulation is OFF for this period of recovery between each stimulation.

- Duration – The exercise program continues for this period of time.

Stimulation Mode
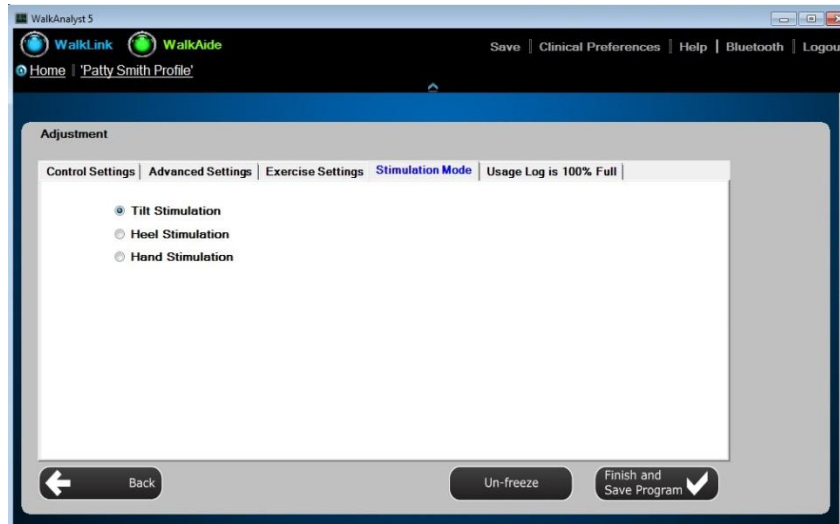
Change the mode of stimulation to effectively treat the patient.

- Tilt Stimulation – The Tilt Sensor triggers the stimulation per the program created using *Rapid⁺ Program, Express Adult or Express Pediatric*.

- Heel Stimulation – The Heel Sensor triggers the stimulation during walking or weight shifting exercises. Select Heel Stimulation while using *Rapid⁺ Program*, *Express Adult or Express Pediatric*.

- Hand Stimulation – Use the Hand Trigger to produce stimulation during gait training or therapeutic exercise. Select Hand Stimulation while using *Rapid⁺ Program, Express Adult or Express Pediatric*.

Usage Log
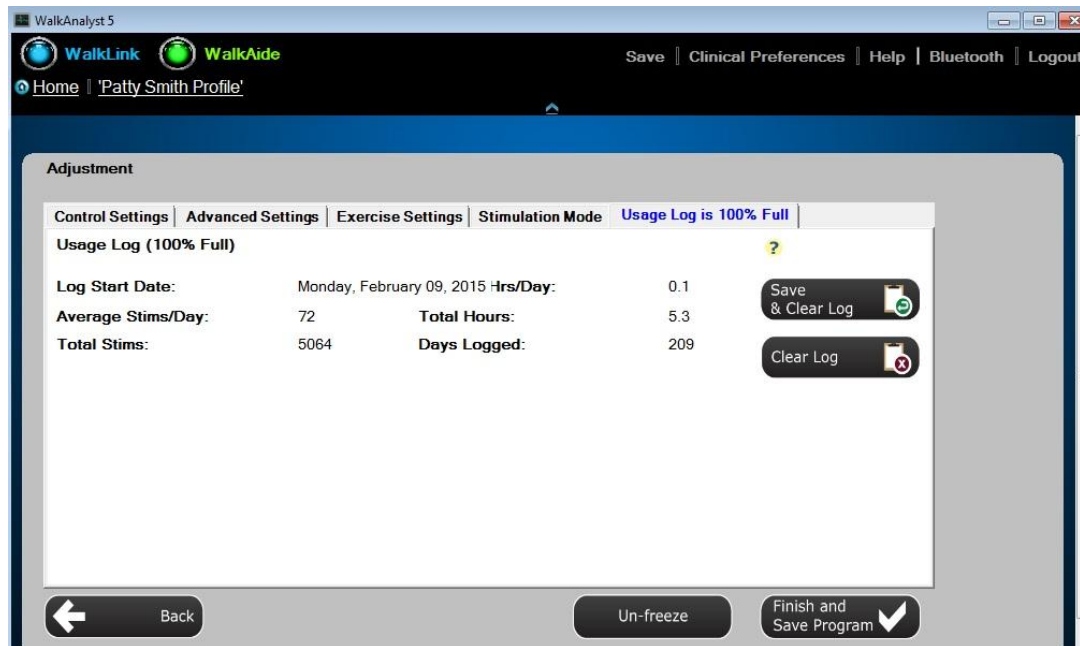
- **Clear Log** – Clear Usage Log data that you do not wish to save (i.e. clear demo unit data before a patient takes it for a home assessment).

- **Save & Clear** – Usage Log data is saved then cleared so more data can be collected.

- Saved data can be accessed and printed using the *Evaluation & Reports* icon on the home page.

Evaluation & Reports
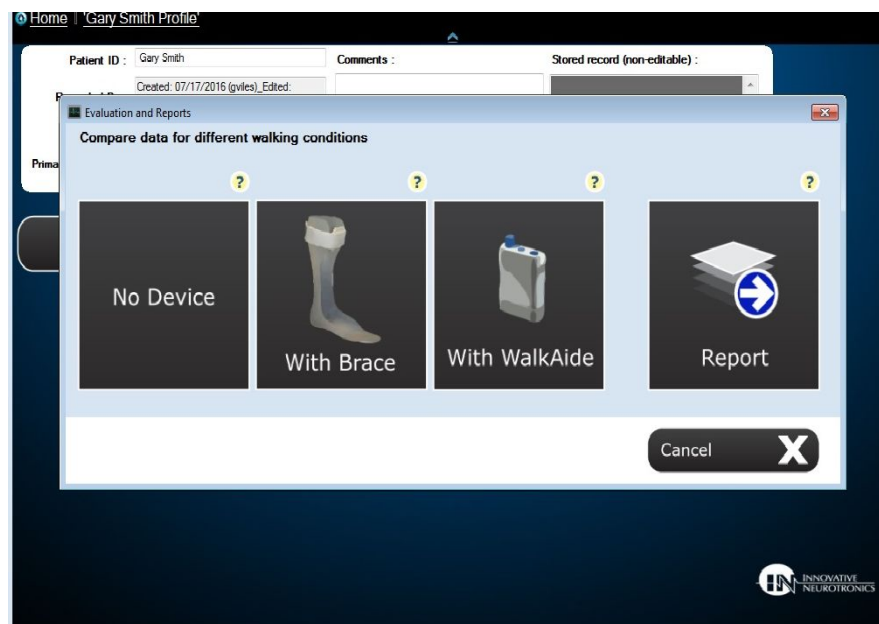
Collect cadence, gait speed and stride length data for comparison and to show progress.

- With WalkAide – WalkAide power is ON and stimulation is occurring.

- No Device – WalkAide power is ON but intensity is below 1 or lead wires are unplugged from electrodes to prevent stimulation.

- With Brace – Brace is worn with WalkAide. WalkAide power is ON but intensity is below 1 or lead wires are unplugged from electrodes to prevent stimulation

Fitting a New Patient

Select Create Patient Profile. Add basic information (patient ID, location, primary diagnosis, etc.) and save the patient file. Select Program.
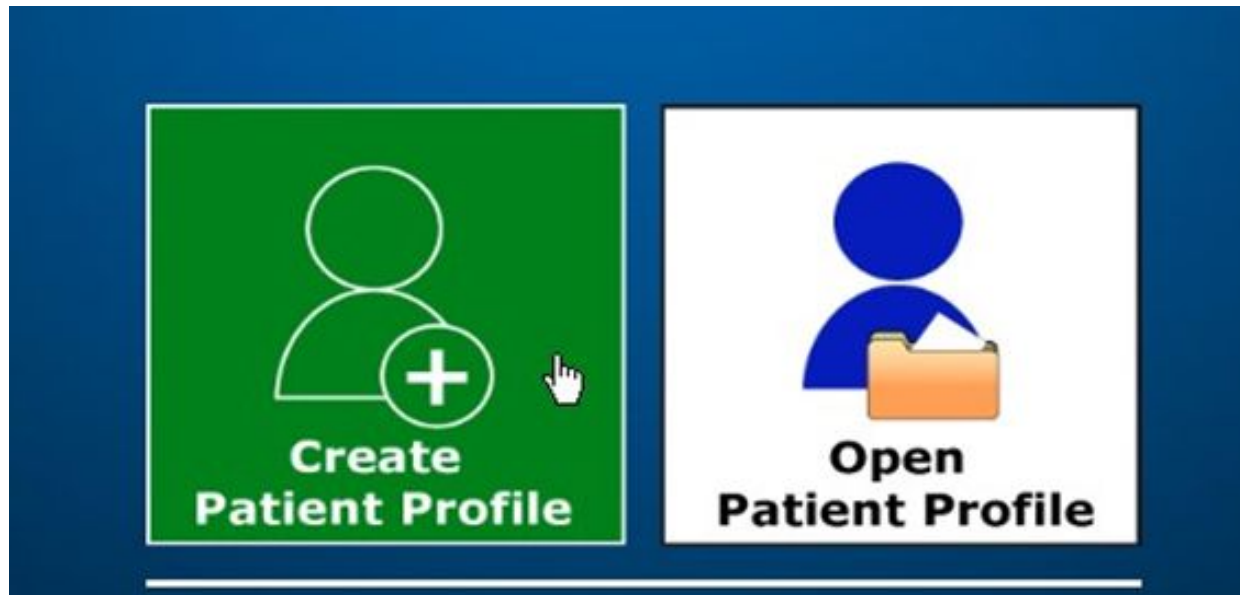
WalkAnalyst 5.1 Software

During the initial fitting, you have the following programming options:

• Rapid+ is a simple and easy programming option that can be used by all clinicians. See Rapid+ section for all the details of Rapid+ Programming.

• Express Adult and Express Pediatric are the fastest and easiest way to program the WalkAide used by novice and advanced clinicians.

• Recover is used when the clinician supports a patient with a programmed WalkAide unit, but is missing the patient file. Connect the WalkAide to the WalkLink. Select Recover. Adjust as needed.

• When fitting a bi-lateral patient, set up two separate patient files. One for the left leg and another for the right leg, distinguish the leg in the patient file name. Fit the most involved leg first and then switch over to the other leg once the initial leg has been properly fitted and the WalkAide programmed. Then fit and program the second WalkAide for the second leg.

Fitting a Returning Patient


Open an Existing Patient Profile.

WalkAnalyst 5.1 Software

Select Open Patient Profile and select one of the following options:

•*Re-Program: Re-program the patient using Rapid+ Program or Express Program option.*

•*Adjustment: Make an adjustment to an existing WalkAide program.*

•*Transfer Program: Re-program a WalkAide with a preferred program or copy a WalkAide program from one unit to another.*

•*Evaluation & Report: Conduct a comparative evaluation of the patient's gait with and without the WalkAide or another assistive device.*

Programming Options: Rapid+ and Express Programs
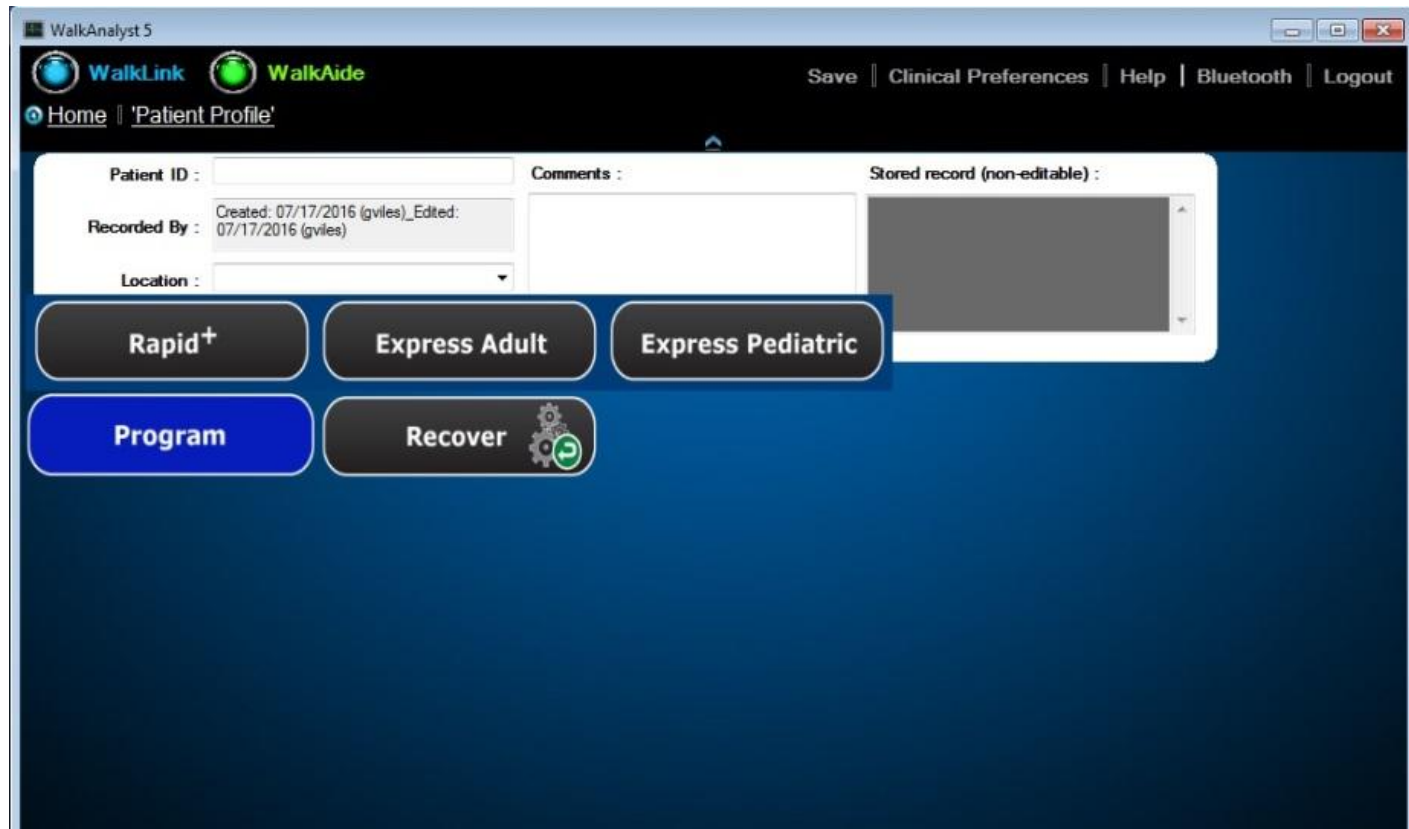
WalkAnalyst 5.1 Software

Select the Rapid+, Express Adult or Express Pediatric option to initiate programming and/or prepare the WalkAide device to operate by hand stimulation from the WalkLink. The software will ask if you want to save the file.

Note: Rapid+ programming is used when you want to manually collect gait data and to create an advanced customized program. Express programming is used when you want to automatically send a walking program to the WalkAide without collecting data. You can then customize the program. Express Pediatric is chosen when you have a patient that is under the height of 48 inches or the age of 14 years.

Adjust the cuff size to fit the patient with the WalkAide on the cuff. Position the cuff and electrodes following the instructions discussed previously, for system set up. Adjust the stimulus settings as appropriate for comfort and function. For example, decrease the Pulse Width and increase the Frequency for a pediatric patient. These can be adjusted immediately on the Stimulus Settings screen following selection of Rapid+ option. Use the Advanced Settings screen to make these adjustments when using Express Pediatric or Express Adult.

WalkAnalyst 5.1 Software
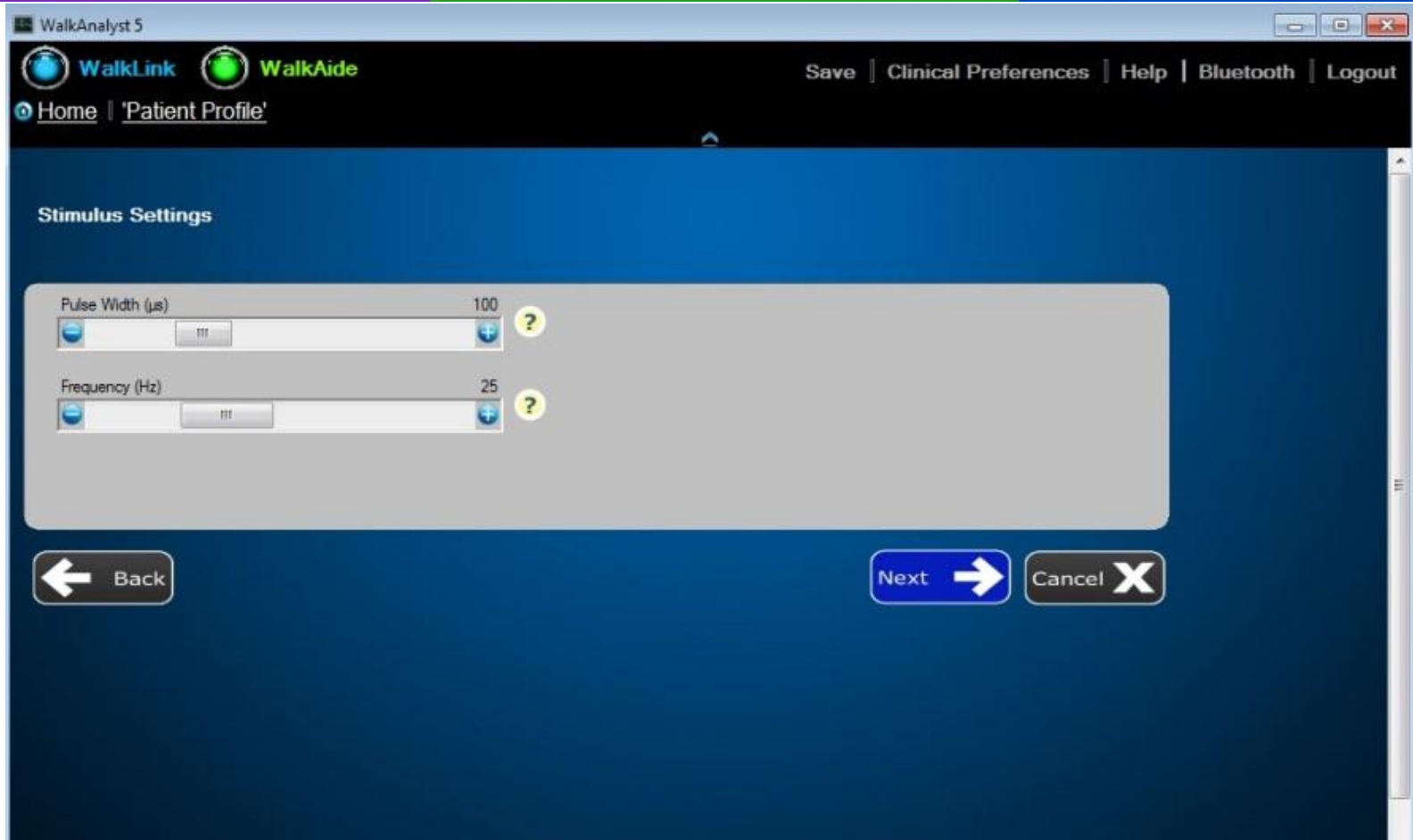
Stimulus and motor response page: Now you place the electrodes and test for an appropriate motor response. See future slides for tips on electrode placement.

Stimulus Settings: WalkAnalyst allows you to change stimulus settings such as Pulse Width, Frequency, Extra Stimuli, On Ramp Time and Off Ramp Time.

Press the Next button. When you select Next with Rapid+ programming it takes you to the Data Collection screen.

When you select Next with Express programming it takes you to the Adjustment screen. Note: Hover over the ? next to any field to open a text window with descriptions of the stimulus settings and how they may be applied.

WalkAnalyst 5.1 Software

Electrical Stimulation Strength Duration Curve
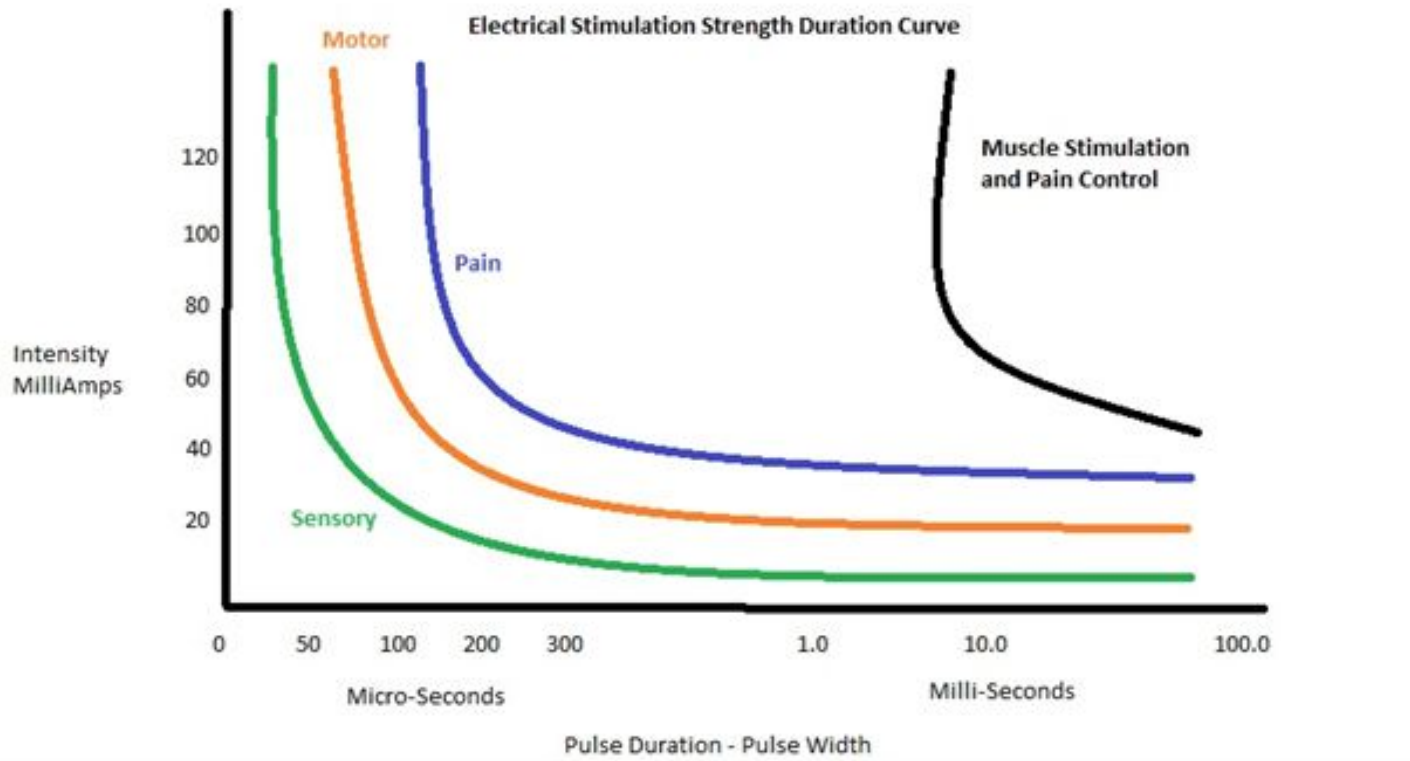
Stimulus Settings: Pulse Width: This is the duration of each individual pulse within the stimulus train. Its range can be adjusted from 25 to 300 microseconds.

WalkAnalyst 5.1 Software

The longer the Pulse Width, the more motor units are recruited leading to a more robust contraction. Increasing the Pulse Width may provide a more forceful stimulation, and allow for a greater contraction at an equal or lower intensity. (If the Pulse Width has been raised, lower the intensity level of the WalkAide unit before testing to prevent possible overstimulation of the user).

Decreasing the Pulse Width may make the stimulation less powerful for a more comfortable sensation and contraction.

TIPS:
When testing the WalkAide System on a child or user with a smaller leg, the Pulse Width should be lowered to 25 microseconds prior to testing the system.

If the intensity setting on the WalkAide must be increased to its highest levels in order to achieve an effective stimulation, increase the Pulse Width.

The intensity can then be lowered. This will promote a functional response at a lower intensity and allow some adjustability by the user.

WalkAnalyst 5.1 Software

Frequency: The Frequency is the rate at which the pulses occur per second of stimulation. It is adjustable from 16.7 to 33Hz. In general, stimulation at a higher frequency is more comfortable.

Extra Pulses: Adding Extra Pulses to the beginning of the stimulus train promotes a quicker response to the stimulation and potentially a faster muscle contraction. This may be helpful for faster walking speeds or may be considered if a delayed response to the stimulation is noted. The range is from 0 to 3.

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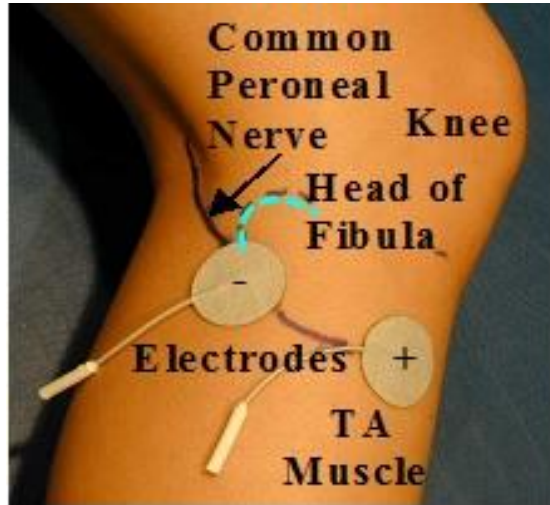
Placement Tips: BLACK electrode - Find the spot where the response is greatest (whether it is eversion or dorsiflexion or both) and leave the electrode there.
RED electrode – generally moving the RED electrode laterally and proximally increases eversion (electrode is moving closer to the Superficial branch). Moving it distally and medially increases dorsiflexion (electrode is moving closer to the Deep branch and is more likely to recruit the assistance of the toe extensors). Adjust the RED electrode position to get the best response.

WalkAnalyst 5.1 Software

Eversion

Tibialis anterior

Dorsiflexion

Peroneus longus

Peroneus brevis

Extensor hallucis longus

Extensor digitorum longus
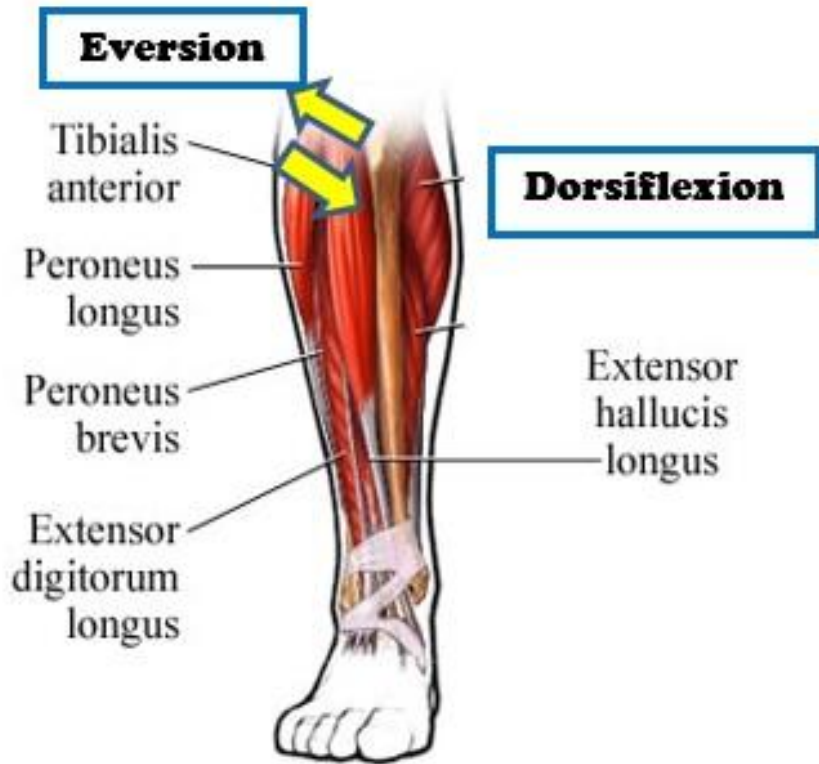
Remember: spacing the electrodes farther apart drives the stimulation deeper into the tissues; spacing them closer makes the stimulation more superficial. Take patient's leg size into account.

Other electrode tips:

*Clean the skin of oils, soap residue or lotions.

*Always wet the electrodes or skin slightly. Dry electrodes do not conduct the electricity as well.

*Keep the skin between electrodes dry.
*Apply pressure to the electrodes as you test the stimulation to reproduce the pressure from the cuff.

Electrode Placement Best Practice

Accuracy of electrode placement is the key to the efficiency, comfort and functional control of the foot lift. 'Balanced' placement of the electrodes promotes a safe and symmetrical gait while preserving muscle endurance.

The closer the Black (posterior) electrode is to a position directly over the motor nerve, the more comfortable the stimulation is for the user. Precise positioning of the electrodes lessens the sensory response to the stimulation.

The more precise the electrode placement, the stronger the muscle contraction at lower levels of intensity. The goal of electrode placement is to produce the most functional movement at the lowest intensity level so that the risks of muscle fatigue or skin irritation are minimized.

Electrode Placement Best Practice CONTINUED

"Black to the back and Red ahead" is the key phrase to remember when connecting the electrodes. The Black electrode is negative and sends the stimulation into the leg. The Red electrode is positive and forms a complete circuit to pull the stimulation out of the leg. The stimulation is optimized if it enters at the motor nerve and exits after traveling in the direction of the muscle. Electrode position varies with each patient.

Conductivity is enhanced by a complete circuit, and is assured by a uniform electrode-skin interface. Apply water to the electrodes (and the skin if desired, but make sure that there is no water between the electrodes). Spacing of the electrodes will also affect conduction of the stimulus:

1. The closer the electrodes, the more superficial the current → more eversion
2. The farther apart the electrodes, the deeper the current → more dorsiflexion

WalkAnalyst 5.1 Software
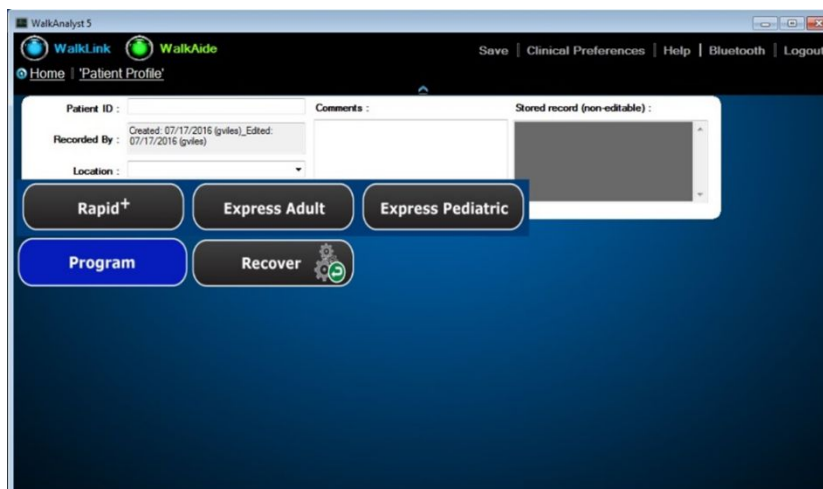
Rapid+: Click Start to begin collecting walking data. Walk at the patient's involved side and use the WalkLink hand trigger to synchronize the stimulation with the patient's gait. During each step with the involved leg, press and hold the WalkLink stimulation button from heel off, through the swing phase, until at least initial contact with the ground. Select Stop upon completion of data collection.

Ideally, select 8-10 evenly spaced bars to represent the patient's typical gait, by left clicking and dragging the cursor to highlight those steps.   Upon releasing the mouse, the WalkAide settings are calculated and an Optimization Error is displayed. (An optimization error of less than 20% is recommended). Press Next to program the WalkAide unit in the Tilt stimulation mode and advance to the Adjustment screen.

WalkAnalyst 5.1 Software
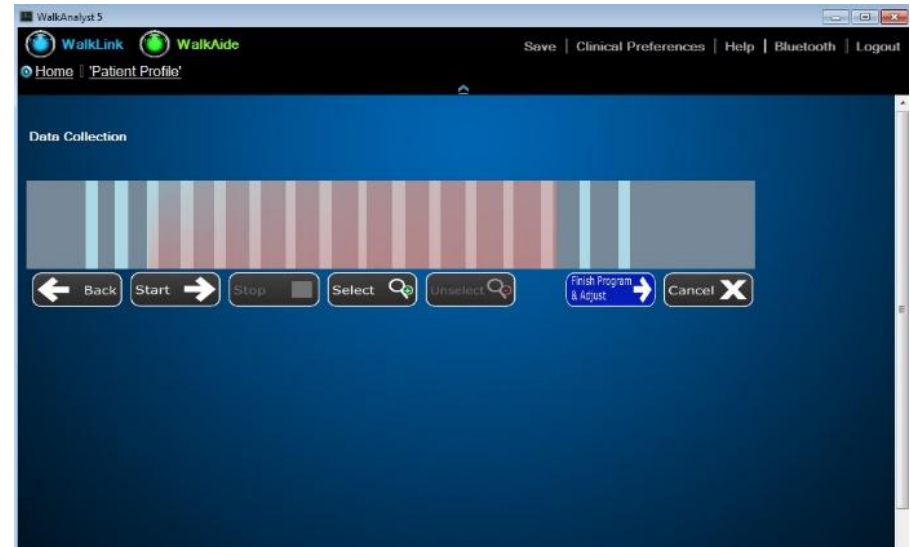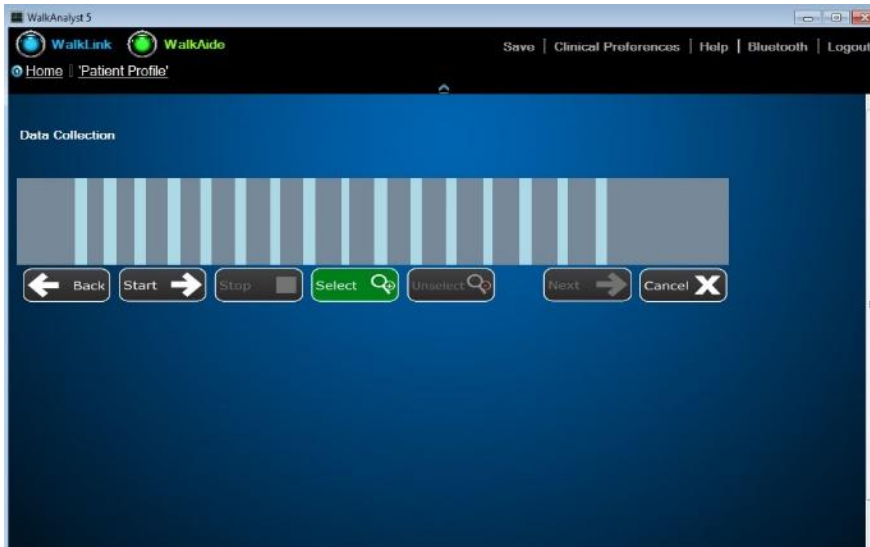
(Data Collection) Select Collected Data

WalkAnalyst 5.1 Software

Adjustment

Setting adjustments are transferred to the WalkAide instantly and are confirmed by 2 audible beeps from the device. Activate the Beep on Stim mode on the WalkAide and observe that patient walking to assess the value of the adjustments you make. Complete all of the adjustments to effectively customize the patient's walking program, then select Finish and Save Program. This will automatically save the program and the walking trial graph. The WalkAide unit is now programmed for the individual.

Control Settings: Activate Beep on Stim mode. Observe as the patient walks with the newly programmed settings. Adjust the Control Settings based on clinical observation and patient feedback.

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Control Settings

WalkAnalyst 5.1 Software
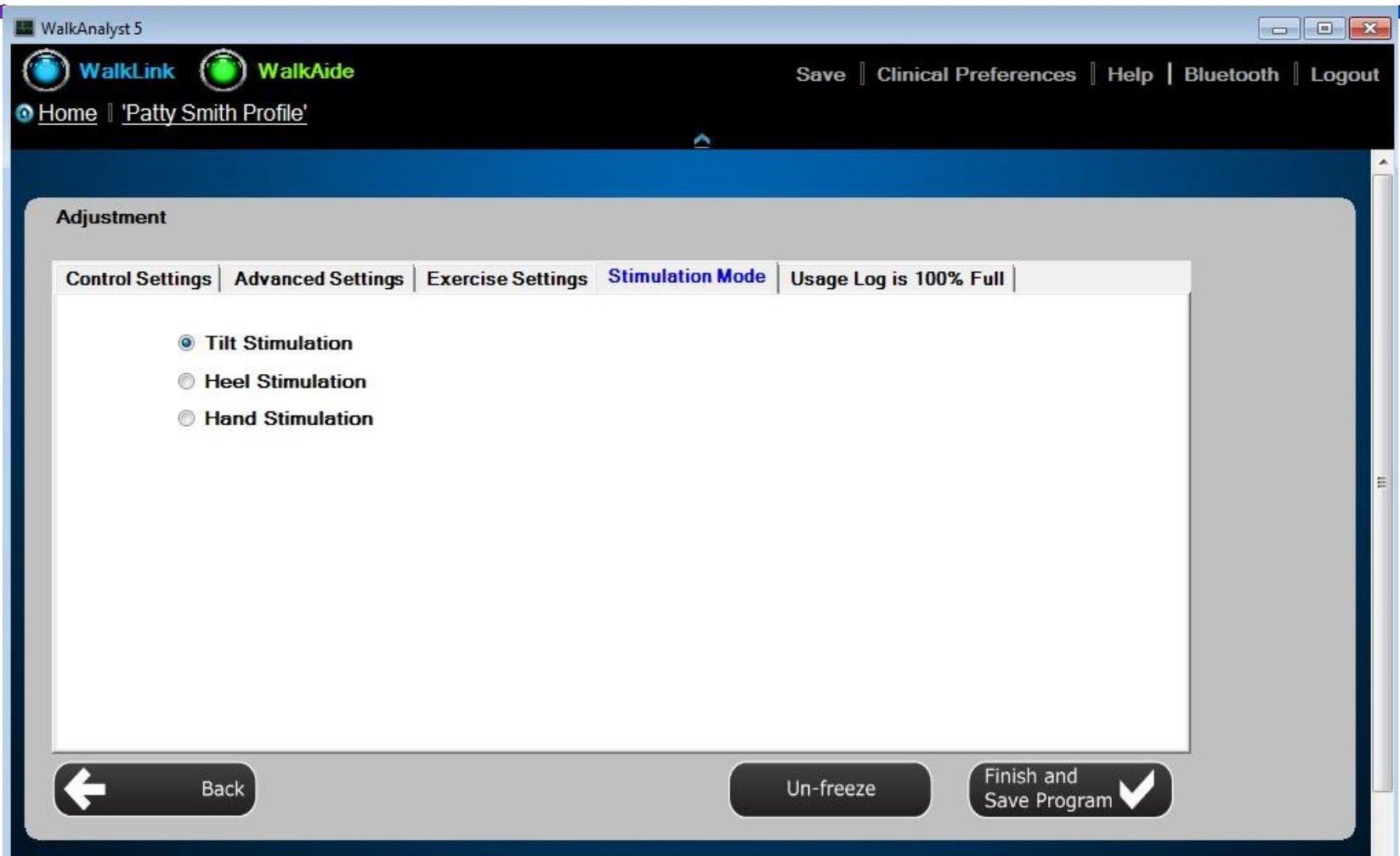
Stimulation Mode: Use this tab to toggle between Tilt, Heel and Hand stimulation modes.

WalkAnalyst 5.1 Software

Usage Logs: Click on the Usage Logs tab to save and/or clear usage data

WalkAnalyst 5.1 Software

• *Save and Clear Log saves walking data stored in the WalkAide then clears it for further data collection. This option will save data, which can then be found under the Report Tab.*

• *Clear Log clears walking data stored in the WalkAide to prepare for collection of future data.*

• *Usage data during WalkAide Exercise Mode operation are not recorded in the Usage Log.*

• *The WalkAide unit collects walking data for up to 69 days since the last date the Usage Log was cleared. At day 70, data from day 69 will be deleted from the log. To reset the Usage log when the % Full is high, select Save and Clear Log or Clear Log.*

• *Graphical view shows the Total Hours/Day and number of Stims/Day recorded during walking. Tabular view shows the Total Hours/Day and number of Stims/Day recorded during walking.*

WalkAnalyst 5.1 Software

Manual Adjustment of the Stimulation Settings

WalkAnalyst 5.1 Software

Manual adjustment of the stimulation settings can fine-tuning the swing and stance durations to better accommodate the patient's gait. This process relies on the clinical judgment of the clinician and can be completed using options on the Adjustment screen.

ON and OFF Thresholds: ON and OFF Thresholds trigger the initiation and termination of the stimulus. They are represented as green and red horizontal lines on the gait graph, respectively.

With regard to the tilt sensor, the numerical values listed as the ON and OFF Thresholds relate to the range of tibial tilt from the vertical starting position of the leg with the WalkAide on it. The numerical values are not a report of hip, knee or ankle alignment angles. The clinical significance of the numerical values is that a change in the numerical value of the threshold by a value of three is approximately one degree of tilt.

ON Threshold: Stimulation initiates when the tilt/heel sensor value reaches the ON Threshold.

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• *If the ON Threshold is too high, the tibia does not tilt far enough forward or the heel does not unload enough for the sensor value to reach the threshold. The stimulation doesn't start. Lowering the ON Threshold can resolve this problem and/or can trigger the stimulation to start sooner.*

• *Raising the ON Threshold delays the stimulation so that it starts later. The tibia must progress farther or the heel must unload more to initiate the stimulation. OFF Threshold: Stimulation terminates when the sensor value reaches the OFF Threshold.*

• *If the OFF Threshold is too low, the tibia doesn't extend far enough or the heel doesn't load enough for the sensor value to reach it. The stimulation doesn't stop until it reaches the maximum duration (Max Time). This can delay or prevent the initiation of the next stimulation. To correct this, raise the OFF Threshold.*
The ON and OFF Thresholds may be adjusted over time as changes occur in walking speed, step length, symmetry, ease of swing, amount of hip and knee flexion, degree of hypertonicity, etc.
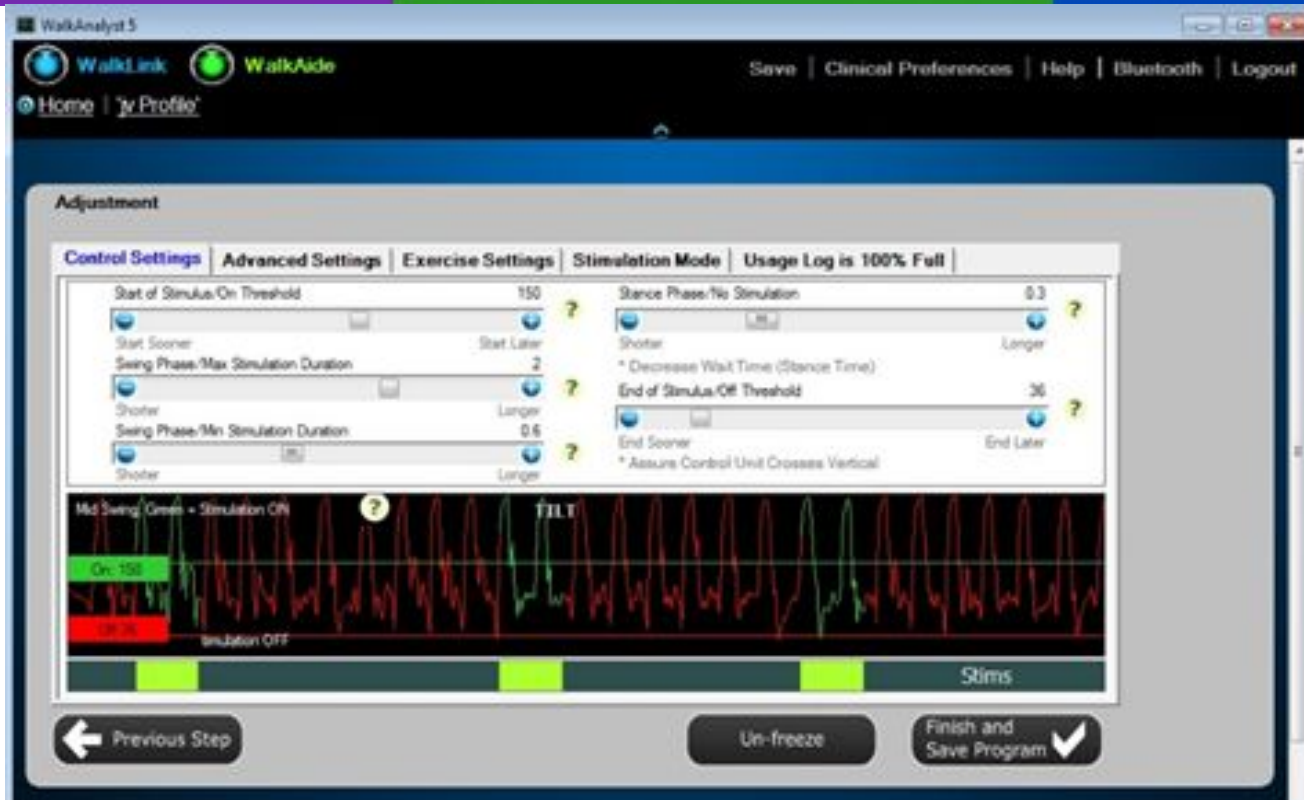
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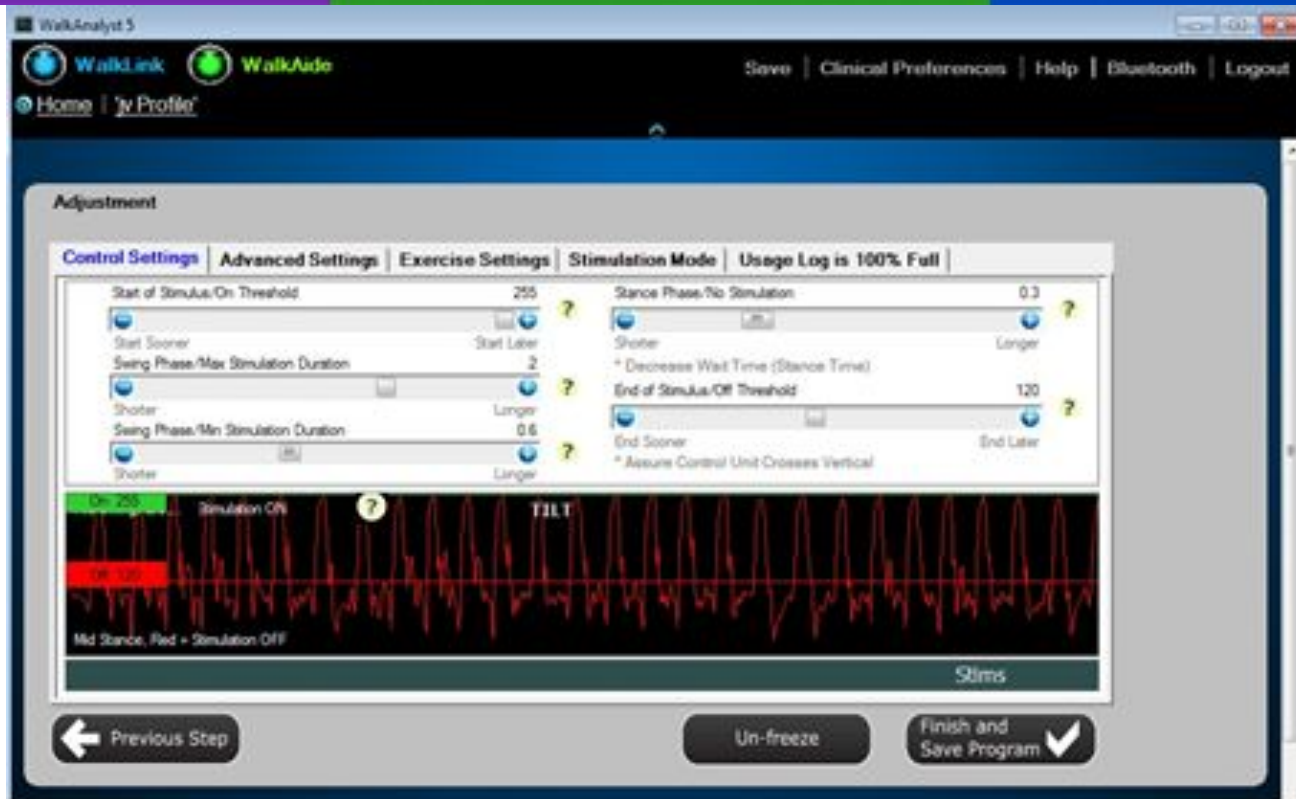
Example 1: The green ON Threshold is too high. Steps occur on the Tilt graph during which the peak does not reach the ON Threshold and therefore stimulation does not occur. Lower the ON Threshold so that each step in the graph crosses it.

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Example 2: Tilt ON Threshold is too high. Stimulation occurs with each step but the user reports a late stimulation or the clinician hears (with "Beep on Stim") and/or observes a delay in the foot lift. Lower the ON Threshold to initiate the stimulation earlier.
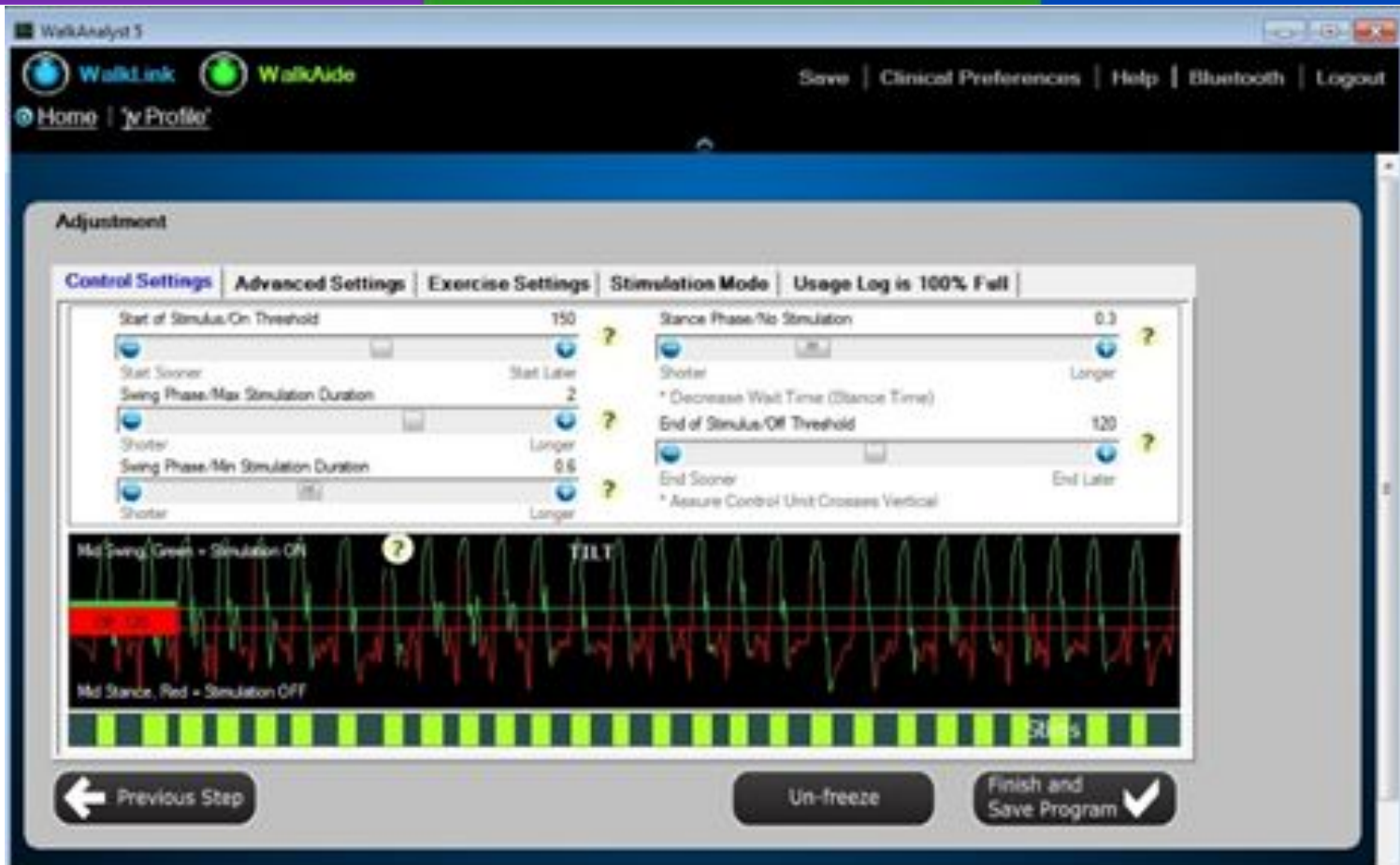
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Example 3: Tilt OFF Threshold is too low. Steps occur on the Tilt graph during which the valleys do not reach the OFF Threshold and therefore stimulation isn't terminated by the tibial motion. Raise the OFF Threshold to capture all steps so stimulation starts and stops appropriately.

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Tilt OFF Threshold Correctly Adjusted

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Control Settings (Swing Phase/Min Stimulation, Max Stimulation and Stance Phase):

Swing Phase/Min Stimulation Duration: This is the minimum duration of stimulation that occurs each time it is initiated. The range is from 0 to 1.5 seconds and it can be adjusted in increments of 0.1 second.

The Min Stimulation Duration always overrides the OFF Threshold. It ensures that the stimulation lifts the foot throughout the Swing Phase and that the foot is stable at Initial Contact with the ground. The Min Stimulation Duration can be increased to promote more control with an ataxic gait, an unstable knee or a hypertonic ankle, for example.

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The Min Stimulation Duration may need to be decreased for a faster walker that has a shorter Swing Phase.

Swing Phase/Max Stimulation Duration: This is the maximum duration of stimulation that could occur, if the patient does not hit the OFF Threshold to terminate it. The range is from 0.2 to 3 seconds and it can be adjusted in increments of 0.1 second.

The Max Stimulation Duration allows for periods of slower walking speeds, when the user needs to spend more time in swing.   It can be increased to keep the foot lifted when walking up or down stairs, navigating obstacles or if a patient has difficulty completing a step once it is started. The Max Stimulation Duration also prevents extended periods of stimulation. For example, if the user sits down and tilts the leg forwards, the stimulus will be discontinued once the Max Stimulation Duration has been reached.

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The OFF Threshold overrides the Swing Phase/Max Stimulation Duration during walking to ensure that the stimulation is appropriately terminated at Initial Contact.
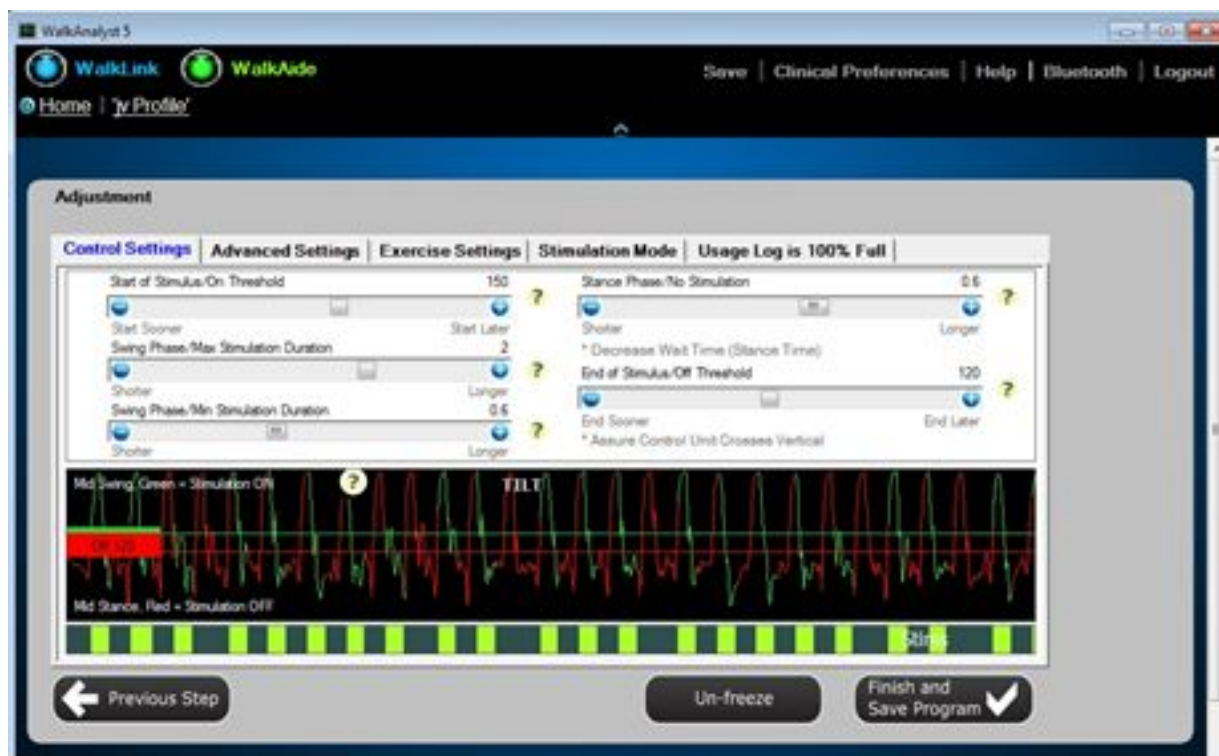
The Min Stimulation Duration cannot be longer than the Max Stimulation Duration.

Stance Phase/No Stimulation: This is the minimum amount of time that must elapse after one stimulus ends, before a new stimulus can be initiated. Generally, this is the duration of the Stance Phase. It ranges from 0 to 1 second and can be adjusted in increments of 0.1 second.

The Stance Phase/No Stimulation prevents unwanted or inadvertent stimulation during stance phase (i.e. uncontrolled knee flexion, hyperextension leading into Swing Phase, ataxia). As users increase their walking speed and spend less time in stance, lower the Stance Phase. Figure 48 is an example where the stance time is too long.

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In general, the Swing/Min Stimulation Duration, Swing/Max Stimulation Duration and Stance Phase/No Stimulation values will be longer for slower walkers who spend more time in the Swing and Stance phases. These values will be shorter for faster walkers as they spend less time in Swing and Stance.
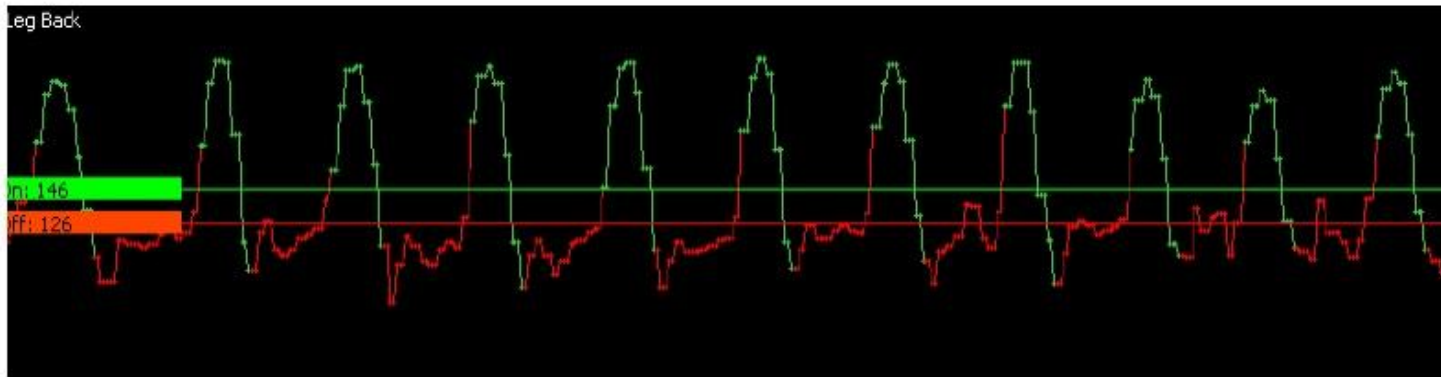

This is an example where the stance time is too long.

More Graph adjustment tips:

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- Is there stimulation with every step?
- Is the stimulation starting at the right time?
- Is the stimulation staying on long enough (stopping at the right time)?

**Looking at the graph of the patient walking with the program, answer three questions:**

1. Do all the Swing Phase "peaks" cross the **ON** Threshold (green line)?
   No? Lower the **ON** Threshold
2. Do all the Stance Phase "valleys" cross the **OFF** Threshold (red line)?
   No? Raise the **OFF** Threshold
3. Even with the thresholds adjusted are there still "red peaks"?
   Yes? Shorten the Stance Time

More Graph adjustment tips:

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- If the stimulation is not staying on long enough and/or stopping mid-swing...

Does the "green" stimulus line extend all the way through swing phase? No? Increase the **Max Time**
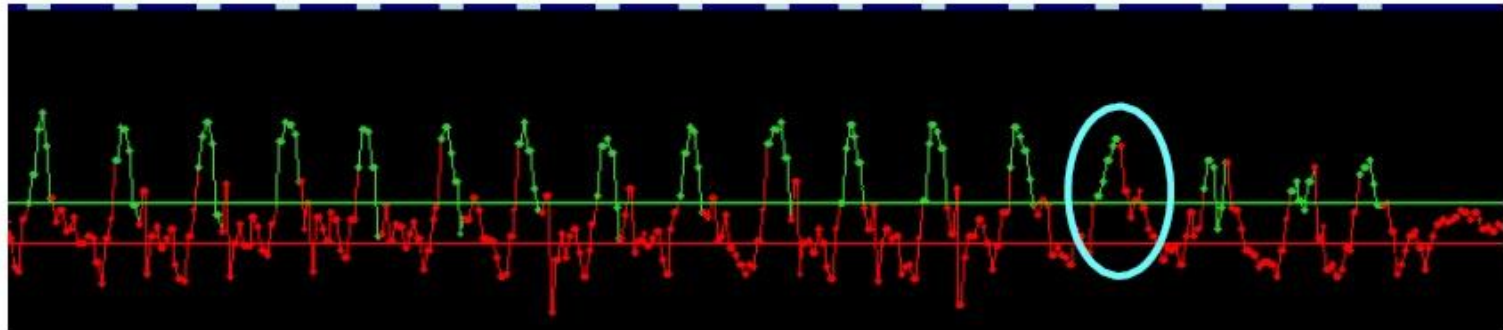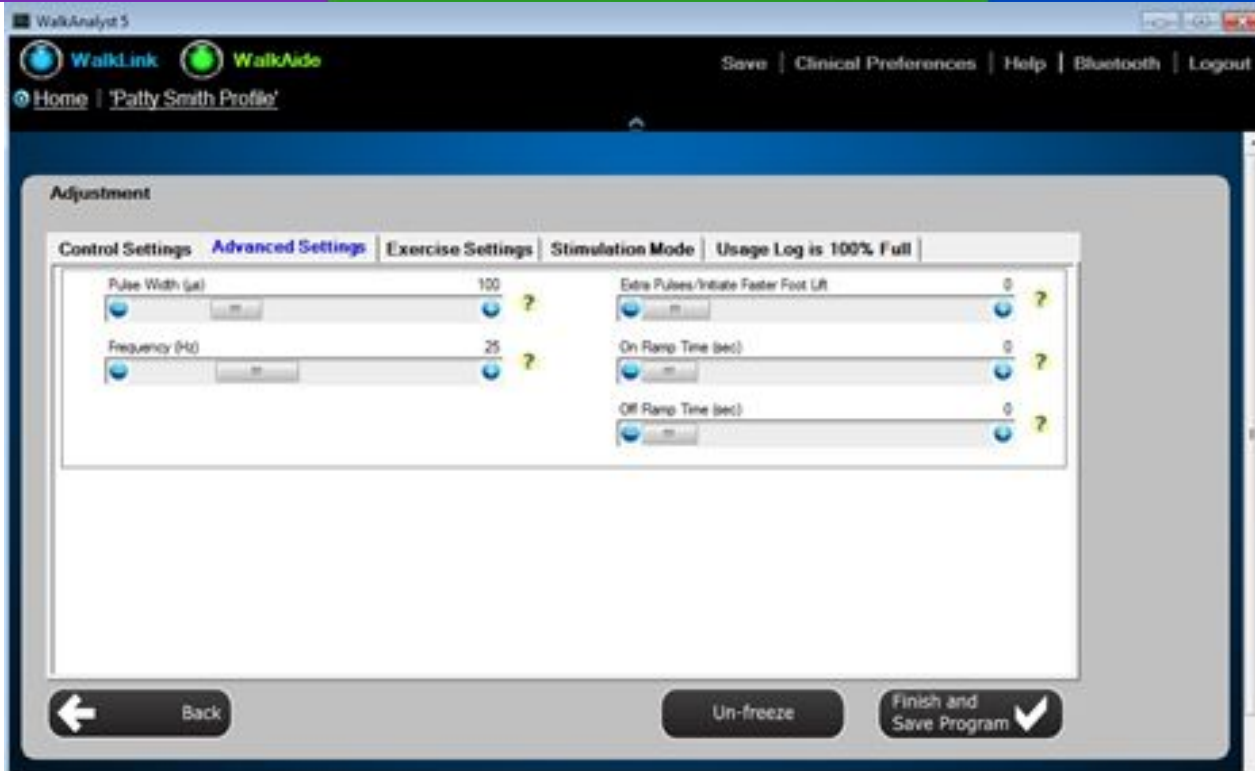
- If the stimulation is consistently staying on too long into the stance phase...

Does the "green" stimulus line extend into the stance phase? Yes? Decrease the **Min Time**

Leg Back

On: 164
Off: 143

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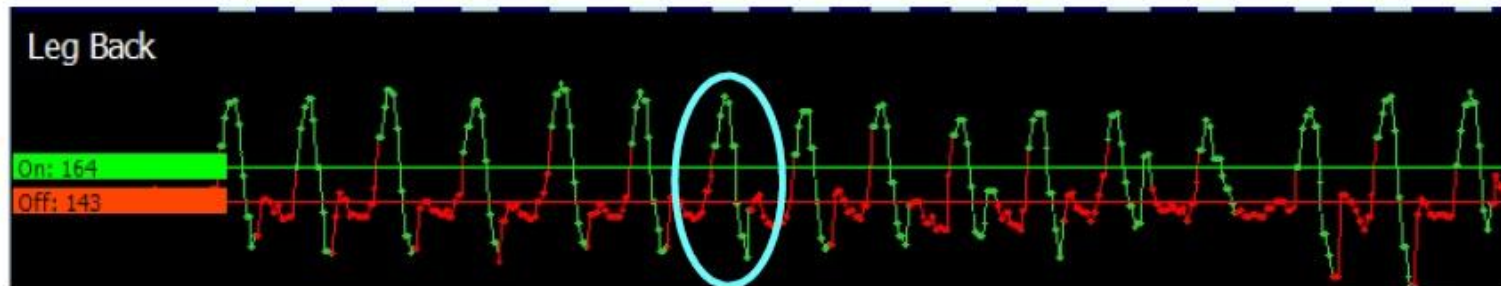
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ON Ramp Time: The rate at which the stimulation intensity rises from zero to its set value. Increasing the On Ramp Time results in a more gradual dorsiflexion. ON Ramp may be helpful in decreasing clonus or spasticity, or to increase comfort for those who are more sensitive to the stimulation. The range of the ON Ramp Time is from 0 to .5 second.

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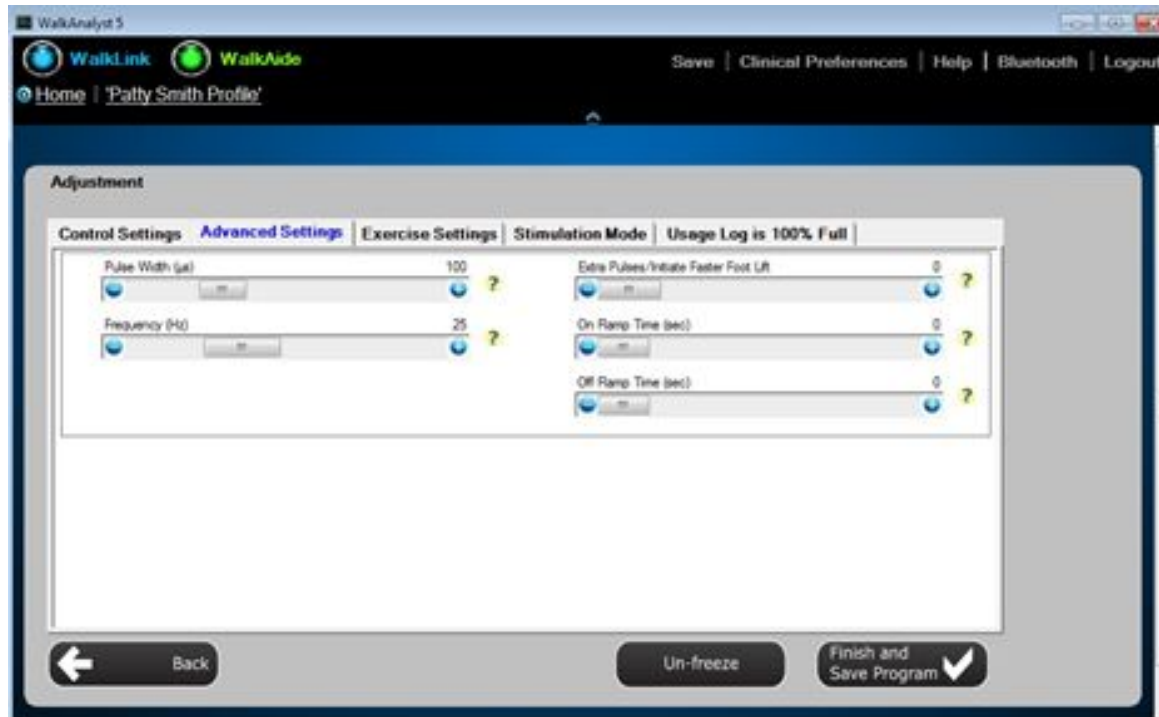
OFF Ramp Time: The rate at which the stimulation intensity decreases from its set value to zero. Increasing the OFF Ramp Time helps control foot slap by decreasing the rate of plantarflexion at Initial Contact. It can also control tibial progression to prevent knee hyperextension. The range of the OFF Ramp Time is from 0 to .5 second.

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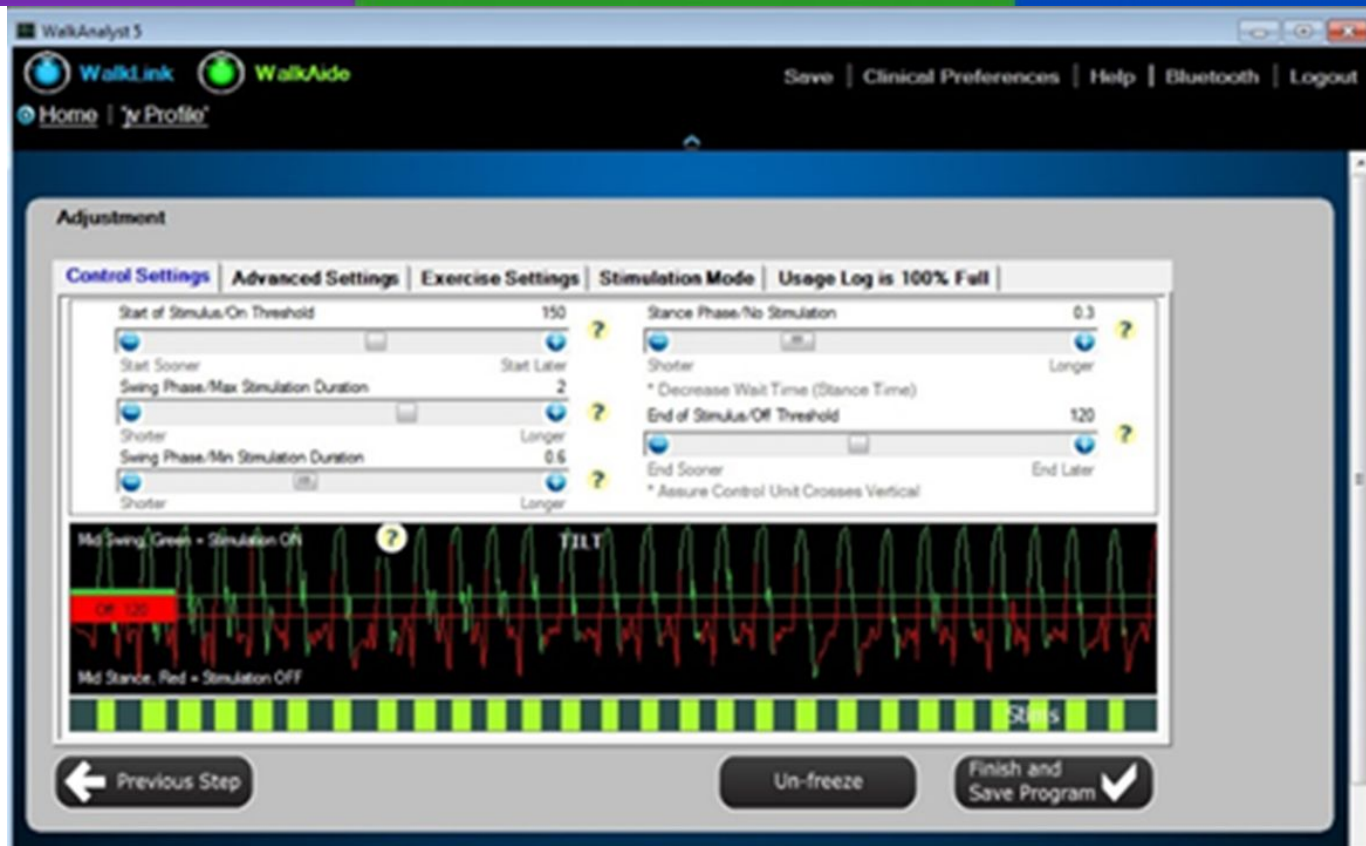
Once you have correctly adjusted the graph and you like what you see and hear when your patients walks then hit "finish and save" program and your are done.

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Final Tips:

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1. *The enemy of good is perfect. Whatever you get during your first 15 minutes of getting a motor response and the best program you can get in 15 minutes of adjusting is the best your are going to get and it will be very good. Do not strive for perfect*

2. *Do not just look at the graph. What you see when your patient walks is the most important thing when making clinical decisions and adjustments*

3. *Educate and set expectations for your patient. The WalkAide is not an instant cure and takes time to improve there gait*

4. *Talk to your patient about accommodation to the stimulation. After a few days the stimulation will be much less noxious and noticeable*

5. *Talk to your patients about a wearing schedule, compliance, electrode care and ensure they have a great understanding of the operation of the device*

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1.   If you have too much eversion when testing your motor response what should you do with the Black electrode?

    a. move the black electrode anterior to the fibula head

    b. move the black electrode more posterior to the fibula head

    c. move the two electrodes further apart

    d. put both electrodes on the tibialis anterior

2.   If you have the intensity turned up to 7 and are getting just a twitch response you should lower the pulse width.

    True or False

3.   To make the WalkAide come on sooner you should:

    a. lower the red line

    b. make the red line higher

    c. lower the green line

    d. make the green line higher

4.   For a very fast walker or pediatric patient it is not unheard of to lower the stance time to .2

    True or False

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