

**AAC AND OTHER
ASSISTIVE TECHNOLOGY
FOR PATIENTS WITH ALS**

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Background on MND/ALS

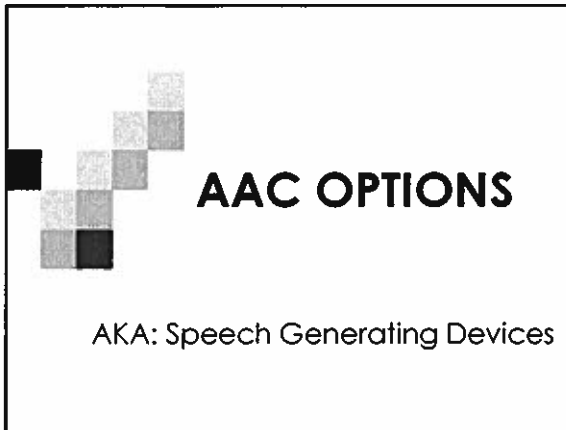
- Amyotrophic lateral sclerosis (ALS), often referred to as "Lou Gehrig's disease,"
- Progressive neurodegenerative disease that affects nerve cells in the brain and the spinal cord.
- The progressive degeneration of the motor neurons in ALS eventually lead to their death and inability to initiate and control muscle movement.
- Recent studies have shown incidence of FTD may be as high as 50%.

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**AAC/AT ASSESSMENT:
Pt/family interview & device trials**

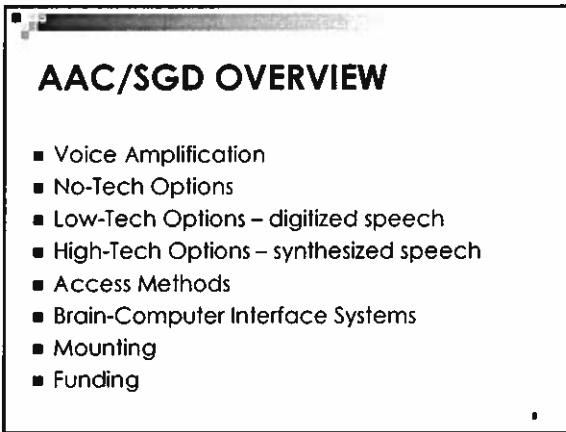
- Comfort with technology
- Need/desire for technology access
- Support system - System support!
- Physical Status - Access
- Literacy - Cognition
- Communication Environment
- Aesthetics - Features

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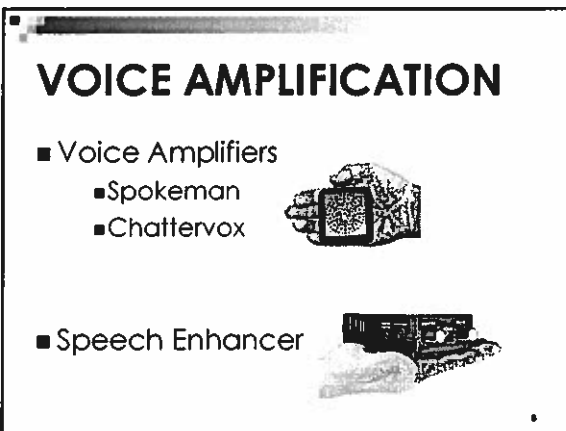
AAC OPTIONS

AKA: Speech Generating Devices





AAC/SGD OVERVIEW

- Voice Amplification
- No-Tech Options
- Low-Tech Options – digitized speech
- High-Tech Options – synthesized speech
- Access Methods
- Brain-Computer Interface Systems
- Mounting
- Funding




VOICE AMPLIFICATION

- Voice Amplifiers
 - Spokeman 
 - Chattervox
- Speech Enhancer 

NO-TECH OPTIONS


- Sign language
- Pen/paper
- Letterboards
- Eye Gaze boards
- Communication pictures
- Dry Erase boards




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LOW TECH OPTIONS

- Digitized speech output
- Static display
- Digitized speech output
- Dynamic display



GoTalk Pocket



PRC Springboard Lite

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TEXT-TO-SPEECH

TYPE-TO-TALK DEVICES

- Synthesized speech output
- Manual Access
- Lightweight
- Environmental Control



DynaWrite



Lightwriter SL40

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HIGH TECH OPTIONS

- Synthesized text-to-speech
- Dynamic display
- PC-based
- Built-in ECU/IR

DynaVox V
Tobii C12
PRC ECO-14
FRS Comlink LT
Eye Response Technologies

ACCESS METHODS


- Manual via keyboard or touchscreen
- Standard mouse
- Head-Pointing
- Eye-gaze
- Single switch scanning

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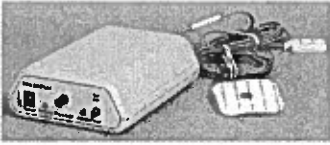
HIGH TECH OPTION: EYE-GAZE SYSTEMS

ECOPoint
Eyegaze Edge
EyeMax
Tobii P10
EyeTech TM3
ERICA

EMG SWITCHES



Impulse EMG Switch




Tinkertron EMG Switch

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BRAIN-COMPUTER INTERFACE RESEARCH

- BCI2000
 - Spelling matrix




A	B	C	D	E	F
G	H	I	J	K	L
M	N	O	P	Q	R
S	T	U	V	W	X
Y	Z	1	2	3	4
5	6	7	8	9	_


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BRAIN-COMPUTER INTERFACE RESEARCH

- Kokoro Gatari
 - yes/no response

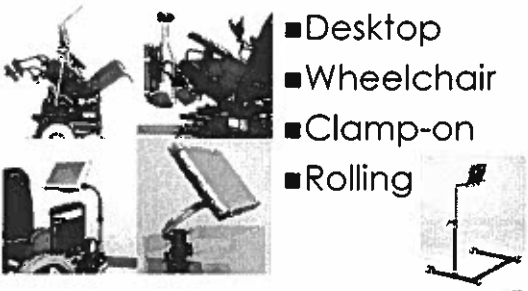


Brain-Computer Interface Study for people with ALS



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MOUNTING OPTIONS



- Desktop
- Wheelchair
- Clamp-on
- Rolling

SGD FUNDING

- Manufacturer guidance & forms
 - <http://www.dynavotech.com/funding/>
 - <https://funding.prentrrom.com/>
 - <http://www.everesponse.com/AssistiveProductsFunding/tabid/63/Default.aspx>
 - <http://www.frs-solutions.com/cms.php/content/10>
 - http://www.assistivetech.com/corporate/services/funding_support.aspx
 - <http://www.evegaze.com/content/medicaremedicaid-and-insurance-issues>

OTHER RESOURCES

- MDA: <http://www.als-mda.org/>
- ALSA: <http://www.alsa.org/>
- TEDP PROGRAMS
 - <http://www.relaync.com/Pages/Equipment.html>
 - http://www.scsdb.k12.sc.us/outreach/SCTEDP_2007.htm



ASSISTIVE TECHNOLOGY

Computer Access

COMPUTER ACCESS OVERVIEW

- TEXT ENTRY:
 - Voice recognition software
 - Keyboards
 - Other text entry
 - On-screen
 - Dasher
- MOUSE POINTERS:
 - Mouse Properties
 - LapMousePad
 - Trackball
 - Mini-trackball
 - Joystick
 - Head or foot operated
 - Mouse click emulators
 - Eye-Gaze

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Dragon Naturally Speaking & MacDictate


- Pros:
 - Hands-free computer access
 - Up to 3 times faster than typing
- Cons:
 - Learning curve
 - Recognition errors
 - Must CORRECT errors to increase accuracy



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Computer Access: Keyboards


- Keyboards
 - Windows accessibility options
 - Slicky Keys
 - Filter Keys
 - Mini-keyboard
 - Keyguards



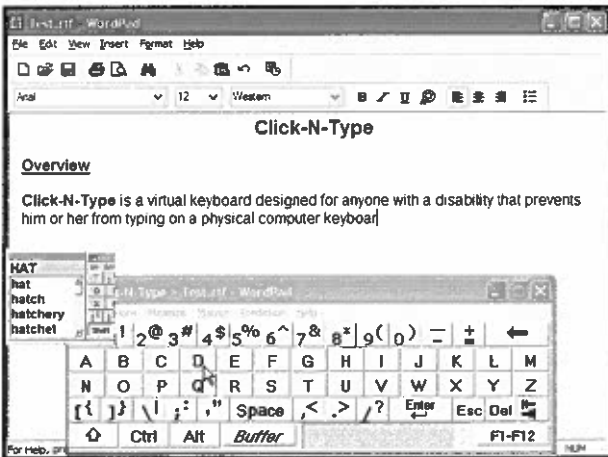
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Other Text-Entry Options

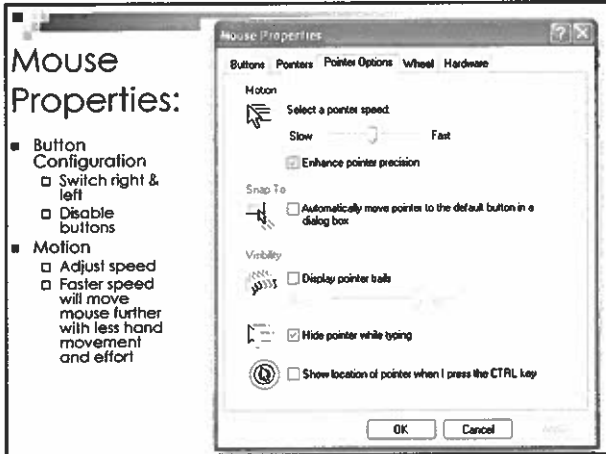
- Onscreen Keyboards:
 - Windows XP
 - www.lakefolks.org/cnl/
- Dasher:
 - www.inference.phy.cam.ac.uk/dasher/

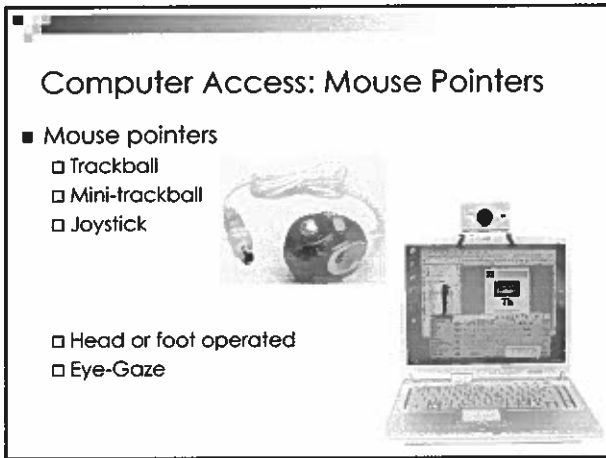


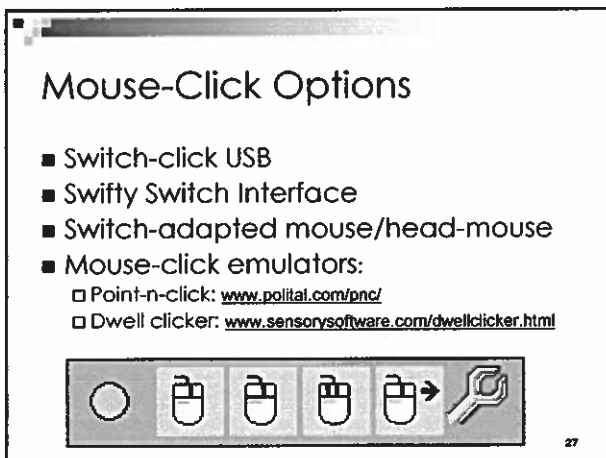
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ASSISTIVE TECHNOLOGY

Environmental Control

Telephone Access

- Speakerphone
- Headset/Earpiece
- Outgoing amplification
- Remote control speakerphone
- IR phone
- Internet telephony
- TEDP



Ameriphone RC200

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Mobile Telephone Access: SAJE-TECH



- Switch-Adapted Bluetooth Headset
- Switch-Adapted Bluetooth Speaker Phone

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TV Remote Options:



- JUMBO Remote
- Mini-Relax
- Built-in SGD or PWC IR controls



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Alerting Systems:

- Wireless
- Switch Activated
- Volume/Range?



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Questions?

Comments?

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