

An Introduction to Seating and Positioning for Individuals Who Use Assistive Technology




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Module Goals


To answer the following questions:




	Module Goals
	<p>Why is seating and positioning important?</p> 


	Module Goals
	<p>What does appropriate seating and positioning look like?</p> 

	Module Goals
	<p>What are the roles of Assistive Technology (AT) Team Members?</p> 


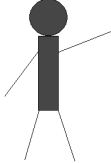
	Module Goals
	<p>What resources are available, when should a referral be made, and to whom?</p> 


	Agenda
	<ul style="list-style-type: none"> ■ The Role of the Occupational Therapist ■ Terminology ■ Seating and Positioning ■ Role of the AT Team Member <ul style="list-style-type: none"> – Recognition – Resources – Referrals ■ Take Home Messages ■ Case Study and Quiz Questions



	The Role of the Occupational Therapist
	



	<h2>The Role of the Occupational Therapist</h2>
	<p>Occupational Therapists...</p> <ul style="list-style-type: none"> ■ Facilitate client's ability to function independently <ul style="list-style-type: none"> – Focus on upper body – Provide technology ■ Are members of the multidisciplinary AT team ■ Have some training in seating and positioning 

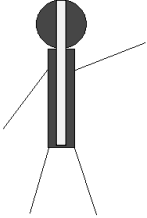
	<h2>The Role of the Occupational Therapist</h2>
	<p>Occupational Therapists...</p> <ul style="list-style-type: none"> ■ Are experts in: <ul style="list-style-type: none"> – Task analysis – Assessment of skills <ul style="list-style-type: none"> ■ Visual perceptual skills ■ Motor skills ■ Cognitive skills ■ Sensory skills 

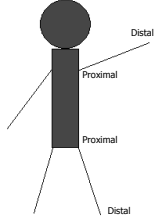
	<h2>Terminology</h2>  

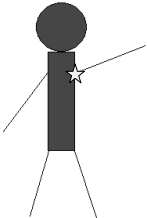
	<h2>Terminology- Muscular</h2>
	<p>Tone-</p> 

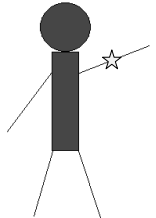
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	<p>Tone- state of tension in a muscle</p>  

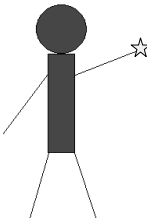
	<h2>Terminology- Muscular</h2>
	<p>Tone- state of tension in a muscle</p> <p>Spasticity- abnormally high tone</p> <p>Hypotonicity- abnormally low tone</p>  

	Terminology- Body position
<p>Midline- the center of the body</p> 	

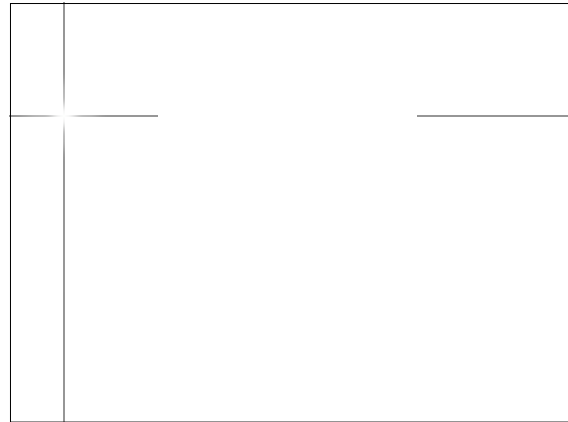
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	Seating and Positioning
	





	Seating and Positioning- What are the goals?
	<ul style="list-style-type: none">■ Provide comfort■ Provide safety and stability■ Increase functional skills 

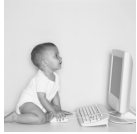
	Seating and Positioning- Complex cases
<ul style="list-style-type: none">■ Accommodate impaired sensation■ Minimize effects of abnormal tone and reflexes■ Accommodate physical differences■ Delay or prevent development of physical differences 	


	Seating and Positioning- What are the dangers of poor seating?
<ul style="list-style-type: none">■ Pain<ul style="list-style-type: none">– Contractures– Skin breakdown■ Impaired function<ul style="list-style-type: none">– Contractures– Compensatory movements■ Lack of motivation 	

	Seating and Positioning in AT- Why is it important?
	<ul style="list-style-type: none"> ■ Facilitates the optimal use of existing motor skills to access AT 


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	Seating and Positioning in AT- Why is it important?
	<p>Proximal Stability = Distal Mobility</p> <ul style="list-style-type: none"> ■ Stable/supported pelvis/trunk leads to optimal use of the extremities 

	Seating and Positioning in AT- Why is it important?
	<p>Proximal Stability = Distal Mobility</p> <ul style="list-style-type: none"> ■ Developmental concept- What do babies do? ■ First they sit, then they explore! 

	Seating and Positioning in AT- Why is it important?
	<p>Proximal Stability = Distal Mobility</p> <ul style="list-style-type: none"> ■ Practical concept- Think about yourself! 

	Seating and Positioning in AT- Why is it important?
	<p>Proximal Stability = Distal Mobility</p> <ul style="list-style-type: none"> ■ Evidence- More research required <ul style="list-style-type: none"> – Positioning impacts the speed of several functional hand tasks in boys with cerebral palsy (Noronha et al., 1989) – Positioning changes affect speed and accuracy in head controlled typing of woman with spastic quadriplegia (Bay, 1991)

	Seating and Positioning in AT- When is it important?
	<ul style="list-style-type: none"> ■ Right from assessment and thereafter! <ul style="list-style-type: none"> – Assess in a functional position – Obtain a true picture the individual's abilities – Consider seating and positioning as a component of the AT system 

	Seating and Positioning in AT- When is it important?
	<ul style="list-style-type: none"> ■ Right from assessment and thereafter! <ul style="list-style-type: none"> – Assess in a functional position – Obtain a true picture of the individual's abilities – Consider seating and positioning as a component of the AT system <p>But does an Assistive Technology Team Member need to know this?</p>

	Seating and Positioning in AT
	<p>Team Approach Requires Communication!</p> <ul style="list-style-type: none"> ■ All AT team members... <ul style="list-style-type: none"> – May not be in the same room at the same time – Should understand basic seating and positioning principles and strategies in order to: <ul style="list-style-type: none"> ■ Consider from the start of the AT process ■ Make referrals and communicate as needed ■ Temporarily adapt a seating system/solve simple problems

	Role of the Assistive Technology Team Member
	

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	<p>Remember the 3 R's!</p> <ul style="list-style-type: none"> ■ Recognition <ul style="list-style-type: none"> – Of appropriate/inappropriate seating – Of the abilities of the individual – Of professional abilities/ boundaries ■ Resources <ul style="list-style-type: none"> – Know where to look, who to call for help ■ Referrals <ul style="list-style-type: none"> – Take steps to get help when needed


	Role #1- Recognition <div data-bbox="287 510 423 661"></div> <div data-bbox="453 497 565 661"></div> <div data-bbox="587 510 738 661"></div>


	Role #1- Recognition: Appropriate Seating/Positioning
	Ensure Appropriate Base of Support: <ul style="list-style-type: none"> Area formed by an object's contact points with the ground <div data-bbox="1057 485 1300 598"></div> Directly Face Object of Interest: <ul style="list-style-type: none"> Optimal visual and auditory input


	Role #1- Recognition: Appropriate Seating/Positioning
	While In Chair: <ul style="list-style-type: none"> Consider 90-90-90 rule for hips, knees, ankles <ul style="list-style-type: none"> Encourages neutral pelvis position Promotes Proximal Stability = Distal Mobility Exceptions exist Promoted by "stamping feet" <div data-bbox="594 1102 725 1249"></div>

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	While In Chair: <ul style="list-style-type: none"> Largely neutral positioning for other joints <ul style="list-style-type: none"> Elbow at 90 degrees Wrist in neutral Head and neck aligned on shoulders Chin slightly tucked Trunk erect Back displaying natural curves <div data-bbox="1312 1593 1349 1776"></div>

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	Role #1- Recognition: Appropriate Seating/Positioning
	While On Floor: <ul style="list-style-type: none"> ■ Avoid strange or unnatural positioning <ul style="list-style-type: none"> e.g. W-sitting – May indicate weakness – lack of support – May cause joint issues, contractures – Likely limits function 

	Role #1- Recognition: Appropriate Seating/Positioning
	While On Floor: <ul style="list-style-type: none"> ■ Encourage cross-legged or side sitting ■ Provide support for longer tasks ■ Encourage propping ■ Modify tasks, length of tasks ■ Position AT system accordingly ■ Enable rotation ■ Enable crossing of midline 


	Role #1- Recognition: Appropriate Seating/Positioning
	How is Appropriate Seating and Positioning Obtained?


	Role #1- Recognition: Appropriate Seating/Positioning
	Modifications can be made at three levels: <ul style="list-style-type: none"> ■ Task/Activity ■ Environment ■ Person 

	Role #1- Recognition: Modifying Task/Activity
	Consider: <ul style="list-style-type: none"> ■ What does the client want to do? ■ What does the client need to do? ■ What is the best way for the client to do this?

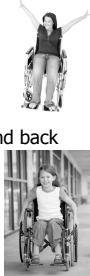
	Role #1- Recognition: Modifying Task/Activity
	Consider: <p>Seat work in Mrs. Smith's grade 4 class takes 30 minutes to complete. Sam has mild cerebral palsy and though he can sit in a classroom chair independently, he experiences fatigue and low muscle tone after about 20 minutes.</p>

	Role #1- Recognition: Modifying Task/Activity
	<p>How about two 15 minute seat work sessions for Sam?</p>




	Role #1- Recognition: Modifying Environment
	Choose Appropriately Sized Furniture: <ul style="list-style-type: none"> ■ Fit furniture to the client/student ■ Maintain base of support  Creatively Solve Simple Problems:


	Role #1- Recognition: Modifying Environment
	Choose Appropriately Sized Furniture: <ul style="list-style-type: none"> ■ Fit furniture to the child ■ Maintain base of support  Creatively Solve Simple Problems: <ul style="list-style-type: none"> ■ Use footstools, boosters, pillows ■ Place objects of interest at eye level


	Role #1- Recognition: Modifying Environment
	Can an AT Team Member make these modifications? <ul style="list-style-type: none"> ■ Consider the goals <ul style="list-style-type: none"> – Sensory and muscle tone issues, reflexes, physical differences= Consultation and/or Referral ■ Consider professional abilities ■ Determine when a more permanent solution is required


	Role #1- Recognition: Modifying Environment
	Choose A Good Seat/Chair: <ul style="list-style-type: none"> ■ Provide... <ul style="list-style-type: none"> – Seat and back support – Height and angle adjustable arms – One-handed easy adjustment of seat and back heights and angles – Accommodation of AT system ■ One chair does not fit all! 


	Role #1- Recognition: Modifying Person
	Consult With Occupational Therapist or Physical Therapist On: <ul style="list-style-type: none"> ■ Strength training ■ Flexibility training ■ Endurance training ■ Range of motion training 


	Role #2- Resources   


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	Role #2- Resources: Online
<ul style="list-style-type: none"> ■ Most resources are product oriented- be careful! ■ www.seatingandmobility.ca 	

	Role #2- Resources: Academic
<p>Taylor, S. (1987). Evaluating the client with physical disabilities for wheelchair seating. <i>American Journal of Occupational Therapy</i>, 41, 711-716.</p> <p>Neistadt, M. E., & Crepeau, E. B. (1998). <i>Willard and Spackman's Occupational Therapy</i> (9th ed.). Philadelphia: Lippincott.</p> <p>Pedretti, L., & Early, M. B. (2001). <i>OT Practice Skills for Physical Dysfunction</i> (5th ed.). St. Louis: Mosby.</p>	

	Role #3- Referrals
  	

	Role #3- Referrals When Should There Be a Referral?
<p>Recall Overall Goals:</p> <ul style="list-style-type: none"> ■ Provide comfort ■ Provide safety and stability ■ Increase functional skills <p>If the Goals Include...</p> <ul style="list-style-type: none"> ■ Accommodate impaired sensation ■ Minimize effects of abnormal tone and reflexes ■ Accommodate physical differences ■ Delay or prevent development of physical differences <p>Refer!</p>	


	Role #3- Referrals Who Should Receive the Referral?
<p>Consider:</p> <ul style="list-style-type: none"> ■ Examining typical workplace procedure ■ Consulting professionals to discover their roles ■ Following the paper trail (e.g. IEP, reports) ■ Consulting the individual/caregivers for input on previous service/involved individuals 	

	Take Home Messages
	<ul style="list-style-type: none"> Seating/positioning is required for individuals who use AT right from the start because: Proximal Stability= Distal Mobility

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	Case Study & Quiz Questions 

	Case Study
	<p>Jessica is a young client with mild cerebral palsy and communication difficulties who:</p> <ul style="list-style-type: none"> Is in kindergarten Is short for her age Has low muscle tone Has a short attention span Requires frequent breaks to get up and move around the room <p>You are trying to:</p> <ul style="list-style-type: none"> Encourage her to use a communication board at home Support her in using this intervention at school in her typical classroom during circle time and table time

	Case Study- Question #1
	<p>What seating/positioning goals exist for Jessica?</p> <p>Recall the overall goals of seating and positioning!</p>

	Case Study- Answer #1
	<ul style="list-style-type: none"> ■ Provide comfort <ul style="list-style-type: none"> – Access to seated positions that maximize attention span and ability to meet classroom expectations ■ Provide safety and stability <ul style="list-style-type: none"> – Access to appropriately sized furniture ■ Increase functional skills <ul style="list-style-type: none"> – Provide least restrictive proximal physical support to promote communication board use during while in chairs and on the floor

	Case Study- Question #2
	<p>Within your AT team member role, what strategies might you try with Jessica to improve her seating and positioning?</p> <p>Remember Task/Activity, Environment, Person Modifications!</p>

	Case Study- Answer #2
	<p>Possible Task/Activity Modifications:</p> <ul style="list-style-type: none"> ■ Provide movement breaks for Jessica to get up and shift position ■ Develop a signal for Jessica to use when she needs to get up and move around ■ Monitor Jessica's muscle tone and fatigue: <ul style="list-style-type: none"> – Schedule active tasks (e.g. communication board training) for periods when she maintains tone well and passive tasks for periods when tone tends to be low

	Case Study- Answer #2
	<p>Possible Environment Modifications:</p> <ul style="list-style-type: none"> ■ Provide furniture that allows Jessica's feet to touch the ground or support using a foot stool ■ Provide a chair with arms for extra support ■ Provide pillows, floor level supports for sitting on the floor ■ Position communication board to capture and maintain Jessica's interest ■ Ensure that Jessica's place at table and circle time is away from distractions


	Case Study- Answer #2
	<p>Possible Person Modifications:</p> <ul style="list-style-type: none"> ■ Consult with OT/PT on core strengthening and endurance training ■ Teach Jessica proper positions for table top and floor activities including propping ■ Educate parents/school staff on importance of seating and positioning for communication board use and provide training on how to position Jessica

	Case Study- Question #3
	What resources might you consult to assist with Jessica's seating and positioning?

	Case Study- Answer #3
	Resources include: <ul style="list-style-type: none"> ■ Occupational therapist ■ Physical therapist ■ Jessica and her parents ■ Jessica's teacher ■ Classroom assistants ■ The literature

	Case Study- Question #4
	Would you consider a referral in Jessica's case? Who to? For what?

	Case Study- Answer #4
	Consider touching base with: <ul style="list-style-type: none"> ■ Occupational therapist ■ Physical therapist Regarding: <ul style="list-style-type: none"> ■ Possible referral for core strengthening and endurance training

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References
<p>Bay, J. (1991). Positioning for head control to access an augmentative communication machine. <i>American Journal of Occupational Therapy</i>, 45, 544-549.</p> <p>Janson, J. (2002). Proximal stability. <i>OT Practice</i>, 7, 15-16.</p> <p>Law, M., Cooper, B., Strong, S., Stewart, D., Rigby, P., & Letts, L. (1996). The Person-Environment-Occupation model: a transactive approach to occupational performance. <i>Canadian Journal of Occupational Therapy</i>, 63(1), 9-23.</p> <p>Lee, K. & Thomas, D. (1990). <i>Control to Computer-Based Technology for People with Physical Disabilities</i>. Toronto: University of Toronto Press.</p> <p>McCormack, D. (1990). The effects of keyguard use and pelvic positioning on typing speed and accuracy in a boy with cerebral palsy. <i>American Journal of Occupational Therapy</i>, 44, 312-315.</p> <p>Neistadt, M. E., & Crepeau, E. B. (1998). <i>Willard and Spackman's Occupational Therapy</i> (9th ed.). Philadelphia: Lippincott.</p> <p>Noronha, J., Bundy, A., & Groll, J. (1989). The effect of positioning on the hand functioning of boys with cerebral palsy. <i>American Journal of Occupational Therapy</i>, 43, 507-512.</p> <p>Pedretti, L., & Early, M. B. (2001). <i>OT Practice Skills for Physical Dysfunction</i> (5th ed.). St. Louis: Mosby.</p> <p>Taylor, S. (1987). Evaluating the client with physical disabilities for wheelchair seating. <i>American Journal of Occupational Therapy</i>, 41, 711-716.</p> <p>Trefler, E. (1987). Technology applications in occupational therapy. <i>American Journal of Occupational Therapy</i>, 41, 697-700.</p> <p>Canadian Association of Occupational Therapists Website, www.caot.ca, 2006.</p>

Acknowledgments
<p>Many Thanks To:</p> <ul style="list-style-type: none"> ■ Dr. David McNaughton ■ Dr. Janice Light ■ Melissa Ihrig ■ Michelle Penna <p>All Images Courtesy of:</p> <ul style="list-style-type: none"> ■ Eyewire Images (School Days/Grade School Photo Collections) ■ Microsoft Clipart ■ iStock Image Gallery