

Biological Changes in the I/DD Population

A Supplemental Document to Session 1 in Webinar Series

Age Related Changes in the Older Mild-to-Moderate ID/DD Population

There is very little information on the aging process of the of the profound and severe ID/DD population because their longevity is shorter. However, it can be assumed this population may also experience changes which may go unnoticed due to communication problems. Thus it is key that any subtle changes in behavior may be due to some of the aging changes described in this section.

This section lays out several tables listing age related changes and associated effects, interventions or causes. When applicable, specific notes regarding adults with Down Syndrome (DS) or Cerebral Palsy (CP) are included.

Age Related Changes: Central Nervous System

- IQ remains the same or may increase
- No change in personality
- Little change in ability to learn new skills
- No major loss of short term memory
- No loss of long term memory
- Slowing of recall

Note: The Down Syndrome (DS) adult may experience some of these changes earlier.

Age Related Changes: Vision and Hearing

Vision (early decline in Down Syndrome adult)	Hearing (early decline in Down Syndrome adult)
<ul style="list-style-type: none">• Reduced ability to tolerate glare (use non-glare light and reduce shinny surfaces)• Reduced dark adaptation (all areas well lighted)• Reduced depth perception (edge of steps or curbs should be painted yellow)• Need more light (use brighter non-glare lights)• Reduced ability to distinguish shades of green –blue• Presbyopia- reduced close up vision	<ul style="list-style-type: none">• Increased sound threshold (requires louder sound or voice)• Presbycusis - decreased ability to hear high frequencies especially children and female voices (raise voice slight and speak so they can see lips – beards and mustaches are barriers)• Buzzing in the ear - interferes with hearing, possible auditory hallucinations (reduce all background noises that interferes with hearing)• Reduced ability to maintain balance (slowly raising and turning)

Normal effects of accumulative vision and hearing decline in vitality (**Note:** compounding effect on

adults with Down Syndrome may mimic **acute dementia – diagnostic overshadowing:**

- Slowing of recall (be patient)
- Interference with short term memory (repeat)
- Slowing of cognitive function
- Reduced ability to process multi- sensory input (keep sensory input of information simple – voices, TV, background noises, crowds, etc. - can cause confusion)

Age Related Changes: Other Senses

	Effects	Possible Associated Effects
Temperature Regulation <i>Note: Communication in Down Syndrome (DS) and Cerebral Palsy (CP) adults may exacerbate dehydration/hyper-hypothermia –mimicking dementia</i>	<ul style="list-style-type: none"> • Increased threshold to feel external temperature • May feel cold at room temperature • May not feel hot – heat stroke 	<ul style="list-style-type: none"> • Possible dehydration • Possible hyper/hypothermia
Thirst	<ul style="list-style-type: none"> • Increased thirst threshold (reduced communication may compound the problem in DS and CP adults) • Reduced fluid intake • May not feel thirst (have water available especially at meal time) 	<ul style="list-style-type: none"> • Reduced fluid intake • Increased possible dehydration • Increased acute dementia (reduced communication may compound the problem in DS and CP adults)
Taste/Smell <i>Note: Reduced communication may compound the problem in DS and CP adults</i>	<ul style="list-style-type: none"> • Reduced smell • Reduced taste 	<ul style="list-style-type: none"> • Possible <i>related</i> affect: Reduced appetite • Possible <i>associated</i> affect: Acute dementia
Pain	<ul style="list-style-type: none"> • Increased threshold in feeling pain • Reduced perception of pain (may not feel symptoms) 	<ul style="list-style-type: none"> • Possible associated affect: Lack of communication in adults with DS may mask disease(s) or discomfort resulting in behavior changes

Summary of Sensory Deprivation Effects on Loss of Senses

Possible effects (increased decline in DS adults and CP adults):

- Slow in response to environment
- Possible increase in falls
- Behavior or personality changes

- Reduced socialization
- Acute dementia (especially in DS adults)
- Depression
- Inappropriate social response

Note: Remember many of these changes may go unnoticed or unrecognized due to overshadowing

Age Related Changes: Skin

The lack of communication may mimic, mask or exacerbate conditions in ID/DD Adults, especially adults with Down Syndrome.

Changes	Associated Effects
<ul style="list-style-type: none"> • Reduced oil glands • Reduced sweat glands • Reduced fat under skin • Reduced skin pigment • Skin becomes thinner 	<ul style="list-style-type: none"> • Dry skin, itching, increased water loss, skin infections –increase skin problem in older Down syndrome adults • Hyperthermia - coma • Dehydration, hyperactivity • Hypothermia - tired, sleepy, confused, acute dementia • Bed sores - serious problem for older Cerebral palsy adults • Increased chance of sunburn • Increased splitting and infection

Age Related Changes: Muscles

Changes	Intervention
Age Related Changes: <ul style="list-style-type: none"> • Moderate (15%) loss of muscle mass (increased loss in CP adults) Age Associated Changes: <ul style="list-style-type: none"> • Severe (33%) loss of muscle 	<ul style="list-style-type: none"> • Moderate exercise will strengthen upper and lower body • Without intervention: <ul style="list-style-type: none"> ○ Significant loss of muscles ○ Weak upper body ○ Increased falls ○ Reduced activities

Age Related Changes: Bone (increase loss in CP adults)

Age Related Changes	Effects
<ul style="list-style-type: none"> • Some loss in jaw bone • Moderate loss in other bones 	<ul style="list-style-type: none"> • Dentures may not fit • Little effect on bones

Age Related Changes: Joints, Cardiovascular and Nutrition

Age Related Changes

Joints	<ul style="list-style-type: none"> • Increase problems in CP adults • Stiffness in joints • Stiffness in spine • Reduced range of motion
Cardiovascular	<ul style="list-style-type: none"> • Little change - blood pressure remains in normal range – * blood pressure is lower in DS adults than in the general population • Some arteriosclerosis (smoking and alcohol increases arteriosclerosis) - higher in males * DS may be more at risk • Atherosclerosis - poor diet * DS may be more at risk • Slowing of blood pressure reflex - longer to regain blood pressure when suddenly standing possible falling
Nutrition	<ul style="list-style-type: none"> • Poor nutrition increases risk in DS and CP adults • Reduced ability to absorb: <ul style="list-style-type: none"> • Iron • Vitamin B12 • Calcium - Reduced Vitamin D production • Slowing movement of intestine - moderate constipation • Reduced energy needs • Increased water need • Increase protein in diet • Reduce carbohydrates (simple sugars) • Reduce fat intake • Increase fiber in diet

Age Related Changes: Digestive System

Age Related Changes	
Mouth	<ul style="list-style-type: none"> • Poor fitting dentures - shrinkage of jaw due to bone loss • Dryness in mouth - reduced secretions of saliva • Recessed gums - loss of gum tissue (increased tooth decay)
Esophagus	<ul style="list-style-type: none"> • Weakened muscles - difficulty in swallowing food (CP adult at risk for choking) • Reflux- increased acid from stomach results in heartburn (common in DS adults) • Curling - food slow in reaching stomach - may lodge in esophagus and feel stuck or reverse movement into throat and be inhaled resulting in choking
Intestines	<ul style="list-style-type: none"> • Increase risk in DS adults • Mild constipation - bowl movement within three days • Weakening of anal muscles – possible staining of undergarments

Age Related Changes: Sleep

Age Related Changes	Causes of Disturbed Sleep Patterns
<ul style="list-style-type: none"> • Need 6-8 hours - similar to when 	<ul style="list-style-type: none"> • Noise

<p>younger</p> <ul style="list-style-type: none"> • Less time in deep sleep -easier to arouse (feel sleep inadequate) • Less dream sleep - need nap(s) during day 	<ul style="list-style-type: none"> • Worry or anxiety • Pain/illness • Medication(s) • Dementia • Fear of incontinence • Uncomfortable bed • Change - address, room, location of bed or roommate
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Age Related Changes: Hormones

Age Related Changes	Possible Associated Effects
<ul style="list-style-type: none"> • Decreased thyroid function DS adult increase risk to hypothyroidism • Menopause - (decreased estrogen) 	<ul style="list-style-type: none"> • Low body temperature • Acute dementia • Possible mood swings • Depression • Bone loss (possible osteoporosis) • Possible short-term memory impairment
<p><i>Note: DS female may not express changes or feelings</i></p>	

Age Related Changes: Other

Age Related Changes	
Excretory System	<ul style="list-style-type: none"> • Increased frequency to urinate • Reduced bladder size • Reduced strength of contraction • Reduced muscle tone • Increased frequency of infection • Possible reduced control
Male Reproductive System`	<ul style="list-style-type: none"> • Enlarged non-cancerous prostate (BPH - Benign Prostate Hyperplasia) • Reduced flow of urine • Reduced ability to urinate • Reduced force of urine flow
<p><i>Note: Male ID/DD adults may not report reduced ability to urinate due to lack of communication skills</i></p>	