



## Fluid and Electrolyte Imbalance

### I. Introduction to the fluid balance

### II. Fluid Volume deficit (Dehydration/Hypovolemia)

### II. fluid volume Excess ( Hypervolemia)

### IV. Electrolyte Imbalance

#### I. Introduction of the Fluid Balance

No	Intended learning Outcomes	Specific Objectives/Outlines
1	Describe the importance of body fluid balance	Homeostasis
2	Describe the body fluid distributions and compare between the major fluid compartments	Intracellular fluid (ICF) Extracellular fluid (ECF)
3	List the average fluid intake and output in adults	
4	Describe the body fluid movement	<ul style="list-style-type: none"> <li>• Osmosis (Osmolality-Tonicity-Hypertonic solutions)</li> <li>• Diffusion (Simple diffusion, facilitated dif- fusion.</li> <li>• Filtration</li> <li>• Active Transport</li> </ul>
5	Describe the regulatory mechanisms that maintain water and electrolyte balance in the body	<ul style="list-style-type: none"> <li>• Thirst (actors stimulating water intake through the thirst mechanism)</li> <li>• Kidneys</li> <li>• Renin–Angiotensin–Aldosterone System</li> <li>• Antidiuretic Hormone</li> <li>• Atrial Natriuretic Peptide (ANP)</li> </ul>



## II. Fluid Volume Deficit (Dehydration/Hypovolemia)

No	Intended learning Outcomes	Specific Objectives/Outlines
1	Discuss fluid volume deficit fluid volume deficit (FVD) or dehydration	<ul style="list-style-type: none"> <li>• Definition</li> <li>• Causes</li> <li>• Pathophysiology</li> <li>• Clinical manifestations</li> <li>• The extent of fluid loss can be estimated by the amount of total body weight lost:                             <ul style="list-style-type: none"> <li><input type="checkbox"/> Mild FVD</li> <li><input type="checkbox"/> Moderate FVD</li> <li><input type="checkbox"/> Severe FVD</li> </ul> </li> <li>• Third-Spacing</li> </ul>
2	Describe the fluid volume deficit in older adults	Fluid Intake in Older Adults
3	Describe the diagnostic tests for assessing fluid volume deficit (FVD) or dehydration	<ul style="list-style-type: none"> <li><input type="checkbox"/> Serum electrolytes</li> <li><input type="checkbox"/> Serum osmolality</li> <li><input type="checkbox"/> The hematocrit</li> <li><input type="checkbox"/> Urine specific gravity and osmolality</li> <li><input type="checkbox"/> Hemodynamic monitoring</li> </ul>
4	Describe the fluid volume deficit in older adults and its management	Fluid Intake in Older Adults
5	Compare between a common different types of intravenous solutions as regards to purpose, nursing responsibilities and patient teaching	<ul style="list-style-type: none"> <li>• Isotonic</li> <li>• Hypotonic</li> <li>• Hypertonic</li> </ul>
6	Enumerate the nursing care checklist for patient with fluid volume deficit	
7	List the prioritizing nursing care for patient with the fluid volume deficit	
8	List the items of health promotion to prevent fluid volume deficit	
9	Identifying potential complications of the fluid volume deficit	
10	Design a nursing care plan for patient with fluid volume deficit	ND: Deficient Fluid Volume ND: Risk for Injury Evaluation Documentation Continuity of care



### III. Fluid Volume Excess (Hypervolemia)

1	Discuss fluid volume excess or hypervolemia/ excess intravascular fluid	<ul style="list-style-type: none"> <li>• Definition</li> <li>• Causes</li> <li>• Pathophysiology</li> <li>• Clinical manifestations</li> <li>• Complications</li> </ul>
2	Describe the diagnostic tests for assessing fluid volume excess	<input type="checkbox"/> Serum electrolytes and serum osmolality <input type="checkbox"/> Hemoglobin and hematocrit levels <input type="checkbox"/> Liver and kidney function tests
3	Describe the medical treatment for patient with fluid volume excess or hypervolemia	<p><b>Medications</b> (purpose, nursing responsibilities, patient educations)</p> <p>Diuretics, (Three classes of diuretics are commonly used)</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> loop diuretics,</li> <li><input type="checkbox"/> thiazide diuretics, and</li> <li><input type="checkbox"/> potassium-sparing diuretics ).</li> </ul> <p><input type="checkbox"/> Diet and Fluid Management</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Foods high in sodium</li> <li><input type="checkbox"/> Fluid Restriction Guidelines</li> </ul>
4	Enumerate the nursing care checklist for patient with fluid volume excess	
5	List the prioritizing nursing care for patient with the fluid volume excess	
6	List the items of health promotion to prevent fluid volume excess	
7	Identifying potential complications of the fluid volume excess	
8	Design a nursing care plan for patient with fluid volume excess	Assessment ND: Excess Fluid Volume ND: Risk for impaired skin integrity Evaluation Documentation Continuity of care

### IV. Electrolyte Imbalance

1	Define the related terms to electrolyte imbalance and list its normal range	Hyponatremia/Hypokalemia Hyperkalemia/Hypocalcemia Hypercalcemia/Hypomagnesemia Hypophosphatemia/Hyperphosphatemia
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