

Brain Facts

CONTENTS

INTRODUCTION	4
THE NEURON	6
Neurotransmitters and Neuromodulators ■ Second Messengers	
BRAIN DEVELOPMENT	10
Birth of Neurons and Brain Wiring ■ Paring Back ■ Critical Periods	
SENSATION AND PERCEPTION	15
Vision ■ Hearing ■ Taste and Smell ■ Touch and Pain	
LEARNING, MEMORY, AND LANGUAGE	22
Learning and Memory ■ Language	
MOVEMENT	25
SLEEP	28
Brain Activity During Sleep ■ Sleep Disorders ■ How Is Sleep Regulated?	
STRESS	31
The Immediate Response ■ Chronic Stress	
AGING	34
Aging Neurons ■ Intellectual Capacity	
NEURAL DISORDERS: ADVANCES AND CHALLENGES	36
Addiction ■ Alzheimer's Disease ■ Amyotrophic Lateral Sclerosis ■ Anxiety Disorders ■ Attention Deficit Hyperactivity Disorder ■ Autism ■ Bipolar Disorder ■ Brain Tumors ■ Down Syndrome Dyslexia ■ Huntington's Disease ■ Major Depression ■ Multiple Sclerosis ■ Neurological AIDS Neurological Trauma ■ Pain ■ Parkinson's Disease ■ Schizophrenia ■ Seizures and Epilepsy ■ Stroke Tourette Syndrome	
NEW DIAGNOSTIC METHODS	55
Imaging Techniques ■ Gene Diagnosis	
POTENTIAL THERAPIES	59
New Drugs ■ Trophic Factors ■ Engineered Antibodies ■ Small Molecules and RNAs ■ Cell and Gene Therapy	
NEUROETHICS	62
GLOSSARY	64
INDEX	69
NEUROSCIENCE RESOURCES	75