TABLE 122-7 PREVALENT MUSCULAR DYSTROPHIES

DISEASE	INHERITANCE	MUTATIONS	AGE OF ONSET	PHENOTYPES	TREATMENT
Dystrophinopathies	X-linked recessive	Xp21; ~75% deletion or duplication; remaining sequence variant	Duchenne diagnosis by age 4; Becker variable	Limb-girdle pattern. Duchenne: severe progressive and life limiting. Becker progressive but not as severe, more variable. Calf pseudo-hypertrophy; isolated quadriceps weakness; isolated cardiomyopathy	Prednisone (or deflazacort) for Duchenne; ACE β-blocker for afterload reduction in cardiomyopathy; yearly to biannual surveillance for respiratory, cardiac and orthopedic problems
Myotonic dystrophy type 1	Autosomal dominant	19q13; CTG expansion > 50 repeats	Classic 20-30s; congenital at birth	Limb-girdle, can have distal weakness. Classic: myotonia and muscle wasting, temporal wasting, frontal balding; cataracts; cardiac conduction deficits; and diabetes. Congenital: severe and progressive, respiratory deficits, intellectual disability, and death ~45 years if survive neonatal period	Mexiletine for symptomatic myotonia; Yearly surveillance for cataracts, cardiac conduction deficits, and respiratory involvement.
Myotonic dystrophy type 2	Autosomal dominant	3q13; CCGT expansion > 75 repeats	30s	Limb-girdle pattern; multi-system involvement cataracts, cardiac conduction deficits; diabetes	Mexiletine for symptomatic myotonia; Yearly surveillance for ocular, cardiac, and respiratory involvement
Facioscapulohumeral muscular dystrophy	Autosomal dominant	4q35; ~95% between 1-10 D4Z4 repeats; ~5% decreased methylation <20% D4Z4 region	20s	Scapuloperoneal pattern with facial involvement; can have marked asymmetry; significant axial involvement	Supportive; screening dilated eye exam; hearing studies as indicated clinically; respiratory studies once wheelchair bound
Emery-Dreifuss muscular dystrophy	X-linked recessive; autosomal dominant or recessive	~70% Xq28 Emerin or FHL1 mutation; 1q21 lamin A/C, both dominant and recessive mutations reported	Joint contractures childhood; progressive weakness 20s-30s	Scapuloperoneal pattern; joint contractures, particularly at elbows, significant cardiac involvement	Yearly surveillance for cardiac and respiratory involvement; orthopedic evaluation for symptomatic contractures
Oculopharyngeal muscular dystrophy	Autosomal dominant and recessive	14q11 PABPN1 (Polyadenylate-binding protein) GCG repeats 7-13	40s (range 20s-60s)	Typically ptosis 2-3 years before dysphagia; limb-girdle pattern weakness	Swallow study; consider blepharoplasty for ptosis, consider cricopharyngeal myotomy for severe swallowing difficulty

TABLE 122-8 CONGENITAL MUSCULAR DYSTROPHIES

NAME / AKA	GENE	INHERITANCE	PHENOTYPE	CNS INVOLVEMENT
Merosin-deficient	6q22; laminin alpha-2	Autosomal recessive	Hypotonia; contractures; scoliosis or rigid spine; respiratory involvement; external ophthalmoplegia	MRI diffuse white matter changes; 20-30% seizures
Bethlam myopathy / Ullrich muscular dystrophy	21q22; 2q37; COL6 (collagen 6 spectrum disorders)	Autosomal dominant or recessive	Hypotonia; contractures; distal joint laxity; keloid; respiratory involvement	
Dystroglycanopathy	9q34 (POMT1); 14q24 (POMT2); 9q31 (fukutin); 19q13 (FKRP); 22q12 (LARGE); 1q32 (POMGnT1); 7p21 (ISPD)	Autosomal recessive	Spectrum of disorders but characteristic intellectual, eye, and brain involvement; motor early death, to acquiring ambulation	Walker Warburg Syndrome: severe eye involvement, cobblestone lissencephaly, hypoplastic cerebellum and brainstem. Muscle eye Brain Syndrome: common eye involvement, pachygyri/polymicrogyri, hypoplastic cerebellum and brainstem. Fukuyama: mild eye involvement, cortex mild changes, hypoplastic cerebellum but normal brainstem
SEPN1 related myopathy	1q36 (SEPN1)	Autosomal recessive	Cervicoaxial weakness, rigid spine syndrome, early nocturnal hypoventilation, medial thigh wasting	
LMNA related	1q22 (lamin A/C	Autosomal dominant and recessive	Cervicoaxial weakness, dropped head, rigid spine syndrome, respiratory and cardiac involvement	