pulmonary function test. When asked to compare their clinic to the recommended care, 41% feel it is “way better,” 17% “a little better,” 19% “exactly what is recommended,” 12% “a little below,” and 6% “way below.” The Clinic Survey provides a publically available and searchable resource that reports parent perspectives on clinics across the US. Clinic-specific and overall strengths and areas for improvement are emerging. We expect this resource to grow over time with increased participation, and we anticipate enhancement of the survey to better meet the needs of DBMD families.

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P.7.12
Recovery of ambulation and functional mobility in boys with Duchenne Muscular Dystrophy following femoral fractures
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Boys with Duchenne Muscular Dystrophy (DMD) have been found to have decreased bone density and increased risk of fractures. Lower extremity (LE) post-fracture recovery often includes prolonged periods of non/partial weight bearing with increased amounts of time spent sitting in wheelchairs, increasing the risk of contractures and disuse weakness. Reported incidence of loss of independent ambulation following LE fractures varies from 20 to 50%. A retrospective chart review of the medical records of 7 ambulatory boys with DMD who sustained femur fractures over the past 5 years and for whom early post-fracture rehabilitation was recommended was completed to determine average age at fracture, and functional motor skills pre/post fracture. Boys ranged from 9 to 15 years of age at the time of fracture and were all independent ambulators. Their pre-fracture timed 30 ft. run averaged 6.5 s (3.8–9.7). The majority of fractures were managed surgically but one, a distal femur fracture, was casted without surgical intervention. Physical therapy, typically including hip/knee flexor and ankle plantar flexor stretches, active exercise, and early weight bearing on the uninvolved and, as soon as possible, on the involved leg, was recommended during the period of fracture healing. All 7 boys regained independent ambulation after their fractures, although one continued to use a walker. Time function tests were available for 5 of 7 boys after their initial recovery with an average 30 ft. run time of 7.5 s (5.0–11.7). One boy required a walker to ambulate, while another was unable to complete timed testing. Only one boy had both pre and post-fracture North Star Ambulatory Assessment scores available and these were 16/34 pre-fracture and 14/34 post-fracture. Results suggest that with a protocol of early mobilization, active exercise, and stretching, ambulation and functional mobility may be maintained following femoral fractures.

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P.7.13
Whole body vibration training lowers serum creatine kinase levels in boys with Duchenne muscular dystrophy
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Whole body vibration training (WBVT) involves the use of a low-amplitude high-frequency vibrating platform to transmit mechanical energy. It has been proposed as a therapeutic strategy to increase bone mineral density in boys with Duchenne muscular dystrophy (DMD). The effects of WBVT on muscle enzymes and motor function have not been fully elucidated. The aim of this study was to explore the safety as well as potential effects of WBVT on muscle function. We performed baseline and serial assessments including serum creatine kinase (CK) measurements and timed function tests in two brothers aged 8 and 10 years old with genetically confirmed DMD. WBVT was delivered using a side-alternating vibration platform (Vibraflex) at a starting frequency of 7.5 Hz, increasing up to 20 Hz for a total of 5 min (2 min on, 1 min off, and 2 min on) three times a week for three months. The baseline serum CK of the 8 and 10 year old boys were 33,105 U/L and 14,984 U/L. One month after receiving WBVT, their CK dropped significantly, reaching a nadir of 7383 U/L and 536 U/L respectively during treatment. Aside from transient flushing and increased sweating, there were no other side effects. The 6-min walk distance (6MWD) for the older brother increased slightly from 404 m at baseline to 448 m at six weeks on WBVT, and then to 376 m two weeks post treatment. The 6MWD for the younger boy increased from a baseline of 354–447 m after WBVT. Their overall North Star Ambulatory Assessment scores were unchanged. WBVT appears to be safe and well-tolerated in ambulatory boys with DMD. The reduction in serum CK as observed in these two brothers on otherwise stable treatment suggests a positive effect of brief high frequency vibration on muscle function. Additional longitudinal studies involving a larger cohort will help to determine the role of WBVT as a safe and potentially beneficial exercise strategy for boys with DMD.

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P.7.14
Effects of a regular aquatic therapy program on one individual with Duchenne Muscular Dystrophy (DMD): A case study
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The specific aims of this study are to (1) Evaluate the impact of a regular aquatic therapy program on quality of life of an individual with DMD (2) Evaluate the impact of a regular aquatic therapy program on motor function in an individual with DMD (3) Evaluate the impact of a regular aquatic therapy program on pulmonary function in an individual with DMD.

This is a case report of one individual with Duchenne Muscular Dystrophy that has undergone a standardized aquatic program.

In addition to continued participation in a home exercise program, the subject received a standard protocol of aquatic therapy one time per week for 6 weeks. Following completion of the 6 week protocol, the individual was discharged from the aquatic therapy program and continued with his home exercise program that included regular stretching and use of bracing. The subject underwent assessments of the following dependent measures: hand held myometry, Timed Function Testing, 6 min Walk Distance, Pulmonary Function Tests, and PedsQL. To ensure a stable baseline (TI), the initial assessments were completed 2 times over a span of 5 days. The battery of dependent measures was then repeated at the completion of intervention (T2) and again at the end of 12 weeks (T3).

We found slight increases in strength and improvement in quality of life based on parent report at the conclusion of intervention. Pulmonary function, 6 min walk distance and timed function tests appeared to remain steady throughout.

Due to the degenerative nature of this disease, any improvement in function or steady maintenance of function over time could be considered a positive outcome. Based upon our results, we may conclude that individuals with DMD may benefit from aquatic therapy.
P.7.15
What can we learn from an assisted bicycle training in a symptomatic girl with Duchenne muscular dystrophy? A case study
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In this case study a 9-year old ambulatory symptomatic girl with Duchenne muscular dystrophy participated in a dynamic training. Since the role of exercise is far from clear in both boys and girls with DMD, a recently developed assisted bicycle training was evaluated for its feasibility and effectiveness in this girl. The girl trained at home, 15 min with her arms followed by her legs, 5 times a week, for 24 weeks. The primary outcomes were the Motor Function Measure, and the Assisted Six-Minute Cycling Test. Secondary outcomes were the Vignos and Brooke scale for lower and upper extremity functioning, timed tests (time to rise from a floor, to rise from a chair, to climb 3 stairs and to walk 10 m), the Medical Research Scale scale for muscle strength, and quantitative muscle ultrasound to determine the echo intensity of the biceps brachii muscle, the forearm flexors, the rectus femoris muscle and the tibialis anterior muscle. This case study showed that the assisted bicycle training was feasible and safe. Additionally, we found that no physical deterioration occurred during the training period: she remained stable on the Motor Function Measure and the Assisted Six-Minute Cycling Test. Slight improvements in quantitative muscle ultrasound intensity were found, indicating less fatty infiltration in the muscles. Since there are several indications from this case study that physical training could be beneficial in this population, we recommend further research on the effects of dynamic training in girls with DMD and its relation to the level of dystrophin.

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P.7.17
Effects of quadriceps muscle kinesiologic taping on gait and performance in children with Duchenne Muscular Dystrophy
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Aim of this study was to investigate the effects of quadriceps kinesiologic taping on gait, performance and endurance in Duchenne Muscular Dystrophy (DMD). 10 children with DMD in Grade 1–2 according to the Brooke Lower Extremity Functional Classification (BLEFC) included in the study. Lower extremity muscle strength-shortening tests, timed performance tests (Gowers, 10 m walking, climbing up and down 4 steps), endurance tests (number of knee flexion-extension and mini-squat with back support during 30 s), gait assessment (step width, step length, number of steps in a minute) and gait performance test (6 Minute Walk Test-6MWT) were performed before taping (BT). Patella and patellar tendon were stabilized according to the kinesiologic taping manual for quadriceps muscle activation. Y-strip was applied to quadriceps without stretching the band in supine position and placed to inferior patella from medial to lateral with 40% tension, I-strip was placed to patellar tendon with 75% tension. Assessments were repeated 30 min after from taping (AT). Mean ages of children was found to be 109.3 ± 15.9 months. 2 (20%) were in Grade 1 and 8 (80%) were in Grade 2 according to the BLEFC. No difference was found in right (z = -0.07), left (z = -1.54) quadriceps and total lower extremity muscle strength (z = -1.82), timed performance and endurance tests after taping (p > 0.05). Step width (BT: 21.7 ± 4.5 cm; AT: 19.4 ± 5.5 cm), left step length (BT: 54.2 ± 5.2 cm; AT: 39.7 ± 6.7 cm) increased and 6MWT distance (BT: 369.3 ± 54.4 m; AT: 356.1 ± 49.9 m) decreased after taping (z = -2.24), (p < 0.05). Increase in knee stabiliza-

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