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Using Cpet To Evaluate Possible Long-term-effects Of Multisystem Inflammatory Syndrome (mis-c) In Pediatric Populations

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METHODS: CR program managers in the United States were sent an email invitation to participate in an electronic survey from the American Association of Cardiovascular and Pulmonary Rehabilitation. Depending on the participant's responses, the final survey could be as few as 11 and up to 44 required multiple choice questions

RESULTS: Among 297 CR programs, 86% (n= 256) stated they staff a clinical exercise professional. The minimum level of degree for clinical exercise staff was n= 236 (92%) bachelor's and n= 20 (8%) master's. A clinical internship was required before hire in n=104 (41%) programs. The mean number of internship hours required was 600+492 (range= 50-2080). The ACSM clinical exercise physiology credential was preferred or required within 1 year 70% (n= 178) programs. Job tasks performed by clinical exercise staff in these CR programs were provided patient education (99%), measured blood pressure via auscultation (98%), monitored ECG during exercise (96%), assessed patient symptoms (94%), measured blood glucose (89%), and screened patients entering CR (84%).

CONCLUSIONS: Findings revealed important commonalities among CEP skills and responsibilities. The level of autonomy in CR demonstrates the importance of fusing clinical education within exercise science curricula using experiential learning in clinical internships for adequate workforce preparation.

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Clinical Internship Program Development In An Academic Cardiopulmonary Exercise Laboratory

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PURPOSE: An initiative to formalize the exercise science academic requirements for university programs is in place and requires institutional program CAAHEP accreditation by 2027. Participation in a clinical internship and the hours required vary among college programs. This retrospective study performed on the cardiopulmonary internship (CI) program at a large Midwest pediatric hospital provides insight into clinical education and research skill development for undergraduate and graduate exercise science students.

METHODS: Retrospective analysis of program metrics regarding the number of university affiliations, number of students accepted, completion rate, training and competencies, student academic level, associated student presentations, and program satisfaction for students completing the CI.

RESULTS: Between 2012 to 2023, the program grew from 3 to 40 university affiliations. 143 students participated in the CI: 32 completed shadowing experiences, 90 were undergraduate interns and 21 were graduate interns. Internship hour requirements varied from 100 to 600 hours. Most students completed 350-450 hours. In 2012, the program enrolled 1 student per year. In 2013 the capacity expanded to 4 students per semester (spring, summer, fall). Internship students presented 38 poster/abstracts at regional conferences and seminars. Students achieved 99% completion of site-specific sign-off competencies in cardiopulmonary exercise testing, including expanded requirements for cardiac rehabilitation begun in 2018. 98% of the student interns completed the program.

CONCLUSION: The pediatric cardiopulmonary internship program expanded affiliate universities from both local and national institutions referring students to the internship program. Secondly, the cardiology program's expansion into adult congenital patients, outreach sites, and development of cardiac rehabilitation and exercise prescription resulted in expanded lab team and facilities to accommodate increasing patient volumes. This resulted in the ability to increase intern numbers per semester and expand their preparation to enter the healthcare workforce. Skills and competencies obtained during the practicum experience may help to enhance academic curriculum to transition students into clinical opportunities.

E-39 Free Communication/Poster – Pediatric Clinical Exercise Physiology

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Using Cpet To Evaluate Possible Long-term-effects Of Multisystem Inflammatory Syndrome (mis-c) In Pediatric Populations

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Multisystem inflammatory syndrome (MIS-C) is a life-threatening condition that has been primarily associated with SARS-CoV-2 infection in children and adolescents. The long-term sequela of MIS-C is largely unknown. Returning to physical activity and exercise after experiencing MIS-C requires a cautious and gradual approach.

PURPOSE: to evaluate possible cardiopulmonary limitations in children and adolescents previously hospitalized for MIS-C.

METHODS: Six MIS-C patients with a history of hospitalization (age 9-14y/o), 11 SARS-CoV-2 infection symptomatic patients (8-18y/o), and 8 self-reported no history of SARS-CoV-2 infection control group (8-18y/o) completed Cardiopulmonary Exercise Testing (CPET). Both groups of patients were in the 9-12-month range post their illness. Anthropometric, demographic, and physical activity data was collected. Peak $\dot{V}O_2$, $\Delta\dot{V}O_2/\Delta WR$, $\Delta\dot{V}O_2/\Delta HR$, $\Delta VE/\Delta VCO_2$ were calculated and compared to predicted values for sex and age groups (Cooper et al., 2014). Mean contrasts were performed for each subgroup pairing, with t-tests and effect sizes evaluated for each primary outcome.

RESULTS: MIS-C group had significantly higher BMI %ile (83.3% compared to 45.8% and 44.75%; $p=.023$, Cohen's $d=1.34$) and decreased physical activity levels (5.2 hr. per week, compared to 9.1 and 17.5 hr. in the SARS-CoV-2 and control groups $F=6.68$, $p=.005$). MIS-C peak $\dot{V}O_2$ values were $83\pm 19\%$ predicted, $\Delta VE/\Delta VCO_2$ was $79.8\pm 12.4\%$, predicted and $\Delta\dot{V}O_2/\Delta HR$ tended to be lower than the comparison group. **CONCLUSION:** Overall, our data suggest a difference in CPET in the MIS-C group compared to our controls and standardized normal values. It remains uncertain whether the increased BMI%ile and decreased levels of physical activity levels observed in the MIS-C group (and the associated results of CPET) stem from a cause or effect relationship. The initial findings from this project serve as first stride in understanding the long-term consequences of MIS-C and will support shaping the guidelines for returning to physical activity and exercise after recovering from the illness.

Yes

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A 12-week Pediatric Cardiac Tele-rehabilitation Program: Influence On Sleep Quality