



WEIGHT MANAGEMENT AND WELLNESS CENTER

Mission

The Weight Management and Wellness Center (WMWC) was founded in the fall of 2004 as a multidisciplinary center devoted to the treatment and prevention of overweight/obesity in children, as well as treatment of its comorbidities, including prediabetes, type 2 diabetes, polycystic ovary syndrome, nonalcoholic fatty liver disease, hypertension, dyslipidemia, sleep apnea, metabolic syndrome, and more. The center has a three-pronged approach, including clinical care, research, and community outreach, with research being a major component in all, to address the full spectrum of the childhood obesity problem from prevention to early intervention and evaluation of treatment strategies.

FACULTY AND STAFF

Silva Arslanian, MD

Founding Director and Chief,
WMWC
UPMC Richard L. Day Endowed
Chair in Pediatrics
Director, Pediatric Clinical and
Translational Research Center
Professor of Pediatrics

Lesli Dahl, PhD

Clinical Behavioral Psychologist

Heba Ismail-Roberts, MB BCh, MSc, PhD

Assistant Professor of Pediatrics,
Pediatric Endocrinology,
Metabolism, and Diabetes Mellitus
Clinical Director, WMWC

SoJung Lee, PhD

Associate Professor of Pediatrics

John Weidinger, MPAS, PA-C

Physician Assistant

Haley Sager, PA-C

Physician Assistant

Rose Cloherty

Practice Manager

Joon Young Kim, PhD

Postdoctoral Fellow

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OVERVIEW OF CENTER

The WMWC was conceived late in 2003 based on a tremendous need by community-referring physicians and by the Children's Hospital of Pittsburgh to centralize the care of obese children and their families. Because of Silva Arslanian's accomplished research in childhood obesity, insulin resistance, and type 2 diabetes, she was asked to found and direct the center and the division with funding from the Department of Defense (DOD). Within a very short time, she recruited the needed personnel and the center reached full operational capacity. The DOD grant was instrumental in establishing and funding the WMWC. Significant divisional downsizing resulted when the DOD grant expired. Ultimately, in January 2017, clinical activities and personnel transitioned to the Division of Endocrinology. The Center for Pediatric Research in Obesity and Metabolism was established to continue research activities.

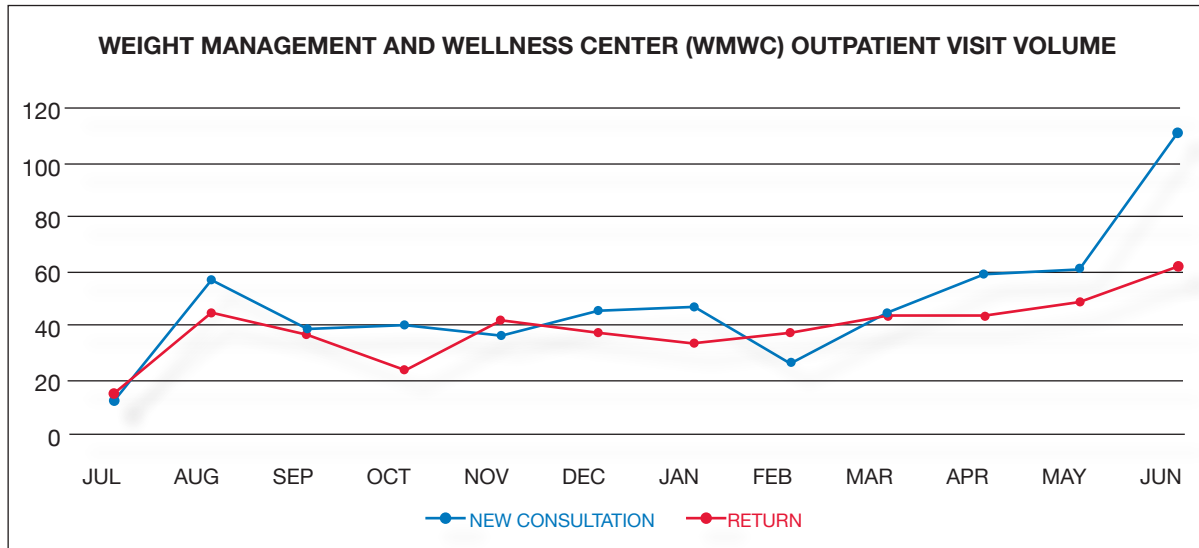
The division's successes were three-pronged. First, it provided state-of-the-art clinical care for children and their families afflicted with obesity with or without its comorbidities. Second, state-of-the-art research advanced scientific knowledge through extramural funding, including several National Institutes of Health (NIH) grants and several major protocols in addition to other ongoing projects. Third, the division provided community support for physicians, community centers, and parents to identify obesity and provide measures for prevention and treatment. The center made major contributions to various community health fairs and health-related activities in schools, with nurses, and with community physician offices, tackling the problem of obesity on a community level. The team supplied physicians with education and training to integrate the weight-management program into their community-based practices. The center partnered with Children's Community Pediatrics (CCP) practices to develop a model of health care delivery that promotes obesity counseling in the primary care setting, referred to as Healthy Habits 4 Life (HH4Life), with weight-management services offered in 27 CCP offices.

In December 2016, the clinical director was repositioned to the Division of Endocrinology. In January 2017, the WMWC was transitioned to the Division of Endocrinology.



CLINICAL ACTIVITIES

The scope of services provided by the WMWC between July 2016 and June 2017 included 570 new patients and 460 return patients. All visits were accomplished in two-day-per-week clinic sessions. The WMWC provided services to its satellite clinics. The numbers remained comparable to other pediatric obesity programs in the country despite the time and efforts devoted to transitioning to the Division of Endocrinology.



The WMWC was a leader in providing high-quality care to children. Quality initiatives included improving the identification of degree of obesity as measured by body mass index (BMI) and BMI percentile, its documentation in the electronic health record, and identification and management of hypertension among the center's patients, as well as improving rates of screening for lipid disorders. Because of its international reputation, the center continued to receive numerous requests from international physicians, residents and fellows in training, medical students, and scholars to observe the program.

RESEARCH AND OTHER SCHOLARLY ACTIVITIES

The faculty and postdoctoral students of the WMWC were extremely prolific. They presented their results at several national and international scientific meetings and published in high-impact, peer-reviewed journals. Arslanian and the junior faculty from the WMWC continue to be major contributors to the clinical and research productivity, publication record, and grant funding of the Division of Endocrinology, Diabetes, and Metabolism.

- Soon after its inception, the WMWC established a patient registry approved by the Institutional Review Board. The center obtained consent from 6,957 patients for the registry. The registry generates tremendous amounts of information about clinical characteristics of referred pediatric patients and provides longitudinal data on outcomes. Recruitment of participants from the registry has enabled many research programs.
- Arslanian pioneered the investigation of the pathophysiology of youth-onset type 2 diabetes. She was the first to describe the rapid deterioration in pancreatic β -cell function in youth type 2 diabetes. This finding was later evaluated in 699 youth with type 2 diabetes in the multi-center TODAY (Treatment Options for Type 2 Diabetes in Adolescents and Youth) trial, confirming her initial results that deterioration in β -cell function in youth is three to four times faster than what has been observed in adult type 2 diabetes.
- Arslanian continues her funded research, which includes:
 - The 15-year-long TODAY study with its successful five-year competitive renewal and a supplemental grant, "Behavioral Adherence in Emerging Adults With Type 2 Diabetes"
 - The National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK)-funded RISE grant (Restoring Insulin Secretion)

- A multicenter grant titled “DO-IT” (Dyslipidemia of Obesity Intervention in Teens) funded by the National Heart, Blood, and Lung Institute (NHBLI)
- An NIH grant, “Vitamin D and Vascular Function in Obese Youth,” as a co-investigator with Kumaravel Rajakumar
- An NIH grant, “Resistance and Cardiorespiratory Time-Matched Exercise in Youth: A Randomized, Controlled Trial,” as a co-investigator with SoJung Lee
- An NIH grant, “Pre- and Postnatal Exposure Periods for Child Health: Common Risks and Shared Mechanisms,” as a co-investigator with Thomas O’Conner of the University of Rochester and Hyagriv Simhan of Magee-Womens Hospital of UPMC
- A pharmaceutical clinical study, “Liraglutide Obesity Trial: A 56-Week Double-Blind, Randomized, Parallel-Group, Placebo-Controlled Trial,” as primary investigator
- A pharmaceutical clinical study, “Dulaglutide in Youth Type 2 Diabetes: A 26-Week Randomized, Double-Blind Trial,” as primary investigator
- A pharmaceutical clinical study, “Lixisenatide in Youth Type 2 Diabetes: A 10-Week Randomized, Double-Blind, Placebo-Controlled, Dose-Escalation Study,” as primary investigator

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With the transition of the clinical activities to the Division of Endocrinology in January 2017, Arslanian has been focusing on establishing the Center for Pediatric Research in Obesity and Metabolism. The objective of the center is to bring together a cadre of investigators to advance scientific discovery in childhood obesity and its comorbidities. This will be accomplished through recruitment of mid-level, R01-funded physician-scientists or PhD-scientists or junior faculty with K awards with high academic promise and potential for excellence in research.

Heba Ismail-Roberts joined the WMWC in September 2014 as the clinical director. Together with Arslanian, she developed evidence-based manuals for the management of dyslipidemia, nonalcoholic fatty liver disease, and hypertension of obesity in youth. In December 2016, she transitioned to the Division of Endocrinology.

Joon Young Kim received a T32 training award in endocrinology, diabetes, and metabolism in the University of Pittsburgh School of Medicine and has been successful in publishing under Arslanian’s mentorship.

Silva Arslanian, MD

RESEARCH

Silva Arslanian has been the director of the Pediatric Clinical and Translational Research Center (PCTRC) since 1999. The PCTRC is a component of the Clinical and Translational Science Award to the University of Pittsburgh. The goal of the PCTRC is to provide inpatient and outpatient facilities and laboratory investigations related to disorders of infancy, childhood, and adolescence. The PCTRC provides a valuable resource for the training of physicians in clinical investigation and becomes the stimulus to direct outstanding young physicians toward careers in patient-oriented research.

TODAY2. This is an NIDDK-funded grant, a large, longitudinal study in its 16th year. It continues to follow the TODAY cohort with youth-onset type 2 diabetes, now young adults, to track disease progression and diabetes complications. Arslanian is principal investigator.

Brief Intensive Glycemic Control and Beta-Cell Function in Pediatric Type 2 Diabetes/RISE. This is an NIH-funded grant to study desensitization of beta cells to changes in glucose levels (glucotoxicity), which may contribute to alteration in dynamics of insulin secretion. Arslanian is principal investigator.

Vitamin D and Vascular Function in Obese Children.

Kumaravel Rajakumar’s NIH-funded project investigates the effects of vitamin D supplementation on cardiovascular disease/dysmetabolic syndrome in obese youth. Arslanian is co-investigator.



Silva Arslanian, MD

Silva Arslanian was division chief for the WMWC.

Resistance and Cardiorespiratory Time-Matched Exercise in Youth: A Randomized, Controlled Trial. SoJung Lee's NIH-funded project aims to investigate the effects of exercise without weight loss on risk markers of type 2 diabetes and cardiovascular disease in obese youth. Arslanian is co-investigator.

DO-IT. This study is funded by the NHLBI and is a double-blind, placebo-controlled, two-year trial to determine whether treatment of combined dyslipidemia of obesity in adolescents with oral pitavastatin will improve vascular biomarkers of early atherosclerosis (carotid artery intima-media thickness, carotid artery stiffness, and pulse wave velocity) and potentially achieve primary prevention of adult cardiovascular disease. Arslanian is principal investigator.

Pre- and Postnatal Exposure Periods for Child Health: Common Risks and Shared Mechanisms. This is an NIH-funded study in response to Environmental Influences on Child Health Outcomes, Request for Applications. Arslanian will provide expertise in analysis of body composition and biochemical data related to offspring obesity. Principal investigators: Thomas O'Conner of the University of Rochester and Hyagriv Simhan of Magee-Womens Hospital of UPMC. Arslanian is co-investigator.

A Randomized, Double-Blind, Placebo-Controlled Trial to Assess Safety, Tolerability, Pharmacokinetics, and Pharmacodynamics of Liraglutide in Obese Children Aged 7 to 11 Years. This study funded by Novo Nordisk intends to assess the safety and tolerability of multiple once-daily doses of liraglutide at doses up to 3.0 mg in obese children aged 7–11 years and at Tanner stage 1. Arslanian is principal investigator.

Dulaglutide in Youth Type 2 Diabetes. This is a study funded by Eli Lilly and Company that is a 26-week, randomized, double-blind trial comparing the efficacy of once-weekly subcutaneous dulaglutide (glucagon-like peptide-1, GLP1 receptor agonist) to placebo in youth with type 2 diabetes, measured by change in HbA1c. Arslanian is principal investigator.

Lixisenatide in Youth Type 2 Diabetes. This study funded by Sanofi is a 10-week, randomized, double-blind, placebo-controlled, dose-escalation study of the safety, pharmacokinetics, and pharmacodynamics of subcutaneous lixisenatide, a GLP-1 receptor agonist, in adolescents with type 2 diabetes. Arslanian is principal investigator.

ADVISORY COMMITTEE MEMBERSHIPS

- Scientific Advisory Board, Institut d'Investigacions Biomediques de Girona, Generalitat de Catalunya
- Scientific Advisory Board, European Commission, EU-FP7, Beta-JUDO Grant 279153 (Beta Cell Function in Juvenile Diabetes and Obesity)
- Special Programs Committee, Endocrine Society
- Data and Safety Monitoring Board, Boehringer Ingelheim Pharmaceuticals, Inc.
- Data Monitoring Committee, Astra Zeneca
- Advisory Board, Lilly USA, LLC
- Advisory Board, Novo Nordisk
- Diabetes Advisory Committee, Children's Hospital of Pittsburgh of UPMC
- Expert Obesity Work Group, UPMC Health Plan
- Obesity Advisory Board, Pediatric Liraglutide
- Obesity Task Force, Allegheny County Medical Society
- Review Board for Disease-Related Competence Network on Obesity, German Federal Ministry of Education and Research
- Chair of working group, Studies of Pathophysiology in Youth-Onset Type 2 Diabetes (SPYonT2D), Common Physiological Outcomes
- CORE member, SPYonT2D
- Co-chair, type 2 diabetes position statement, American Diabetes Association
- Writing group, type 2 diabetes guidelines, International Society for Pediatric and Adolescent Diabetes (ISPAD)

EDITORSHIPS

- Associate editor, *Pediatric Diabetes*
- Editorial Board, *Treatments in Endocrinology*
- Editorial Board, *Journal of Diabetes and Its Complications*
- Editorial Board, *U.S. Endocrinology*
- Editorial Board, *Diabetes Care*

MAJOR LECTURESHIPS AND SEMINARS

- "Childhood Obesity and Comorbidities: Assessment and Management," annual scientific meeting of the Chinese Society of Pediatric Endocrinology and Metabolism and Chinese Medical Association, Guilin, China, July 2016
- "Novel Approaches to Treating Type 1 Diabetes," Diabetes Excellence Summit, Tehran, Iran, August 2016
- "Insulin Glulisine: Basal-Bolus Insulin in the Management of Childhood Type 1 Diabetes," Diabetes Excellence Summit, Tehran, Iran, August 2016
- "Polycystic Ovary Syndrome: Diagnosis and Treatment," Sociedad Mexicana De Endocrinologia Pediatrica, XVII Congreso Annual, Centro De Convenciones, Campeche, Mexico, August 2016

- “Early Identification and Treatment of Cardiovascular Risk Factors Associated With Type 2 Diabetes,” Sociedad Mexicana De Endocrinología Pediátrica, XVII Congreso Annual, Centro De Convenciones, Campeche, Mexico, August 2016
- “Childhood Obesity and Comorbidities,” pediatric residents’ noon conference, Children’s Hospital of Pittsburgh, September 2016
- “Metabolic Markers of β -Cell Failure in Youth Insulin Resistance: Do They Conform to Standards?” 42nd Annual Conference of ISPAD, Valencia, Spain, October 2016
- “Youth Type 2 Diabetes: Tribulations of an Epic Love Story,” Third Annual Dr. Heather Dean Lecture, Fifth Annual Diabetes Research Symposium, Children’s Hospital Research Institute, University of Manitoba, Winnipeg, Canada, November 2016
- “Youth Type 2 Diabetes: A Looming Crisis,” pediatric grand rounds, Children’s Hospital of Pittsburgh of UPMC, December 2016
- “The Changing Face of Diabetes in Youth: Lessons Learned From Adolescents in Contrast to Adult Type 2 Diabetes,” NIH/National Institute of Child Health and Human Development training program in pediatric and adult endocrinology, endocrinology grand rounds, Bethesda, Md., December 2016
- “The Changing Face of Diabetes in Youth,” Third Annual Endocrine Fellows Foundation Research Meeting, Dallas, Texas, January 2017
- “Treating Type 2 Diabetes in Youth: What Options Do We Have?” affiliate study training and initial site study training for “A Study of Dulaglutide in Children and Adolescents With Type 2 Diabetes (AWARD-PEDS)” (NCT02963766 sponsored by Eli Lilly), Rome, Italy, February 2017
- “Finding, Enrolling, and Retaining Patients in Clinical Trials,” affiliate study training and initial site study training for “A Study of Dulaglutide in Children and Adolescents With Type 2 Diabetes (AWARD-PEDS)” (NCT02963766 sponsored by Eli Lilly), Rome, Italy, February 2017
- “Prediabetes and Type 2 Diabetes in Youth: Metabolic Aging of the Obese Adolescent,” International Obesity Conference, Jeddah, Saudi Arabia, February 2017
- “Childhood Obesity and Comorbidities: Can We Stop the Tsunami?” International Obesity Conference, Jeddah, Saudi Arabia, February 2017
- “Pediatric Diabetes: Meet the Professor Session,” ENDO 2017, Diabetes Diagnosis and Management, Endocrine Society, Orlando, Fla., March 2017
- “Type 2 Diabetes in Youth: How Does the Pathogenesis Compare to Adult Disease?” International Society of Nephrology World Congress of Nephrology, Mexico City, Mexico, April 2017
- “The Changing Face of Diabetes in Youth: Lessons Learned From Adolescents with Type 2 Diabetes,” University-Wide Endocrine Conference, University of Pittsburgh School of Medicine, May 2017
- “Childhood Obesity Prevention and Management,” First International Symposium on Diabetes, St. Luke’s Medical Center–Global City, Manila, Philippines, October 2017
- “Management of Type 2 Diabetes in Children and Adolescents,” First International Symposium on Diabetes, St. Luke’s Medical Center–Global City, Manila, Philippines, October 2017

PROFESSIONAL AFFILIATIONS/SOCIETY MEMBERSHIPS

- American Diabetes Association
- American Pediatric Society Diabetes Stakeholders Group, Pennsylvania Department of Health
- Endocrine Fellows Foundation
- Endocrine Society
- ISPAD
- Pediatric Endocrine Society

HONORS

- Scientific Advisory Board, European Commission, EU-FP7, Beta-JUDO Grant 279153 (Beta Cell Function in Juvenile Diabetes and Obesity)
- Scientific Advisory Board, Institut d’Investigacions Biomediques de Girona, Generalitat de Catalunya
- Chair, Rapid Lipidology Symposium, Pediatric Academic Societies annual meeting
- Chair, Type 2 Diabetes in Youth: Pathophysiology and Complications, World Diabetes Congress 2015, International Diabetes Federation, Vancouver, Canada
- America’s Most Honored Professionals (top 5%), American Registry
- *Top Doctors*, Castle Connolly, 2016
- Chair, poster discussion session: “Type 2 Diabetes From Pathophysiology to Treatment,” American Diabetes Association, 77th Scientific Sessions, San Diego, Calif.
- Chair, poster tour: “Type 2 Diabetes,” ISPAD annual conference, Innsbruck, Austria

Heba Ismail-Roberts, MB BCH, MSc, PhD**RESEARCH**

Open-Label, Multicenter, Multiple Oral Dose Study to Evaluate the Pharmacokinetics, Pharmacodynamics, and Safety of Canagliflozin in Older Children and Adolescents > 10 to < 18 Years of Age With Type 2 Diabetes Mellitus and Currently on a Stable Dose of Metformin. This was a phase I clinical trial sponsored by Janssen Pharmaceuticals. The open-label, sequential, multiple-dose, multicenter study to evaluate the pharmacokinetics of canagliflozin is completed. Ismail-Roberts was a sub-investigator.

PROFESSIONAL AFFILIATIONS/SOCIETY MEMBERSHIPS

- American Diabetes Association
- Pediatric Endocrine Society
- Endocrine Society
- Member, Board of Directors, Western Pennsylvania chapter of the American Diabetes Association

SoJung Lee, PhD**RESEARCH**

Resistance and Cardiorespiratory Time-Matched Exercise in Youth: A Randomized, Controlled Trial. This five-year R01 grant funded by the NHBLI in August 2013 examines the effects of various exercise modalities on insulin sensitivity, abdominal obesity, ectopic fat, and cardiovascular risk factors in overweight and obese adolescents. In July 2017, Lee returned to Korea to continue her academic activities there.

EDITORSHIPS

- Associate editor, *Applied Physiology, Nutrition, and Metabolism*

MAJOR LECTURESHIPS AND SEMINARS

- “Body Composition in Children and Adolescents: Influence of Obesity and Ethnicity,” International Congress on Obesity and Metabolic Syndrome in conjunction with the 45th Annual Scientific Meeting of the Korean Society for the Study of Obesity, Seoul, Korea, 2016
- “Obesity and Physical Activity in Youth: Does the Type of Exercise Matter for Health?” international symposium: Evidence-Based Exercise Medicine for the Promotion of Lifelong Health, Yonsei University, Seoul, Korea, 2016
- “What Type of Exercise Is Most Optimal for the Treatment of Childhood Obesity?” Department of Sport and Leisure Studies, Yonsei University, Seoul, Korea, 2016

PROFESSIONAL AFFILIATIONS/SOCIETY MEMBERSHIPS

- American Diabetes Association
- Obesity Society
- Pediatric Academic Societies

TEACHING ACTIVITIES

The WMWC trained medical students and pediatric residents. The overall goal was to familiarize students with identification, assessment, and management of obesity and obesity-related problems in children and adolescents. Students saw patients independently in the center under the supervision of Ismail-Roberts and Arslanian. Evaluations completed by the students rated the program positively.

The WMWC hosted visiting international scholars and observers who spent anywhere from a month to a year observing the clinical program and attending the educational and research activities. The WMWC laid the groundwork for community interventions through networking meetings with key professionals, opinion leaders, and community members in at-risk communities. The center developed an education-oriented handbook for referring physicians, which offers guidelines for preventing and treating childhood obesity in primary care.

Additionally, the faculty members of the WMWC taught fellows in the Division of Pediatric Endocrinology, Diabetes, and Metabolism and residents on elective rotations in the center. This included outpatient clinics and inpatient rotations. The faculty taught a course on pediatric advanced physical exam for the second-year medical students.

THREE-YEAR BIBLIOGRAPHY

2015

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