



Vascular Surgery Training Programs



Letter from the Program Director

Dear candidates,

Welcome to the Department of Vascular Surgery at Cleveland Clinic. We look forward to having you interview for a position in one of our training programs.

We established the fellowship program in 1985, and began our integrated residency program in 2009. We strive to make our programs the best available, with the goal of developing vascular surgeons to be leaders in their career paths of choice. Our trainees are involved in the general care of vascular patients as well as the perioperative care of some of our most complex vascular patients. Our trainees develop a high level of skill in both endovascular therapeutic and open vascular surgery. In addition, multiple opportunities exist to become involved in research projects and the presentation of results in national venues.

We are excited about your interest in our program and look forward to introducing you to the opportunities available at Cleveland Clinic. If you have questions, please don't hesitate to contact us at any time.

A handwritten signature in black ink that reads "Matthew Eagleton".

Matthew Eagleton, MD
Program Director, Vascular Surgery

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Letter from the Chairman

Welcome,

The Department of Vascular Surgery at Cleveland Clinic has long been a leader in the field. With one of the first training programs in the country, we have been an innovator in educating trainees in endovascular therapies for vascular disease, adding an additional year of training in the early 1990s. We have also led the way in training experienced surgeons in performing endovascular therapies. Our training program is the largest of its kind in the country, with a traditional 5+2 fellowship paradigm and a direct 0-5 integrated residency program, in addition to more advanced training options.

While we have embraced endovascular and minimally invasive treatments for vascular disease, we remain committed to standard forms of therapy. This includes open surgery for peripheral arterial disease, carotid artery disease and aneurysms, all of which have proven safe and successful over the years. Our trainees benefit from an aggressive approach to using new technologies to treat patients as well as a large volume of standard surgical procedures. Our graduates have learned to approach vascular treatments in highly innovative ways and are highly sought after upon graduation.

Please explore our educational opportunities. We believe you will find this program unlike any other in the country, and we hope you will share in our dedication and enthusiasm as you review these

A handwritten signature in black ink that reads "Dan Clair".

educational opportunities.

Daniel Clair, MD
Chairman, Department of Vascular Surgery
Cleveland Clinic

Cleveland Clinic

Cleveland Clinic is a nonprofit multispecialty academic medical center that integrates clinical and hospital care with research and education. It was founded in February 1921 by four Cleveland physicians who established as a group practice model, with the promise of “better care of the sick, investigation of their problems, and further education of those who serve.”

Today, Cleveland Clinic is ranked one of America’s top 4 hospitals in *U.S. News & World Report’s* annual “America’s Best Hospitals” survey. The survey ranks Cleveland Clinic among the nation’s top 10 hospitals in 14 specialty areas, and the top hospital in three of those areas. These top areas include cardiology and heart surgery, urology and nephrology. For nearly two decades, our cardiology and heart surgery program has been ranked No. 1 in the nation.

Cleveland Clinic is an integrated healthcare delivery system with national and international reach. We are a 167-acre main campus near downtown Cleveland and more than 75 northern Ohio outpatient locations — including 16 family health centers, eight community hospitals, Cleveland Clinic Florida, Cleveland Clinic Lou Ruvo Center for Brain Health in Las Vegas, Cleveland Clinic Canada, Sheikh Khalifa Medical City and Cleveland Clinic Abu Dhabi.

We are one of the largest medical centers in the world with 5.1 million patient visits, nearly 160,000 hospital admissions and more than 200,000 surgical procedures annually, with patients representing all 50 states and 132 countries. Cleveland Clinic is made up of more than 43,000 employee caregivers, including more than 3,000 physicians and scientists, 11,000 nurses and nearly 1,800 residents and fellows in 67 accredited training programs.



Cleveland Clinic Department of Vascular Surgery

The Department of Vascular Surgery was founded at the inception of modern vascular surgery in the mid-1950s. It is a department within Cleveland Clinic's Sydell and Arnold Miller Family Heart & Vascular Institute, which is comprised of Vascular Surgery, Cardiac Surgery, Thoracic Surgery, Cardiology and Vascular Medicine. The Department of Vascular Surgery, led by Chairman Daniel Clair, MD, has earned an international reputation for excellence in patient care, surgical results and clinical research.

Much of our experience is in reoperative surgery for patients whose original operations were performed elsewhere. The department serves as a major referral center for these and other complex cases throughout Ohio and the surrounding states of Michigan, New York, Pennsylvania and West Virginia. The large clinical volume promotes an atmosphere of innovation and dedication to patient care. In addition, it allows for the maintenance of multiple training opportunities and provides the basis for providing cutting-edge operative, clinical and vascular laboratory experience.

Main Campus	2012	2011
Total Visits	10,124	9,571
Cases	3,072	2,729
Vascular Lab	7,328	7,166
Region	2012	2011
Total Visits	14,878	13,208
Cases	4,414	3,871
Vascular lab	14,766	13,590
Combined	2012	2011
Total Visits	25,002	22,779
Cases	7,486	6,600
Vascular Lab	22,004	20,756



FACULTY

The Department of Vascular Surgery is the largest group of vascular surgeons in the country, including the following faculty:

Daniel Clair, MD

Chairman

Office Phone: 216.444.3857

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Location: Cleveland Clinic, main campus

Fellowship: Brigham & Women's Hospital, Boston, Mass.

Residency: Brigham & Women's Hospital, Boston, Mass.



Javier Alvarez-Tostado, MD

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Location: Marymount Hospital

Fellowship: Cleveland Clinic Cleveland, Ohio

Hospital Clinic de Barcelona, Barcelona, Spain

Residency: National Institute of Medical Sciences and Nutrition Mexico City, Mexico



George Anton, MD

Regional Chairman

Office Phone: 440.461.1150

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Location: Hillcrest Hospital

Fellowship: Cleveland Clinic Cleveland, Ohio

Residency: Cleveland Clinic Cleveland, Ohio



Matthew Eagleton, MD

Program Director

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Location: Cleveland Clinic, main campus

Fellowship: Cleveland Clinic Cleveland, Ohio

University of Michigan Medical Center, Ann Arbor, Mich.

Residency: University of Rochester-Strong Memorial Hospital, Rochester, N.Y.



Linda Graham, MD

Office Phone: 216.445.9878

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Location: Cleveland Clinic, main campus

Fellowship: Northwestern Memorial Hospital, Chicago, Ill.

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Roy Greenberg, MD

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Location: Cleveland Clinic, main campus

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University Hospital Malmo, Malmo, Sweden

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Associate Program Director
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Residency: McMaster University Faculty of Health Science, Hamilton, Ontario, Canada



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Medical College of Virginia Hospitals, Richmond, Va.
Residency: Tufts-New England Medical Center, Boston, Mass.



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John Patzakis, DO

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Fellowship: Huron Hospital, Cleveland, Ohio
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Universidad Central del Caribe School of Medicine, Bayaman, Puerto Rico



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Timur Sarac, MD

Vice-Chairman
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Residency: University of Rochester-Strong Memorial Hospital, Rochester, N.Y.



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Training Programs

Cleveland Clinic's Department of Vascular Surgery provides a variety of training opportunities in vascular surgery. These include:

- Fellowship (5+2) in Vascular Surgery
- Integrated Residency (0+5) in Vascular Surgery
- Aortic Fellowship
- Endovascular Fellowship
- Research Fellowship

As a high-volume tertiary hospital, we have the necessary capacity, faculty and clinical volume to support these programs. In addition, we have a dedicated faculty that is highly involved in education and research. While each of these programs is distinct, there is cross-education. Trainees are part of patient-care teams or disease-specific teams and they work cross-functionally with many healthcare providers to learn and provide patient care.

In addition, the Department of Vascular Surgery is dedicated to providing vascular surgery training to our colleagues in General Surgery. This mutual relationship gives Vascular Surgery trainees the opportunity to receive expert training in General Surgery as well.



Fellowship (5+2) in Vascular Surgery

Program Director: Matthew J. Eagleton, MD

Associate Program Director: Sunita D. Srivastava, MD

The Cleveland Clinic Vascular Surgery Fellowship is a program dedicated to providing trainees who have completed a five-year general surgery residency the opportunity to qualify for advanced credentials in vascular and endovascular surgery. As one of the largest vascular surgery programs in the country, this unique training is offered at several healthcare settings. This allows for experience with a diverse faculty and a breadth of vascular patients. Fellows participating in this program are trained in both complex open surgical procedures and innovative endovascular therapies.

In addition to the main campus, training takes place in a variety of facilities, including two Cleveland Clinic community hospitals, Hillcrest and Marymount, as well as the local Veteran's Hospital and a large outpatient dialysis center. This complements the training and assures exposure and experience with many patient populations and care settings.

Assignments at Cleveland Clinic's main campus are with one of several services, with a focus on a specific area of vascular disease. The rotations are typically two-month blocks that move fellows through a variety of services. These services consist of teams of fellows, residents, interns and mid-level providers along with several faculty members. Fellows will typically operate, attend clinics and help manage the service (along with junior residents and mid-level providers) with the faculty on the service to which they are assigned. Daily walking rounds are performed by the team and rounding staff. Goals and objectives are provided for each rotation, and evaluations occur throughout and at the completion of each rotation.

In addition to clinical rotations with Vascular Surgery services, fellows are given research and elective time to pursue clinical and research interests. A Vascular Lab and Medicine rotation, for instance, allows for hands-on learning of vascular lab reading and non-operative patient management. This vascular lab experience can help in fulfilling the Registered Physician in Vascular Interpretation (RVPI) requirements.

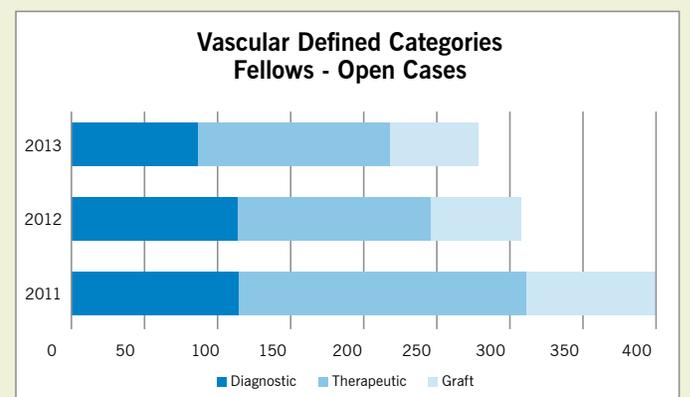
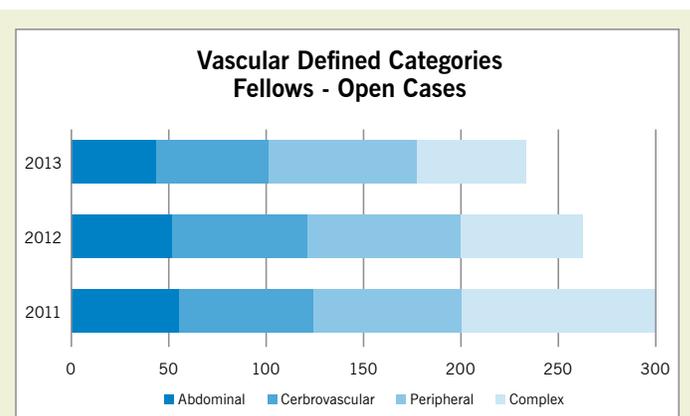
Fellows also have an endovascular rotation, which allows for greater exposure and the acceleration of skills that may not have been fully developed during General Surgery residency. While endovascular and hybrid cases are inherent to every rotation, this time is dedicated to imaging techniques, interpretation of advanced imaging, radiation safety, basic and complex endovascular techniques and devices. This is a separate yet complementary rotation with emphasis on fundamental techniques and more sophisticated applications of minimally invasive technology.

Simulation exercises and wet labs are also an integral part of the training program. These sessions are performed in conjunction with

the institution's simulation center as well as major vendors with simulation packages and programs.

The Vascular Surgery Fellowship is comprised of three fellows per year who work in conjunction with the Vascular Surgery residents. This integration permits opportunities for the fellows to work with, teach and mentor junior Vascular Surgery residents, in addition to General Surgery residents who rotate on the Vascular Surgery services. The large number of trainees assures collegiality, camaraderie and adherence to the work-hour regulations. Weekly conferences, didactic sessions, simulation and wet lab exposure, as well as a monthly Journal Club take place both on and off campus. Each of the two-year training programs permits travel to two national vascular meetings as well as many opportunities for onsite training in all major aortic stent devices and peripheral platforms.

Case volumes as reported below are above the national average for vascular training. Fellows will log cases on a weekly basis on the Accreditation Council for Graduate Medical Education (ACGME) website for compliance and recording. The fellowship provides ample case volume for both endovascular and open cases exceeding the national requirements for many areas.



*Average number of cases per graduating fellow. 2013 based on data through 4/1/2013



Integrated Residency (0+5)

Program Director: Matthew J. Eagleton, MD

Associate Program Director: Rebecca Kelso, MD

Our 0+5 Integrated Vascular Surgery Residency Program started in 2009 and by August 2010 expanded to allow two accredited residents per year. The program is designed to provide graduated, incremental training. The training focuses on vascular surgery, vascular research, general surgery, cardiothoracic surgery and core rotations. Endovascular rotations are scattered throughout the five years to provide dedicated time and enhanced exposure.

The first two years are geared toward developing a foundation in patient care and technical skills. Four months are spent on vascular surgery each year. General surgery rotations included colorectal, transplant, acute care surgery, pediatrics and trauma. Additional core rotations include vascular medicine, stroke, ICU and cardiology. These rotations provide a diverse group of patient care issues as well as exposure to open surgical skills.

The third year is a transition year aimed at further developing surgical skills and decision making. In this year, many rotations in both general and vascular surgery place residents in the position of "Chief of Service." This provides an opportunity to develop leaders as well as teachers of junior residents and students.

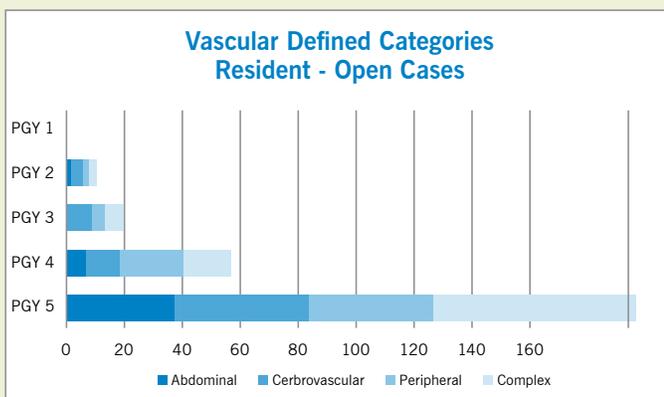
By the fourth year, the focus shifts toward vascular surgery training with residents completing six months in advanced surgery rotations,

including trauma and cardiothoracic surgery. The remaining six months and all of fifth year is dedicated to vascular surgery. In both the fourth and fifth years, residents on vascular services are expected to run their own service separate from fellows. The various vascular surgery rotations have dedicated objectives within vascular surgery, including peripheral occlusive disease, access, cerebrovascular, complex aortic and decision making skills.

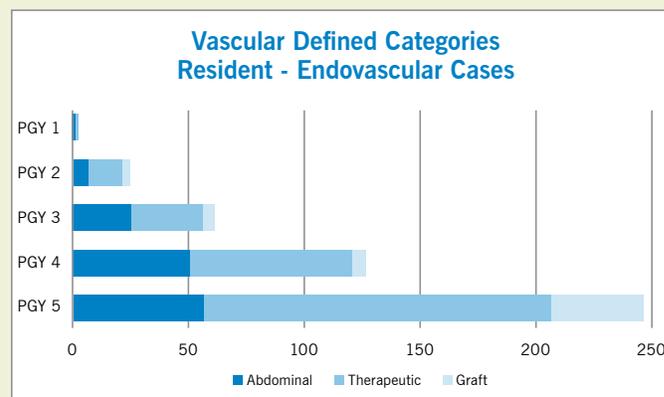
Residents also participate in simulation-based training. This is designed to provide residents with basic surgical techniques and fundamentals unique to vascular surgery. Hands-on models with senior trainees and staff supervision gives residents focused learning outside of the rigors of the operating room.

This curriculum has been developed based on resident feedback from the last five years. Each rotation is carefully chosen and geared toward an optimal educational experience at each level, with a focus on progressive learning, complexity and responsibility.

Our current senior residents have performed approximately 41 percent of the defined vascular cases as open and 56 percent as endovascular. They meet the required number of vascular cases between the fourth and fifth years. On average, they complete more than 200 general surgery cases with 20 percent being laparoscopic.



*Average per resident based on PGY level.



Hospitals

The training experience at Cleveland Clinic is designed to provide a broad range of exposure, including academic, community-based and VA-based practices. To achieve this, residents and fellows will rotate through several hospitals during their tenure in addition to Cleveland Clinic's main campus (where the bulk of time is spent). Training takes place at the following locations:

Cleveland Clinic main campus

Cleveland Clinic main campus was founded as an outpatient clinic in 1921 and today has grown to 46 buildings on 167 acres. It includes a hospital, outpatient clinics, a children's hospital, leading-edge buildings for cancer, eye, heart and vascular, urologic and kidney care and pathology and lab medicine. Our main campus has 1,450 hospital beds, 74 operating rooms, 16 cardiac surgery operating rooms and 75 dedicated cardiovascular ICU beds.

Marymount Hospital

Marymount Hospital was founded in 1949 by the Sisters of St. Joseph of the Third Order of St. Francis. It is a 322-bed acute care hospital serving communities in southeastern Cuyahoga County that blends compassionate care with exceptional medical expertise and advanced technology.

Hillcrest Hospital

Hillcrest Hospital is a 496-bed hospital, which has been nationally recognized 11 times as one of America's Top 100 Hospitals. In addition to vascular surgery services, it provides a Family Maternity Center, Level III Neonatology Unit, Neurologic Institute, and comprehensive cardiac and cancer care.

Fairview Hospital

Fairview Hospital was founded in 1892 and has grown to a 517-bed facility. Fairview Hospital's strong clinical Centers of Excellence include heart, cancer, birthing, surgery and emergency and trauma services.

Louis Stokes Cleveland VA Medical Center

The Louis Stokes Cleveland VA Medical Center serves veterans in Northeast Ohio. It provides comprehensive primary, secondary and tertiary care services to more than 105,000 veterans each year.





Research Experience

Lerner Research Institute

The Lerner Research Institute is home to all laboratory-based, translational, and clinical biomedical research at Cleveland Clinic. With 700,000 square feet of research space, more than 1,300 scientists and support personnel collaborate with clinical researchers to address clinical disease. Many of the members of the Department of Vascular Surgery either have laboratories within the Lerner Research Institute, or directly collaborate with scientists and engineers from one of its 13 departments, which include Biomedical Engineering, Cancer Biology, Cellular and Molecular Medicine, Genomic Medicine, Immunology, Molecular Cardiology, Molecular Genetics, Neurosciences, Ophthalmic Research, Pathobiology, Quantitative Health Sciences, Stem Cell Biology and Regenerative Medicine, and Translational Hematology and Oncology Research.

Research Opportunities during Training

A plethora of research opportunities are available during resident and fellow training periods. In each program, dedicated blocks of research time are scheduled with a structured curriculum addressing basic research concepts such as biostatistics, epidemiology and bioethics. Each trainee is expected to develop and perform a research project during his or her time with Cleveland Clinic. In addition, trainees in the Integrated Program are expected to submit two separate manuscripts for consideration to peer-reviewed journals, and trainees in the Fellowship Program are required to submit one manuscript.

If residents in the Integrated Program have an interest in exploring research in a more in-depth fashion, year-out options for dedicated research are available.

Vascular Lab Experience

The Vascular Laboratory is run concomitantly with Vascular Medicine and Vascular Surgery. Trainees have dedicated time to learn about the performance and interpretation of vascular laboratory studies. Our trainees who successfully meet the qualifications can obtain their RPVI prior to matriculating from our programs.

Mentor Program

Each trainee, upon entrance to one of our programs, is assigned a faculty mentor. This mentor will facilitate the trainee's integration into Cleveland Clinic and assist him or her throughout their time here. Many mentor and trainees develop research collaborations and discuss career goals, job placements and personal issues.

Educational Conferences

Multiple educational conferences occur on a weekly or monthly basis. These help to supplement the clinical training within our programs. These include:

- Chairman's Conference
- Morbidity and Mortality Conference
- Aortic Conference (multidisciplinary, monthly)
- Carotid Conference (multidisciplinary, monthly)
- Didactic Conference
- Career Development Conference (monthly)
- Journal Club (monthly)

Meeting Attendance

Fellows and residents have the opportunity to attend national meetings during their training. Typically, first-year fellows and fourth-year residents attend the Society for Clinical Vascular Surgery and the Venous Course, while second-year fellows and fifth-year residents opt to attend the Annual UCLA Symposium and the VEITH meeting. In addition, the trainee scoring the highest percentile on the ABSITE examination and VSITE examination can attend a meeting of his or her choice. Furthermore, the department supports attendance of meetings where a resident or fellow performs a podium presentation for their research.

Administrative Experience

In both training programs, residents and fellows have the opportunity to participate in administrative roles. An administrative Chief Resident and Chief Fellow are elected by their peers to assist in the day-to-day administration of activities of their program. In addition, a resident and fellow serve as Quality Officers taking responsibility for organizing the Morbidity and Mortality Conference and the program's Quality Improvement Project. Lastly, residents and fellows have the opportunity to hold membership in the department's Education Committee.

Call/Work Hours

Cleveland Clinic's Department of Vascular Surgery and Office of Graduate Medical Education work diligently to ensure that residents and fellows are compliant with specific work-hour restrictions applicable to their level of training.

Graduation

Over the past five years, all of our graduates have successfully passed the Vascular Qualifying Exam on their first attempt. In addition, 86 percent have successfully completed the Vascular Certifying Exam on the first attempt, with all passing by the second. We graduated our first Integrated Resident in 2013.

Given the size of our programs, we attract a number of applicants with varied interests. This is represented in the career paths of our graduates. Nearly half of our graduates pursue careers in traditional academic medical centers, with others entering private practice or fulfilling military obligations. Many have gone on to become successful leaders within their organizations.

Graduate Medical Education

The Graduate Medical Education (GME) Department is committed to ensuring that Cleveland Clinic training programs meet and exceed national and institutional standards. In addition to providing support to the GME Committee, the staff of the GME Department is responsible for providing quality services to all applicants, trainees and program directors.

The Graduate Medical Education Council of Cleveland Clinic functions as an agent of the Education Governing Group. It monitors, advises and develops policies for graduate medical education to ensure maintenance of high quality programs. The council continuously monitors the medical educational environment and assists with program enhancements and challenges as they arise.

Cleveland Clinic Lerner College of Medicine – CWRU

The Cleveland Clinic Lerner College of Medicine of Case Western Reserve University was established in 2002 and represents a partnership between Cleveland Clinic and Case Western Reserve University. It is focused on educating a limited number of highly qualified persons who seek to become physician investigators and scientists committed to the advancement of biomedical research and clinical practice. Medical students from the college participate in surgical rotations with the Department of Vascular Surgery, and interact frequently with trainees in the Vascular Surgery Training Programs.



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City of Cleveland

Cleveland is located in Northeast Ohio on the shores of Lake Erie, one of the Great Lakes. It was founded in 1796 on the mouth of the Cuyahoga River and became a manufacturing center due to its central location. The city proper has a population of approximately 400,000 people, which increases to more than 2 million people when the entire metropolitan area is included.

Cleveland is a friendly Midwestern city that offers a great deal of culture and activity. It is home to Playhouse Square Center, the second largest performing arts center in the U.S., the Cleveland Orchestra, widely considered one of the "Big Five" major orchestras in the country, and the Cleveland Museum of Art, one of the top comprehensive museums in the nation. Cleveland is also home to several professional sports teams, including the Browns, the Indians and the Cavaliers. The downtown area and surrounding communities offer a vibrant nightlife and restaurant scene as well as a variety of family activities.

