

Functional Near-infrared Optical Brain Imaging Market Size & Share Analysis - Growth Trends & Forecasts (2025 - 2030)
Industry: Healthcare (Pharma, Medical Devices, Biotech)
URL: <https://www.mordorintelligence.com/industry-reports/functional-near-infrared-optical-brain-imaging-market>

Functional Near-infrared Optical Brain Imaging Market Size and Share
Study Period | 2019 - 2030 |
Forecast Data Period | 2025 - 2030 |
Historical Data Period | 2019 - 2023 |
CAGR | 5.65% |
Fastest Growing Market | Asia-Pacific |
Largest Market | North America |
Market Concentration | Medium |
Major Players*Disclaimer: Major Players sorted in no particular order

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Functional Near-infrared Optical Brain Imaging Market Analysis by Mordor Intelligence
The Functional Near-infrared Optical Brain Imaging Market is expected to register a CAGR of 5.65% during the forecast period.

The COVID-19 pandemic was an unprecedented health concern and adversely affected communities, industries, businesses, and lives worldwide. The increase in COVID-19 cases and lockdowns imposed by the government worldwide significantly decreased the incidences of traumatic brain injury in some countries. For instance, according to an article published by the Nature Public Health Emergency Collection, in July 2020, the district of Landeck was quarantined in Austria due to the rapidly increasing number of infections. This resulted in the closure of all ski resorts and hotels, a curfew for all residents, and a ban on outdoor sports activities, which decreased the incidences of brain injuries in Austria. Thus, decreasing traumatic brain injury cases decreased the demand for near-infrared spectroscopy, impacting market growth. However, the market has reached its pre-pandemic nature and is expected to grow strongly in the coming years.

Certain factors propelling the market growth include the rising prevalence of neurological disorders, the rising geriatric population, and emerging product trends. The rising number of neurological disorders coupled with the increasing geriatric population who are more prone to develop neurodegenerative diseases such as Parkinson's, Alzheimer's, dementia, epilepsy, and others are the key factors that are expected to fuel growth in the functional near-infrared optical brain imaging market.

According to the World Alzheimer Report 2021, published in September 2021, over 55 million people lived with dementia worldwide in 2021, almost 60% residing in low- and middle-income countries. The same source projected that the number of people living with dementia will reach 78 million by 2030 and 139 million by 2050. The increasing burden of neurological diseases globally is expected to increase the demand for early detection of the diseases along with monitoring and treatment, which is expected to increase the demand for functional near-infrared optical brain imaging, thereby propelling the market growth.

Moreover, the increasing global geriatric population is also expected to play a significant role in the growth of the studied market as they are more susceptible to various neurological disorders and injuries due to old age, coupled with new technological advancements. As per the data from WHO updated in October 2022, around 80% of the older population globally will be living in low and middle-income countries. Hence, the rising geriatric population in such countries is believed to propel the market growth.

However, a need for more skilled professionals is expected to restrain the growth of the functional near-infrared optical brain imaging market over the forecast period.

Global Functional Near-infrared Optical Brain Imaging Market Trends and Insights Traumatic Brain Injury Segment Expects to Register a Strong Growth in the Forecast PeriodThe traumatic brain injury segment is expected to witness significant growth in the market over the forecast period owing to factors such as rising incidences of traumatic brain injury and the adoption of near-infrared optical brain imaging for examining the brain. For instance, according to an article from the BMJ Journals published in April 2022, India accounted for nearly a quarter of all trauma-related deaths and 21% of new traumatic brain injury cases worldwide.

Additionally, according to an article from the Journal of Neurotrauma published in November 2021, about 64,362 traumatic brain injury-related deaths were reported in the United States. Similarly, according to an article by the JAMA Neurology published in September 2021, approximately 12%-20% of patients with mild traumatic brain injury had macrostructural intracranial injury visible on computed tomography (CT). Thus, the increasing burden of brain injuries due to various factors is expected to increase the demand for optical brain imaging to examine the injury and damage, thereby boosting the market growth.

Furthermore, in August 2021, a team of researchers from Brown University took a key step toward a new concept for a future BCI system that employs a coordinated network of independent, wireless microscale neural sensors, each about the size of a grain of salt, to record and stimulate brain activity. The sensors, dubbed neurograins, independently record the electrical pulses of firing neurons and send the signals wirelessly to a central hub, which coordinates and processes the signals. This innovation helps record the brain signals in detail, leading to new insights into how the brain works and new therapies for people with brain or spinal injuries, thus driving the market significantly over the forecast period.

Thus, the increasing burden of traumatic brain injury among the population and emerging product trends are expected to augment the segment growth, further boosting the market growth.

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North America is Expected to Hold a Significant Share in the Market During the Forecast PeriodNorth America is expected to hold a major market share in the functional near-infrared optical brain imaging market over the forecast period owing to factors such as the increasing geriatric population and associated neurological disorders and other brain injuries, rise in funding for various research regarding neurological diseases, are expected to propel the market in this region.

The rising burden of neurological disorders among the population and the increasing geriatric population who are more likely to develop neurodegenerative diseases are the key factors driving the market growth. For instance, as per the Alzheimer's Association 2021 Alzheimer's Disease Facts and Figures, an estimated 6.2 million Americans aged 65 and older were living with Alzheimer's dementia in 2021 in the United States. As per the same source, the number of people aged 65 and older with Alzheimer's dementia is projected to increase to 12.7 million by 2050. Similarly, according to the 2022 statistics published by CerebralPalsy.org, it was observed that about two to three children out of every 1,000 had Cerebral Palsy in the United States. Thus, the increasing neurological disorders in the population are expected to increase the demand for near-infrared spectroscopy to monitor tissue oxygenation and blood flow in the brain, thereby boosting market

growth.

Moreover, the increasing investment by the private players is also boosting the growth of the market. For Instance, in June 2021, Synchron, a brain interface platform company, received funding of USD 40 million in a Series B round of financing led by Silicon Valley venture capital firm Khosla Ventures for the launch of the United States Clinical Trials of Minimally Invasive Brain Computer Interface. Additionally, in July 2021, the company received approval from the United States Food and Drug Administration for the conduct of clinical trials in humans in the United States.

Thus, the rising prevalence of neurological disorders, increasing healthcare funding, and rising investment by the players are likely to boost the market growth in the region over the forecast period.

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Competitive LandscapeThe market for functional near-infrared optical brain imaging is moderately competitive and consists of several major players. Strategic initiatives taken by the companies are expected to impact the market positively. Some of the companies currently dominating the market are Shimadzu Corporation, Spectratech Inc., Artinis Medical Systems, Soterix Medical Inc., Biopac Systems Inc., Gowerlabs Ltd., and NIRx Medical Technologies LLC, and Cephalon.

Functional Near-infrared Optical Brain Imaging Industry Leaders* Artinis Medical Systems

* Soterix Medical Inc.

* NIRx Medical Technologies

* Shimadzu Corporation

* Biopac Systems Inc.

* *Disclaimer: Major Players sorted in no particular order

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Recent Industry Developments* March 2022: Kernel, a neurotechnology company, developed a wearable headset device, Kernel Flow, for brain measurement which was based on time-domain functional near-infrared spectroscopy (TD-fNIRS), which enables accurate, high-resolution measurement of the brain and its functions by emitting picosecond pulses of light into tissue and measuring the arrival times of single photons. The device weighs 2.05 kg and contains 52 modules arranged in four plates that fit on either side of the head.

* March 2022: MYndspan launched an imaging service that used brain connectivity to measure and assess brain health at Aston University's Institute of Health and Neurodevelopment. The brain imaging service measured the electrical signals between neurons to form a highly detailed brain activity and function map.

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* *List Not Exhaustive

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****Subject to Availability**Competitive Landscape covers- Business Overview, Financials, Products and Strategies, and Recent Developments**

Global Functional Near-infrared Optical Brain Imaging Market Report ScopeAs per the report's scope, functional near-infrared spectroscopy (fNIRS) is a transportable, non-invasive brain imaging technique that uses optical sensors attached to the scalp's surface to monitor changes in cerebral blood flow using low amounts of non-ionizing light. The Functional Near-infrared Optical Brain Imaging Market is segmented by Application Type (Parkinson's Disease, Epilepsy, Dementia, Traumatic Brain Injury, Sleep Disorders, and Other Application Types), End User (Hospitals and Diagnostic Centers), and Geography (North America, Europe, Asia-Pacific, Middle-East and Africa, and South America). The market report also covers the estimated market sizes and trends for 17 countries across major regions globally. The report offers the value (in USD) for the above segments.

By Application Type
 Parkinson's Disease |
 Epilepsy |
 Dementia |
 Traumatic Brain Injury |
 Sleep Disorders |
 Other Application Types |
 By End-User
 Hospitals |
 Diagnostic Centers |
 Geography
 North America | United States |
 | Canada |
 | Mexico |
 Europe | Germany |
 | United Kingdom |
 | France |
 | Italy |
 | Spain |
 | Rest of Europe |
 Asia-Pacific | China |
 | Japan |
 | India |
 | Australia |
 | South Korea |
 | Rest of Asia-Pacific |
 Middle-East and Africa | GCC |
 | South Africa |
 | Rest of Middle-East and Africa |
 South America | Brazil |
 | Argentina |
 | Rest of South America |
 By Application Type | Parkinson's Disease |
 | Epilepsy |
 | Dementia |
 | Traumatic Brain Injury |
 | Sleep Disorders |

| Other Application Types |
By End-User | Hospitals |
| Diagnostic Centers |
|
Geography | North America | United States |
| | Canada |
| | Mexico |
| |
Europe	Germany
	United Kingdom
	France
	Italy
	Spain
	Rest of Europe
Asia-Pacific	China
	Japan
	India
	Australia
	South Korea
	Rest of Asia-Pacific
Middle-East and Africa	GCC
	South Africa
	Rest of Middle-East and Africa
South America	Brazil
	Argentina
	Rest of South America

Key Questions Answered in the ReportWhat is the current Global Functional Near-infrared Optical Brain Imaging Market size? The Global Functional Near-infrared Optical Brain Imaging Market is projected to register a CAGR of 5.65% during the forecast period (2025-2030)

Who are the key players in Global Functional Near-infrared Optical Brain Imaging Market? Artinis Medical Systems, Soterix Medical Inc., NIRx Medical Technologies, Shimadzu Corporation and Biopac Systems Inc. are the major companies operating in the Global Functional Near-infrared Optical Brain Imaging Market.

Which is the fastest growing region in Global Functional Near-infrared Optical Brain Imaging Market? Asia-Pacific is estimated to grow at the highest CAGR over the forecast period (2025-2030).

Which region has the biggest share in Global Functional Near-infrared Optical Brain Imaging Market? In 2025, the North America accounts for the largest market share in Global Functional Near-infrared Optical Brain Imaging Market.

What years does this Global Functional Near-infrared Optical Brain Imaging Market cover? The report covers the Global Functional Near-infrared Optical Brain Imaging Market historical market size for years: 2019, 2020, 2021, 2022, 2023 and 2024. The report also forecasts the Global Functional Near-infrared Optical Brain Imaging Market size for years: 2025, 2026, 2027, 2028, 2029 and 2030.

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Market GrowthWireless Brain Sensors Market Size

Functional Near-infrared Optical Brain Imaging Market ReportStatistics for the 2025 Functional Near-infrared Optical Brain Imaging market share, size and revenue growth rate, created by Mordor Intelligence™ Industry Reports. Functional Near-infrared Optical Brain Imaging analysis includes a market forecast outlook for 2025 to 2030 and historical overview. Get a sample of this industry analysis as a free report PDF download.

Functional Near-infrared Optical Brain Imaging Report Snapshots* Functional Near-infrared Optical Brain Imaging Companies