



Special Olympics World Summer Games 2003

Healthy Athletes[®] Screening Data

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HEALTHY ATHLETES® SCREENING DATA

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EXECUTIVE SUMMARY

This monograph presents the Special Olympics Healthy Athletes® screening findings from the Special Olympics World Summer Games held in Dublin, Ireland, July 21-29, 2003. Nearly 11,000 individual health screenings were conducted across six disciplines. These findings demonstrate the need to improve health care and health care policies for people with intellectual disabilities.

People with intellectual disabilities frequently are at greater risk for medical complications compared to the general population. These complications are often exacerbated by secondary factors including restricted access to medical care and poor health care plans (Chicoine, Fujiura, Fitzsimons, Marks, 1997). Access to appropriate health care for this population is often inadequate and generally of less quality than for the overall population (Kerr, et al., 2003).

Health screening findings consistently pointing to the poor health status and inadequate health care of Special Olympics athletes prompted Special Olympics to take a leadership role in assessing the health status of all individuals with intellectual disabilities while also helping health professionals to understand these needs and deliver needed services.

Lack of care accessibility and awareness contribute to extreme disparities in the health of persons with intellectual disabilities. This report focuses on the current status of Special Olympics athletes' health and the continuing need for better health care. Through this monograph we hope to improve public awareness, education and health professionals' practice and treatment for those with intellectual disabilities.

Methods

Study participants consisted of a convenience sample of Special Olympics athletes participating at the 2003 World Summer Games in Dublin, Ireland, who voluntarily participated in the Healthy Athletes screenings. A total of 10,854 screenings were completed for 3,531 different athletes, averaging approximately three screenings per athlete.

All of the health professionals and volunteers who met the Healthy Athletes program standards (see appendix A) were trained in the specific practices and protocols of the Healthy Athletes program.

Opening Eyes®

The total number of athletes screened at the Opening Eyes venue was 2,344 with a mean age of 23. The exam began with a self history report on past eye care, vision problems and treatments, as well as any current ocular symptoms the athlete was experiencing. The self report was followed by a comprehensive vision screening which included an evaluation of the health of the eyes, both internally and externally. Athletes who were identified as needing corrective lenses were seen for refractive assessments by practitioners and given new prescription glasses.

- Thirty percent (30%) of all athletes reported never having received an eye exam, while more males than females reported never having received an eye exam.
- Across all categories, headaches and sensitivity to light were the two most frequently reported symptoms experienced by athletes. Thirteen percent (13%) of all athletes reported experiencing double vision, 8% of athletes reported experiencing double vision either while viewing distant or near objects. Eight percent (8%) reported having a history of eye infection.
- Overall, 41% of athletes reported having difficulty seeing, but only 26% reported wearing corrective lenses prior to the screening. Of the athletes screened, 30% did not pass the distance vision screening and 18% did not pass the near vision screening. More females than males did not pass the screening.

EXECUTIVE SUMMARY

- New glasses were required by 32% of all athletes screened; this includes both athletes who needed glasses for the first time and athletes who needed new prescriptions, or needed replacements for broken glasses. Overall, 43% of U.S. athletes needed new glasses.
- Belpharitis was the most frequent external eye health problem. Cataracts and pterigiums were the next two leading eye health problems.

Health Promotion

The total number of athletes seen at the Health Promotion venue was 1,000, with a mean age of 24. This screening consisted of a self report survey on the nutritional, health and exercise habits of Special Olympics athletes. Athletes also were offered a bone density screening to determine risk of osteoporosis.

- Tobacco use was reported as higher in males than in females. More athletes from the Europe/Eurasia countries reported using tobacco products than did athletes from the United States, and use of tobacco products increased across age groups.
- Twenty-one percent (21%) of U.S. athletes reported walking 10 minutes or less a day compared to 10% of Europe/Eurasia athletes; however, 33% of U.S. athletes reported walking 30 minutes a day compared to only 21% of Europe/Eurasia athletes. Also, older athletes, on average, spent more time walking on a daily basis than did younger athletes.
- More female athletes than male athletes reported awareness regarding sun protection needs and took action to protect themselves from the sun by wearing sunscreen, hats or sunglasses, and by seeking shade. Older athletes also reported a higher awareness of sun protection needs and practiced good protection methods compared to younger athletes.
- Older athletes reported eating more fruits and vegetables on a daily basis than did younger athletes. Water, fruit juice and soft drink intake increased across age groups, with the older athletes reporting drinking more water, fruit juice and soft drinks than did younger athletes.

Fit Feet

The total number of athletes seen at the podiatry venue (formally a part of Health Promotion in 2003) was 1,000, with a mean age of 24. This podiatric screening evaluates the condition of the feet, including the skin, nails and gait, and assesses foot and ankle health as well as pain or other conditions that may impair performance. Because athletes are not always fitted with the best shoes and socks for their particular sport, they are checked for and educated on foot care, including the use of proper shoes and socks. Recommendations for follow-up care are made if needed.

- Ingrown toenails were the most common skin and nail condition seen, followed by corns and calluses. Athlete's feet or tinea is higher in U.S. athletes. Interestingly, Europe/Eurasia had much higher findings of ingrown toenails and corns/calluses. Research on non-Special Olympics athletes has shown the opposite, i.e., that the U.S. population has a greater problem with ingrown toenails, corns and calluses due to shoe styles. Overall, high incidence of tinea across the board shows foot hygiene is important and often neglected in this population.
- Twenty-two percent (22%) of athletes had only one type of skin and nail condition, while 10% had three or more conditions, nearly half of all athletes had one or more conditions. Prevalence of fungus increased across age groups. Other than ingrown toenails, all other skin conditions were found mostly in the older athletes, a condition that may be related to living in group homes.

EXECUTIVE SUMMARY**Healthy Hearing**

The total number of athletes screened at the Healthy Hearing venue was 2,185, with a mean age of 23. Screening at this venue begins with screening of the athlete's ear canal; trained health professionals look in the ear canal for any blockages, obstructions or infections. Athletes then move on to the second part of the screening, the otoacoustic emissions test, where hearing ability is tested at 2,000, 3,000, 4,000 and 5000 Hz. If athletes do not pass the otoacoustic test, they then move on to the tympanometry and pure tone screenings to further test possible hearing loss and its possible cause.

- Fifty-two percent (52%) of all athletes screened had full or partial blockage of one or both ears. The percentage of unobstructed canals decreased across the age groups. More females than males needed follow-up care and 21% of all athletes were recommended for follow-up cerumen removal.
- Forty-eight percent (48%) of all athletes did not pass the otoacoustic emissions test. A higher percentage of U.S. athletes did not pass than athletes from Europe/Eurasia.
- Twenty-one percent (21%) of athletes needed a post-audiological hearing exam.

FUNfitness

The FUNfitness venue screened 1,466 athletes. The mean age of the athletes seen at the venue was 24. During this screening athletes filled out a survey regarding their daily exercise and stretching routines. Athletes were then screened for muscle flexibility, functional strength and balance.

- Most athletes reported some type of stretching routine.
- Eighty-six percent (86%) reported exercising routinely; 59% of these athletes reported more than three days per week of exercise.
- Sixty-three percent (63%) reported performing a warm-up every time before exercising.
- Overall, 23% of athletes were referred for additional care. This number was higher for Europe/Eurasia than for the United States (29% vs. 18%). The primary reason for education and referral were tightness of the hamstrings, single-leg balance deficits and abdominal weakness.

Special Smiles®

Special Smiles screened 2,859 athletes with a mean age of 23. Dental health professionals look in the mouths of the athletes for missing and filled teeth, signs of periodontal disease and other dental-related infections. Mouth guards are made for athletes requiring them for their sport.

- Overall, 87% of athletes reported cleaning their mouth one or more times per day.
- Thirty-six percent (36%) of all athletes had untreated decay, mostly of the molars. Athletes from Europe/Eurasia had higher percentages of untreated decay compared to U.S. athletes.
- Fifty-three percent (53%) of all athletes had obvious signs of gingival infection.
- Thirty-four percent (34%) of all athletes had missing teeth, mostly molars. Prevalence of missing teeth increased across age groups.
- Twelve percent (12%) of all athletes reported pain in the mouth at the time of the exam.

EXECUTIVE SUMMARY

- Sixteen percent (16%) of athletes needed urgent follow-up care. Forty-two percent (42%) of athletes screened needed only maintenance follow-up care, while 34% needed non-urgent follow-up care. Non-urgent follow-up care increased over age groups.

These data show that across health disciplines, cultures, gender and age groups, persons with intellectual disabilities are not receiving the health care they need even though they are prone to the same health problems as the general population. These health findings are alarming and have demonstrated gaps in health care systems for this population that need to be addressed.

INTRODUCTION

This monograph presents the Special Olympics Healthy Athletes® screening findings from the Special Olympics World Summer Games held in Dublin, Ireland, July 21-29, 2003. Nearly 11,000 individual health screenings were conducted across six disciplines. These findings, along with previous research, demonstrate the need for improved health care and policies for people with intellectual disabilities.

The mission of Special Olympics is to provide year-round sports training and athletic competition in a variety of Olympic-type sports for children and adults with intellectual disabilities, giving them continuing opportunities to develop physical fitness, demonstrate courage, experience joy and participate in a sharing of gifts, skills and friendship with their families, other Special Olympics athletes and the community.

At the World Summer Games in Minneapolis in 1991, Special Olympics held its first vision screening through the Sports Vision Section of the American Optometric Association. Then, in 1993, Boston University performed the first dental screening at the Massachusetts State Summer Games. Seven hundred and fifty athletes were screened over the course of one and a half days. These screenings highlighted the significant vision impairments and dental problems of Special Olympics athletes and the shortfalls and disparity in vision and dental care for persons with intellectual disabilities. Shortly thereafter, Special Olympics launched the Healthy Athletes® program to address the specific unmet health care needs of athletes.

The goal of Special Olympics Healthy Athletes is to improve every athlete's ability to train and compete in Special Olympics events and competitions by increasing the quality and availability of health care through clinical screenings. By collecting and analyzing data on the health status and needs of those with intellectual disabilities and educating health care professionals on those needs, Special Olympics has become an effective advocate for improved health care policies and programs for this population.

Special Smiles®, which provides oral health screenings, and Opening Eyes®, which provides vision screenings, were the two initial Special Olympics Healthy Athletes screening programs. Over the last seven years, the Healthy Athletes program has grown exponentially and today, over 400 health screening events are held annually worldwide in seven health areas: vision; dental; audiology; physical therapy; health promotion; podiatry; and a general medical assessment.

Health screening findings, as well as encounters with parents and caregivers, consistently point to poor health status and inadequate health care of Special Olympics athletes, prompting Special Olympics to take a leadership role in assessing the health status of individuals with intellectual disabilities, as well as helping health professionals to understand these needs and deliver needed services. While Special Olympics is not a health care organization, it recognizes that individuals cannot safely and effectively participate and compete to the best of their abilities in sports training and competition if they are constantly challenged by health problems.

Making the Case

Approximately 54 million people in the United States—about 20% of the population—currently live with some type of disability, and this number is on the rise (US DHHS, Healthy People 2010, Vol 1, 2nd ed., 2000, Ch. 6, pg. 8). More than 6 million people in the United States and nearly 200 million people in the world have some form of intellectual disability (Special Olympics, Inc., 2001).

Intellectual disability is more prevalent than deafness or blindness and, in most cases, is accompanied by secondary health conditions (Special Olympics, Inc., 2001). Chronic and debilitating conditions often accompany intellectual disabilities and those with intellectual disabilities frequently are at greater risk for medical complications than the general population. These complications are often exacerbated by outside conditions and factors, including restricted access to medical care and poor health insurance (Chicoine, Fujiura, Fitzsimons, Marks, 1997). Access to appropriate health care for this population is often inadequate and generally of less quality than for the overall population (Kerr, et al., 2003).

INTRODUCTION

In 2003, Special Olympics released its Multinational Study of Attitudes toward Individuals with Intellectual Disabilities (Siperstein, Norins, Corbin and Shriver, 2003). Data were presented demonstrating that various cultures and countries recognize that persons with intellectual disabilities may not receive the support services necessary to successfully participate in society; however, these same cultures do not generally perceive persons with intellectual disabilities as lacking proper health care. Attitudes and misperceptions are major barriers to health care for persons with intellectual disabilities. Former U.S. Surgeon General David Satcher, in his 2002 report, *Closing the Gap: A National Blueprint for Improving the Health of Individuals with Mental Retardation* (U.S. P.H.S., 2002) identified the lack of willing and trained health providers as one of the major obstacles allowing these disparities to occur.

According to a number of studies reviewed by Horwitz, Kerker, Owens, & Zigler, (2001), in *The Health Status and Needs of Individuals with Mental Retardation*, health care providers feel ill-trained and minimally motivated to treat persons with intellectual disabilities, even for routine checkups or common medical conditions found within the general population. This reluctance may be due to the fact that most health professionals receive little didactic training and little exposure to persons with intellectual disabilities and their health needs. On average, about 63% of third- and fourth-year dental students reported that they never treated individuals with intellectual disabilities, and 82% reported receiving less than five hours of lecture time devoted to individuals with intellectual disabilities (Wolff, Waldman, Milano & Perlman, 2004). In a current study by the American Academy of Developmental Medicine and Dentistry, only 12% of medical students reported receiving clinical training regarding individuals with developmental disabilities and only 28% felt confident to treat patients with developmental disabilities. In this same study, medical school Deans were also surveyed and 55% and 53% responded that they did not feel intellectual disability was a didactic or clinical priority, respectively, for their students. Fifty-three percent (53%) of these Deans did not feel their students were competent to treat people with intellectual disabilities upon graduation (Holder, 2004, AADMD study for Special Olympics). As a result, medical students feel unprepared to treat this population and may develop negative attitudes and misconceptions toward individuals with intellectual disabilities and consequently fail to provide the care they require (Wolraich, Siperstein, & Reed, 1992).

Dwyer (2000) investigated dental care for persons with intellectual disabilities over the course of one year. He surveyed 18,333 caregivers of persons with intellectual disabilities, (774 of those were community-based residential service providers in seven states), and found that 47% indicated their clients had been refused dental treatment. Sixty-one percent (61%) responded that it was somewhat or very difficult to locate a dentist willing to treat their clients with developmental disabilities. Approximately 72% replied they did not feel there were enough dentists in the community willing and able to treat people with intellectual disabilities. Thirty-eight percent (38%) of those surveyed reported that the dentist did not accept Medical Assistance, 20% reported that Medical Assistance did not pay enough and 11% noted that the dental office was not properly equipped or physically accessible. In a separate study by Hanson, Neuman and Voris (2003) of independent residents, 17% stated that they could not find a doctor who accepted their health insurance; this number increased to 23% for patients covered by Medicaid. This same study also found 46% of patients with intellectual disabilities went without necessary items such as medical equipment and eyeglasses, as well as prescription medication and doctor's visits due to cost. One-in-four persons with intellectual disabilities reported having trouble finding a doctor who understands their disability and only 30-40% see specialists, while 92% have needs requiring specialist care (Hanson, Neuman & Voris, 2003).

Most individuals with intellectual disabilities do not obtain regular or annual health care examinations (Horwitz et al., 2001). Approximately 30% of athletes screened at the 1996 New Jersey Special Olympics Games reported not having seen a dentist in more than a year (Feldman, et al., 1997), and 26.6% reported never having an eye exam (Junyent, Reves, Forto, 2003). Evenhuis and colleagues (2003, para. 6), state that many persons with intellectual disabilities rarely report if and when they have changes or problems with their hearing and may go undiagnosed for long periods of time. This lack of preventive care, in conjunction with the low self-report percentages, leads to an alarming number of health problems for this population across all health disciplines.

INTRODUCTION

Across several studies of Special Olympics athletes, roughly 26% of participants failed hearing tests, compared to only 5% in the general population (Voelker, 2002 and Montgomery, Herer, & Willems, 2001). An investigation by Crandell and Roeser (1993) reveals a higher prevalence rate compared to the general population of excessive cerumen and impacted cerumen with associated conductive hearing loss in adults with intellectual disabilities. Forty-two percent (42%) of children with Down syndrome failed tympanometry testing in at least one ear as noted in a study by Driscoll, Kei, Bates, and McPherson (2003).

Athletes screened at hundreds of Special Olympics events demonstrated a high incidence of oral health-related problems, such as having pain at the time of examination, having untreated decay and periodontal (gum) disease. The prevalence rate of periodontal problems among Special Olympics athletes is about 45%, and with new research linking periodontal problems to cardiovascular diseases, this becomes highly significant (Geerts et al., 2002 and Beck et al., 1998). The ratio of missing teeth to filled teeth is also substantially higher in persons with intellectual disabilities, suggesting that extraction is the primary choice of treatment rather than restorative dentistry (Reid, Chenette & Macek, 2003).

Similar problems are apparent with respect to vision care. In a study by Woodhouse, Adler and Duignan (2003), more than half of the Special Olympics athletes screened at a Special Olympics-Lions Clubs International Opening Eyes event in the United Kingdom failed some part of the visual screening. Visual acuity was reported as substantially poorer for athletes already wearing glasses compared to those who were not. In a follow-up study, 19% of athletes had significant refractive errors, while 32% had ocular anomalies and 6% were visually impaired (Woodhouse, Adler, Duignan, 2004). Another study by Junyent, Reves and Forto (2003), found that 76.8% of those with glasses had the wrong prescription. Finally, 60% of an intellectually disabled institutionalized sample group had ophthalmologic abnormalities and 22% had eyelid abnormalities (Mwana, et al., 2000).

According to Healthy People 2010 (DHHS, 2000), the prevalence of overweight individuals in the United States is on the rise, with approximately 23% of adults being classified as obese. In a 1998 study by Rubin et al., 33% of males and 36% of females in the general population were considered overweight, compared to 49% of males and 63% of females with intellectual disabilities. These numbers increase to 71% of males and 96% of females with Down syndrome. Obesity rates were also significantly higher for persons with moderate to mildly severe degrees of intellectual disability than for persons with severe intellectual disabilities (Petetti, Rimmer, Fernhall, 1993).

Osteoporosis is a major health risk for individuals with intellectual disabilities and those with secondary mobility disorders are at an increased risk for osteoporosis compared to the general population (Wagemans, Fiolet, Van der Linden, Menheere, 1998). In a cross-sectional study by Tyler, Snyder and Zyanski (2000), of both men and women ages 40-60, 21% were found to have osteoporosis and 34% had osteopenia. In 2004 Dr. Sarina Schrage found that women with intellectual disabilities have much lower bone density than other women, putting them at higher risk for fractures. She found that many of the women she studied were non-ambulatory and were on anticonvulsant medications, possibly contributing to their low bone density measures. Finally, in a study by Millberger, LeRoy, Lachance and Edelson (2002), individuals with Down syndrome were found to be at higher risk for osteoporosis and its related health risks.

Poor nutrition and a lack of physical activity may also be contributing factors to these high prevalence rates for obesity and osteoporosis. In the 1997 study done by Chicoine, Fujiura, Fitzsimons, and Marks, only 38.5% of males and 27.8% of females between the ages of 16 and 29 participated in moderate physical activity or exercise more than once per week. In a second study by Draheim, Williams and McCubbin (2002), 51% of those sampled reported having little to no physical activity as part of their daily routines. Of the 49% who did incorporate exercise into their daily routine, more than half of both men and women reported walking as their sole type of physical activity. In the U.S. Department of Health and Human Services Healthy People 2010: Disability and Secondary Conditions (2000) report, the most important goals for Americans with disabilities were the improvement of nutrition status, the improvement of physical activity and fitness, increasing the number of individuals with intellectual disabilities who participate in social activities, and increasing the proportion and availability of health programs.

INTRODUCTION

Lack of health care accessibility and awareness contribute to extreme health disparities for persons with intellectual disabilities. This report focuses on the current status of Special Olympics athletes' health and the continuing need for better health care for this population. Through this monograph we hope to improve public awareness, education and health professionals' practices and treatments for those with intellectual disabilities.

Methods

Study participants consisted of a convenience sample of Special Olympics athletes participating at the 2003 World Summer Games in Dublin, Ireland. World Games athletes are selected based on skill levels, competition performance and, at the last stage of selections, random draw due to limits on the number of participating athletes. Data were collected from all athletes who voluntarily participated in the Healthy Athletes screenings. Each athlete signed a consent waiver giving permission to use the aggregate data for program planning and evaluation purposes. The consent waiver was signed by a parent or guardian for all athletes under 18 years of age and some athletes over 18 years of age. A total of 10,854 screenings were completed for 3,531 different athletes, averaging approximately three screenings per athlete.

Each Healthy Athletes discipline has a separate area for conducting screenings to assure order and a level of privacy for the athletes. Athletes are registered and accompanied through each station of the screenings by a volunteer and given a health report card at the end. This card describes the results of the screening and any recommendations made by the health professionals. A list of equipment recommended for each of the non-invasive screenings is provided in appendix B.

All health care professionals who participated in the screenings were certified in their respective countries as verified by a background check conducted before the screenings by the Special Olympics Games Organizing Committee in Dublin. All the health professionals and volunteers who met the Healthy Athletes program standards (see appendix A) were trained in the specific practices and protocols of the Healthy Athletes program. As athletes completed the health screening process, data were recorded onto a standardized Healthy Athletes program screening form created specifically for each discipline. Several of the screening venues utilized Personal Digital Assistants (PDAs) and wireless data transmission technology with electronic versions of the forms. The data were entered directly in the Healthy Athletes Software (HAS) system, developed by Betterhealth Global Limited specifically for Special Olympics. This software program then encodes each participant's name and attaches a unique identification number for information protection purposes. Hardcopy forms were more commonly used and manually entered into the HAS system later. The electronic and hardcopy paper forms were identical.

ATHLETES BY DELEGATION

Delegation **Number of Athletes Screened**

Afghanistan	5
Albania	6
Algeria	40
Andorra	10
Argentina	29
Armenia	4
Aruba	5
Australia	32
Austria	53
Azerbaijan	30
Bahamas	33
Bahrain	12
Bangladesh	12
Barbados	23
Belarus	26
Belgium	54
Benin	9
Bharat	72
Bolivia	12
Bonaire	11
Bosnia & Herzegovina	0
Botswana	15
Brazil	26
Bulgaria	6
Burkina Faso	4
Cameroon	0
Canada	15
Cayman Islands	9
Chad	3
Chile	33
China	30
Chinese Taipei	26
Costa Rica	32
Cote D'Ivoire	0
Croatia	11
Cuba	27
Curacao	14
Cyprus	3
Czech Republic	32
Democratic Republic of Congo	0

Delegation **Number of Athletes Screened**

Denmark	27
Dominican Republic	10
Ecuador	22
Egypt	22
El Salvador	31
Estonia	6
Faroe Islands	8
Finland	27
France	43
Gabon	0
Gambia	4
Georgia	25
Germany	70
Ghana	8
Gibraltar	0
Great Britain	56
Greece	28
Guatemala	24
Guyana	0
Honduras	20
Hong Kong	22
Hungary	47
Iceland	34
Indonesia	4
Iran	14
Iraq	6
Ireland	184
Isle of Man	15
Israel	23
Italy	34
Jamaica	45
Japan	38
Jordan	19
Kazakhstan	35
Kenya	14
Korea	16
Kosovo	4
Kuwait	1
Kyrgyzstan	4
Latvia	12

ATHLETES BY DELEGATION

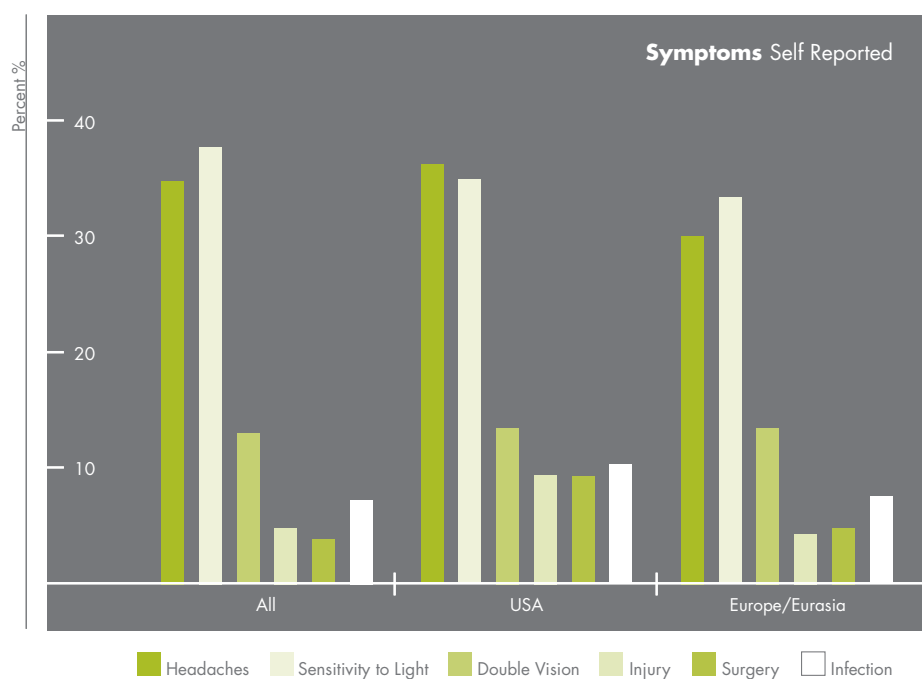
Delegation	Number of Athletes Screened	Delegation	Number of Athletes Screened
Lebanon	3	Saudi Arabia	10
Lesotho	15	Serbia & Montenegro	10
Libya	7	Seychelles	36
Liechtenstein	0	Sierra Leone	4
Lithuania	16	Singapore	38
Luxembourg	9	Slovakia	28
Macau	27	Slovenia	20
Macedonia	4	South Africa	40
Malawi	8	Spain	59
Malaysia	14	St Kitts and Nevis	24
Malta	19	St Vin & Grenadines	18
Martinique	20	Sudan	1
Mauritania	7	Suriname	12
Mauritius	9	Swaziland	4
Mexico	51	Sweden	3
Moldova	3	Switzerland	6
Monaco	7	Syria	9
Morocco	31	Tajikistan	4
Namibia	7	Tanzania	16
Nepal	5	Thailand	20
Netherlands	41	Togo	8
New Zealand	31	Trinidad & Tobago	47
Nigeria	7	Tunisia	5
Norway	18	Turkey	42
Oman	0	Turkmenistan	10
Pakistan	52	Uganda	10
Palestine	8	Ukraine	29
Panama	45	United Arab Emirates	3
Paraguay	16	United States of America	334
Peru	28	Uruguay	18
Philippines	10	Uzbekistan	5
Poland	71	Venezuela	106
Portugal	12	Virgin Islands	10
Puerto Rico	39	Yemen	0
Qatar	12	Zimbabwe	35
Reunion	8		
Romania	8		
Russia	57		
Rwanda	4		
San Marino	12		
		Total Number of Athletes	3531

RESULTS-OPENING EYES

Special Olympics-Lions Clubs International Opening Eyes®

Special Olympics Lions Clubs International Opening Eyes® is a comprehensive vision screening with refractions when needed, sponsored by Lions Clubs International. The program evaluates the vision of Special Olympics athletes to detect the presence of refractive errors, as well as vision deficits and other abnormalities in the eye. The program provides prescription glasses for athletes who are in need of them but do not have any, those with incorrect prescriptions, and those whose glasses are in poor condition. In addition, protective eyewear is provided for athletes who are involved in contact sports. Athletes who do not need corrective eyewear are offered sunglasses with ultraviolet protective lenses. The frames, lenses and optical services are realized through in-kind donations of corporate sponsors. Referrals for follow-up care are made where appropriate. Finally, Opening Eyes educates athletes, parents and coaches about the importance of regular eye care and the need for vision protection in certain sports.

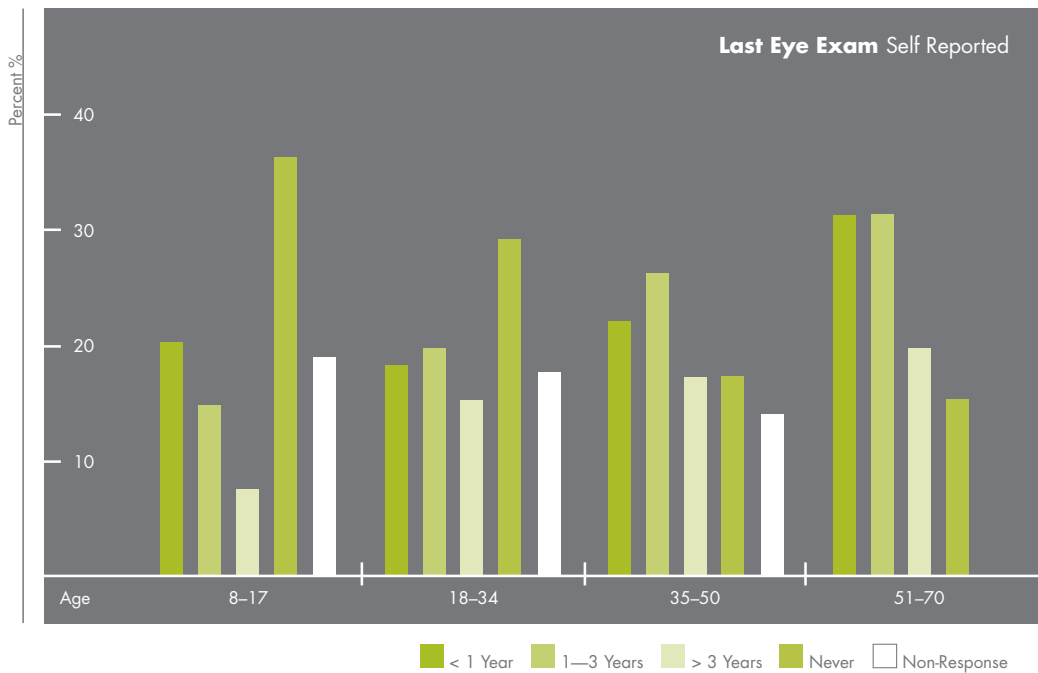
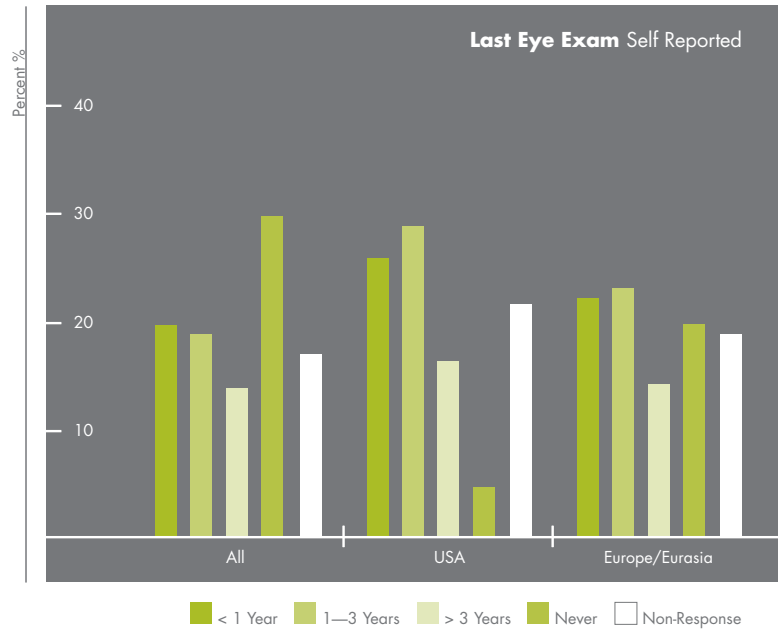
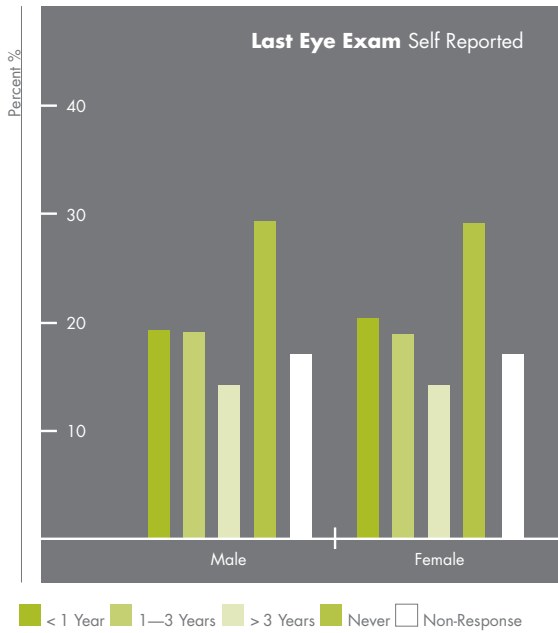
The total number of athletes screened at the Opening Eyes venue was 2,344 with a mean age of 23 years. Exams began with a self-history report on past eye care, vision problems and treatments, as well as any current ocular symptoms the athlete was experiencing. The self-report was followed by a comprehensive vision screening which included an evaluation of the health of the eyes, both internally and externally. Athletes who were identified as needing corrective lenses were seen for refractive assessments by practitioners and new prescriptions were delivered.



Self-reported vision history revealed that a high percentage of Special Olympics athletes have significant visual complaints, with headaches and sensitivity to light reported most often. There was also a high prevalence of eye infections and surgery.

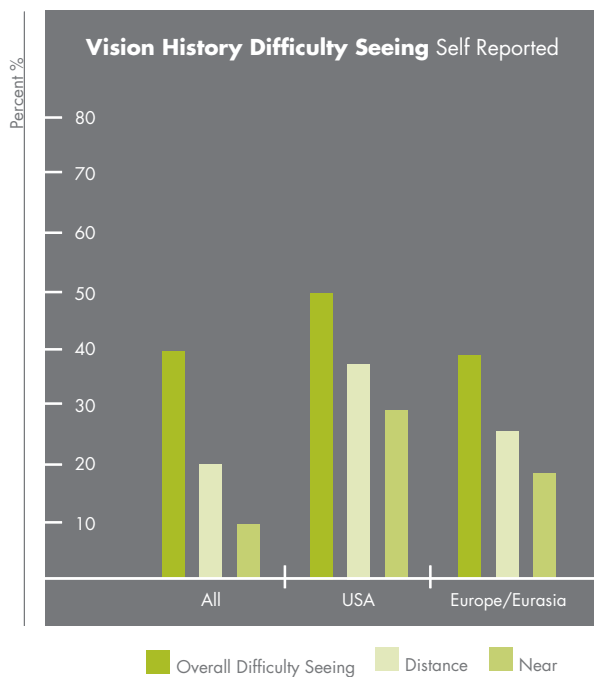
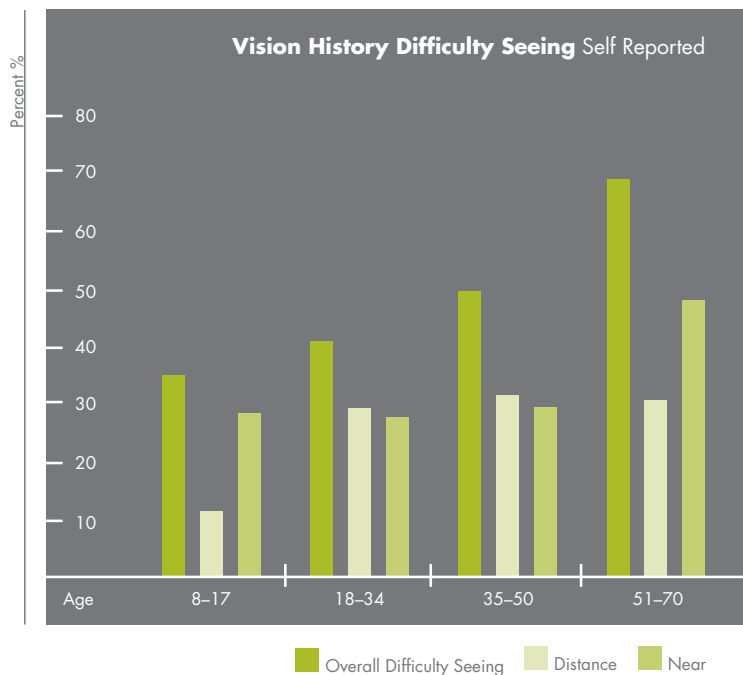
* **Note:** Some of the findings are presented separately for U.S. and Europe/Eurasia athletes because they constituted the largest groups of athletes screened.

RESULTS - OPENING EYES



On self-report, 30.2% of athletes reported that they had never had an eye examination. It is customary for most professional organizations involved in eye care to recommend eye examinations every two years. Over three years, 14% of athletes had not received an eye examination. The higher incidence of not having an eye examination in children ages 8-17 than in people over 50 is noteworthy.

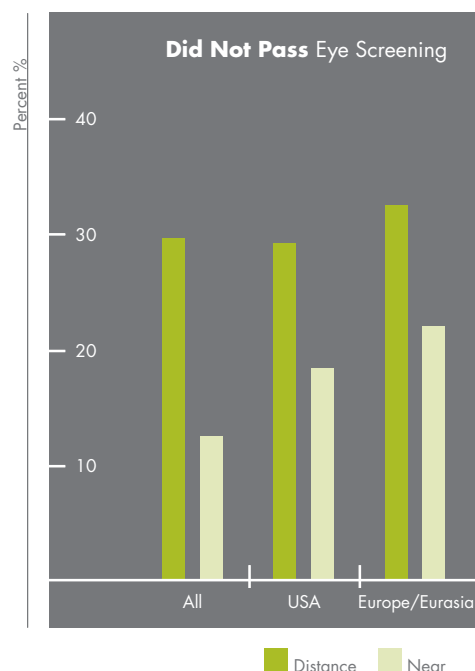
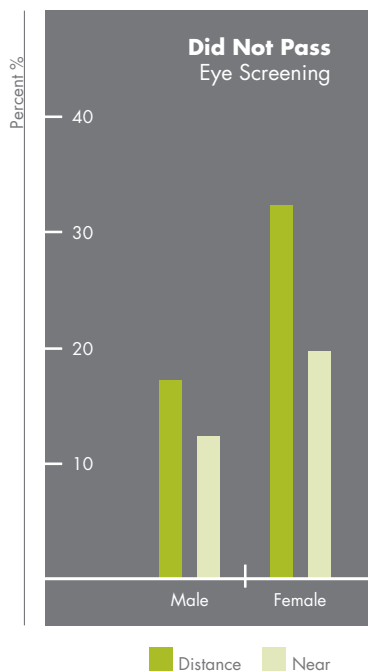
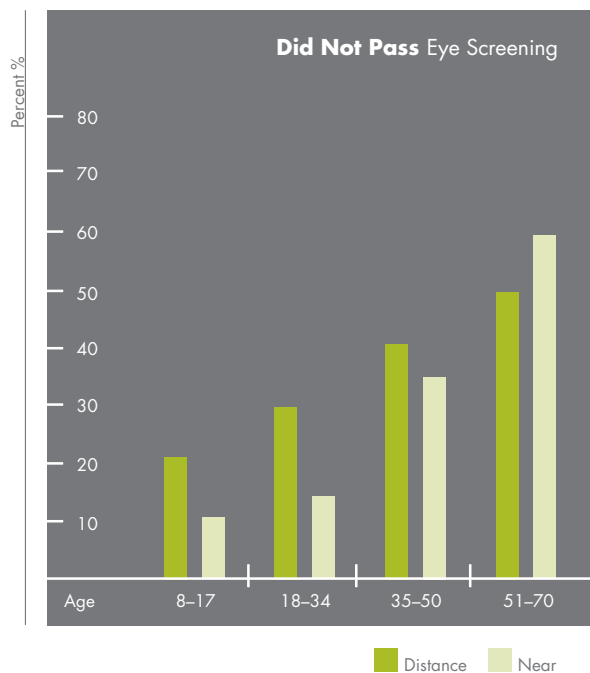
RESULTS-OPENING EYES



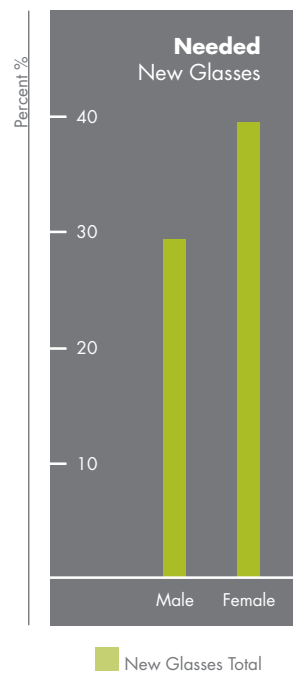
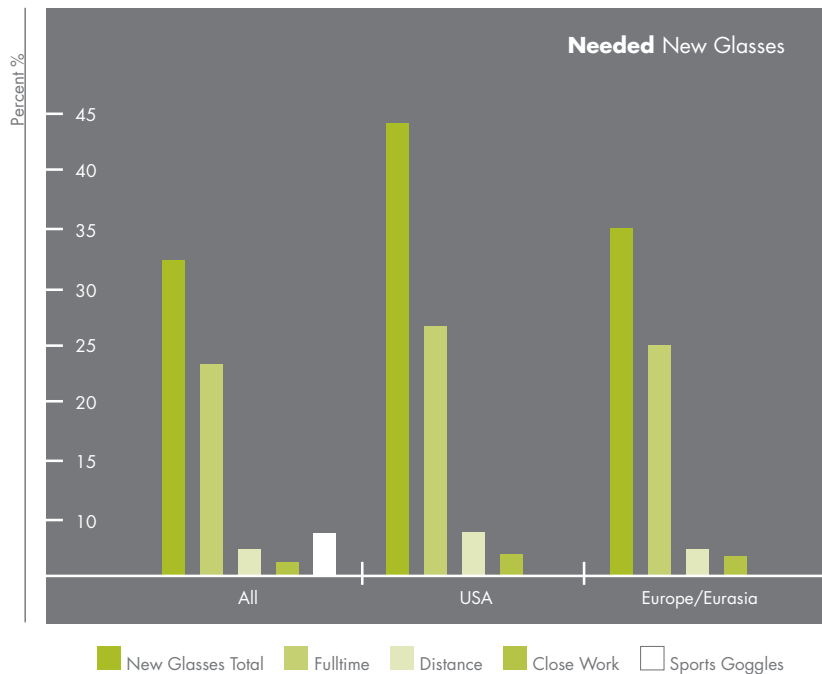
Forty percent (40%) of all athletes reported difficulty seeing, as did a little over 50% of the athletes from the United States. Of particular interest was the fact that among athletes over age 50 with presbyopia (when reading glasses are needed), the incidence of difficulty seeing increases, potentially indicating the under-prescribing of reading glasses for people with intellectual disabilities.

RESULTS - OPENING EYES

The percentage of athletes having difficulty with vision problems increases with age. This corresponds with our knowledge that as the population ages there are more vision problems, including cataracts. Also, the ability to view objects up close decreases substantially after the age of 40, when it is well known that the accommodative or focusing system is no longer as effective, requiring lenses to see near work. Females have a greater prevalence of not passing the eye screening. The overall prevalence of problems is relatively constant across geographic areas.

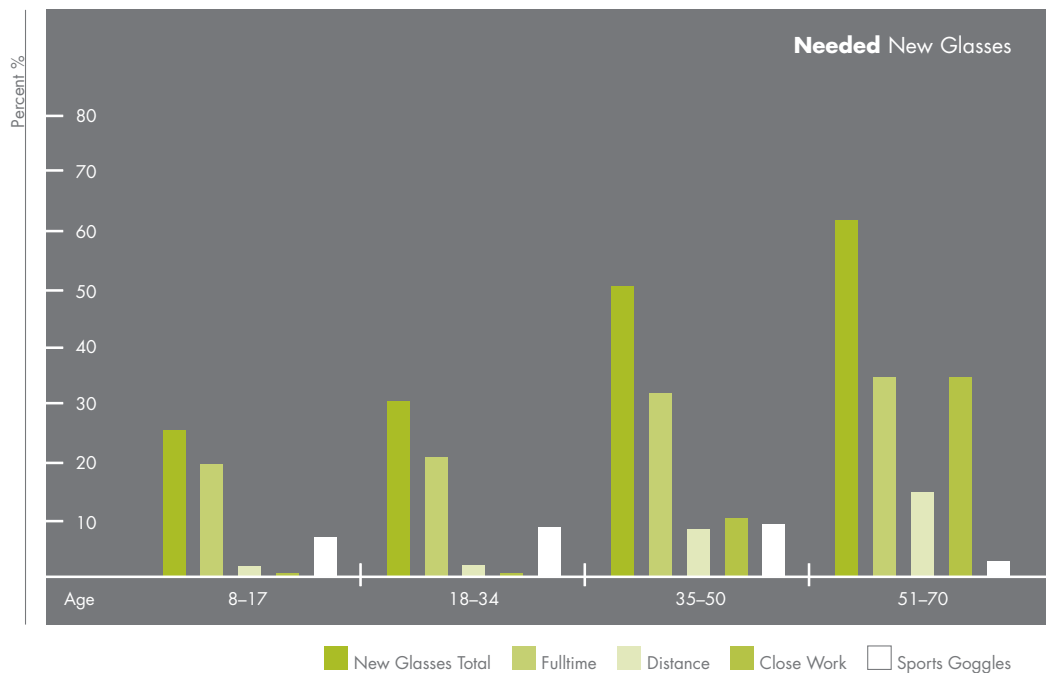


RESULTS-OPENING EYES



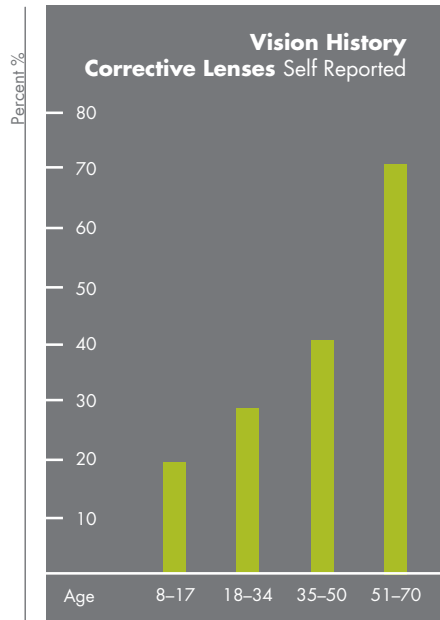
Approximately one-in-three of the athletes screened (32.7%) needed new glasses, including both athletes who needed glasses for the first time and athletes who needed new prescriptions or replacements for broken glasses. In the United States, 43% of athletes needed new glasses.

Interestingly, athletes from the United States have a higher prevalence of need, followed by athletes from Europe/Eurasia. It seems that the percentage needing new glasses is not less in the developed world. As one would anticipate, the need for new glasses increases as athletes age.

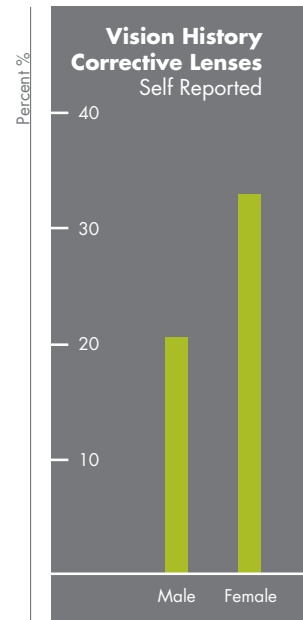


RESULTS - OPENING EYES

Interestingly, there is a greater incidence of female athletes wearing glasses than male.

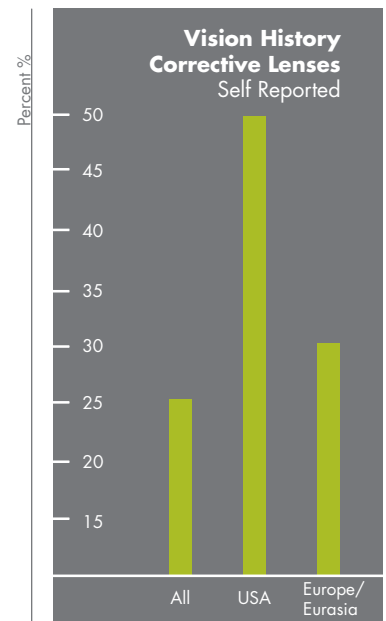


■ Eye Glasses



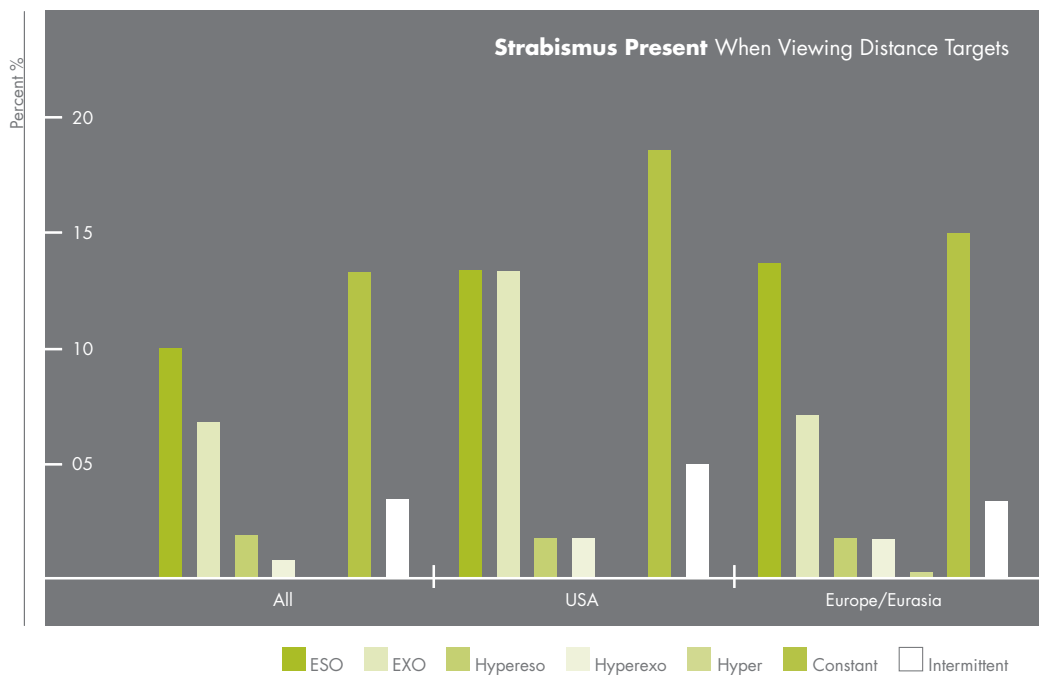
■ Eye Glasses

Approximately 26% of the athletes wear corrective lenses, with a much higher prevalence in the United States and Europe.

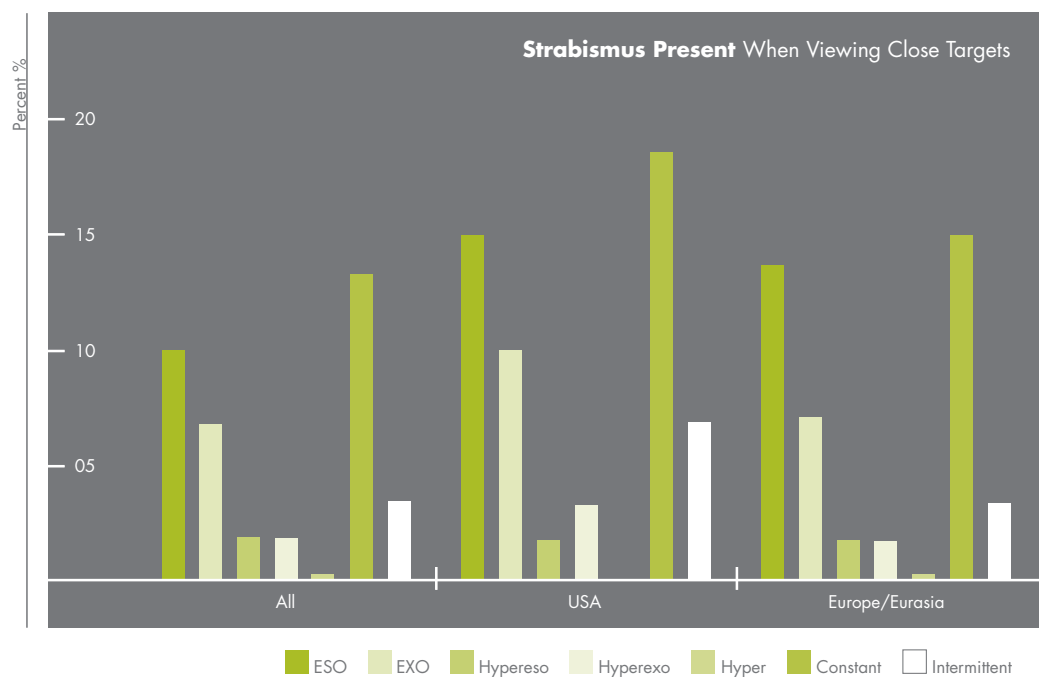


■ Eye Glasses

RESULTS-OPENING EYES



In a population without intellectual disabilities, strabismus is known to occur at a rate of 2-4%. The literature on populations with intellectual disabilities has always found that the prevalence of strabismus is much higher than among the population without intellectual disabilities.

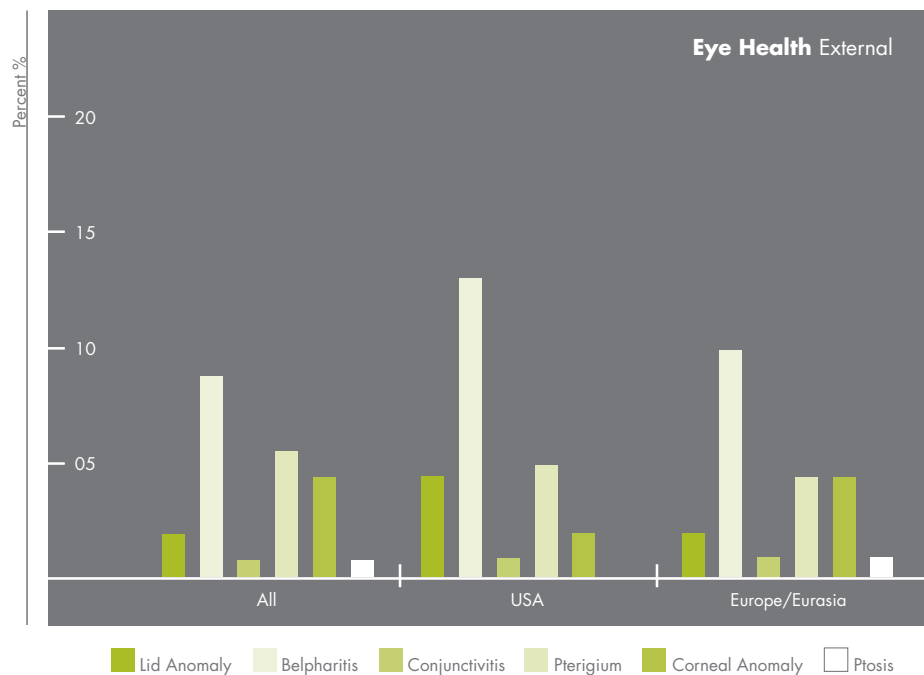


The overall prevalence of strabismus in the athletes was approximately 20%. It is important to note that esotropia was seen more often than exotropia and the majority of athletes had their strabismus present all of the time.

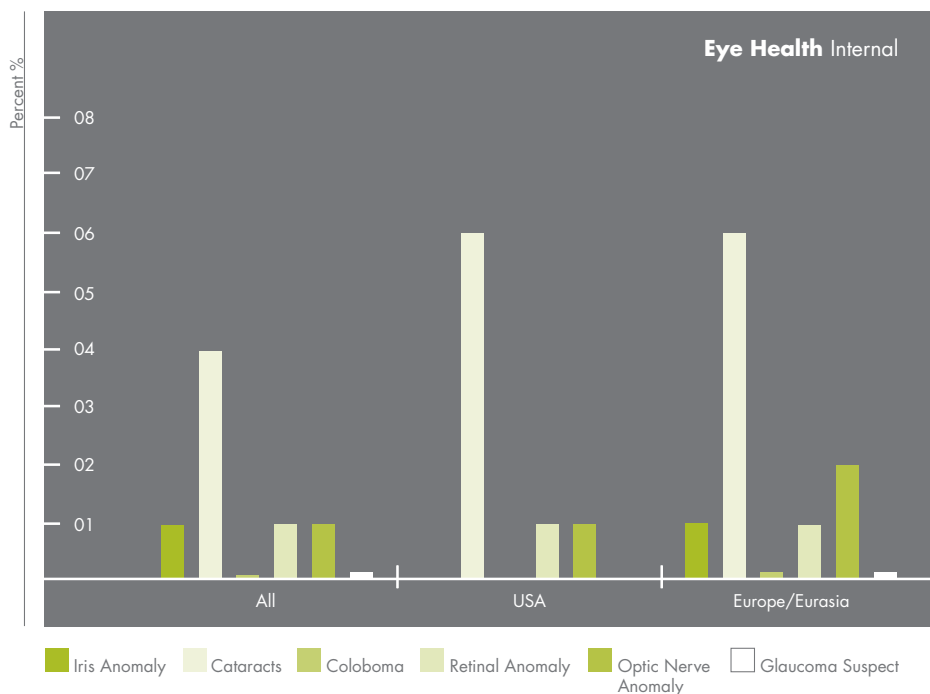
RESULTS - OPENING EYES

Belpharitis was the most frequent external eye health problem and was much more prominent in the United States. Cataracts and pterigiums were the next two leading eye health problems.

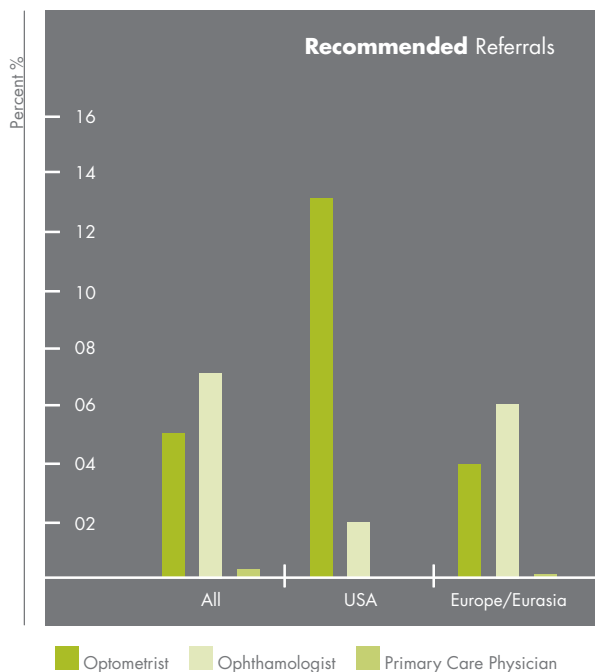
Belpharitis is a common finding in individuals with certain diagnosed syndromes such as Down syndrome. It is also found to occur more frequently in individuals who have difficulty with good hygiene. In the majority of athletes with this problem, control occurs through improved hygiene.



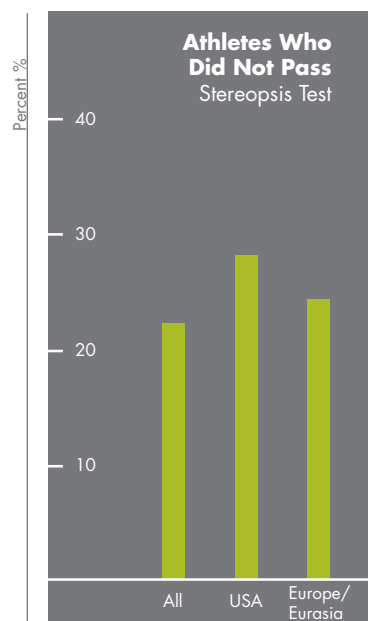
The most significant problem, cataracts, is a common visual problem that occurs as an individual ages and is more common in individuals with intellectual disabilities.



RESULTS-OPENING EYES



Athletes who needed additional care were referred to an eye care or general medical provider for comprehensive care in their homeland. Common reasons for referral included athletes who had attention or comprehension problems at the screening, athletes who presented with cataracts that needed further evaluation, athletes who were glaucoma suspect or those who had diabetes and needed diabetic fundus exams.



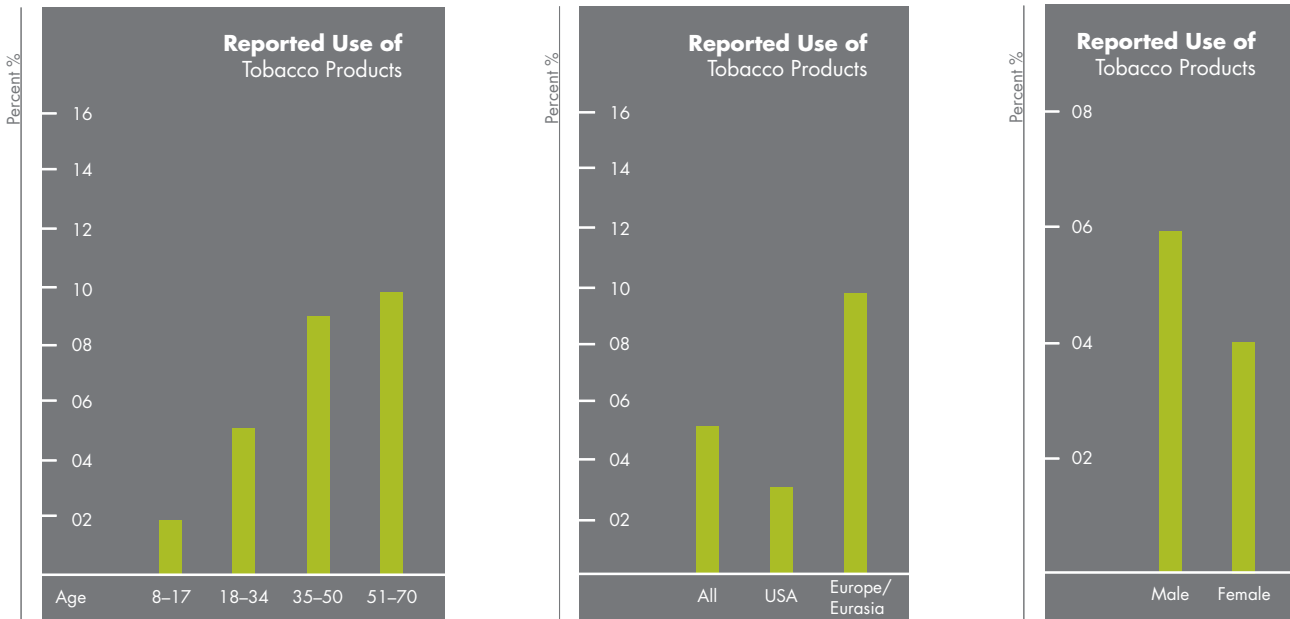
Stereopsis testing evaluates how well the eyes are working together. The table shows that 23% of all athletes failed this test.

RESULTS - HEALTH PROMOTION

Health Promotion

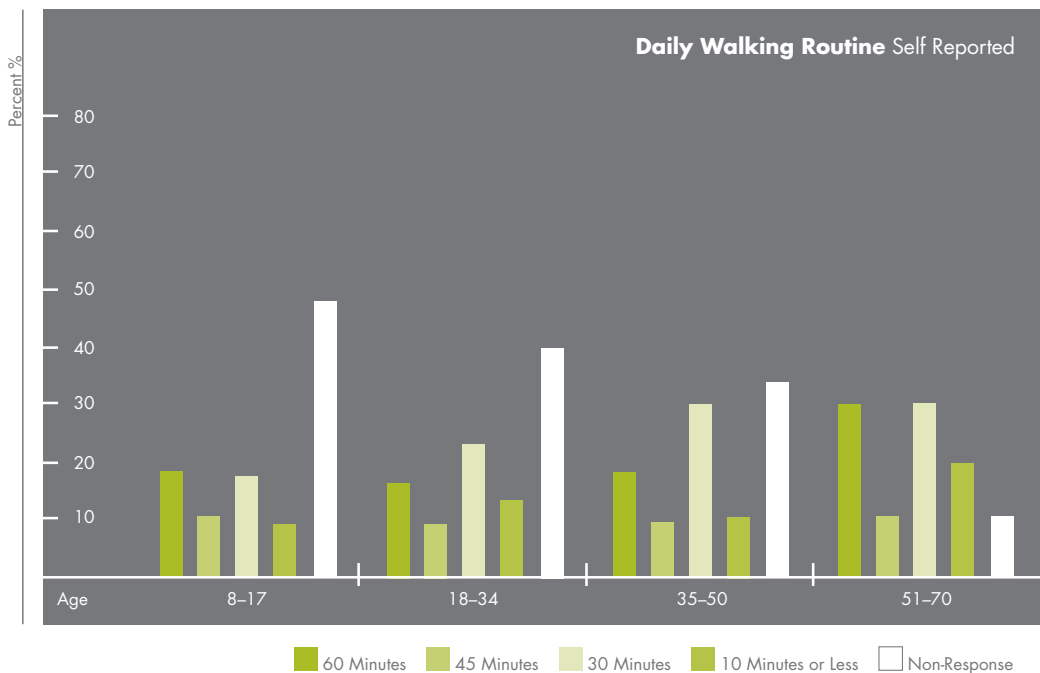
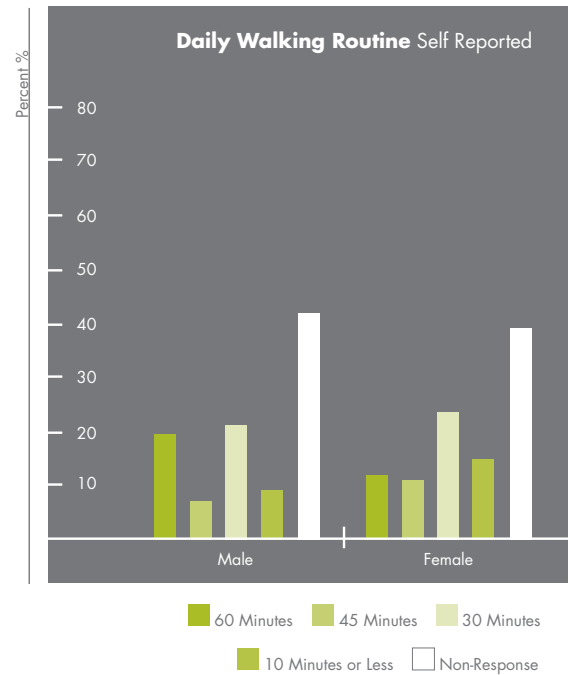
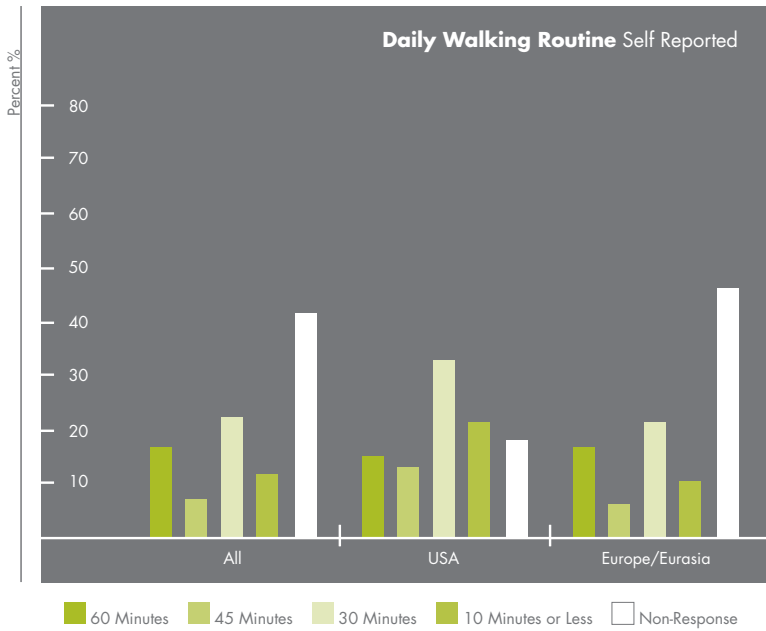
Special Olympics Health Promotion provides health assessments, education on the components of a healthy lifestyle, including the importance of regular exercise, optimization of nutrition and fitness, and the risk reduction of secondary conditions, such as diabetes, heart disease and osteoporosis. Additionally, athletes receive education on protection from environmental health risks such as tobacco, substance abuse and sun exposure. This program also determines body mass index and bone density to assess an athlete’s risk for osteoporosis. Body Mass Index (BMI) was determined following the U.S. Centers for Disease Control recommendations (www.cdc.gov/nccdphp/dnpa/bmi/index.htm). Health Promotion venues use interactive educational games and print materials to engage and motivate athletes to make healthy lifestyle choices that will improve their long-term health.

The total number of athletes screened at the Health Promotion venue was 1,000, with a mean age of 24 years. This screening consisted of a self-report survey on nutritional, health and exercise habits. Athletes also were offered a PIXI bone density scan to determine risk of osteoporosis (appendix B), and received a height and weight measurement to determine BMI.



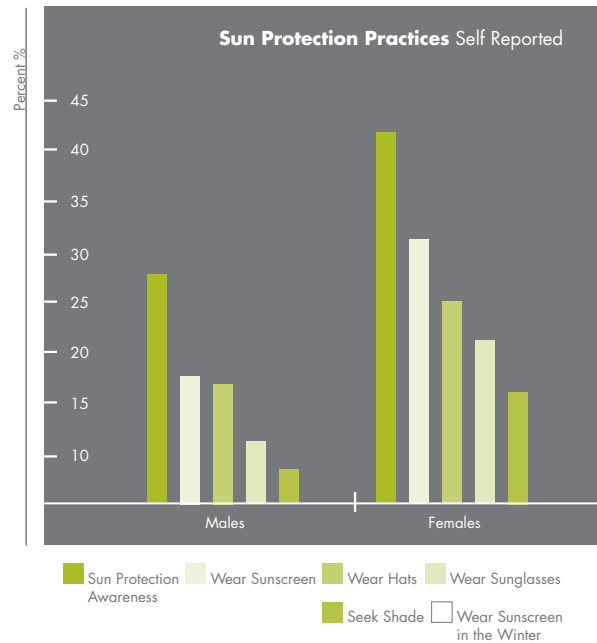
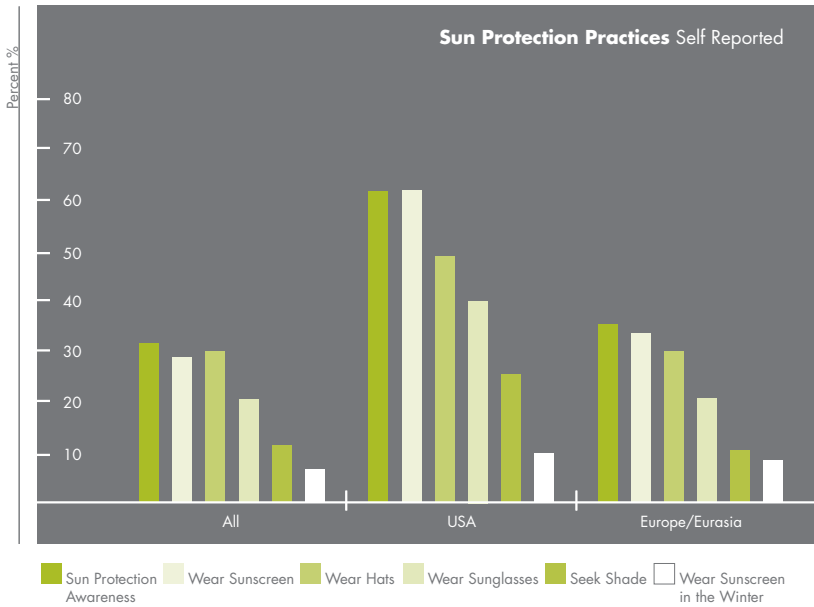
Tobacco use was reported as higher in males than in females. More athletes from the Europe/Eurasia region reported using tobacco products than did athletes from the United States, and use of tobacco products increased across the age brackets.

RESULTS-HEALTH PROMOTION

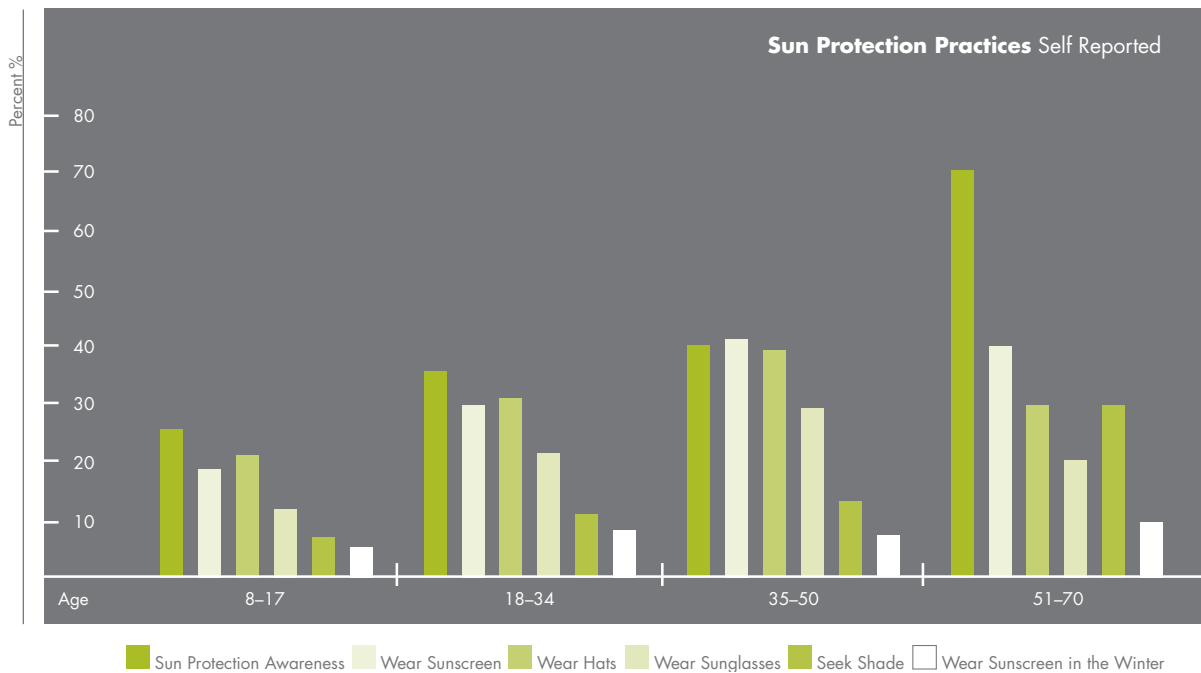


Twenty-one percent (21%) of U.S. athletes reported walking 10 minutes or less a day compared to 10% of Europe/Eurasia athletes; however, 33% of U.S. athletes reported walking 30 minutes a day compared to only 21% of Europe/Eurasia athletes. Also, older athletes, on average, spent more time walking on a daily basis than did younger athletes.

RESULTS - HEALTH PROMOTION

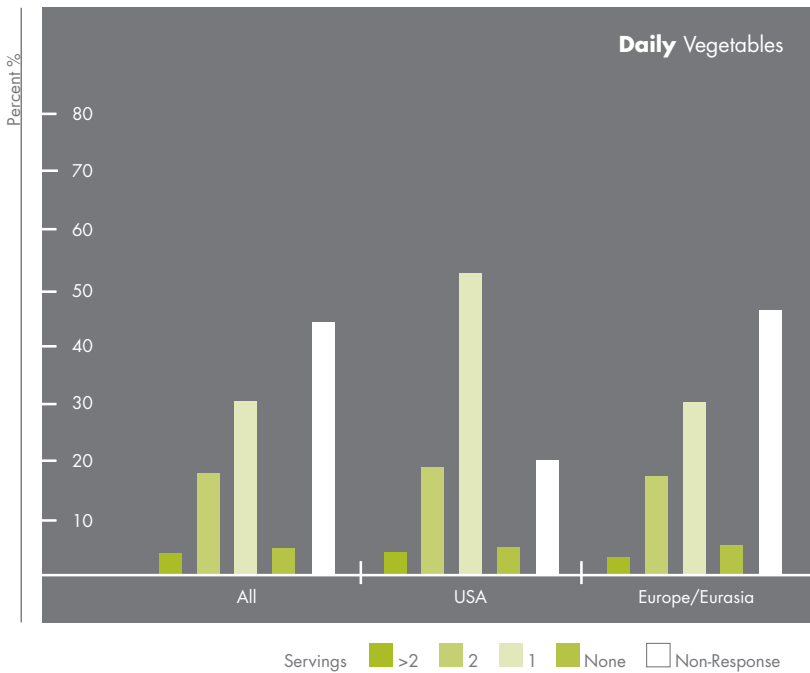
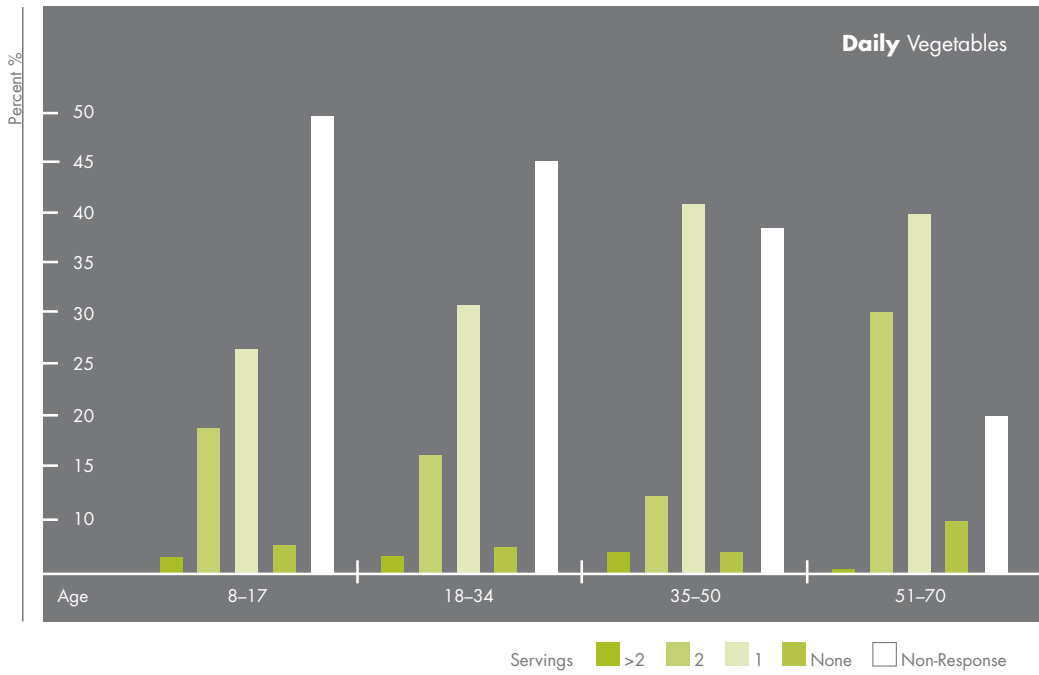


More female athletes than male athletes reported awareness regarding sun protection needs and took action to protect themselves from the sun by wearing sunscreen, hats or sunglasses and by seeking shade.



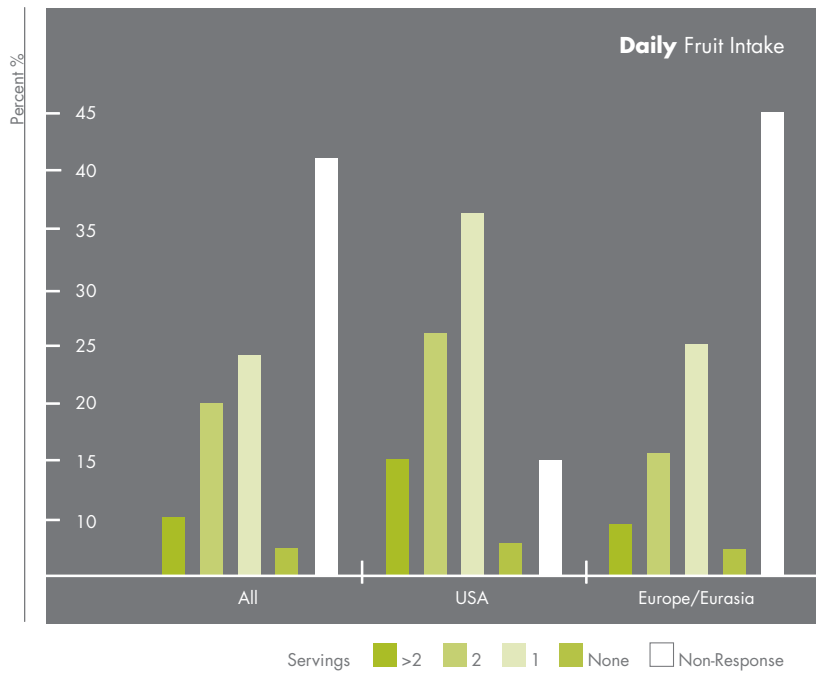
Older athletes also reported a higher awareness of sun protection needs and practiced good protection methods compared to younger athletes.

RESULTS-HEALTH PROMOTION

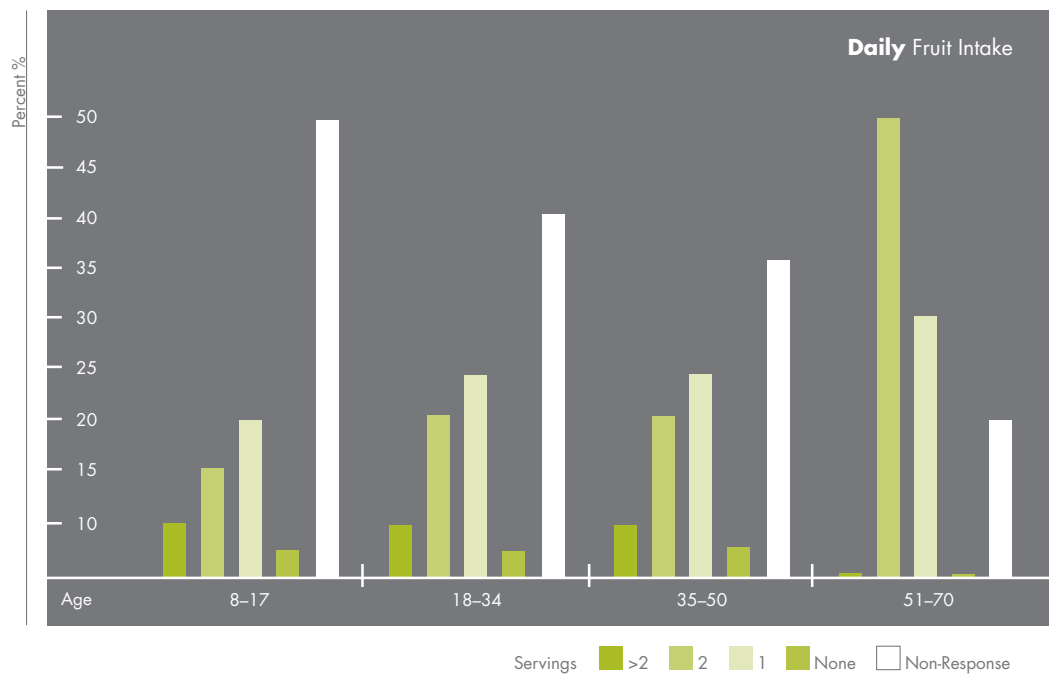


Approximately 30% of athletes reported having at least one serving of vegetables on a daily basis, and very few athletes reported having the recommended two or more per day.

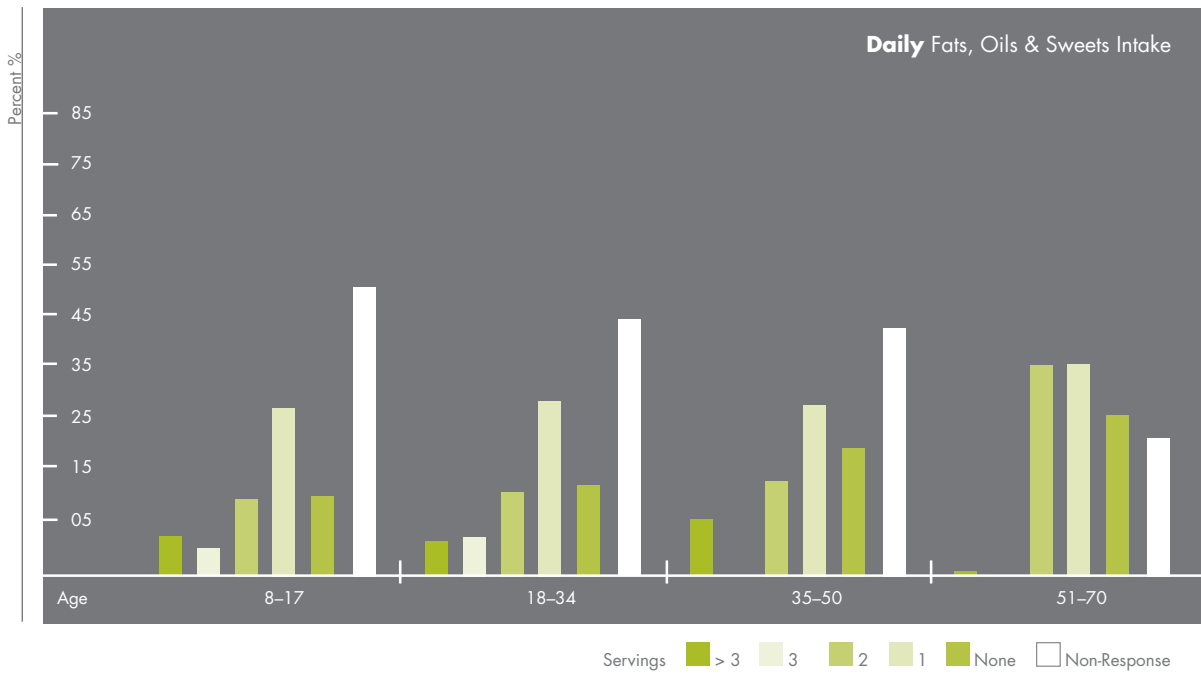
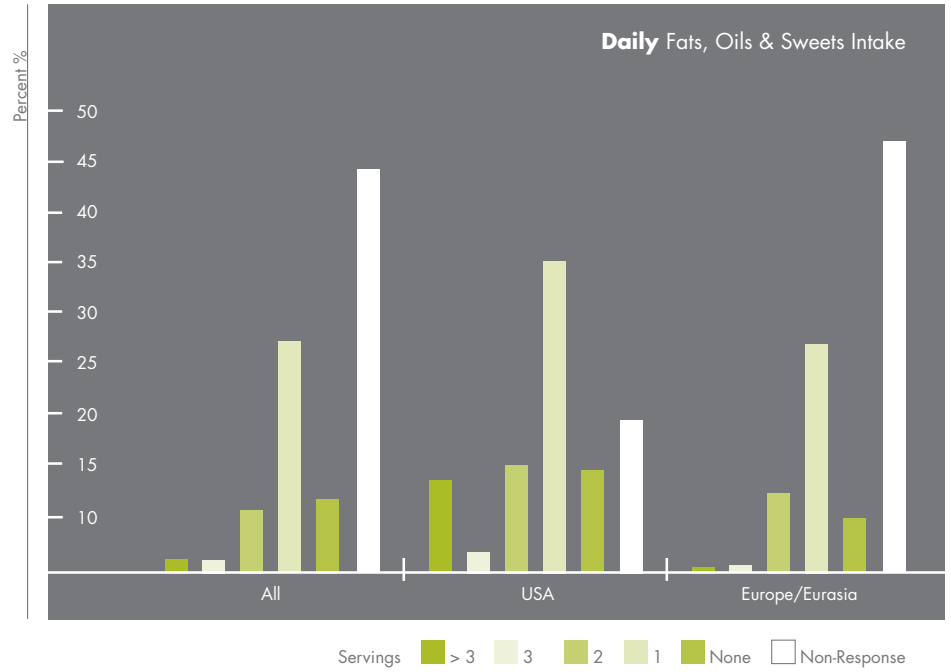
RESULTS - HEALTH PROMOTION



Approximately 22% of athletes reported a daily intake of at least one fruit, with 20% reporting at least two servings.

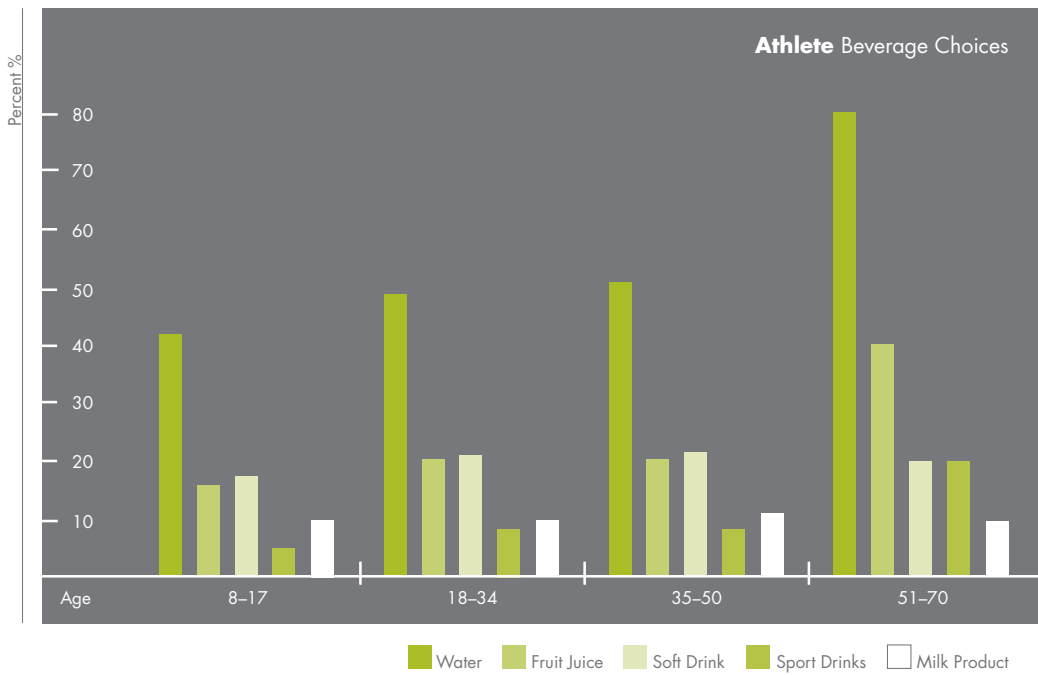
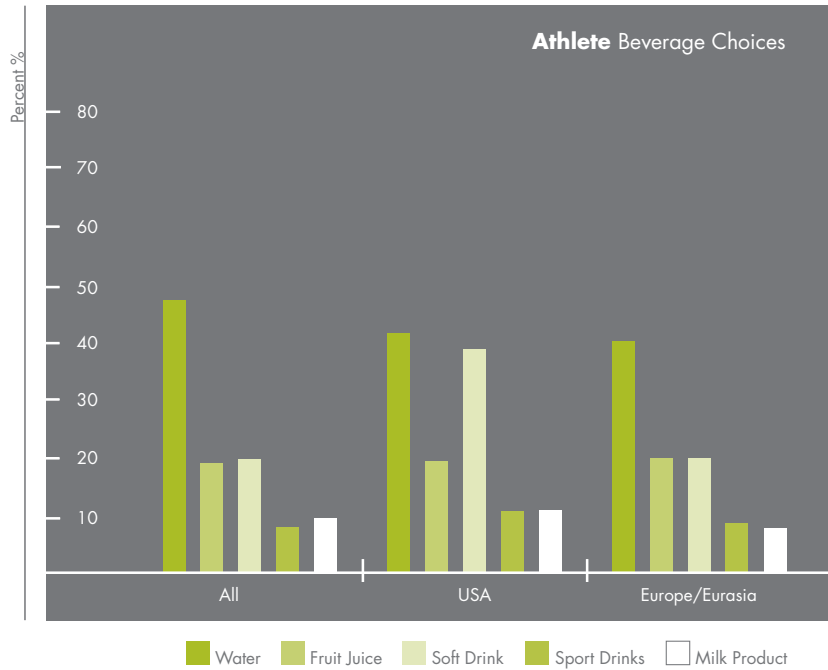


RESULTS-HEALTH PROMOTION

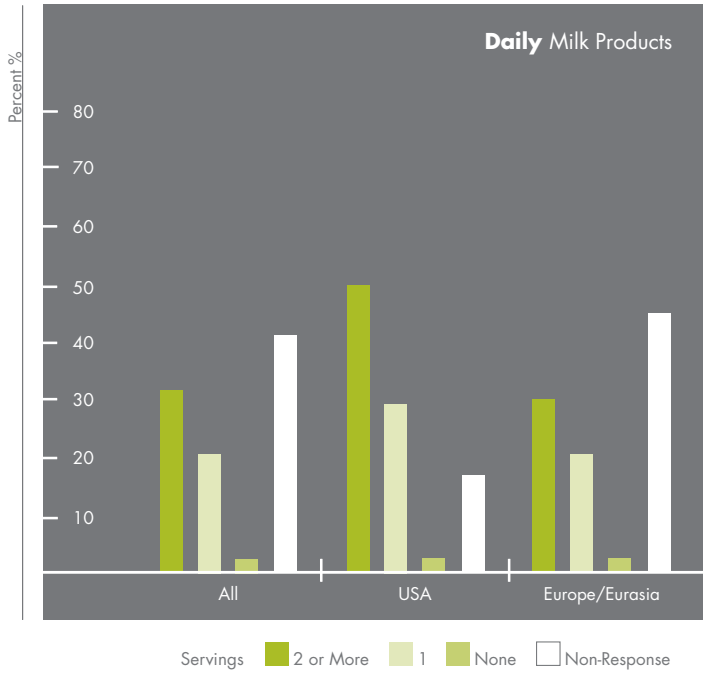


RESULTS - HEALTH PROMOTION

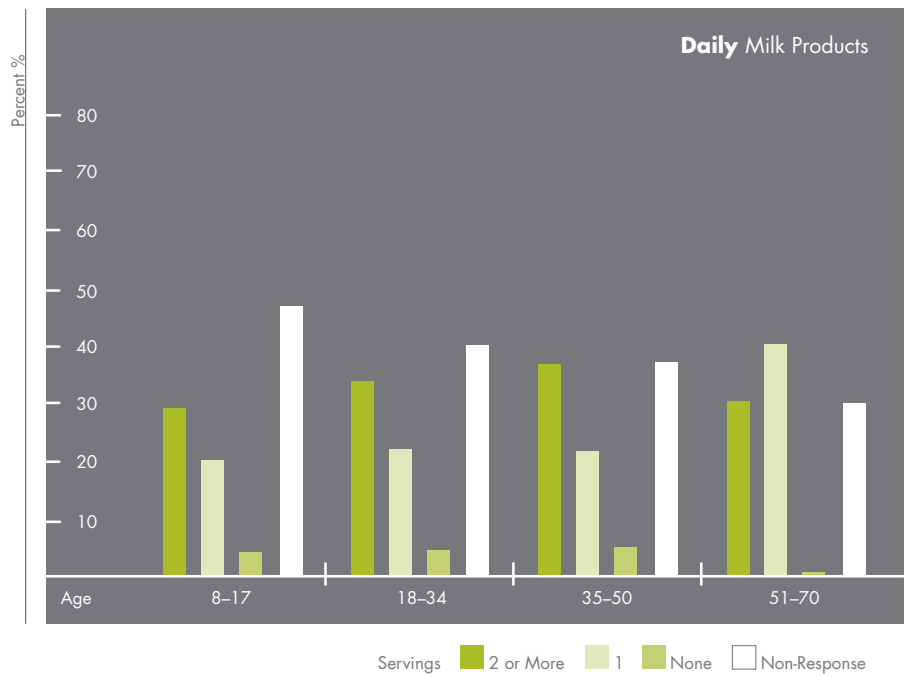
Forty-seven percent (47%) of the athletes reported water as a beverage of choice when thirsty. Athletes over age 50 reported drinking more water and fruit juice than other beverages.



RESULTS-HEALTH PROMOTION

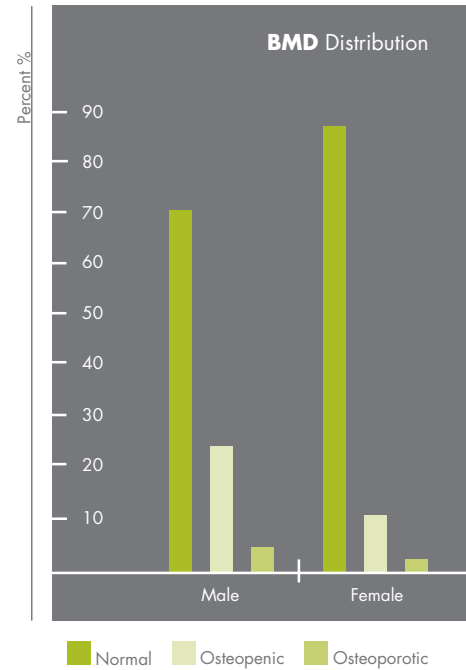


Thirty-two percent (32%) of athletes reported consumption of two or more milk products on a daily basis. U.S. athletes reported consuming more milk products on a daily basis than did counterparts in Europe/Eurasia.



RESULTS - HEALTH PROMOTION

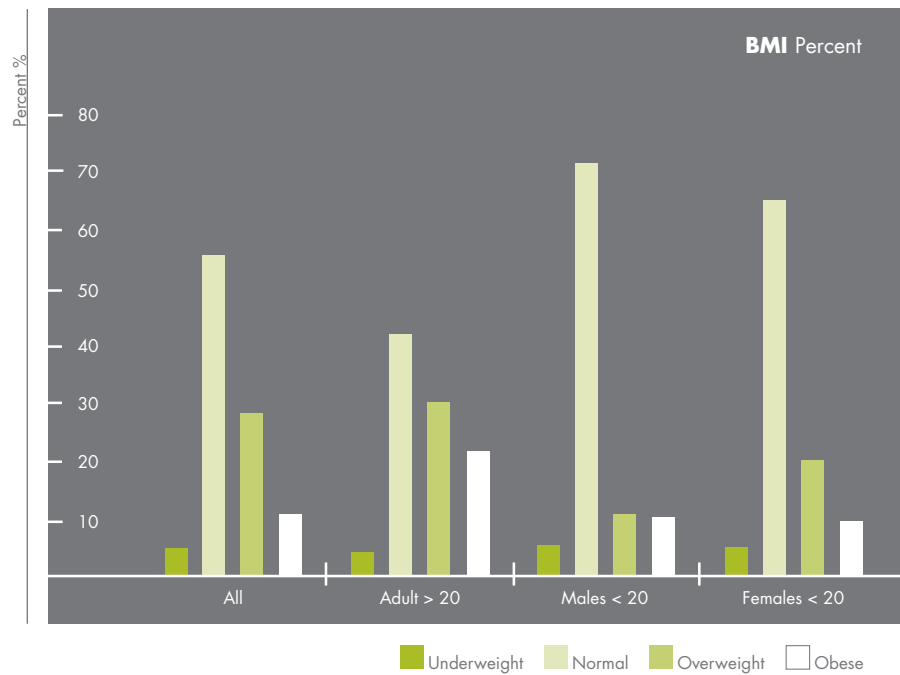
Of 337 males, 82 (24.3%) were osteopenic and 16 (4.8%) were osteoporotic. Of 198 females, 21 (10.6%) were osteopenic and 5 (2.5%) were osteoporotic. Hence, 29% of all males had below normal BMD and 13.1% of all females had below normal BMD. Nineteen percent (19.3%) of all athletes who participated in the bone exam screening were osteopenic in at least one heel. Four percent (4%) of all athletes who participated in the bone exam screening were osteoporotic in at least one heel.



Overall, BMI analysis of all participants at the Health Promotion screening revealed 45% of the athlete population with abnormal BMI—40% above normal and 5% below normal. Stratification by age (cutoff=20 years) revealed half of adults (52%) were above normal BMI range, with 23% being obese and 30% being overweight.

Those below 20 years of age were further stratified by gender and then classified into four categories based on percentiles BMI cutoffs for age in each gender. In this age group, more females (32%) had above normal BMI as compared to males (20%).

All adults had higher BMI compared to adolescents and children. Among those less than 20 years of age, females had higher BMI than males.

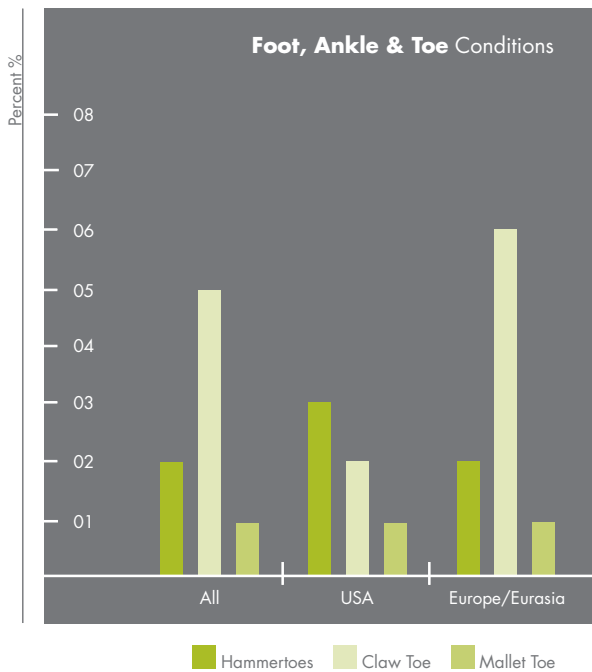


RESULTS - FIT FEET

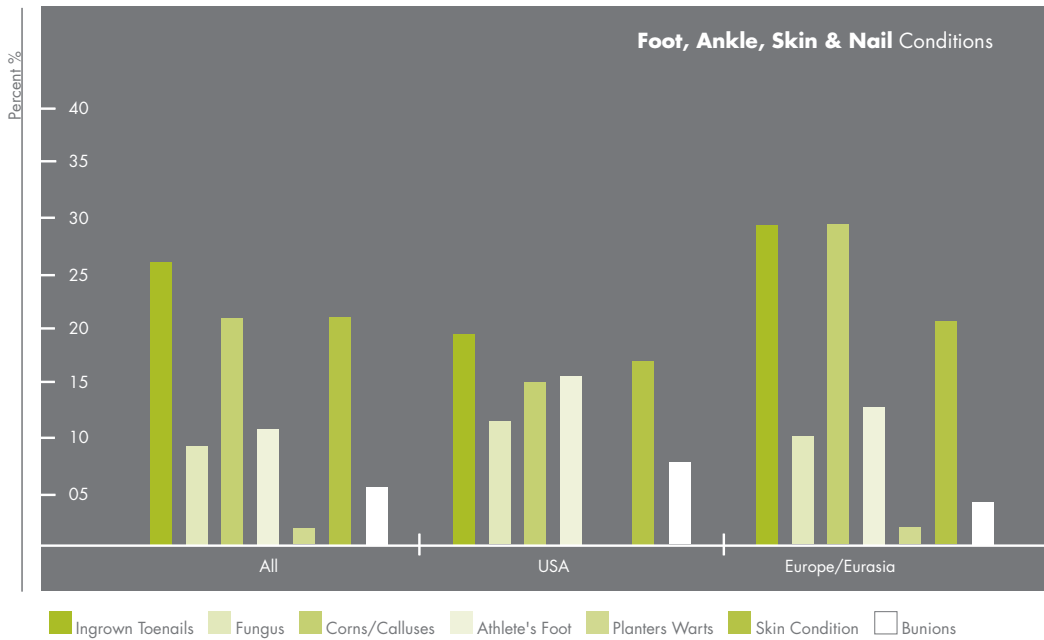
Fit Feet

Special Olympics Fit Feet is a podiatric screening that assesses foot and ankle health as well as pain or other conditions that may impair performance. Because athletes are not always fitted with the best shoes and socks for their particular sport, they are checked for and educated on foot care, including the use of proper shoes and socks. Recommendations for follow-up care are made if needed.

The total number of athletes seen at the podiatry venue (formally a part of Health Promotion in 2003) was 1,000, with a mean age of 24.

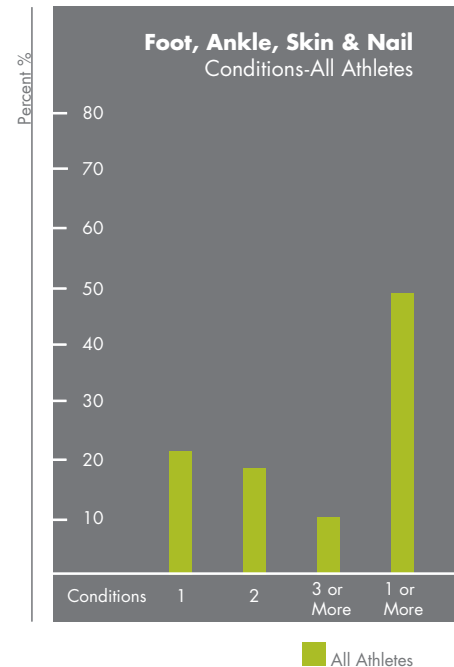


RESULTS - FIT FEET

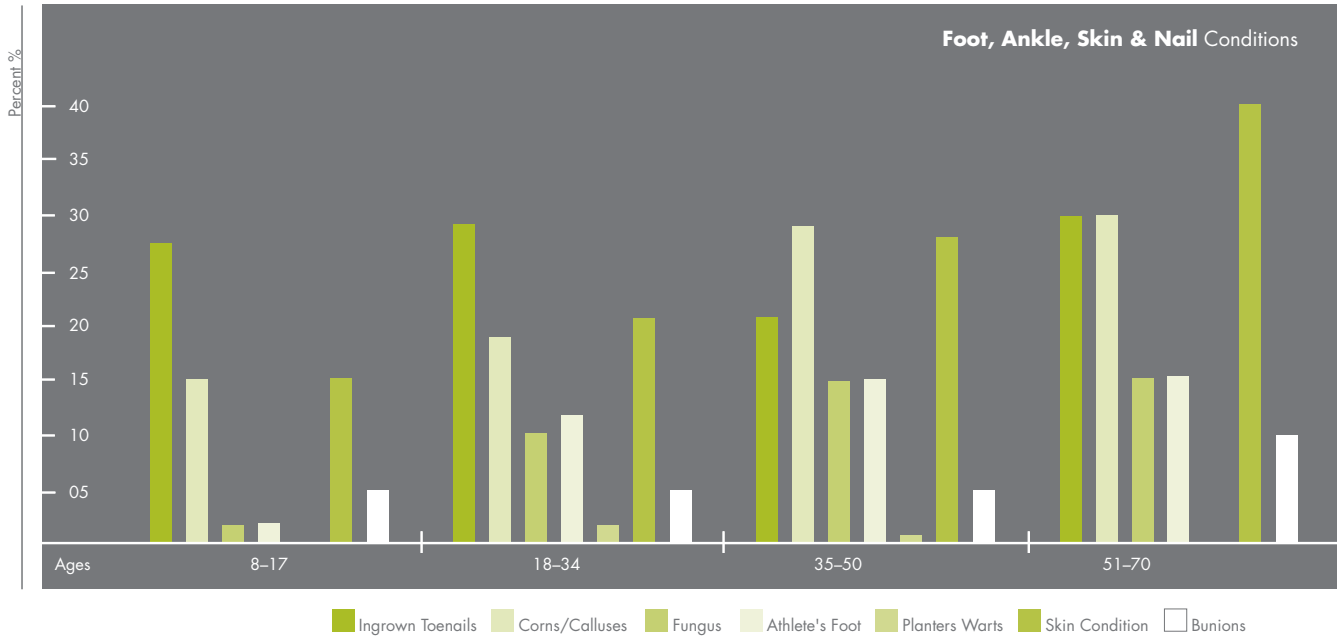


Ingrown toenails were the most common skin and nail conditions. found followed by corns and calluses. Athlete's feet or tinea is higher in U.S. athletes. Interestingly, Europe/Eurasia had much higher rates of ingrown toenails and corns calluses. This population has a large problem with ingrown toenails, corns and calluses, possibly due to shoe styles. Overall high incidence of tinea shows foot hygiene is often neglected in this population.

Twenty-two percent (22%) of athletes had only one type of skin and nail condition, while 10% had three or more conditions; nearly half of all athletes had one or more conditions.



RESULTS - FIT FEET



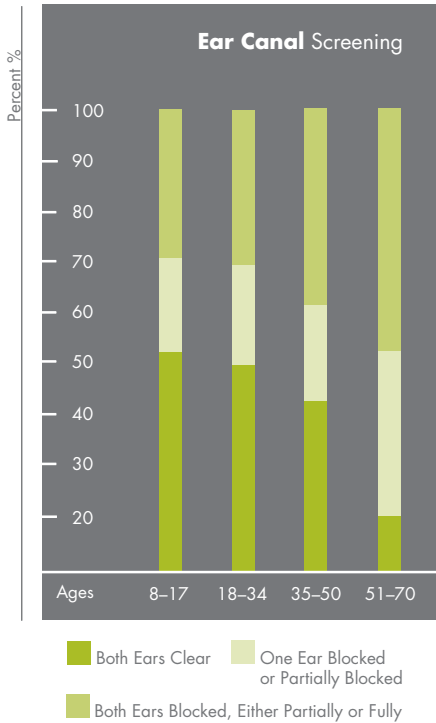
Other than ingrown toenails, all other skin conditions were found mostly in the older athletes, possibly related to their living in group homes.

RESULTS - HEALTHY HEARING

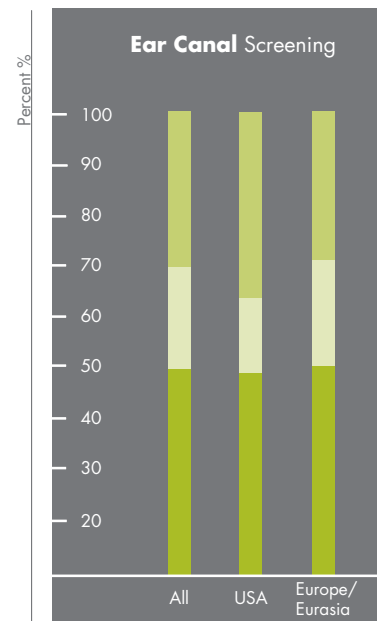
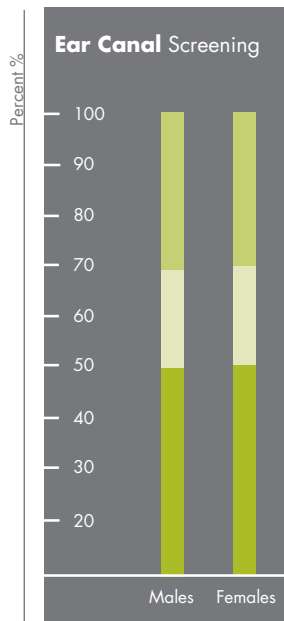
Healthy Hearing

Special Olympics Healthy Hearing is an audiological screening for athletes that detects hearing loss and middle ear dysfunction and offers education to athletes, coaches and caregivers on appropriate hearing and ear health care. This screening also includes an exam of the ear canal for cerumen blockage. Referrals and recommendations for follow-up also are made when appropriate. This program has provided hearing aids and custom swim ear plugs for athletes who need them. Further, pure tone air-and bone-conduction thresholds of athletes not passing the hearing screening are tested at some events. These diagnostic measures are taken to determine the type and extent of the athlete's hearing loss for referral purposes and/or for selection of hearing aids. At times, this testing is done with an athlete inside a hearing test booth which is shipped and assembled at an event site.

The total number of athletes screened at the Healthy Hearing venue was 2,185, with a mean age of 23 years. This venue began with a screening of the athletes' ear canals to look for any blockages from cerumen, obstructions or infections. Athletes then moved on to the second part of the screening, the otoacoustic emissions test, where hearing ability was screened at 2,000, 3,000, 4,000 and 5,000 Hz. If athletes did not pass the otoacoustic emissions test, they moved on to pure tone screening and the tympanometry test to determine possible hearing loss and its origin. Each athlete received a form in her or his own language indicating results and recommendations.



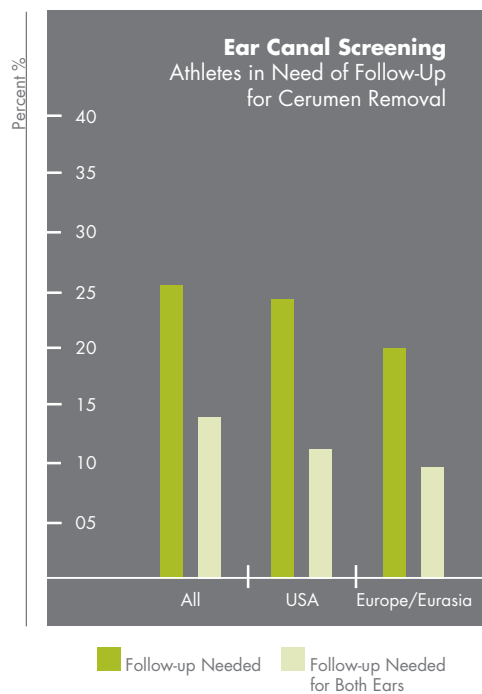
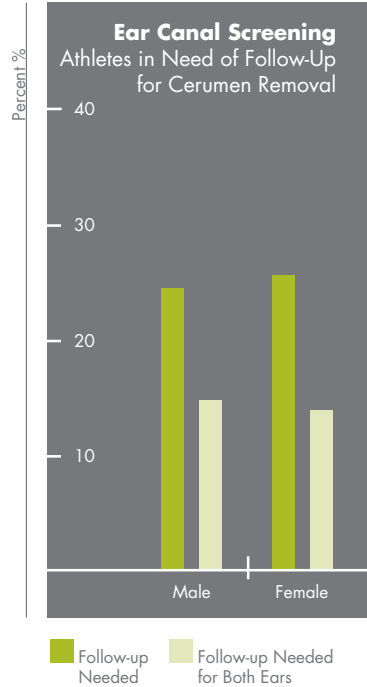
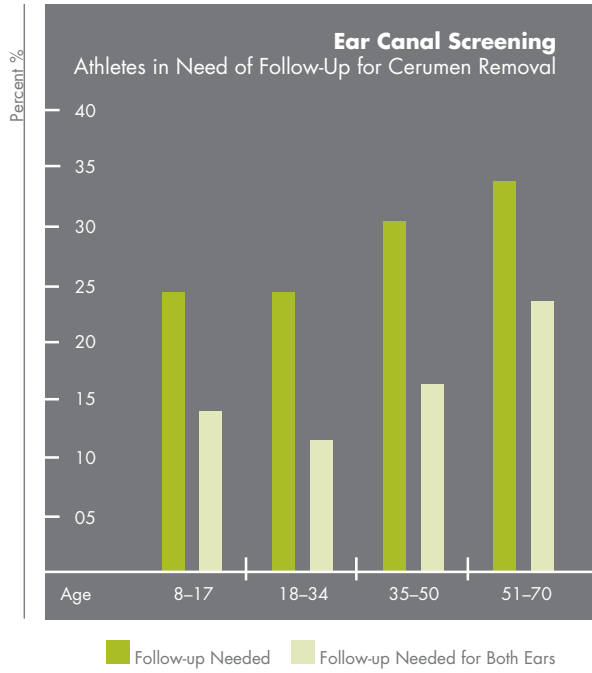
Fifty-two percent (52%) of all athletes screened had full or partial blockage of one or both ears. The percentage of athletes with both ears clear of cerumen decreased in older age groups. Periodic removal of cerumen from outer ear canals is a basic hearing hygiene need for athletes.



- Both Ears Clear
- One Ear Blocked or Partially Blocked
- Both Ears Blocked, Either Partially or Fully

- Both Ears Clear
- One Ear Blocked or Partially Blocked
- Both Ears Blocked, Either Partially or Fully

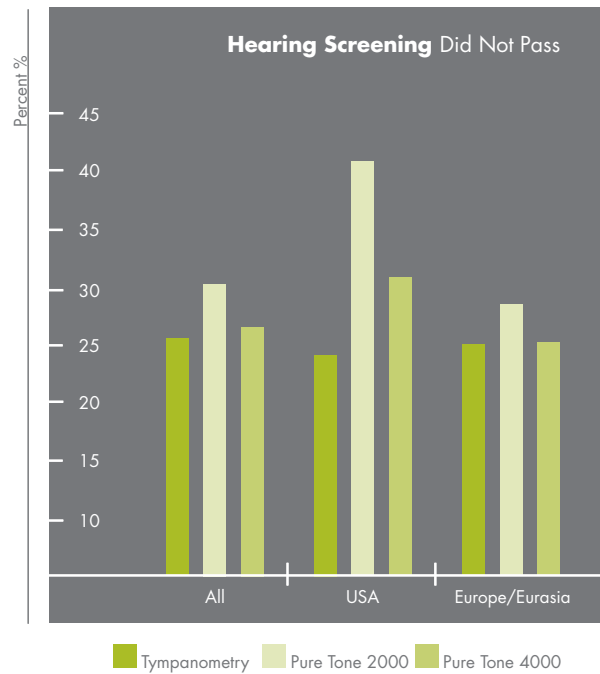
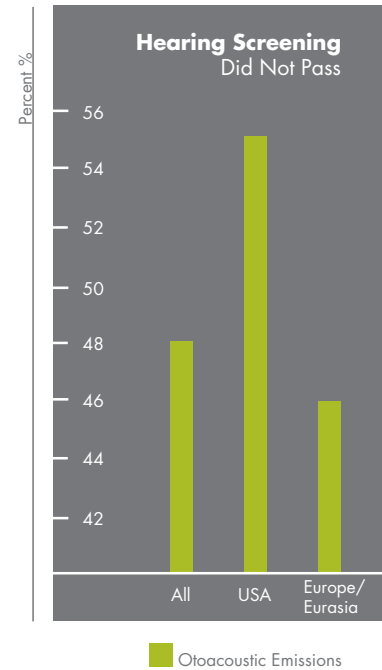
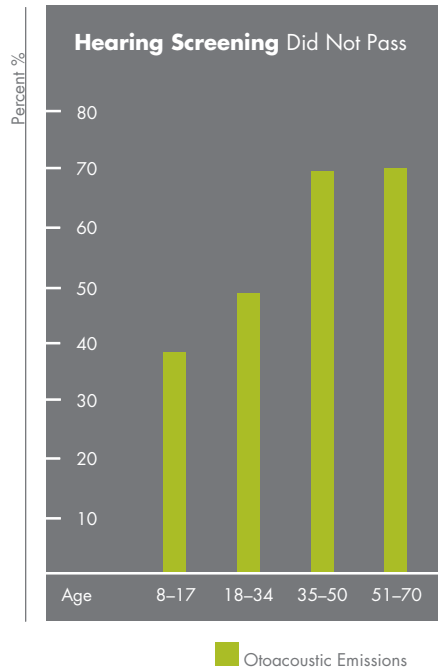
RESULTS-HEALTHY HEARING



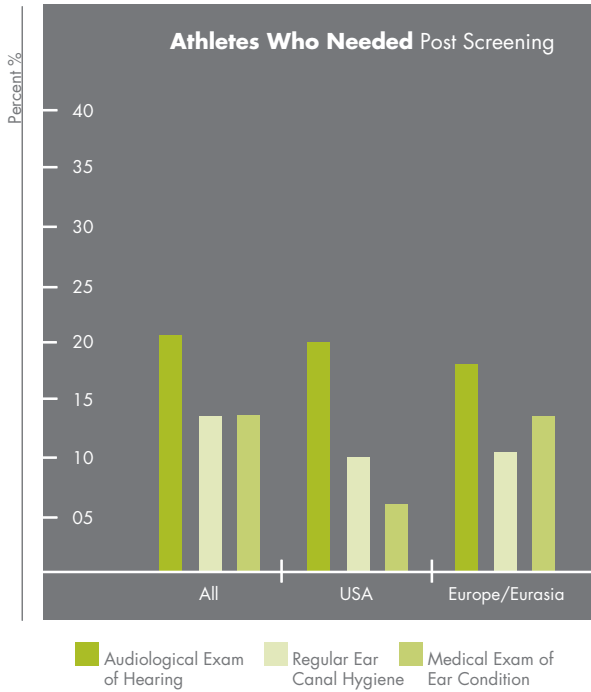
Twenty-six percent (26%) of the athletes had excessive wax (cerumen) in the ear canal. This condition is slightly more prevalent in the United States compared to Europe/Eurasia. There is a steady increase in the presence of cerumen with age.

RESULTS - HEALTHY HEARING

Forty-eight percent (48%) of the athletes did not pass the first order screen, otoacoustic emissions. There were twice as many of these screening fails in older athletes. The age-related difference starts in the 35-50 age bracket. Using 2,000 and 4,000 Hertz at the 25dB Hearing Level, pure tone screening indicated that approximately 30% of the athletes did not pass. Half of this group also showed evidence of middle ear conditions by not passing tympanometry.



RESULTS-HEALTHY HEARING



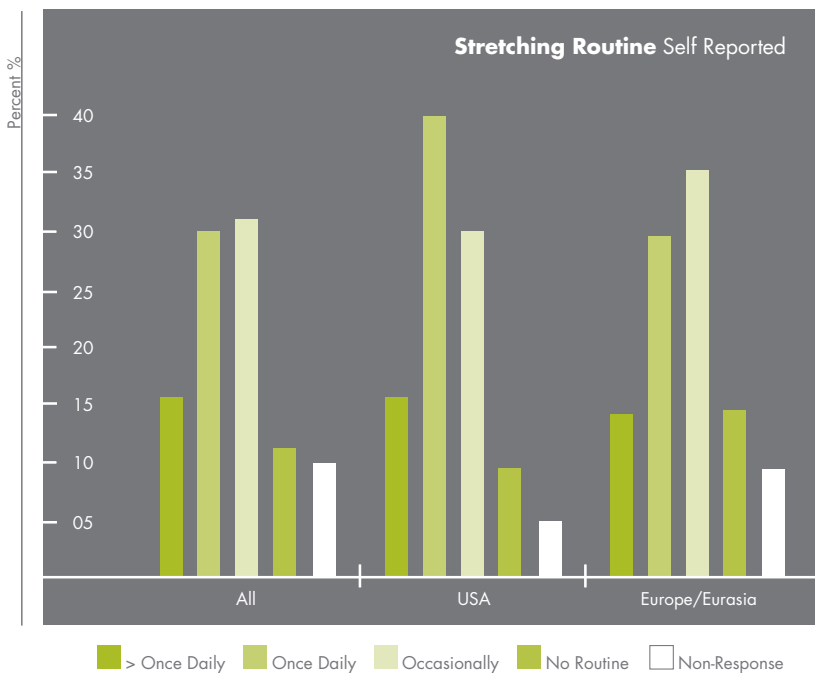
The most frequent recommendation was for an audiological evaluation of hearing. Referrals for both ear canal hygiene and medical care occurred in 12% of the athletes.

RESULTS - FUNFITNESS

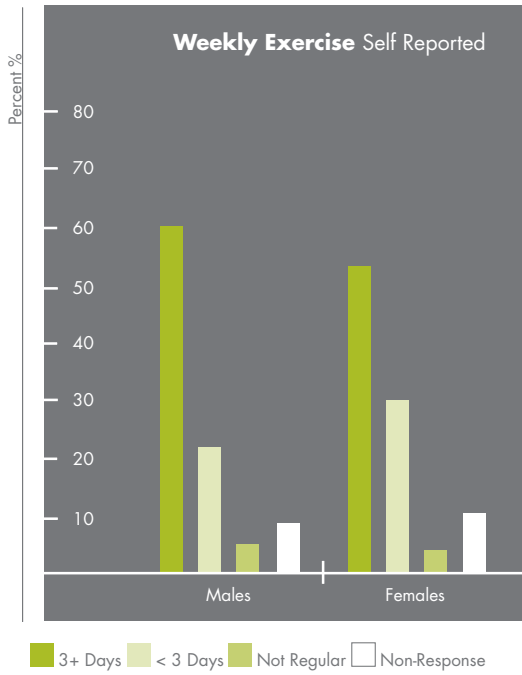
FUNfitness

Special Olympics FUNfitness is a comprehensive physical therapy screening designed to assess and improve flexibility, functional strength and balance. FUNfitness educates participants, families and coaches about the importance of maintaining fitness and provides hands-on opportunities for participants to learn about physical therapy. Physical therapists also make referrals for follow-up care if needed.

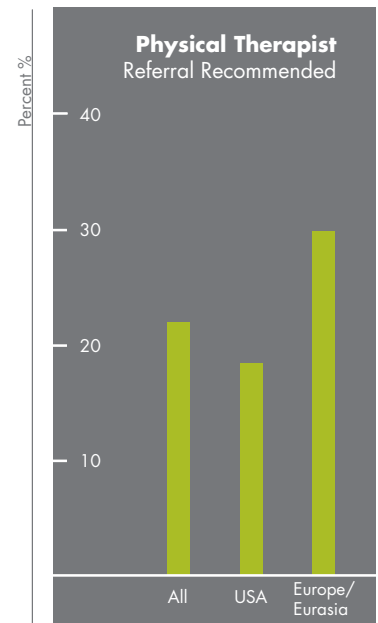
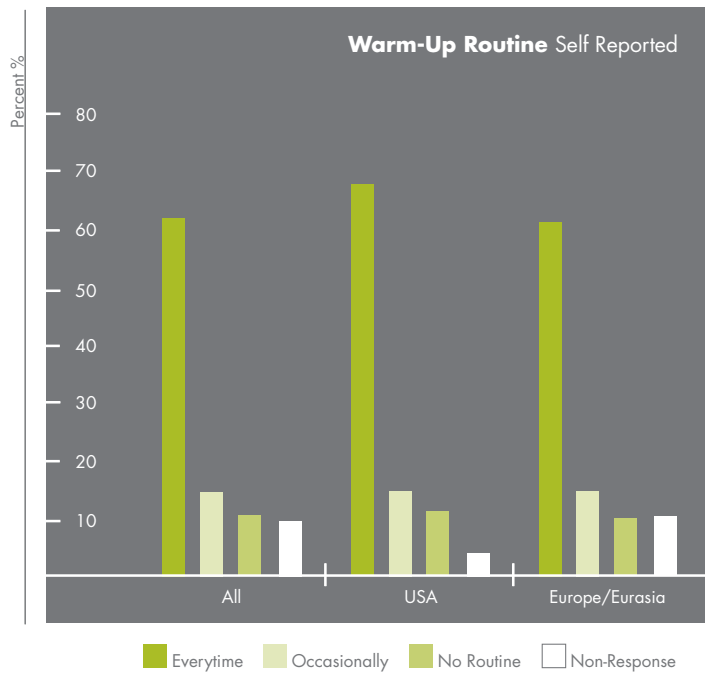
The FUNfitness venue screened 1,466 athletes. The mean age of the athletes seen at the venue was 24 years. During this screening, athletes filled out a survey regarding their daily exercise and stretching routines. Athletes were then screened for muscle flexibility, functional strength, reach and balance.



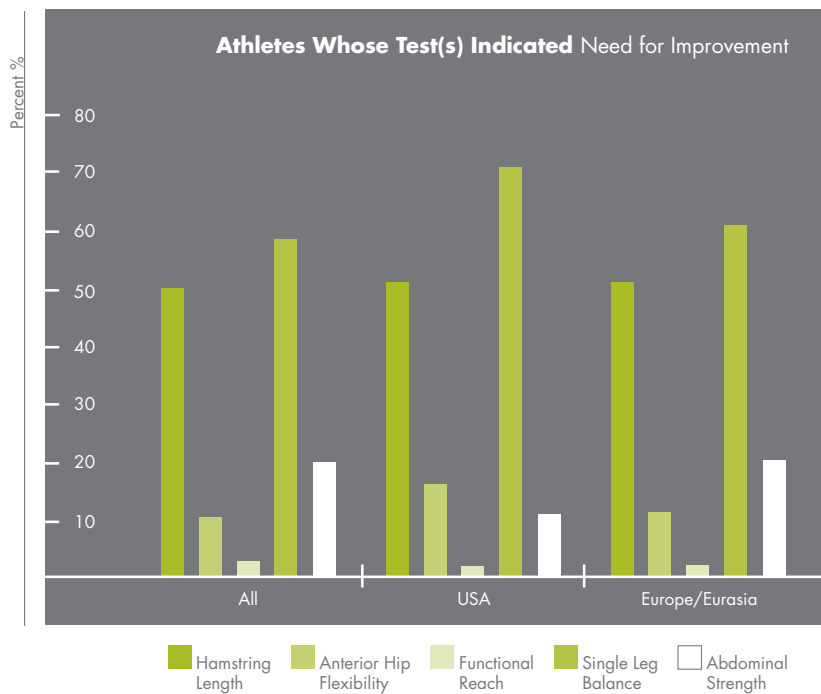
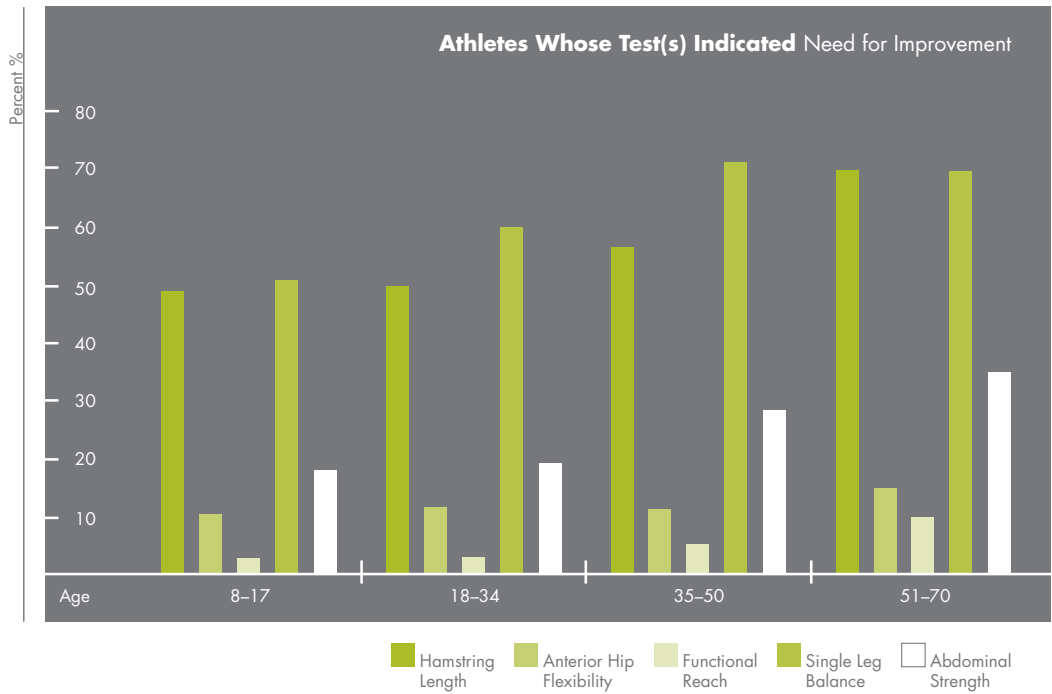
RESULTS - FUNFITNESS



RESULTS - FUNFITNESS

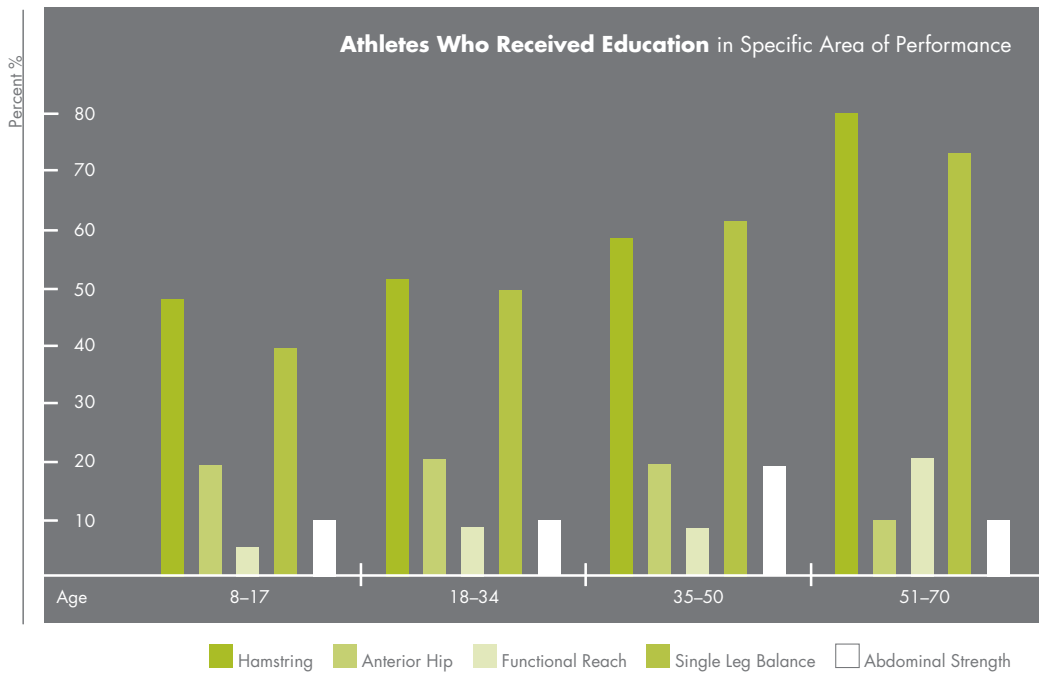
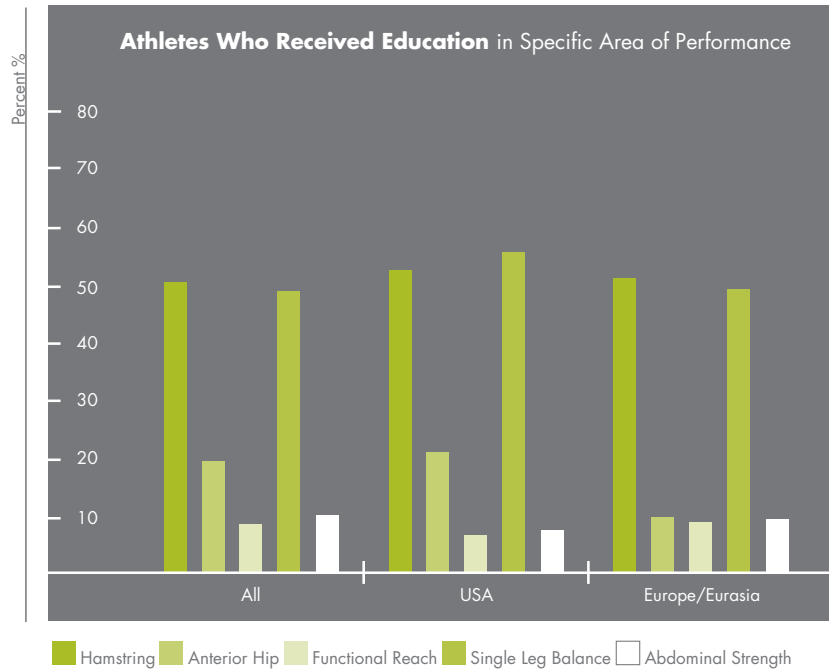


RESULTS - FUNFITNESS

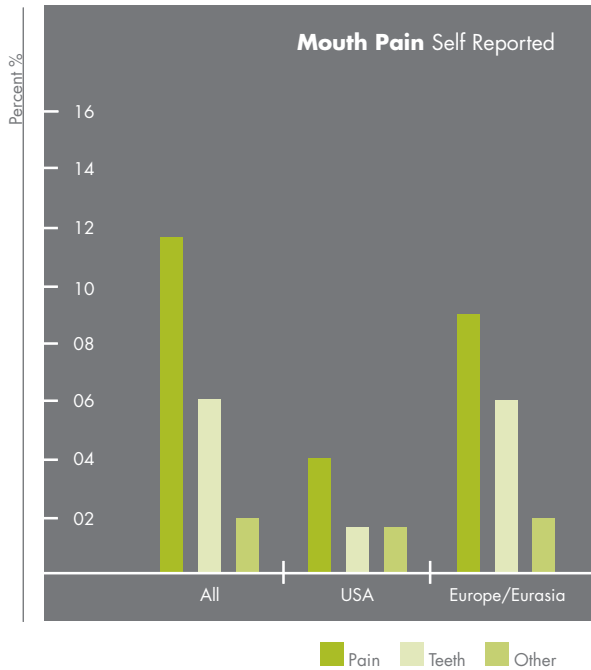


RESULTS - FUNFITNESS

The primary reasons for education and referral were tightness of the hamstring and single-leg balance deficits.



RESULTS - SPECIAL SMILES



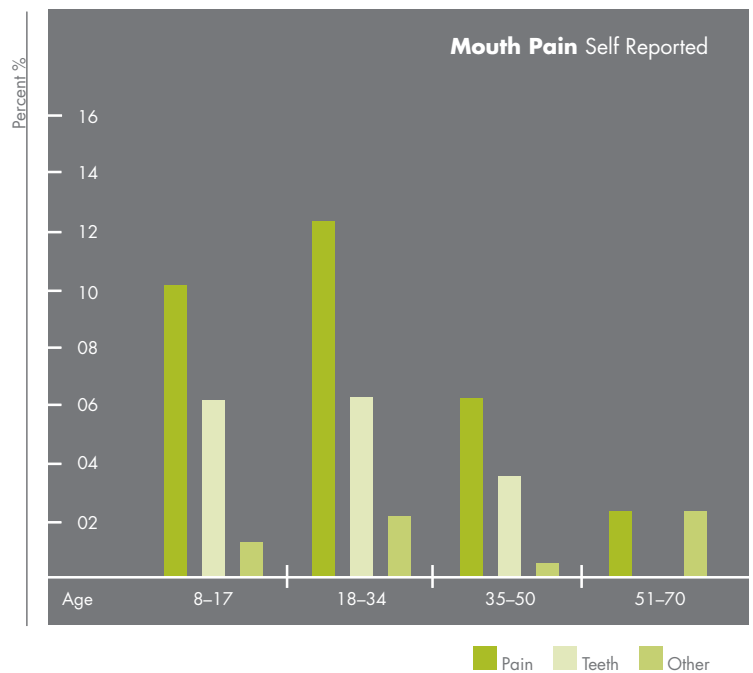
Note: Not all who responded "yes" to mouth pain specified the type.

Special Smiles

Special Olympics Special Smiles® is an oral health screening and education program that assesses oral health conditions according to a standardized protocol developed by the U.S. Centers for Disease Control and Prevention (CDC). All volunteer examiners for this discipline must have been trained according "to the guidelines established by the CDC and are calibrated, ensuring consistent results and reliable data collection. The CDC manual has been tested and used in different populations and proved to be successful. The standardized screenings assess the oral health conditions of the population, including decay, fillings, fluorosis, injury and the presence of periodontal (gum) disease. One-on-one oral health instruction is provided to athletes and includes education in tooth brushing and flossing. Mouth guards are provided for those athletes competing in contact sports. Referral for follow-up care is recommended when necessary.

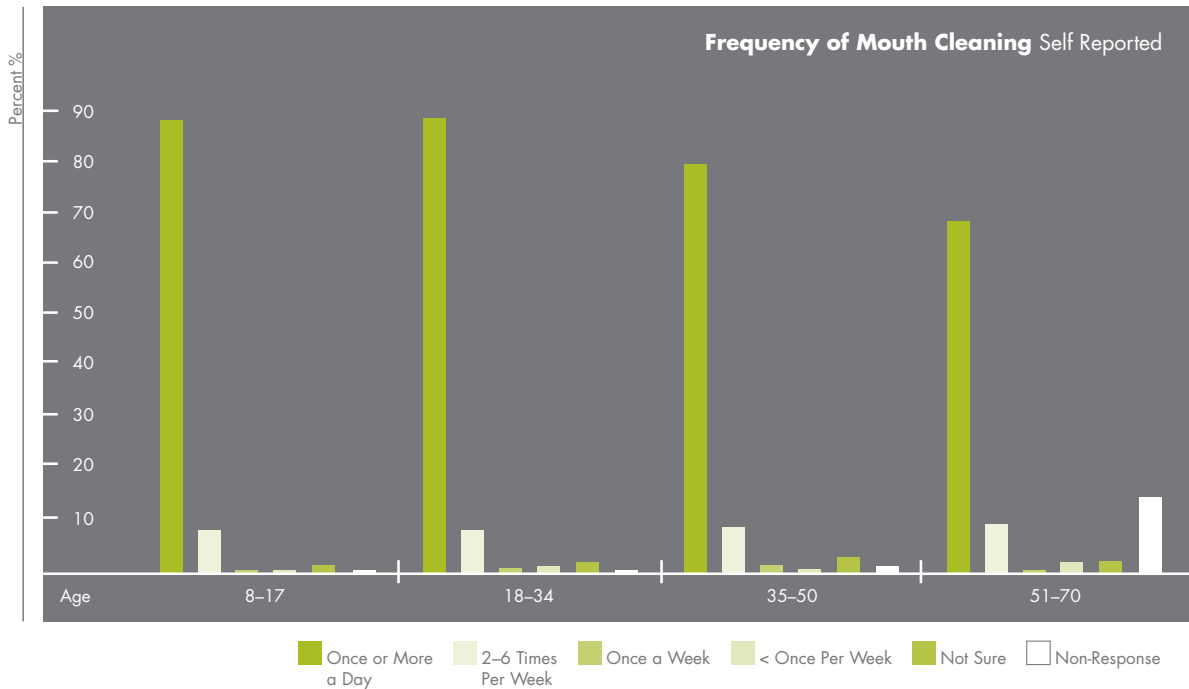
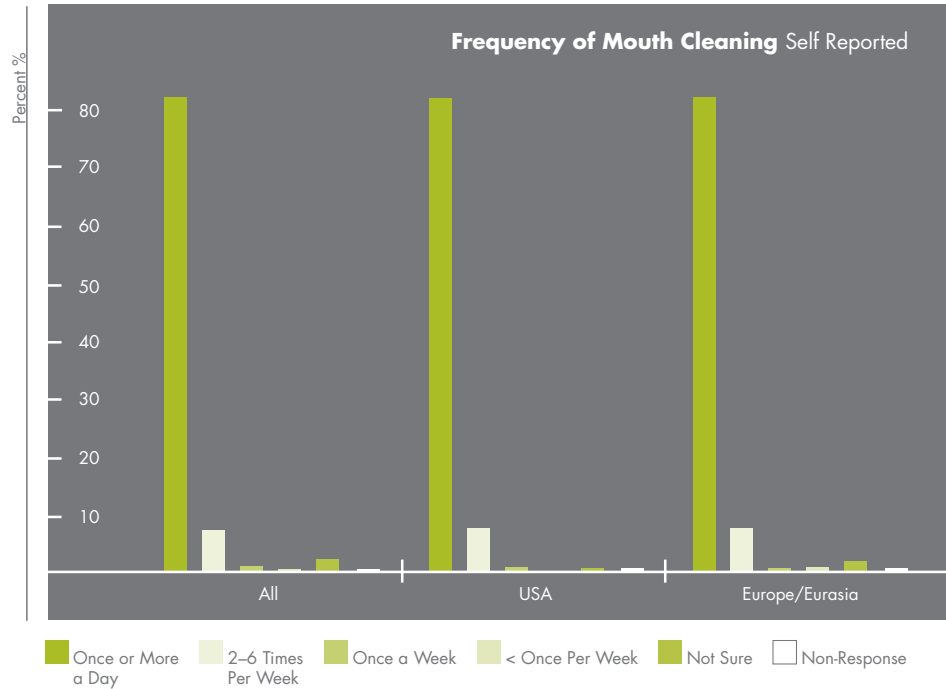
Special Smiles screened 2,859 athletes with a mean age of 23 years.

The prevalence of athletes reporting pain in teeth or gums at the time of examination. Overall, 12% of all athletes reported pain in the mouth at the time of exam.

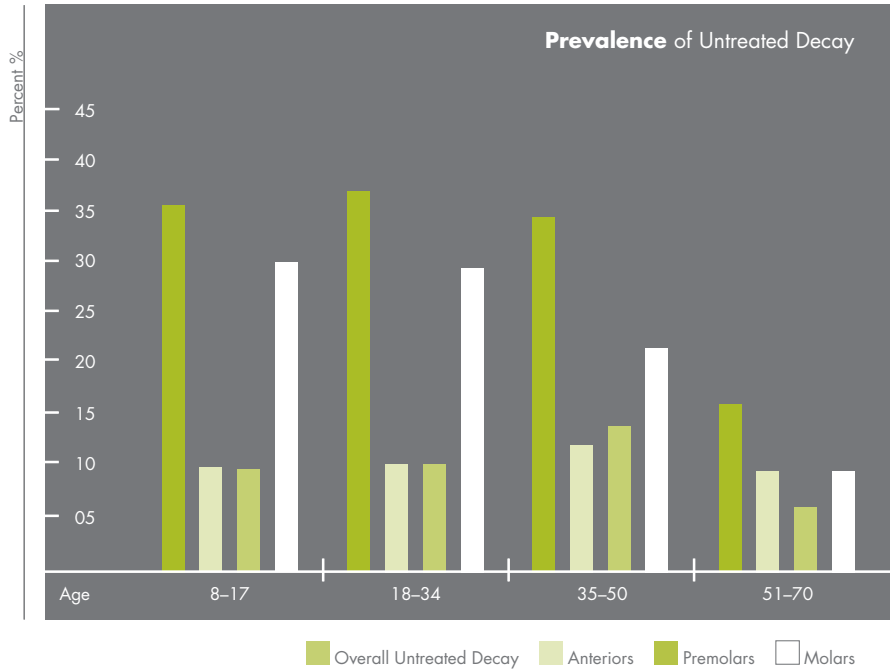


RESULTS - SPECIAL SMILES

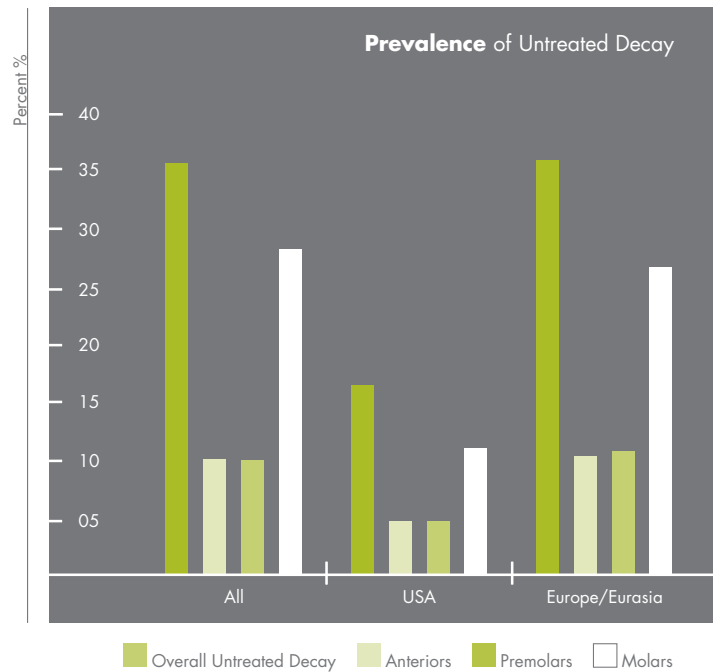
As with the general population, individuals with intellectual disabilities report little variation in the frequency of performing oral hygiene.



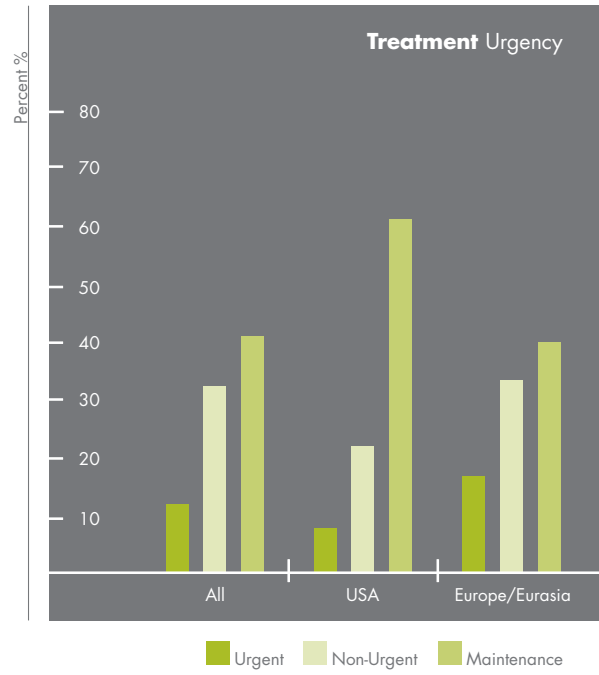
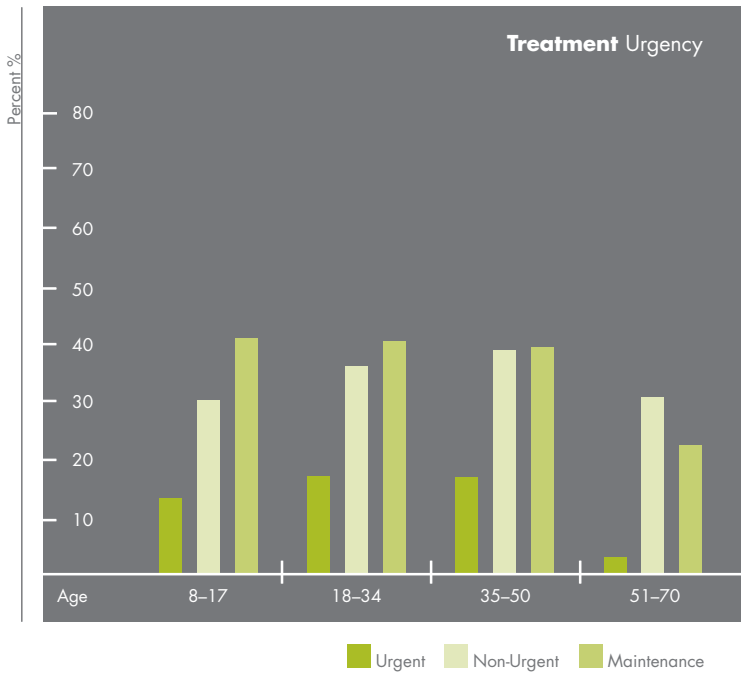
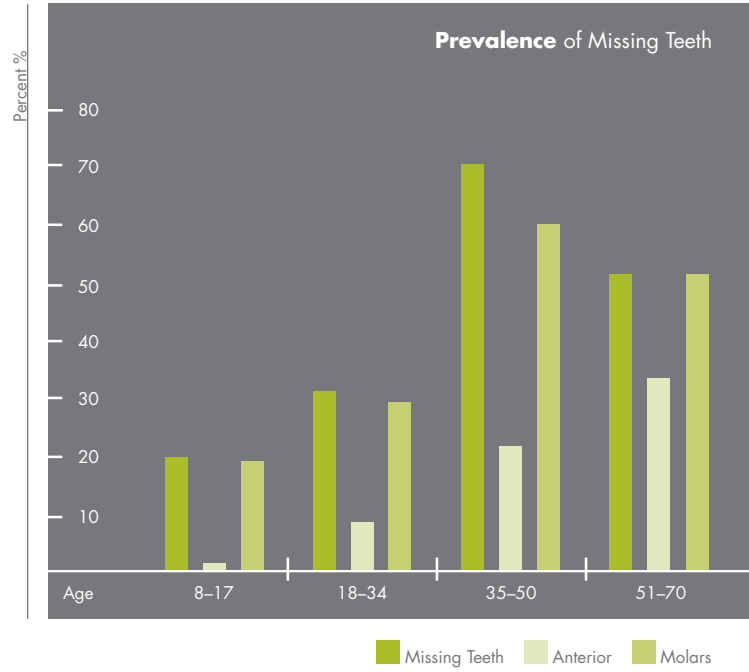
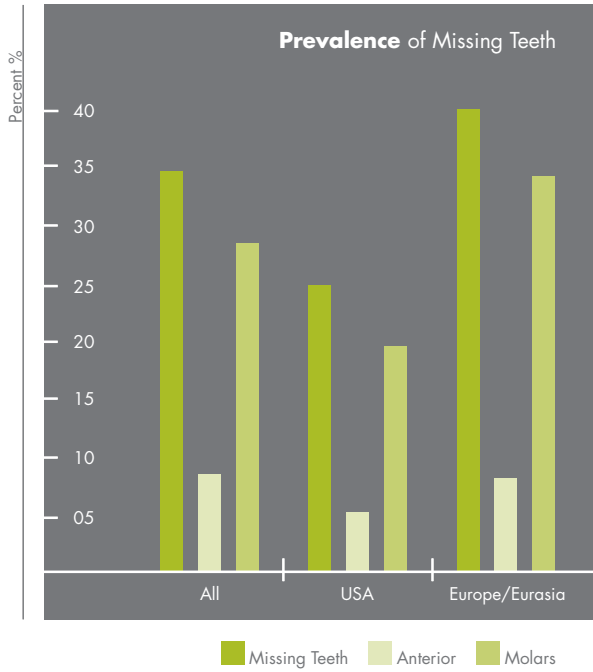
RESULTS - SPECIAL SMILES



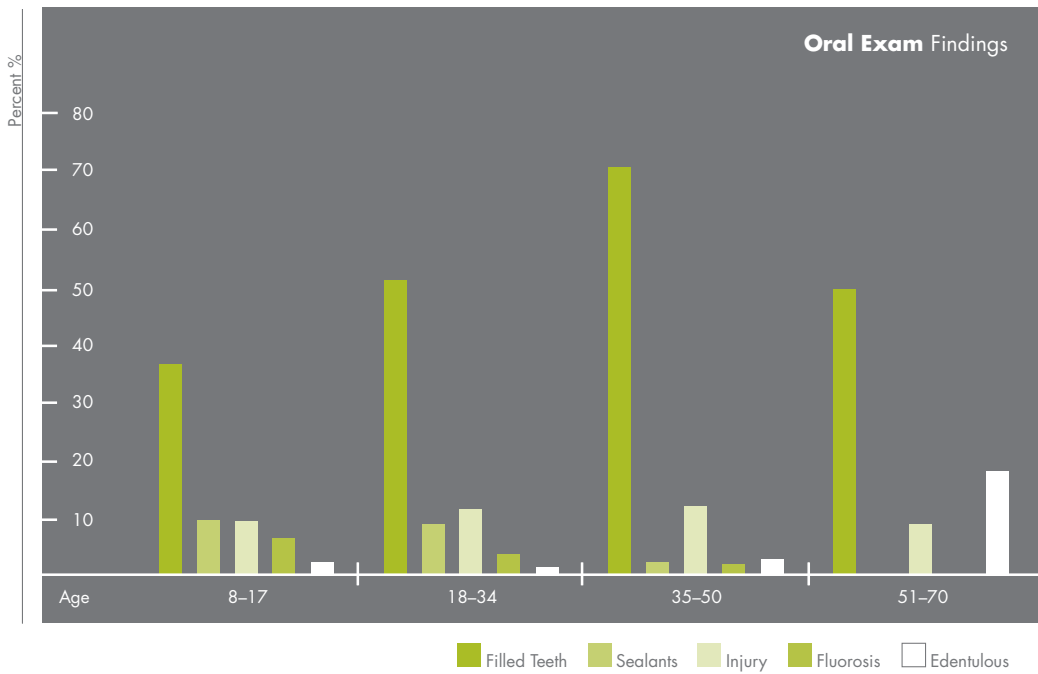
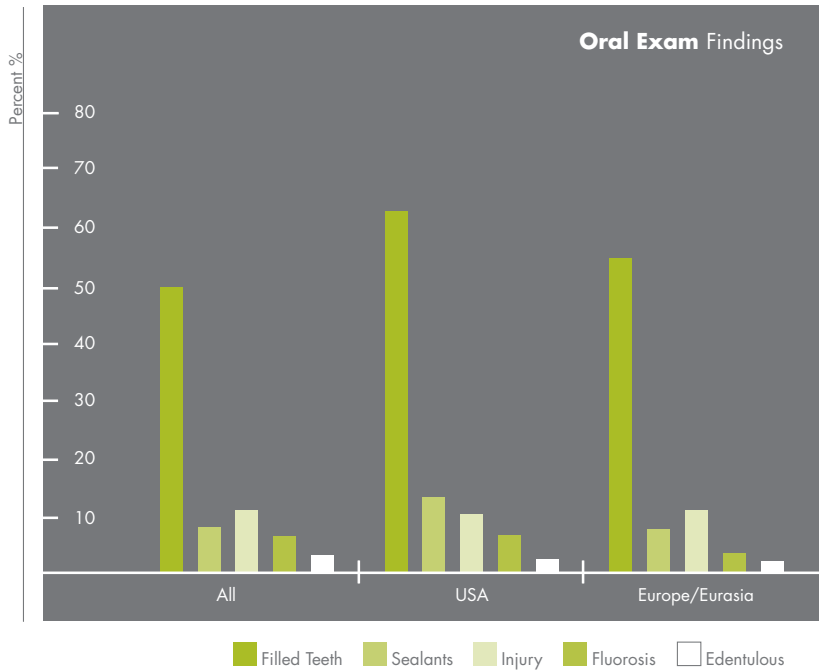
These charts reflect the incidence of untreated decay.



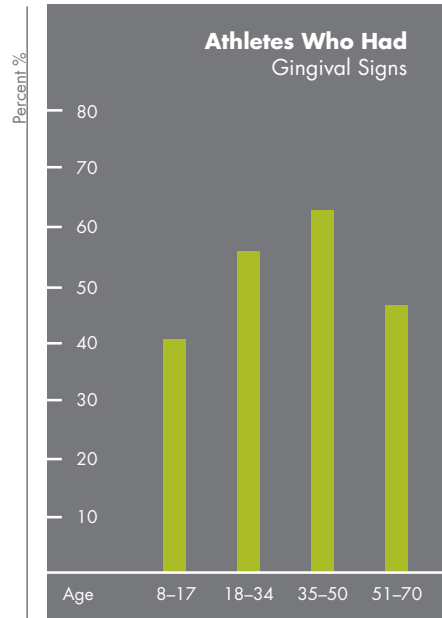
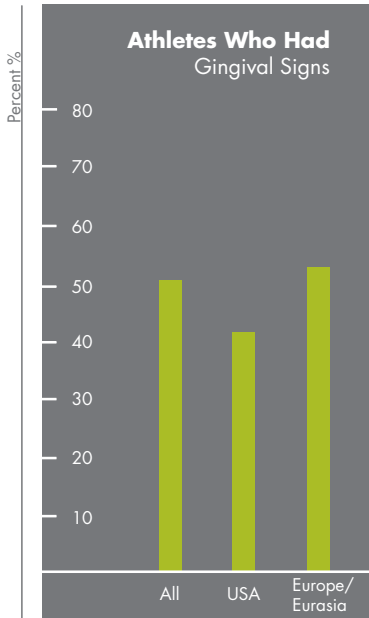
RESULTS - SPECIAL SMILES



RESULTS - SPECIAL SMILES



RESULTS - SPECIAL SMILES



This chart reflects the percentage of athletes who had evidence of obvious gum infection.

Conclusion

These data show that across health disciplines, cultures, gender and age groups, persons with intellectual disabilities have extensive unmet health needs and are not receiving the health care they need, even though they are prone to the same health problems as the general population. These findings are alarming and demonstrate gaps in health care systems for this population that need to be addressed. It stands to reason that for individuals with intellectual disabilities to have their health needs met, there must be trained, willing health care providers available, as well as improved health care systems. Special Olympics is devoted to continuing to raise awareness of the health disparity issues associated with this population.

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APPENDIX A

Program Standards

The health professionals who performed screenings in all disciplines met Special Olympics Healthy Athletes' volunteer qualifying standards. These standards require that each volunteer health professional who works with athletes in a health care setting be accredited and have attended a Train-the-Trainer course or other orientation courses provided by Special Olympics. In the Train-the-Trainer course, instructors outline the standard of care Special Olympics expects volunteer health professionals to provide, as well as teach them the proper procedures for each discipline specific screening. Allied health professionals and health professions students who volunteer at the screenings are supervised by accredited health professionals, but do not make diagnoses.

The main objectives of the screenings are not only to provide free quality health care screenings, but also to increase awareness among health professionals regarding the need for better care for persons with intellectual disabilities. Special Olympics works to educate and change attitudes of health care professionals by encouraging all who participate in our programs to incorporate their experiences into their daily lives and accept persons with intellectual disabilities into their practices.

In addition to the previous six disciplines mentioned in this report, Special Olympics recently has launched a new health screening program, MedFest.

- Special Olympics MedFest is a screening program that facilitates the acquisition of necessary standard sports physical examinations for registration of current and prospective Special Olympics athletes. Through the collaboration of diverse local resources, MedFest provides thousands of persons with intellectual disabilities the chance to participate in year-round Special Olympics sports training and competitions. The physical examinations are conducted by volunteer medical professionals. These examinations include registration and assessments of medical history, height and weight, blood pressure, cardiovascular/abdominal/orthopedic assessments and referral for follow-up care as necessary.

Equipment List

Opening Eyes

- Lea visual acuity charts: visual acuity tests that measure how well the athlete sees objects both near and far. The test is designed so responses can be either verbal or picture matching to eliminate language barriers. The pictures consist of objects that are familiar to most athletes (e.g., apple, house, circle, square).
- Random Dot e stereotest: a test that evaluates how well the athlete uses his or her eyes together.
- Color Vision Made Easy: color vision test that screens for the most common red/green color deficiency that is seen in approximately 6% of males. The test is designed to allow the athlete to localize a simple geometric object.
- Cover Testing: evaluates the athlete for the presence of strabismus (eye turn) with a handheld occluder and fixation targets for distance and near.
- Ophthalmoscopes: with the aid of a direct ophthalmoscope, the internal health of the athlete's non-dilated eye is conducted.
- Autorefractor: electronic device used to detect and measure refractive errors. The machine is held up to the eye while a health professional looks through into the retina, providing an automated estimate of refractive errors.
- Handheld Slit Lamp: instrument used to evaluate the external health of the lids, lashes and orbit (e.g., checks for blepharitis, conjunctivitis, corneal or lens anomalies).
- Tonometer: measures intra-ocular pressure which is used to test for glaucoma.
- Skiascopy Bars: lens bars with a range of lenses mounted in increasing power that are used to correct for low to high levels of farsightedness and nearsightedness. These are used in conjunction with a retinoscope and allow the clinician to neutralize the athlete's magnitude of refractive error (nearsightedness, farsightedness and astigmatism).

Healthy Hearing

- Otoscope and speculum: used for external ear canal inspections, shines light into the ear canal to look for cerumen and other sources of ear blockage.
- Bio-logic Systems Corp. Model AuDX I distortion product otoacoustic emissions screener: objective electrophysiologic test that uses an ear probe to screen for hearing at 2,000, 3,000, 4,000 and 5,000 Hz. Electronic test that contains an ear probe that is soft and molds to the shape of the ear canal, tests both ears.
- Grason-Stadler, Inc., Model GSI 37 Tympanometer: used to measure the response of the eardrum (tympanic membrane) and middle ear function. The tip of the tympanometer is placed firmly in the ear canal and an objective electronic reading is taken.
- Grason-Stadler, Inc., Model GSI 17 pure tone audiometer: screens hearing at 25dB hearing level for 2,000 and 4,000 Hz. Earphones are placed over each ear so that these pure tones can be presented to respective ears. Following a practice experience, the athlete is instructed to raise a hand to indicate when a tone is heard.
- Swim molds: soft ear canal impression material is placed into the right and left ear canals of an athlete. After several minutes, the material hardens to the form of the respective ear canals. These ear molds are then removed, trimmed for comfort and presented to the athlete (with instructions) as personalized swim molds that prevent water from entering the ear canals during swimming and showering.

APPENDIX B

FUNfitness

- **Goniometer:** a device used to measure joint range of motion or muscle flexibility. It can be either 8 or 12 inches long, with a 180 or 360 dial that measures motion in degrees. For FUNfitness, physical therapists measure flexibility, i.e., an assessment of the extensibility of the muscles such as the calf, anterior hip and hamstrings, and shoulder rotators; however, if the athlete's range of motion is not normal, the physical therapists then assess whether it is because the muscles are tight or the joint itself is limited. This can be determined by feeling the limitation, examination and the end feel of motion.
- **Treatment tables:** used for the athlete to sit or lie down on while being assessed
- **Stopwatches:** used to time for functional strength and balance. For functional strength, timed athlete motion from a sitting position to a standing position over the course of 10 trials and number of partial sit-ups in one minute. For balance test, time that the athlete can stand on each leg with eyes open and closed is assessed.
- **Tape Measure:** used to assess distance for balance and flexibility tests. The distance between the fingers is measured to assess adequacy of shoulder rotation. The distance reached while bending forward is assessed to evaluate dynamic balance in functional reach.
- **Eye Covers:** used to occlude vision during the single-leg stance test.
- **Theraband and wrist weights:** used for instruction in home exercises for strengthening.
- **Stretch Strap:** used for instruction in stretching.

Health Promotion

- **Peripheral Instantaneous X-ray Imager (PIXI):** a very accurate electronic device used for measuring bone mineral density to assist in the assessment of fracture risk and osteoporosis. The PIXI scanner utilizes a specially designed dual-energy, low-dose X-ray technology to calculate bone mineral density in a specific area of the heel (a weight-bearing area is better for assessing possible osteoporosis and bone mineral loss). The software and hardware of the PIXI are validated for safety and effectiveness. Athletes place one foot on the scanner and the PIXI scanner then scans the foot and calculates the bone mineral density.
- **Keito K5 multifunctional measuring unit** was used at the 2003 World Games in Ireland: this is a reduced dimension electronic monitor that integrates height and weight measures. The equipment was calibrated on a daily basis and all athletes were weighed in light indoor clothing without shoes.
- **Tanita BWB 800S Weight Scale:** digital scale for measuring weight which is currently required at Health Promotion venues but was not used in Ireland at the 2003 World Games.
- **Portable Height Measuring Unit:** scale for measuring height which is currently required at Health Promotion venues but was not used in Ireland at the 2003 World Games.
- A modified food frequency was used to assess food habits. Health Promotion volunteer dietitians used food pictures to facilitate completion of the food habits questionnaire.

APPENDIX B**Special Smiles**

- Mouth mirrors with attached light source: used to look inside the athlete's mouth to check for dental decay or any other type of oral problems.

Fit Feet

- Mat Scan System: a computerized gait analysis mat, an imaging and tactile force and pressure measurement system. It is accurate and simple to use; athletes walk across the mat barefoot and the mat takes a reading of the pressure points on the bottom of the foot, where the most pressure is placed on the foot while walking. This is data acquisition hardware, analysis software with a data acquisition display, pressure or force sensors, and an optional calibration aid. This system is based on standard IBM PC-compatible platforms.

MedFest

- Blood Pressure Kit: arm band placed around bicep and pump, used to measure patient's blood pressure.
- Height and Weight Scales: used for measuring athlete height and weight.
- Stethoscopes: placed on the front and back of the chest area to check heart and lung function.

Note: The identification of equipment and supplies by brand or manufacturer name are for identification purposes only and does not constitute an endorsement by the authors or Special Olympics.

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