

Physician Perspectives on Children's Musculoskeletal and Vision Disorders in Geneva, Switzerland

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Abstract. This survey of Geneva, and its surrounding areas' medical professionals (Pediatricians, Orthopedic Surgeons, and Ophthalmologists) addressed four questions. First, in the past three years has a physician treated or referred any early stage discomfort; musculoskeletal or vision disorders in children/ adolescents caused by environmental and/or behavioral practices; age of children, amount of children within a certain age bracket, and what major problems were seen in that age bracket; 1a. what were the most common disorders seen by the physicians and; 1b. Physicians' perspectives if the incidence of disorders is increasing, decreasing, or staying the same. Second, what are the disorders' major contributors? Third, what preventative measures do physicians advise to reduce musculoskeletal and vision disorders that are directly linked to environmental and/or behavioral causes. Fourth, what other problems relate to children that physicians feel are important or have seen an alarming increase of. Twenty-one thorough surveys were returned (a response rate of 27%). Physicians have treated and referred children with musculoskeletal and vision disorders as young as 10 years old and below, with the majority of children in all age brackets from 10 and under to 23 years of age being seen for back pain, the most common disorder seen by physicians. Out of eleven physicians, 2 physicians reported that the incidence is increasing, 8 physicians reported the incidence is staying the same, and 1 physician reported he/she did not recognize a trend. The major contributors to disorders included several factors with a repetitive theme around poor posture. Although several preventative measures were advised by the physicians, physical activity and improvement of posture were the major factors that are directly linked to reduce future disorders. The majority of problems related to young people that physicians have seen an alarming case of include less physical activity and an increase of sedentary and static activities (computer, videogames, and television) which increases risk for injury.

INTRODUCTION

In Switzerland, and many other western countries, back and other musculoskeletal problems are one of the largest causes of claims against medical insurance and worker's compensation, and hence one of the most significant drivers of insurance premiums (La Suisse Insurance, 1999). They are also a major cause of worker absenteeism and staff downtimes. This issue should be addressed proactively rather than reactively. The majority of these problems can be linked to an accumulation over a long period of time and stress from repetitive actions or poor postures. Sound postural and ergonomics education for children in the present- when their bodies and habits of movement and posture are still developing can potentially have a significant impact on the future costs of healthcare, and also contribute to increase efficiency and morale in the future workforce.

Poor posture while sitting, writing, typing, or playing can cause pain and other symptoms in the back, shoulders/arms/wrists, neck legs, and eyes. Repetitive strain injuries (RSIs), which afflict millions of people worldwide, are appearing in college students, teenagers, and even primary school children. Research in the US reported that approximately 23% of elementary school children complain of backache and that this percentage rises to about 33% among the secondary school population (Mierau, 1984, cited in Marschall, Harrington, and Steele, 1995). Two European studies even found that as many as 60% of school children experience back problems by the ages of 15 or 16 (Balague, 1988 and Davoine, 1991, both cited in Mandal, 1997). The lifetime prevalence of low back pain has been estimated at nearly 70% for industrialized countries and much of this is related to poor posture when sitting (Anderson, 1991).

With the increase of computer use at home and school, there is a significant change in the way that children and young adults learn, work, and play. However, little emphasis or education has yet been placed on the health risks that arise from this change- particularly to the musculoskeletal system and to the eyes. Poor posture when utilizing the computer and perhaps less obvious poor lifting and carrying techniques for book bags (backpacks) can contribute to bad habits learned at an early age which can be difficult to break in later life. Such habits, when carried beyond childhood and into the workforce, can lead to a higher probability of injury or other health problems. It is easier to learn good habits as a child than breaking old habits later into adulthood. Educating our children about postural awareness, computer ergonomics, and backpack safety are just as important as nutrition, exercise, and personal safety.

METHOD

One hundred twenty-seven surveys were distributed to a representative sample of 21 Medical Professionals including Pediatricians, Orthopedic Surgeons, and Ophthalmologists in Geneva and its surrounding areas, Switzerland. The physicians received the surveys through the mail and were also given a postage stamped return envelope. The survey was divided into four sections that addressed the following areas:

1. In the past three years has a physician treated or referred any early stage discomfort; musculoskeletal or vision disorders in children caused by environmental and/or behavioral practice; age of children, amount of children within a certain age bracket, and what major problems were seen in that age bracket; 1a. What were the most common disorders seen by the physicians and; 1b. Physicians' perspective if the incidence of disorders is increasing, decreasing, or staying the same.
2. What are the disorders' major contributors?
3. What preventative measures do physicians advise to reduce musculoskeletal and vision disorders that are directly linked to environmental and/or behavioral causes.
4. What other problems relate to children that physicians feel are important or have seen and alarming increase of.

Gierlach, (2002) distributed formal letters to participating physicians regarding information via training materials to facilitate a positive impact on children's health and safety along with the survey results and handouts on "What is Ergonomics?", Computer Ergonomics for Children, and Backpack Safety.

RESULTS

1. *Musculoskeletal or vision disorders in children caused by environmental and/or behavioral practice...*

Out of nine various areas of the body (including overall body fatigue) listed, physicians checked off which areas of the body patients were suffering from early stages of discomfort or disorders they have treated or referred in the past three years:

Musculoskeletal fatigue in children-1 physician replied, Eyes-1 physician replied, Legs-2 physicians replied, Shoulders-3 physicians replied, BACKS-8 PHYSICIANS REPLIED, {Hips, Necks, Hands, Elbows, and Wrists, other- 0 or blank}

**Patients under 10 years of age (in past 3 years) - Four physicians replied Yes*

Total children seen by physicians who replied yes: 20+ approximately (some difficulty with precise number due to time span for all ages)

Major problems in this age include: "pain in the back and functional limitation, lower back pain, back and knee pain, trouble concentrating/ fatigue"

**Patients between ages of 10 and 17 (in past 3 years) - Nine replied Yes*

Total children seen...: 136+ approximately

Major problems...include- "lower back/ contractures, knee and back pain, lower back pain, 1) pain in lower back/ mid area of body 2) pain in the scapular belt, muscular fatigue, muscular cramps/ back pain, trouble concentrating/ fatigue"

**Patients between ages of 17 and 23 (in past 3 yrs) - Seven replied Yes*

Total see: - 193+ approximately

Major problems...include:"lower back pain, knee and back trouble/ pain, lower back pain, vision trouble seeing monitor (computer)"

1a) *Most common disorders seen by physicians in past 3 years: "pinched vertebral nerves/ muscular contractures, not really scoliosis but starting to lean towards scoliosis (not true Scoliosis diagnosis), lower back, lower back/various stages of muscular contractures, trouble with vision related to working on computer, bad postures/ poor writing, bad back posture, Asymmetrical Spinal Axis (leaning towards scoliosis), lower back pain"*

1b) *Out of 11 Physicians:*

2 replied incidence of problems increasing

8 replied incidence is staying level

1 replied he did not recognize a trend

2) *Physicians replied the major contributors to ... problems:*

"Poor sitting posture; when individual is always working seated with information/ work, lack of exercise/ tall height/ growing fast...growth spurts/ valgus... varus, bad habits, insufficient/ absence of stretching; without effort in gym at school or activities such as sport, poorly controlled postures/ movements (especially around waist, hip, lower back), poor posture at school and home/ simple or no appropriate gym programs at school/ poor info., lack of physical activity, children are not active(do nothing), poor refraction of growing eyes-related to monitors, physical activity generally reduced/ poor-inadequate posture at school and home during studying/ furniture badly adapted, poor sitting posture-not level with table; always too high or too low, many injuries occurring due to turning/ twisting at the waist and reaching while seated"

3) *Preventative measures that are advised... to reduce injuries:*

"Increase of physical activity in particular non sportive (bike, walking up stairs instead of elevator and going out more to play)/ postural advice, advice for study time and advice for viewing of television at home, take care of early signs of vision problems right away- do not wait, improve posture, physical activity and posture, adaptation of workstation/ suitable sports programs, exercises

to work/ concentrate on midsection of body/ everyday stretching mostly concentrating on ischeal tuberosity for boys (when an individual sits the weight is borne entirely by the ischial tuberosities; section where tendon is effected if muscle pulled, increase physical activity/ improve posture, management of time/ discipline/ hygiene/ lifestyle/ individual sport/ daily involvement in activities/ active life/ scouts/ also a chair that would have no back and child would sit in a slight prayer position/ as well as a calm environment., physical activity (swimming)/ improve lifestyle (physical activity, hygiene), after 45-60 min(s) of intense static-straight work an individual has to favor their eyes to relax- exercise and stretch, in principle inform the parents and a healthy group environment in school; these two assembled together are important if possible”

4) *Other problems... alarming increase of:*

“Lifting items that are disproportionate to body/ television abuse (watching too much), obesity/ violence, and absence of parental guidance, place of work not adapted or changeable to height of children at school or home, static dorsal back, general decrease of physical activity, need to increase physical activity in front of the screen (computer, television, video)”

DISCUSSIONS AND/OR CONCLUSIONS

It is important to stress that the survey asked physicians if they have treated or referred early stages of *discomfort*; musculoskeletal or vision disorders caused by environmental and/or behavioral practices which allows for a large sample size of patients who are clinically complaining of discomfort (which does not imply that these individuals will eventually have a disorder in the future but shows they are complaining of some sort of pain), as well as individuals who are diagnosed with a musculoskeletal or vision disorder. The particular reasons for the individuals’ discomfort is discussed with the patient and parents as reported in the survey. Frequency and intensity was not measured but the fact that physicians are treating individuals complaining of discomfort caused by environmental and/or behavioral practices is concerning.

In some office and industrial environments, workstations can be adjusted/ retrofitted to fit each individual as observed by some companies hiring Ergonomists to assist their employees so their workstations are comfortable, to decrease the likelihood of injury/ worker’s compensation claims, and lastly increase efficiency/ worker morale. Information regarding safety and health for a healthier happier worker is present in many work environments also. Proper safety/ health education and comfortable workstations is advantageous for people of all ages if the outcome leads to increased comfort and decreased likelihood of injury. Children’s bodies are more forgiving than adults’, but over time bad habits may lead to injury in the future or even permanent disabling conditions. Proactive postural and ergonomics education for children/ adolescents in the present- when their bodies and habits of movement/ posture are still developing can have a significant impact on future costs of healthcare and the morale of the future workforce.