

“BACKS” TO SCHOOL

SUMMARY

When the 2006-2007 San Diego County Grand Jury convened in July of 2006, most of San Diego County’s school children were on summer break. However, as Jury members went about their business, they noticed many children laboring under the weight of heavy backpacks while heading to summer school classes.

In September when regular school began, monitoring of backpack use continued. Very rarely did jurors see children wearing their backpacks as recommended by the American Academy of Pediatrics (Appendix C). Too often, they were slung over one shoulder, and it was most unusual to see children wearing the waist straps that should be used to help distribute the weight. In many cases, children were bent over carrying what was obviously too heavy a load. During one instance a juror observed a young girl bent at more than a 45 degree angle while wearing what certainly appeared to be a quite heavy backpack.

These observations prompted Jury members to ask: “Is carrying large, heavy backpacks detrimental to the health of children?” During the course of extensive research into this question, it was found the answer is a resounding “Yes.”

PURPOSE

- To learn whether orthopedic physicians are treating increased incidences of spinal maladies caused by overweight or improperly worn backpacks
- To suggest how such maladies could be alleviated and/or prevented
- To ascertain if schools are following the recommendations contained in California Assembly Concurrent Resolution No.10 (Appendix A)
- To determine if California Assembly Bill No. 2532, passed in September of 2002, that limits text book weight has been helpful, (Appendix D)

PROCEDURES

- Interviewed an orthopedic surgeon
- Studied numerous professional medical articles found on the Internet
- Read newspaper and magazine articles

- Reviewed a California Assembly Resolution (AR10) and a California Assembly Bill (AB 2532)
- Interviewed state, district and local educators
- Spoke with school bus drivers
- Developed and sent a survey questionnaire to 36 San Diego County school districts
- Contacted district Parent Teachers Association
- Observed children at middle and elementary schools

DISCUSSION

To gather information, the Jury chose to use the Internet to begin to amass data concerning the backpack question. There were more than 120,000 “hits” when jurors queried Google’s Internet site for references linking improper backpack use to orthopedic injuries! The jury read dozens of these entries from recognized authorities such as the American Medical Association and the American Academy of Pediatrics. Grand Jury members listened to radio segments dealing with backpacks, collected newspaper and magazine articles and continued to observe children going to and from schools. The Grand Jury also collected cartoons about the heaviness of backpacks; a sure indicator the issue has hit the mainstream media.

Although searchers must use caution when relying on data provided by the Internet, a wealth of information can be obtained by using Google and entering “Orthopedic problems caused by heavy backpacks” in the search area of the web page.

Among the items found was California Assembly Concurrent Resolution No. 10 (ACR 10) that was to have been sent to all California school districts in 2002-2003. This resolution, voted on and approved by both the California Assembly and Senate, warned of the dangers surrounding improper use of backpacks, primarily regarding weight and improper carrying methods. (Appendix A).

To learn how ACR 10 may or may not have been implemented, the Grand Jury queried the State Board of Education in Sacramento. We learned schools were made aware of ACR 10, but since it carried no force of law, implementation was at the discretion of the individual school. The jury was advised of another Assembly action; California Assembly Bill No. 2532 (AB 2532) deals with limiting the weight of text books to alleviate some of the burden children carry.

As a result, the Jury then decided to develop a survey questionnaire and sent it to the 36 of 40 San Diego County school districts that are not exclusively high school districts. Districts comprised only of high schools were not included because older students are generally bigger and stronger and better able to handle heavy backpacks without the adverse results found to affect younger children. (The survey and the tabulated responses are included in (Appendix B).

One of the districts provided such outstanding answers to the survey that the Grand Jury interviewed the respondent. During that interview, the Jury learned this particular district recognizes the carrying and storage problems as well as potential medical ailments caused by backpacks. The Jury was told this district accommodates upper grade students by having backpack hangers in class and holders outside classrooms. Children in lower grades have storage in their desks.

Teachers monitor students entering and leaving the campus to ensure that backpacks are worn correctly. According to this district representative, the kids did not resent being told to wear their packs correctly. Parents are brought into the equation along with their children during district-wide health education sessions as part of a student wellness program. This representative also suggested local physicians and chiropractors might have informational material to help children learn how properly to pack and wear their backpacks.

While it must be stressed that ACR 10 did not and does not have the force of law, it became clear during the tabulation of the survey that follows-- the suggestions contained in that resolution were NOT universally followed.

An interview with three school bus drivers provided a different perspective. These drivers informed the Jury they rarely saw a passenger wearing his or her backpack correctly. They added that many of these packs are extremely heavy and often used as weapons or placed in the aisle creating a tripping hazard

In order to find out if there was any area-wide Parent Teacher Association (PTA) program concerning backpacks, the Grand Jury contacted the San Diego District PTA headquarters. The respondent knew of no PTA involvement to monitor backpack usage and did not know if schools had ever received ACR 10.

Is there medical documentation to support the belief back problems are on the rise?

When the Grand Jury interviewed a local orthopedic surgeon, he acknowledged there is an increase in back problems among elementary and middle school students reported to and treated by spinal specialists. He was cautious about attributing these problems solely to the improper use of backpacks and pointed out some spinal problems may be caused by activity in one or more sports. He told us long term improper wearing of backpacks can cause muscle fatigue and can alter bone growth. Any problems may be exacerbated

if children are obese, and he noted both boys and girls are affected about equally. He suggested loads be lightened and /or wheeled backpacks be used. Alternatively, he suggested schools should recommend a mandatory approved backpack that distributes weight proportionate to the body weight of children. During this interview, the doctor advised us of informative web sites, among which are:

<http://aaos.org>, American Academy of Orthopaedic Surgeons

<http://spineuniverse.com>. SpineUniverse

<http://www.healthfinder.gov/orgs/HR3539.htm>, North American Spine Societies

<http://srs.org>. Scoliosis Research Society

Many children, teens and adults carry up to 40 lbs. and are potentially injuring themselves. For a chart of recommended weights, see Appendix D jointly issued by the American Physical Therapy Association, the American Academy of Orthopedic Surgeons and the American Chiropractic Association.

FACTS AND FINDINGS

Fact: Backpacks are a convenient way for children to carry their books and supplies to and from school

Fact: Medically approved methods to pack and carry backpacks are readily available

Finding: A great majority of observed children were not following these guidelines

Fact: Many medical practitioners state children should not have to tote heavy backpacks on their way to and from classrooms and suggest items not needed should be stored in a locker

Finding: Because of a concern lockers would be used to hide inappropriate material (such as weapons and drugs) most new schools are not including lockers in their construction plans and the majority of districts that have existing lockers no longer allow students to use them

RECOMMENDATIONS

The 2006-2007 San Diego County Grand Jury recommends that the San Diego County Board of Education and the San Diego City School Board Trustees:

07-06: Make a concentrated effort to publish guidelines for backpack use and monitor students for compliance.

- 07-07:** Consider retrofitting existing lockers with “see through” doors to make inspection for contraband easier.

COMMENDATION

The Grand Jury wishes to thank Brian Jacobs, Ed.D, director of educational services of the Fallbrook Union School District, for his excellent response to the “Locker Usage/Backpack Questionnaire” and his helpful and informative comments.

REQUIREMENTS AND INSTRUCTIONS

The California Penal Code §933(c) requires any public agency which the Grand Jury has reviewed, and about which it has issued a final report, to comment to the Presiding Judge of the Superior Court on the findings and recommendations pertaining to matters under the control of the agency. Such comment shall be made *no later than 90 days* after the Grand Jury publishes its report (filed with the Clerk of the Court); except that in the case of a report containing findings and recommendations pertaining to a department or agency headed by an elected County official (e.g. District Attorney, Sheriff, etc.), such comment shall be made *within 60 days* to the Presiding Judge with an information copy sent to the Board of Supervisors.

Furthermore, California Penal Code §933.05(a), (b), (c), details, as follows, the manner in which such comment(s) are to be made:

- (a) As to each grand jury finding, the responding person or entity shall indicate one of the following:
 - (1) The respondent agrees with the finding
 - (2) The respondent disagrees wholly or partially with the finding, in which case the response shall specify the portion of the finding that is disputed and shall include an explanation of the reasons therefor.
- (b) As to each grand jury recommendation, the responding person or entity shall report one of the following actions:
 - (1) The recommendation has been implemented, with a summary regarding the implemented action.
 - (2) The recommendation has not yet been implemented, but will be implemented in the future, with a time frame for implementation.
 - (3) The recommendation requires further analysis, with an explanation and the scope and parameters of an analysis or study, and a time frame for the matter to be prepared for discussion by the officer or head of the agency or department being investigated or reviewed, including the governing body of the public agency when applicable. This

time frame shall not exceed six months from the date of publication of the grand jury report.

- (4) The recommendation will not be implemented because it is not warranted or is not reasonable, with an explanation therefor.
- (c) If a finding or recommendation of the grand jury addresses budgetary or personnel matters of a county agency or department headed by an elected officer, both the agency or department head and the Board of Supervisors shall respond if requested by the grand jury, but the response of the Board of Supervisors shall address only those budgetary or personnel matters over which it has some decision making authority. The response of the elected agency or department head shall address all aspects of the findings or recommendations affecting his or her agency or department.

Comments to the Presiding Judge of the Superior Court in compliance with the Penal Code §933.05 are required from the:

<u>Responding Agency</u>	<u>Recommendations</u>	<u>Date</u>
San Diego County Board of Education	07-06, 07-07	07/30/07
San Diego City School Board Trustees	07-06, 07-07	07/30/07

APPENDIX A

CALIFORNIA LEGISLATURE—2003–04 REGULAR SESSION

Assembly Concurrent Resolution No. 10

Introduced by Assembly Member (Mervyn M.) Dymally

December 11, 2002

Assembly Concurrent Resolution No. 10--Relative to pupil health.

LEGISLATIVE COUNSEL'S DIGEST

ACR 10, as introduced, Dymally. Heavy backpacks.

This measure would acknowledge the health risks that heavy backpacks pose to pupils and urge the Superintendent of Public Instruction to inform every school district about the passage of this resolution. The measure would also urge the Superintendent of Public Instruction, school districts, and parents and guardians to take actions necessary to avoid potential injury to pupils caused by heavy backpacks. Fiscal committee: yes. WHEREAS, Surveys have found that backpacks can cause pupils problems; and WHEREAS, A recent survey has found that heavy backpacks can cause pupils back problems; and WHEREAS, Back to school should not signal the start of aches and pains, but for many pupils who use backpacks it could mean visits to the physician's office; and WHEREAS, In a survey conducted by the American Academy of Orthopedic Surgeons in October of 1999, 58 percent of the orthopedists reported seeing patients complaining of back and shoulder pain caused by heavy backpacks; and WHEREAS, "Overloaded backpacks are contributing to these increased visits to the physician's office," reported Charlotte B. Alexander, MD, practicing orthopedic surgeon, Houston Sports Medicine Associates, Houston, Texas, at the academy's Orthopedics Update; and WHEREAS, More than 70 percent of the orthopedists surveyed indicated that backpacks can become a clinical problem in school-age children if not enough attention is given to keeping the weight of the backpacks within reasonable levels; and WHEREAS, The survey conducted by the American Academy of Orthopedic Surgeons which included responses from more than 100 physicians at the Children's Memorial Hospital, Chicago, Illinois, and at the Alfred I. DuPont Hospital for Children, Wilmington, Delaware, also concluded that a backpack could cause injury to a child when it weighs 20 percent or more of the child's body weight, stating that "If you have an 90-pound female carrying a 20-pound backpack, then the backpack weight becomes a medical issue," and that "It is at this level when pupils should experience some sort of muscle fatigue or injury to their bodies especially the spine and shoulders"; and WHEREAS, Fifty percent of the physicians surveyed also indicated that a pupil's backpack becomes a clinical problem if it weighs 20 pounds or more; and WHEREAS, Most pupils surveyed are carrying backpacks weighing more than 10 percent of their body weight and many pupils are carrying backpacks that exceed 20 percent of their body weight; and WHEREAS, The survey found one 10-year-old female pupil was carrying a backpack weighing 47 pounds; and WHEREAS, Overloaded backpacks used by children have received a lot of attention in schools; and WHEREAS, Parents, school staff, and administrators have started to voice concern about the dangers that use of heavy backpacks pose to pupils; and WHEREAS, As specialists who treat the musculoskeletal system, orthopedists are concerned about this potential hazard to a

child's body; and WHEREAS, Orthopedic surgeons are starting to notice an increase in children visiting their offices with muscle fatigue problems that in the past were generally seen only in adults; and WHEREAS, In 1998, the Consumer Product Safety Commission tracked visits to physician offices, clinics, and hospital emergency rooms that were related to backpacks and found children 5 to 14 years of age had 10,062 visits and teens 15 to 18 years of age had 2,719 visits; and WHEREAS, The survey indicated that excessive weight carried in backpacks can cause some children to develop bad habits, including poor posture or excessive slouching, early in life; and WHEREAS, The orthopedists in the survey noted that one of the reasons why children's backpacks are now heavier than they were years ago is that pupils carry more books with them because there is less time between classes during which pupils may visit their lockers; and WHEREAS, Asking pupils to modify the way they currently use their backpacks is one way to combat the problem; and WHEREAS, Orthopedic surgeons involved in the survey recommended that children and their parents adopt the following guidelines when using backpacks: (1) A backpack's weight should not exceed 20 percent of the pupil's body weight, and even less for younger children. (2) A pupil should use a hip strap for heavier backpacks. (3) A pupil should use a backpack with wide, padded, straps and a padded back; and WHEREAS, It is, also, recommended that pupils do all of the following: (1) Use both of the backpack's straps, firmly tightened, to hold the backpack so that the bottom of the backpack remains at least two inches above the waist. (2) Engage in exercise to condition back muscles and ask an orthopedic surgeon for advice. (3) Use the correct lifting techniques, remembering to bend with both knees when picking up a heavy backpack. (4) Place the heaviest items closest to your back. (5) Neatly pack the backpack and try to keep the contents from shifting. (6) Try to make frequent trips to the locker, where appropriate, to replace books between classes. (7) Consider purchasing a backpack with wheels. (8) Consider obtaining a second set of books for use at home And WHEREAS, Across the nation millions of elementary and high school pupils race off to the school bus or scurry to their classes with overstuffed backpacks slung over their shoulders; and WHEREAS, While carrying a backpack to school each morning might seem harmless, it can cause some painful back and neck problems for pupils who overload their backpacks or who do not pack or carry their backpacks properly; and WHEREAS, The improper use of backpacks can lead to muscle imbalance that could turn into chronic back and neck problems later in life; and WHEREAS, Back pain is pervasive in our society. 80 percent of all Americans will suffer from it at some point in their lives, and 50 percent will suffer from lower-back pain this year alone; and WHEREAS, Lower-back pain is the most common health problem experienced by working Americans today and is a condition that costs our nation's economy at least 50 billion dollars a year in lost wages and productivity; and WHEREAS, Much of this suffering is brought on by bad habits initiated during younger years, which can be attributed in part to the carrying of overweight backpacks to and from school; now, therefore, be it *Resolved by the Assembly of the State of California, the Senate concurring*, That the Superintendent of Public Instruction inform every elementary school district, high school district, and unified school district about the passage of this resolution, and that the districts, in turn, inform parents and guardians about the passage of this resolution; and be it further *Resolved*,

That the Superintendent of Public Instruction, school districts, and parents and guardians are urged to take action necessary to avoid potential injury to pupils caused by heavy backpacks.

APPENDIX B

Locker Usage/Backpack Questionnaire and Responses

School District Reporting _____

Individual responding/title _____

Contact information _____

1. Do any of the schools in your district provide lockers for students?

Responses: 22 of the responding schools do not have lockers, two have lockers, four have lockers for gym classes only, four have lockers for high schools and one has lockers for middle school students.

2. If yes, where are these lockers located relative to home class rooms?

Responses: Lockers are located near the gym, two have lockers “spread around the campus,” and one has lockers located outside of classrooms, but near the gym.

3. If yes, how much time is provided between classes to access lockers?

Responses: Four are accessible in five to 8 minutes; one does not allow locker access between classes.

4. If yes, are lockers inspected, and if so, how often and by whom?

Responses: In one case, the principal has keys to all lockers, but inspects them only if there is reason to suspect something inappropriate is being stored, one inspects lockers weekly, one checks the lockers at the beginning and end of the school year and one looks at lockers only at the end of the term.

5. If yes, are locker usage rules explained to students and their parents/guardians?

Responses: In six cases, locker rules are explained to students, in five cases, usage rules are explained to parents, one district noted that no parent has asked for rules to be explained.

6. Is there an educational program in place to explain the proper use of backpacks to students and their parents/guardians?

Responses: Two districts answered yes, one school mentioned explanations are given during school assemblies and one said rules are explained on a case-by-case basis and one answered rules are contained in student handbooks.

7. If yes, how is this information disseminated?

Responses: One district has a “parents information night” during which school rules including those concerning backpacks are explained, one covers the subject in a handbook and during assemblies and in two cases, teachers discuss the subject.

8. How do teachers or other staff monitor how children carry their backpacks?

Responses: At six districts, teachers monitor how the children are wearing backpacks, in two districts, proper wearing of backpacks is covered in safety guidelines, and in one each, teachers and staff coach the children, a nurse observes and when improper use is noted, it is handled on an individual basis with the student. One district did not see improper use of backpacks as a problem.

9. Do your schools permit the use of rolling backpacks?

Responses: Twenty-six of the responding districts permit rolling backpacks, only one does not.

10. Can you provide records of backpack accidents?

Responses: None of the responding districts had any accidents to report, although four would keep such records if necessary.

11. Can you provide records of injuries caused by backpacks?

Responses: None of the responding districts had any injuries to report, although five added they would keep such records if necessary.

Please return this survey to:
San Diego County Grand Jury
330 W. Broadway, Suite 477
San Diego CA 92101-3830 or
Via fax to: (619) 515-8696

As of late January 2007, 28 of the 36 schools had responded. The results are immediately above. In some cases, the responses add to more than 36. That is because some of the responding districts do provide lockers for physical education classes; some provide lockers for the middle and high schools in their districts, but not for the lower grades. Please note these are responses from districts, not from individual schools.

APPENDIX C

American Academy of Pediatrics

Backpack Safety

Backpacks are a popular and practical way for children and teenagers to carry schoolbooks and supplies. When used correctly, backpacks can be a good way to carry the necessities of the school day. They are designed to distribute the weight of the load among some of the body's strongest muscles.

However backpacks that are too heavy or are worn incorrectly can cause problems for children and teenagers. Improperly used backpacks may injure muscles and joints. This can lead to severe back, neck, and shoulder pain, as well as posture problems. Share these guidelines to help your family use backpacks safely.

Choose the right backpack. Look for the following:

- ☐ **Wide, padded shoulder straps** – Narrow straps can dig into shoulders. This can cause pain and restrict circulation.
- ☐ **Two shoulder straps** – Backpacks with one shoulder strap that runs across the body cannot distribute weight evenly.
- ☐ **Padded back** – A padded back protects against sharp edges on objects inside the pack and increases comfort.
- ☐ **Waist strap** – A waist strap can distribute the weight of a heavy load more evenly.
- ☐ **Lightweight** backpack – The backpack itself should not add much weight to the load.
- ☐ **Rolling backpack** – This type of backpack may be a good choice for students who must tote a heavy load. Remember that rolling backpacks still must be carried up stairs. They may be difficult to roll in snow.

To prevent injury when using a backpack, do the following:

- ☐ **Always use both shoulder straps.** Slung a backpack over one shoulder can strain muscles. Wearing a backpack on one shoulder may increase curvature of the spine.
- ☐ **Tighten the straps** so that the pack is close to the body. The straps should hold the pack two inches above the waist.
- ☐ **Pack light.** The backpack should never weigh more than 10 to 20 percent of the student's total body weight.
- ☐ **Organize the backpack** to use all of its compartments. Pack heavier items closest to the center of the back.
- ☐ **Stop often at school lockers**, if possible. Do not carry all of the books needed for the day.
- ☐ **Bend using both knees**, when you bend down. Do not bend over at the waist when wearing or lifting a heavy backpack.
- ☐ **Learn back-strengthening exercises** to build up the muscles used to carry a backpack. Ask your pediatrician for advice.

Parents also can help in the following ways:

- ☐ Encourage your child or teenager to tell you about pain or discomfort that may be caused by a heavy backpack. Do not ignore any back pain in a child or teenager. Ask your pediatrician for advice.
- ☐ Talk to the school about lightening the load. Be sure the school allows students to stop at their lockers throughout the day. Team up with other parents to encourage changes.
- ☐ Consider buying a second set of textbooks for your student to keep at home.

The information contained in this publication should not be used as a substitute for the medical care and advice of your pediatrician. There may be variations in treatment that your pediatrician may recommend based on individual facts and circumstances.

APPENDIX D

Backpack Maximum Weight Chart (for Children)

According to The American Physical Therapy Association, American Academy of Orthopedic Surgeons, and the American Chiropractic Association

Weight of Child (in pounds)	Maximum Backpack Weight
60	5
60-75	10
75-100	15
100-125	18
125-150	20
150-200	25

No one should carry more than 25 lbs. in a backpack.

APPENDIX E

Assembly Bill No. 2532

CHAPTER 1096

An act to add Section 49415 to the Education Code, relating to pupil health.

[Approved by Governor September 29, 2002. Filed with Secretary of State September 29, 2002.]

LEGISLATIVE COUNSEL'S DIGEST

AB 2532, Rod Pacheco. Textbook weight.

Existing law requires the governing board of a school district to give diligent care to the health and physical development of pupils.

This bill would require the State Board of Education, on or before July 1, 2004, to adopt maximum weight standards for elementary and secondary school textbooks.

The people of the State of California do enact as follows:

SECTION 1. The Legislature finds and declares all of the following:

(a) Backpacks of elementary and secondary school pupils often contain textbooks, binders, calculators, personal computers, lunches, a change of clothing, sports equipment, and more.

(b) Elementary and secondary school pupils are carrying backpacks weighing as much as 40 pounds.

(c) Chiropractors, physical therapists, and pediatricians are seeing an increased number of children for spinal column injuries, non-traumatic back pain, and significant postural changes from overloaded backpacks.

(d) Chiropractors and pediatricians recommend that backpacks not exceed more than 15 percent of a pupil's body weight.

(e) In 1999, more than 3,400 pupils between 5 and 14 years of age, inclusive, sought treatment in hospital emergency rooms for injuries related to backpacks or book bags according to the United States Consumer Product Safety Commission.

SECTION 2. Section 49415 is added to the Education Code, to read:

49415. On or before July 1, 2004, the State Board of Education shall adopt maximum weight standards for textbooks used by pupils in elementary and secondary schools. The weight standards shall take into consideration the health risks to pupils who transport textbooks to and from school each day.