Curriculum Vitae



Ronald R. Hugate Jr., MD, FAAOS

**Board Certified Orthopedic Surgeon**

**Adjunct Professor of Mechanical/Materials Engineering, University of Denver**

**Panorama Orthopedics and Spine Center**

660 Golden Ridge Road, Suite 250

Golden, Colorado 80401

 (303) 233-1223 / FAX (303) 233-8755

[www.ronaldhugatemd.com](http://www.ronaldhugatemd.com)

Musculoskeletal Tumors

Complex Joint Replacement and Reconstruction

Hip Preservation

Complex Orthopedic Problems

Osseous Integration

**Education:**

**Bachelor of Science** 1994 Mechanical Engineering (*magna cum laude*)

 Virginia Polytechnic Institute and State University, Blacksburg, VA

**Medical Doctor**  1998 Doctor of Medicine

Eastern Virginia Medical School, Norfolk, VA

**Internship** 1998-1999 Surgical Internship

Milton S. Hershey Medical Center, Pennsylvania State University College of Medicine, Hershey, PA

**Residency** 1999-2003 Orthopedic Surgery

Department t of Orthopaedics & Rehabilitation, Pennsylvania State University College of Medicine, Hershey, PA

**Fellowship**  2003-2004 Ivins Research Fellow

 The Mayo Clinic, Rochester, MN

**Fellowship**  2004-2005 Orthopaedic Oncology Fellowship

 The Mayo Clinic, Rochester, MN

**Academic Appointments:**

Adjunct Associate Professor in Mechanical and Materials Engineering

University of Denver School of Engineering and Computer Science. Denver, Colorado.

2015-Present

Clinical Faculty

Rocky Vista University School of Medicine. Parker, Colorado.

2010-Present

Instructor of Orthopedics

The Mayo Clinic, Rochester, MN.

2005-present

**Military Service:**

**United States Army Reserve**

Medical Corps. 1998 – 2012

 Unit: 5502nd U.S. Army Hospital. Denver, Colorado.

Rank: Lieutenant Colonel

 Active Duty Deployments:

 - 2003 Baghdad, Iraq (28th combat surgical hospital) Operation Iraqi Freedom

 - 2005/2008 Tripler Army Medical Center

 - 2010 Sharana, Afghanistan (934th forward surgical hospital)

**Virginia Army Reserve/ National Guard**

 Medical Service Corps. Virginia Beach, VA. March 1994 –June 1998

 Rank: First Lieutenant

**Army Commendation Medal, December 2003**

Awarded by the U.S. Army for service as an orthopaedic surgeon in support of Operation

Iraqi Freedom. 28th Combat Surgical Hospital. Baghdad, Iraq.

**Army Commendation Medal, March 2011**

Awarded by the U.S. Army for service as an orthopaedic surgeon in support of Operation

Enduring Freedom. 936th Forward Surgical Team. Sharana, Afghanistan.

**Professional Certifications:**

American Board of Orthopedic Surgery (ABOS) July 2007

**Professional Affiliations:**

The Franklin H. Sim Society (Founding Member)

The Ivins Society (Mayo Clinic Orthopaedic Oncology Fellows)

The Colorado Orthopedic Society

The Mayo Fellows’ Association

The American Academy of Orthopedic Surgeons

 The American Society of Mechanical Engineers, 1992-1994

**Administrative Positions:**

Co-Medical Director (Orthopedics and Limb Salvage)

The Denver Clinic

Presbyterian/Saint Luke’s Medical Center

Denver, Colorado. April 2016 – April 2017

Peer Review Committee, Orthopedic Representative

Presbyterian/Saint Luke’s Medical Center

Denver, Colorado. December 2014 – April 2017

Board Examiner (Oral Examinations)

American Board of Orthopedic Surgery

Chicago, Illinois. July 2014 - present

Vice-Chairman, Peri-operative Services Department

Presbyterian/Saint Luke’s Medical Center

Denver, Colorado. June 2012-June 2014

Chairman, Department of Orthopedics

Presbyterian/St. Luke's Medical Center

Denver, Colorado June 2010-June 2012

Founding Member and Host- 2012 Annual Meeting

The Franklin H. Sim Society

Established 2009

Physician Member

The Denver Clinic for Extremities at Risk

Denver, Colorado

2005 – 2017

President

Innovative Orthopedics, LLC

Denver, Colorado

2007 - Present

Founding Board Member

Ortho-Transmission, LLC

Denver, Colorado

2010 - Present

Vice-Chairman, Department of Orthopedics

Presbyterian/St. Luke's Medical Center

Denver, Colorado

June 2008 - June 2010

Medical Director

Parker Hospital Joint Replacement Program

Parker, Colorado

2007 - 2008

**Clinical Consulting:**

 Design Consultant

Onkos Medical. Parsippany, New Jersey.

Development of complex hip and pelvis reconstructive systems/implants.

2016-Present

Research Consultant and Surgeon Educator. Design consultant.

 Zimmer/Biomet Corporation. Warsaw, Indiana.

 Development of Trabecular Metal as a medium for soft tissue attachments

 Surgeon Traning

 2010 to present

Clinical Design Consultant

 Microport. Memphis, Tennessee

 Design/Development of implants

2007 – 2010

Research Consultant

 Stryker Corporation (Mahwah, New Jersey)

 Design/Development of canine osseous integration implants

 2006-2007

**Research Interests:**

 -Advancement of bio-integrated technologies and implants

 -Transcutaneous Osseous integration technology

-Orthopedic implant design

 -Medical and surgical treatment of osteogenic sarcoma

 -Pelvic/sacral reconstruction

 -Complex joint replacement and revision techniques

**Medical Relief Work:**

 -Haiti Surgical Earthquake Relief mission. Medical Missionaries. Jan-Feb 2010.

 -Honduras Surgical Relief mission. Medical Ministries International. Sept 2001.

**Books Authored:**

Hugate RR and Holland RD: “The Handbook of Hip and Knee Joint Replacement: Through the Eyes of the Patient, Surgeon, and Medical Team!” Published April 15, 2012. ISBN 1466252456.

**Academic Publications:**

1. Vaux JJ; Hugate RR; Hills JW; Grzybowski RF; Funk CK: Morphometrics of the Human Thumb Metacarpal Bone: Interest for Developing an Osseointegrated Prosthesis. Surgical and Radiological Anatomy. 2015; July. DOI 10.1007/s00276-015-1524-6
2. Hugate R; Clarke R, Hoeman T; Friedman A: Trancutaneous Implants in a Porcine Model: The Use of Highly Porous Tantalum. International Journal of Advanced Materials Researh. 2015. May 1(2): 32-40.
3. Hugate RR; Dickey ID; Chen Q; Wood C; Sim FH; Rock MG: Fixed-Angle Screws vs. Standard Screws in Acetabular Prosthesis Fixation: A Cadaveric Biomechanical Study. The Journal of Arthroplasty. 2009; 24(5):806-814.
4. Hugate RR; Wilkins RM; Kelly CM; Madsen W; Hinshaw I; Camozzi AB: Intra-arterial Chemotherapy for Extremity Osteosarcoma and MFH in Adults. Clin Orthop Relat Res. 2008. Jun; 466(6): 1292-301.
5. Drygus KA; Taylor RV; Sidebotham CG; Hugate RR; McAlexander H: Transcutaneous Tibial Implants: A Surgical Procedure for Restoring Ambulation after Amputation of the Distal Aspect of the Tibia in a Dog. Vet Surg 37:322-327, 2008.
6. Damron TA; Leerapun T; Hugate RR; Shives TC; Sim FH: Does the Second Generation Intercalary Humeral Spacer Improve on the First? Clin Orthop Relat Res. 2008 Jun; 466(6):1309-17.
7. Leerapun T; Hugate RR; Inwards CY; Sculley SP; Sim FH: Surgical Management of Conventional Grade I Chondrosarcoma of Long bones. Clin Orthop Relat Res. 2007. Oct; 463: 166-72.
8. Pradhan A; Cheung YC; Grimer RJ; Abudu A; Peake D; Ferguson PC; Griffin AM; Wunder JS; O’sullivan B; Hugate RR; Sim FH: Does the Method of Treatment Effect the Outcome in Soft Tissue Sarcomas of the Adductor Compartment? J Bone Joint Surg Br. 2006 Nov; 88(11): 1480-6.
9. [Hsu JT](http://www.galenicom.com/medline/author/Hsu%2BJT); [Chang CH](http://www.galenicom.com/medline/author/Chang%2BCH); [An KN](http://www.galenicom.com/medline/author/An%2BKN); [Zobitz ME](http://www.galenicom.com/medline/author/Zobitz%2BME); [Phimolsarnti R](http://www.galenicom.com/medline/author/Phimolsarnti%2BR); [Hugate RR](http://www.galenicom.com/medline/author/Hugate%2BRR); [Lai KA](http://www.galenicom.com/medline/author/Lai%2BKA): Effects of Screw Eccentricity on the Initial Stability of the Acetabular Cup. Int Orthop, Sept. 2006.
10. Hugate RR; Dickey ID; Phimolsamti R; Yaszemski M; Sim FH: Mechanical Effects of Partial Sacrectomy: When is Reconstruction Necessary? Clin Orthop Relat Res. 2006 450:82-8.
11. Hugate RR; O’Connor MI; Sim FH: Pelvic tumors. *In* Puri A, Agarwal MG (eds): Current Concepts in Bone and Soft Tissue Tumors [Chapter 18]. Arihant Book House, Parel, Mumbai, 2006, pp. 210-26.
12. Hugate RR; Sim FH: Pelvic reconstruction techniques. Orthop Clin North Am 37:85-99, 2006.
13. Dickey ID; Hugate RR; Fuchs B; Yaszemski M; Sim FH: Reconstruction After Total Sacrectomy: Early Experience with a New Surgical Technique. Clin Orthop Relat Res. 438:42-50, 2005.
14. Hugate RR; Sim F: Innovations in musculoskeletal oncology: 2004. J Orthop Sci.10:331-40, 2005.
15. Hugate RR; Pennypacker J; Saunders M; Juliano P: The Effects of Intratendinous and Retrocalcaneal Intrabursal Injections of Corticosteroid on the Biomechanical Properties of Rabbit Achilles Tendons. J Bone Joint Surg 86A:794-801, 2004.
16. Fayyazi AH; Hugate RR; Pennypacker J; Gelb DE; Ludwig SC: Accuracy of Computed Tomography in Assessing Thoracic Pedicle Screw Malposition. J Spinal Disord Tech 17:367-371, 2004.
17. Hugate RR; Sim FH; and Scully SP: Osseous Lesions of the Pre-Sacral Space. Sem Colon Rectal Surg 15: 41-54, 2004.
18. Hugate RR; Pellegrini VD Jr: Reactivation of Ancient Tuberculous Arthritis of the Hip Following Total Hip Arthroplasty: A Case Report. J Bone Joint Surg 84A:101-105, 2002.

**Presentations:**

1. The “Clamped Saddle” Technique of Pelvic reconstruction following Type II internal hemipelvectomy. The Ivins Society Meeting. Rome Italy, November 2015. Winner of the Douglas Pritchard award for outstanding presentation.
2. “Management of Skeletal Metastasis” Fort Carson Denver Clinic Roadshow. April 2015. Colorado Springs, Colorado.
3. “Complex Osteosarcoma management in Pediatric patients.” Colorado Springs Road Show. Colorado Springs, Colorado. June 2015.
4. Clinical Orthopedic Society. “Evaluation and Diagnosis of Extremity Tumors.” Colorado Springs, Colorado. Sept 2014.
5. Zimmer TMT masters course. March 10-11 2014. International. Parsipanny NJ.
6. “Return to Work- What we can Learn from the Military?” Injured Worker Conference. Presbyterian St. Luke’s Medical Center. Denver, CO. October 2013
7. “Management of Musculoskeletal Infections.” Orthopedic Community Outreach. Longmont, CO May 2013
8. “Biopsy Pitfalls.” Orthopedic Community Outreach. Colorado Springs, CO. April 2013.
9. “Interpretation of Orthopedic X-rays for Medical Students” Rocky Vista University. Denver CO. February 2013
10. “Management of Musculoskeletal Metastases”. Orthopedic Community outreach. Pueblo, CO. January 2013
11. “Management of Musculoskeletal Metastasis”. Rocky Mountain Oncology Society. Dec 2012.
12. “Management of Hip and Knee Arthritis Seminar”. Presbyterian/Saint Luke’s Hospital. Denver, Colorado. May 2012
13. “From Inspiration to Perspiration: Research and Development of Osseous Integration Technology.” Keynote address. Rocky Mountain Vista University Research Day. Colorado. April 24, 2012.
14. “Trabecular Metal Technology: Changing the Face of Orthopedics.” Zimmer ‘Innovations Award’ ceremony. Parsippany, New Jersey, April 10, 2012.
15. “What’s New in Revision Hip Replacement?” The Hip Symposium. Presbyterian/Saint Luke’s Hospital. Denver, Colorado. June 2011.
16. “Primary Total Hip Replacement.” The Hip Symposium. Presbyterian/Saint Luke’s Hospital. Denver, Colorado. June 2011.
17. “Military Orthopedics: The Afghanistan Experience”. Colonel Anthony Ballard, MD Memorial Conference. Denver, Colorado. May 2011.
18. “The Future of Amputee Care”. Colonel Anthony Ballard, MD Memorial Conference. Denver, Colorado. May 2011.
19. “What Does the Future Hold for the Leg Amputee?” First Annual Colonel Anthony Ballard, MD Memorial Conference – Lower Extremity Amputation. Denver, Colorado. October 3, 2009
20. “Reconstructive Surgery for the Arm Amputee” Skills for Life Upper Extremity Limb Loss Workshop. Denver, Colorado October 10, 2008
21. “Advances in the Management of Shoulder Tumors” The Rocky Mountain Shoulder and Elbow Society. Boulder, Colorado. July 20, 2007.
22. “Foam Metal Materials” The Penn State Department of Orthopedics Grand Rounds. The Penn State College of Medicine. Hershey, Pennsylvania. August 2007.
23. “Management of Metastatic Lesions” Annual Colorado Trauma Symposium, Hyatt Regency Tech Center. Denver, Colorado. March 16, 2007.
24. “Prosthetic Infections” Annual Winter Conference, The Denver Clinic for Extremities at Risk. Presbyterian/St. Luke’s Medical Center. Denver, Colorado. December 4, 2006.
25. “Fixed Angle Screws versus Standard Screws in Acetabular Prosthesis Fixation: A Cadaveric Biomechanical Study” The Annual Meeting of the Western Orthopaedic Association. Santa Fe, New Mexico. October 11, 2006.
26. “Management of Extremity Tumors: Avoiding Pitfalls” The Annual Winter Conference, The Denver Clinic for Extremities at Risk. Presbyterian/St. Luke’s Medical Center. Denver, Colorado. December 2, 2005.
27. “The Biomechanical Consequences of Partial Transverse Sacrectomy: When is Reconstruction Necessary?” Musculoskeletal Tumor Society. Nashville, Tennessee. May 2005.
28. “The Biomechanical Consequences of Partial Transverse Sacrectomy: When is Reconstruction Necessary?” Canadian Orthopaedic Assoc. Montreal, Canada. June 2005.
29. “Surgical Management of Conventional Grade I Chondrosarcoma of Long Bones” American Academy of Orthopaedic Surgeons. Washington DC. February 2005.
30. “Soft Tissue Attachment to Highly-porous Alumina Ceramic Foams: An in vivo Canine” Orthopaedic Research Society. Washington DC. February 2005.
31. “Soft Tissue Attachment to Highly-porous Alumina Ceramic Foams: An in vivo Canine” Society for Biomaterials Annual Meeting. Memphis, Tennessee. April 2005.
32. “Soft Tissue Attachment to Highly-porous Alumina Ceramic Foams: An in vivo Canine Study” Canadian Orthopaedic Association. Montreal, Canada. June 2005.
33. “Biopsy Principles and Techniques” Saturday Morning Conference. Mayo Graduate School of Medicine. Rochester,Minnesota. August 2004.
34. “Battlefield Orthopaedics” Hospital-wide Grand Rounds. Pennsylvania State College of Medicine. Hershey, Pennsylvania. May 2004.
35. “In vivo Mouse Model of Chondrosarcoma Metastasis” [poster presentation] Orthopaedic Research Society. San Francisco, California. March 2004.
36. “An Orthopaedic Surgeon’s Experience in Iraq” Annual CME Conference. 5502nd US Army Hospital. Denver, Colorado. March 2004.
37. “A Comparison of the Effects of Intratendinous and Peritendinous Corticosteroid Injections on the Biomechanical Properties of Rabbit Achilles Tendon” American Academy of Orthopaedic Surgeons. San Francisco, California. March 2004.
38. “A Comparison of the Effects of Intratendinous and Peritendinous Corticosteroid Injections on the Biomechanical Properties of Rabbit Achilles Tendon” The Buchanon Lectures. Hershey, Pennsylvania. June 2003.
39. “Analgesia/Anesthesia in the Emergency Room for Orthopedic Surgeons” Orthopaedic Surgery Grand Rounds. Department of Orthopaedics & Rehabilitation. Pennsylvania State College of Medicine. Hershey, Pennsylvania. December 2002.
40. “A Comparison of the Effects of Intratendinous and Peritendinous Corticosteroid Injections on the Biomechanical Properties of Rabbit Achilles Tendon” The Society of Military Orthopaedic Surgeons (SOMOS). San Diego, California. December 2002.
41. “Quantification and Correlation of Bone Mineral Density in Tibial Bone Regenerate with Weight-bearing in Ilizarov Distraction Lengthening” [poster presentation]. Orthopaedic Trauma Association. Toronto, Ontario, Canada. October 2002.
42. “A Comparison of Three Techniques of Thoracic Pedicle Screw Placement” North American Spine Society. Montreal, Canada. October 2002.
43. “A Comparison of Three Techniques of Thoracic Pedicle Screw Placement” American Orthopaedic Association (AOA) Annual Resident Meeting. Memphis, Tennessee. March 2002.
44. “Bone Stimulation Devices” Orthopaedic Surgery Grand Rounds. Department of Orthopaedics & Rehabilitation. Pennsylvania State College of Medicine. Hershey, Pennsylvania. February 2002.
45. “A Comparison of Three Techniques of Thoracic Pedicle Screw Placement” [poster presentation]. American Academy of Orthopaedic Surgeons. Dallas, Texas. February 2002.
46. “Management of Muscular skeletal Metastasis”- Durango Co. January 28, 2015
47. Fort Carson- Complex Case presentation- April 23, 2015

**Media Appearances/Stories:**

**1. Jace Badia and his Permanent Leg Implant**

American Veteran’s Show. 850 KOA Radio. Denver, Colorado. April 29, 2017

<https://www.americanveteranshow.com/shows/>

2. **Double Amputee Takes First Steps With Permanent Leg Implant**

Channel 4 Television News. CBS Affiliate. Denver, Colorado. April 2017

 [http://denver.cbslocal.com/2017/04/24/gary-molock-permanent-leg-implant/](http://denver.cbslocal.com/2017/04/24/gary-molock-permanent-leg-implant/%22%20%5Ct%20%22_blank)

**3. Colorado veteran gets first-of-its-kind prosthesis**

Channel 31 Television News. Fox Affiliate. Denver, Colorado. April 2017

<http://kdvr.com/2017/04/10/colorado-veteran-gets-first-of-its-kind-prosthesis/>

**4. New technology gives Iraq war veteran a new lease on life**

The Denver Channel. Denver Colorado. April 2017.

<http://www.thedenverchannel.com/news/front-range/denver/new-technology-gives-veteran-a-new-lease-on-life?autoplay=true>

**5. A Veteran’s First Steps**

Channel 9 Television News . NBC Affiliate. Denver, Colorado. April 2017.

[http://www.9news.com/mb/news/local/next/a-veteran-s-first-steps/429015863](http://www.9news.com/mb/news/local/next/a-veteran-s-first-steps/429015863%22%20%5Ct%20%22_blank)

**6. Army Amputee Takes First Steps On Breakthrough Permanent Leg Implant**

Channel 4 Television News. CBS Affiliate. Denver, Colorado. April 2017.

[http://denver.cbslocal.com/2017/04/04/jace-badia-permanent-leg-implant-amputee/](http://denver.cbslocal.com/2017/04/04/jace-badia-permanent-leg-implant-amputee/%22%20%5Ct%20%22_blank)

**7. Orthopedic Surgeon To Implant Groundbreaking Permanent Prosthetic Legs**

Channel 4 Television News. CBS Affiliate. Denver, Colorado. February 2017

<http://denver.cbslocal.com/2017/02/20/orthopedic-surgeon-to-implant-groundbreaking-permanent-prosthetic-legs/>

# 8. Wounded Veteran & Double Amputee Get Permanent Prosthetic Legs.

# Channel 4 television News. CBS Affiliate. Denver, Colorado. Feb 2017. [http://denver.cbslocal.com/2017/02/21/permanent-prosthetic-legs-denver-colorado/](http://denver.cbslocal.com/2017/02/21/permanent-prosthetic-legs-denver-colorado/%22%20%5Ct%20%22_blank)

**9. Miami’s Burns Beats Cancer, Eyes Breakout**

D1Baseball.com Internet article. Feb 3, 2017.

https://d1baseball.com/columns/miamis-burns-beats-cancer-eyes-breakout/

 **10.Memorial Day: A Doctor and his Patient share a Special Bond**

Channel 9 (NBC) television news. KUSA. Denver Colorado. May 30, 2016.

 [http://www.9news.com/news/military/a-doctor-and-his-patient-share-a-special-bond/235652554](http://www.9news.com/news/military/a-doctor-and-his-patient-share-a-special-bond/235652554%22%20%5Ct%20%22_blank)

**11. Woman Recovers From Rare Cancer, 2-Day Surgery**

Channel 4 (CBS) television news. KCNC. Denver, Colorado. April 29, 2016.

http://denver.cbslocal.com/2016/04/29/woman-recovers-from-rare-cancer-2-day-surgery/

**12. Doctor credits his surgical skills to game: 'Football teaches you how to prepare'**

The Today Show. NBC. New York, New York. Oct 2014.

<http://www.today.com/video/today/55989642#56250859>

**13. 850 KOA Close-up with Dr. Ron Hugate**

850 KOA Radio. Denver, Colorado. October 2014

[http://www.850koa.com/onair/robbyn-hart-10132/closeup-with-dr-ron-hugate-12914730/](http://www.850koa.com/onair/robbyn-hart-10132/closeup-with-dr-ron-hugate-12914730/%22%20%5Ct%20%22_blank)

**14. Colorado bone surgeon singled out by NFL for inspirational teamwork**

The Denver Post Newspaper. Denver, Colorado. October 2014.

<http://www.denverpost.com/news/ci_26748606/colorado-bone-surgeon-singled-out-by-nfl-inspirational>

**15. NFL, NBC News feature Dr. Ron Hugate in film series**

Becker’s Orthopedic Review. Online. October 2014.

http://www.beckersspine.com/orthopedic/item/23289-nfl-nbc-news-feature-dr-ron-hugate-in-film-series.html

**16. Colorado Surgeon, Students Design Permanent Artificial Leg**

Channel 4 television. CBS Affiliate. Denver, Colorado. January 2013.

<http://denver.cbslocal.com/2013/01/09/colorado-surgeon-students-designing-permanent-artificial-leg/>

**17. Surgeon eases young boy's anxieties with surprise visit.**

Channel 9 television. NBC Affiliate. Denver, Colorado. August 2011.

 <http://archive.9news.com/rss/story.aspx?storyid=214760>

**18. Denver doctor visits Afghanistan: 'You do the best you can'.**

Channel 9 television. NBC Affiliate. Denver, Colorado. April 2011.

<http://archive.9news.com/rss/story.aspx?storyid=193768>

**19. Doctor Develops a New Prosthetic for Amputees.**

Colorado Public Radio. NPR Affiliate. December 2010.

 <http://www.cpr.org/news/story/doctor-develops-new-prosthetic-amputees>

**20. Dr. Hugate and permanent prosthetic research**

Channel 9 television. NBC Affiliate. Denver, Colorado. December 2010.

http://www.youtube.com/watch?v=V7kvRn00i3g

**21. Denver and Triumph**

Channel 4 television. CBS affiliate. Denver, Colorado. Sept 2010

<http://www.youtube.com/watch?v=PheYbMqD8dI>

**22. Medical Mission to Haiti Orthopedic Surgeon from Denver**

Channel 9 television. NBC Affiliate. Denver, Colorado. Feb 2010.

<http://www.youtube.com/watch?v=SLHNeM368G0>

**23. Local Surgeon Heading to Haiti, with Victims' Limbs on the Line**

The Denver Post Newspaper. Denver, Colorado. January 2010.

<http://www.denverpost.com/ci_14234666>

**24. Dr. Ronald Hugate and Bionic Boy**

Channel 4 television. CBS Affiliate. Denver, Colorado. Nov 2007.

<http://www.youtube.com/watch?v=x1feI67emA8>

**25. Metro State Student Loses Hands, Legs To Meningitis**

Channel 7 television. ABC Affiliate. Denver, Colorado. August 2006

<http://www.thedenverchannel.com/lifestyle/health/metro-state-student-loses-hands-legs-to-meningitis>

**17. Meningitis took man's limbs but not his spirit**

The Denver Post Newspaper. Denver, Colorado. August 2006

<http://www.denverpost.com/news/ci_4119433>