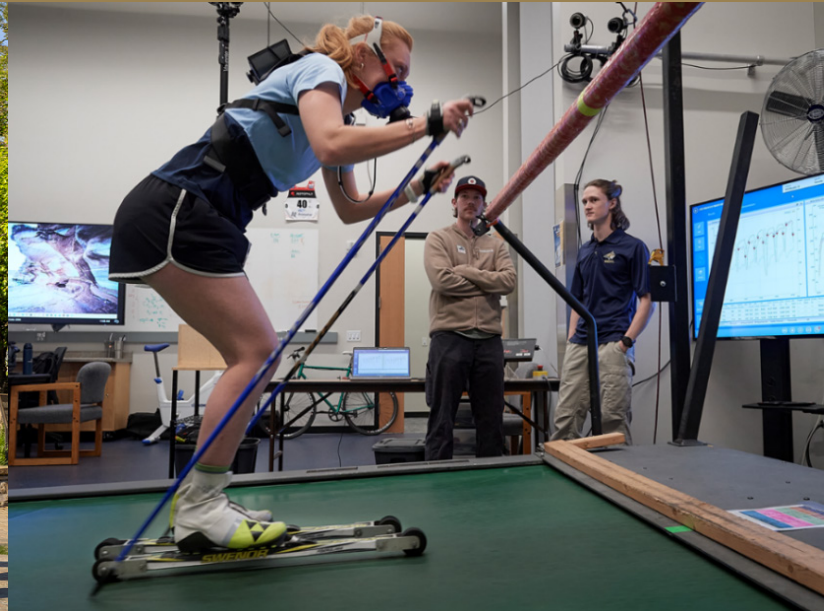




MONTANA
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Neuromuscular
Biomechanics Laboratory



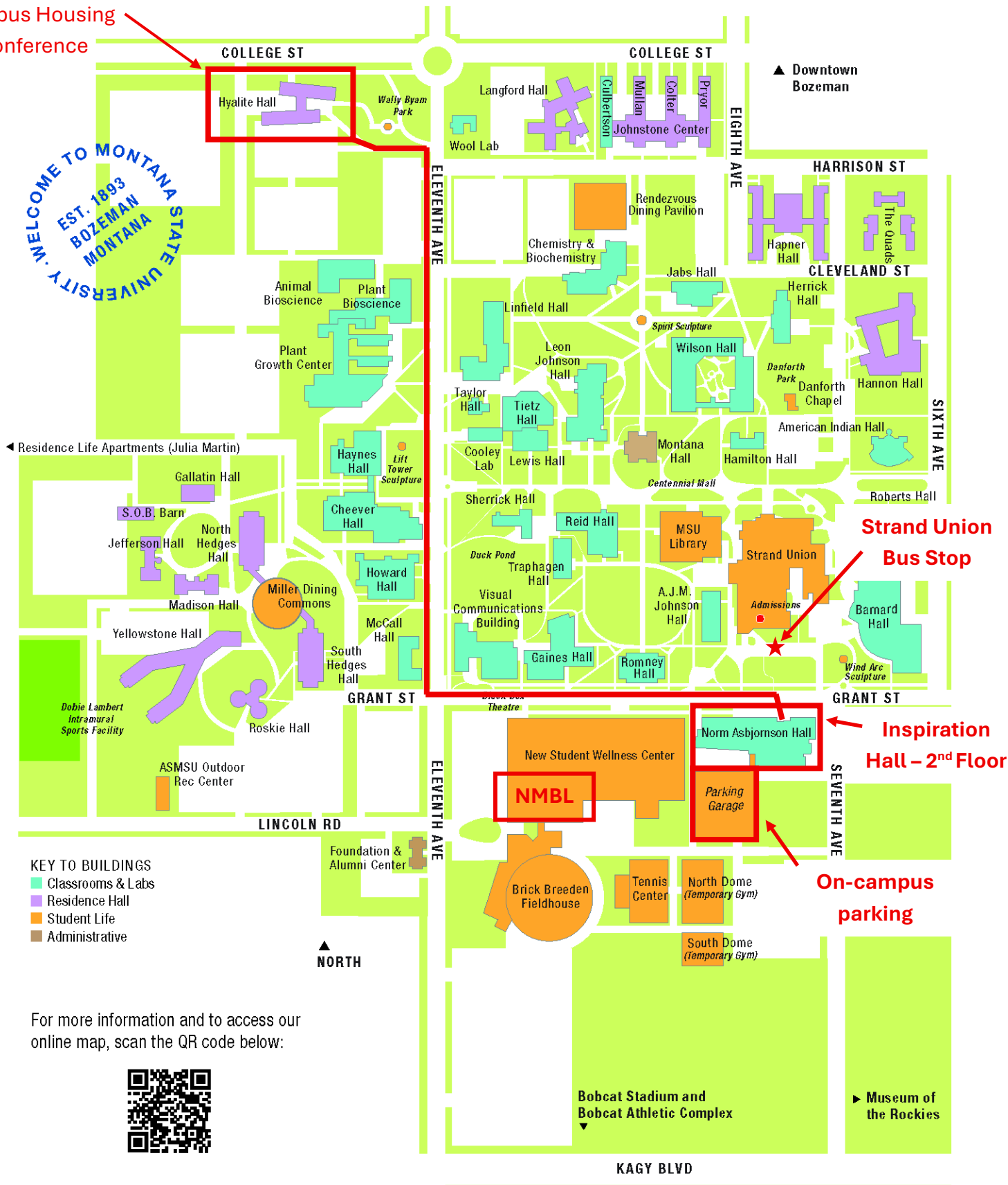
NWBS26

Northwest Biomechanics Symposium

Bozeman, MT, May 22-23, 2026

Montana State University

Hyalite Hall – On Campus Housing for conference



For more information and to access our online map, scan the QR code below:



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Program At-A-Glance

Friday, May 22nd

Time	Event	Location
9 am – 10 am	Group Hike—More info on website	College “M” Trailhead
11 am – 12 pm	Registration	
12:00 pm – 12:10 pm	Opening Remarks	Inspiration Hall – Norm Asbjornson Hall (NAH)
12:15 pm – 1:30 pm	Podium Session I	
1:40 pm – 2:40 pm	Lab Tour and Demos	Neuromuscular Biomechanics Lab – Student Wellness Center
2:50 pm – 3:30 pm	Round Table Discussions Coffee Break	
3:45 pm – 5:00 pm	Podium Session II	Inspiration Hall – Norm Asbjornson Hall
5:10 pm – 6:10 pm	Poster Session A & Refreshment	
6:15 pm	Streamline bus departs for downtown—More info on website	Strand Union Building stop (located across from NAH)
6:30 pm – 9:00 pm	Banquet (Downtown)	Gute Laune: 10 W Main St.
9:00 pm	Student Event	Cousin’s Pub: 211 E Main St.

Saturday, May 23rd

Time	Event	Location
8 am – 8:30 am	Continental Breakfast	
8:30 am – 9:30 am	Keynote Address Alena M. Grabowski	
9:35 am – 10:50 am	Podium Session III	
10:55 am – 11:10 am	Coffee Break	
11:15 am – 12:30 pm	Podium Session IV	Inspiration Hall – Norm Asbjornson Hall
12:30 pm – 1:15 pm	Lunch	
1:20 pm – 2:20 pm	Poster Session B & Refreshment	
2:25 pm – 3:40 pm	Podium Session V	
3:45 pm – 4:10 pm	Round Table Discussions Coffee Break	
4:15 pm – 4:30 pm	Awards, Closing Remarks	

**Schedule timing may change prior to conference start date, event order will remain the same*

NWBS 2026 Sponsors

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Undergraduate Scholars Program

Gold Level



Silver Level



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Podium Session I

Friday, May 22nd, 12:15 – 1:30 PM

Moderators: Mike Hahn, Tyler Whittier

1) RELATIONSHIPS OF STRENGTH AND BALANCE TO TIBIAL LOAD DURING RUNNING IN HEALTHY PARTICIPANTS

MA Peach, L Rosario, and J Becker

2) ECCENTRIC PLANTAR FLEXOR EXERCISE INDUCES REGION-DEPENDENT CHANGES IN ACHILLES TENDON BOUND WATER FRACTION

JM Forer, J Smith, NJ Willett, M Hahn

3) INITIAL DEVELOPMENT OF A PROBABILISTIC METRIC OF RISKY BIOMECHANICS RELATED TO ANTERIOR CRUCIATE LIGAMENT INJURY RISK

A Lynch, F Aflatounian, D Saxby, and S Monfort

4) EVALUATING THE IMPACT OF CAMERA MOTION ON SINGLE-CAMERA BIOMECHANICS ESTIMATES OF KNEE ANGLE

S Dumont, I Arora, and C Kuo

5) MEDIOLATERAL GROUND REACTION FORCE IMPULSE REFLECTS FRONTAL-PLACE CENTER OF MASS CONTROL DURING LOAD CARRIAGE

Y Kim, B Freemyer, and C Stickley

Podium Session II

Friday, May 22nd, 3:45 – 5:00 PM

Moderators: Isaac Burgess, Calvin Kuo

1)IMU MISALIGNMENT CORRECTION AND CALIBRATION METHODS FOR TELEMEDICINE SEGMENTAL SYMMETRY ANALYSIS

JR Redmond, K Banghart, and CA Pew

2)AUTOMATED LABELING OF MUSCLE CONTRACTIONS FROM HDsEMG IN DYNAMIC EXERCISE

J Thompson, F Douglas, M Pei, G Gould, and C Kuo

3)ACHILLES TENDON FORCE DURING UPHILL RUNNING IN HIGH PERFORMING RUNNERS

T Madden and CA Pew

4)VISUAL ONSET DETERMINATION OF RATE OF TORQUE DEVELOPMENT: A LEVEL OF AGREEMENT STUDY

C Dios, K DeRosia, CM Mulligan, and ST Johnson

5)THE INFLUENCE OF LIFESTYLE, PHYSICAL ACTIVITY LEVEL, AND ANTHROPOMETRIC FACTORS ON PLANTAR FASCIA THICKNESS

B Teixeira, P MacMichael, and L Krumpl

Poster Session A

Friday, May 22nd, 5:10 – 6:10 PM

1) EFFECT OF RUNNING SPEED AND FATIGUE ON VERTICAL CENTER OF MASS DISPLACEMENT

A Eastin, S Hugard, and ME Hahn

2) ARE FAILED DECISIONS ASSOCIATED WITH INCREASED KNEE LOADING UNDER COMPLEX COGNITIVE DEMANDS?

F Aflatounian, J Becker, K Hutchison, CA Pew, and S Monfort

3) INVESTIGATING THE RELATIONSHIP BETWEEN A STRENGTH AND POWER LOWER BODY ASSESSMENT AND MAXIMAL PITCHING VELOCITY

L Collett, SE Schlittler, H Adetunji, and JP Bailey

4) Effect of Outdoor Terrain on Foot Strike and Running Economy in Recreational Runners

CB Doerr, ME Kietzmann, and TN Brown

5) Validation of OpenCap-Based Estimates of Peak Knee Abduction Moments during a Drop Vertical Jump

L Gaston, A Lynch, S Stemler, J Larson, F Aflatounian, and S Monfort

6) SKATE-X BINDINGS INCREASE FOREFOOT PRESSURE DURING SKATE SKIING

W Haig and J Becker

7) CENTER OF MASS DISPLACEMENT AS A PREDICTOR OF BONE ADAPTATION IN FIRST-TIME MARATHON RUNNERS

A Massarat, S Hugard, and ME Hahn

8) BRIDGING BIOMECHANICS AND MENSTRUAL HEALTH: A SYSTEMATIC REVIEW

AM Hiler, HL Olvera, KL Havens, CK Fitzpatrick, AK Silverman, and EM Mannen

9) EFFECTS OF RELATIVE PEAK VERTICAL GROUND REACTION FORCES ON BONE ADAPTATION

S Humpries, S Hugard, ME Hahn

10) PRESSURE SENSING INSOLES ESTIMATE VERTICAL GRFS ACROSS RUNNING SURFACES

ME Kietzmann, CB Doerr, and TN Brown

11) METABOLIC PERFORMANCE EFFECTS OF RUNNING SHOE MIDSOLE COMPLIANCE

RC Knowles, RM Robinson, AN Denton, and ME Hahn

12) MARATHON TRAINING INFLUENCE ON FATIGUED RUNNING MECHANICS

N Goldcamp, S Hugard, and ME Hahn

13) MODELING THE INFANT HEAD-NECK COMPLEX TO INVESTIGATE POSITIONAL ASPHYXIA RISK IN INCLINED ENVIRONMENTS

A Bossert, D Anderson, C Fitzpatrick, and E Mannen

14) THE EFFECTS OF PUSH-UP TECHNIQUE ON KINEMATICS AND MUSCLE ACTIVATION IN HEALTHY MEN

A Ferrari, C Gibin, M Zedler, and W Potthast

Podium Session III

Saturday, May 23rd, 9:35 – 10:50 AM

Moderators: Caroline Curtze, Asal Aflatounian

1) ASSESSMENT OF DE NOVO MOTOR LEARNING USING VIRTUAL REALITY

E Roduin and T Whittier

2) OFFSET VISION IN VIRTUAL REALITY ALTERS LIMB SYMMETRY DURING A BILATERAL TASK

TJ Wilson and A Karduna

3) UNILATERAL PLYOMETRIC BIOMECHANICS FOLLOWING ECCENTRIC QUADRICEPS MUSCLE DAMAGE

A Rinehart AN Denton, HC Dreyer, and ME Hahn

4) KINEMATIC DIFFERENCES ACROSS DEVELOPMENT LEVELS IN ELITE BIATHLETES

E Livingood, I Burgess, M Peach, and J Becker

5) THE RELATIONSHIP BETWEEN COUNTERMOVEMENT JUMP HEIGHT AND COMPETITIVE COLLEGIATE FEMALE SWIMMING PERFORMANCE

AE Lewis and L Krumpl

Podium Session IV

Saturday, May 23rd, 11:15 am – 12:30 pm

Moderators: Andy Karduna, Jim Becker

1) MULTIVARIATE ANALYSIS PREDICTING SKI SPEED IN ELITE BIATHLETES

I Burgess, E Livingood, B Cabaniss, and J Becker

2) ACL RECONSTRUCTION AND KNEE OSTEOARTHRITIS INFLUENCE FRONTAL PLANE JERK BIOMECHANICS IN THE TIME AND FREQUENCY DOMAIN

NL Hunt and TN Brown

3) MARATHON TRAINING EFFECTS ON TIBIAL DENSITY AND STRENGTH IN A NOVICE POPULATION

S Hugard, Z Kindl, ME Hahn

4) PRESEASON FUNCTIONAL ASSESSMENTS MAY NOT PREDICT TECHNICAL SKI PERFORMANCE IN ELITE BIATHLETES

M Koskela and J Becker

5) EFFECT OF TWO WARMUPS ON DEADLIFT AND COUNTERMOVEMENT JUMP PERFORMANCE: A POST ACTIVATION POTENTIATION STUDY

SE Schlittler, J Hanchey, and JP Bailey

Poster Session B

Saturday, May 23rd, 1:20 – 2:20 pm

- 1) **THE BAYESIAN KNEE: RELIANCE ON SENSORY PRIORS INCREASES WITH IMPAIRED SENSORY FEEDBACK WHEN ESTIMATING KNEE POSITION**
C Smith, T Morse, L Mueller, and TT Whittier
- 2) **SENSOR EVALUATION FOR INFANT BIOMECHANICS: FORCE SENSITIVE RESISTORS VS. PRESSURE SENSORS IN A PAVLIK HARNESS**
N Smith, A Lakatos, B Johnson, and E Mannen
- 3) **SEMI-AUTOMATED BONE AND SKIN SEGMENTATION FOR DYNAMIC MUSCULOSKELETAL ULTRASOUND**
NR Ozanich, S Telfer, BC Muir, and WR Ledoux
- 4) **THE EFFECT OF FEEDING ON INFANT BREATHING BIOMECHANICS, A PILOT STUDY**
S Kimmel, H Olvera, CM Wilson, and E Mannen
- 5) **REPEATABILITY OF SEGMENTAL ASYMMETRY METRICS FOR TELEMEDICINE AMPUTEE MOBILITY ASSESSMENT USING SELF-PLACED SENSORS**
JR Redmond, C Kennedy, W Nash, G Flynn, and CA Pew
- 6) **VALIDATION OF OPEN CAP FROM NON-RECOMMENDED VIEWPOINTS**
M Ansu-Kyeremeh, I Arora, and C Kuo
- 7) **TURN-CYCLE HIP AND KNEE JOINT MECHANICS IN A BELOW-KNEE ADAPTIVE SKIER USING TWO PROSTHETIC FOOT DEVICES**
A Malakian, C Wilson, and J Seifert
- 8) **THE ROLE OF ACHILLES TENDINOPATHY ON THE TORQUE-ANGLE RELATIONSHIP DURING ISOKINETIC PLANTAR FLEXION**
H Hayashi, C Whalen, and ME Hahn
- 9) **VALIDATION OF OPENCAP KINETIC ESTIMATION DURING THE SINGLE-LEG VERTICAL JUMP TASK**
S Stemler, A Lynch, L Gaston, J Larson, F Aflatounian, and S Monfort
- 10) **INTER-JOINT COORDINATION DIFFERS ACROSS ABILITY LEVELS IN CROSS-COUNTRY SKATE SKIING**
C Whitcomb, and J Becker
- 11) **THE EFFECTS OF SPEED AND FATIGUE ON PEAK VERTICAL GROUND REACTION FORCES DURING RUNNING**
E Williams, S Hugard, and ME Hahn
- 12) **CENTER-OF-MASS INCLINATION ANGLE AND SKI EDGE ANGLE INFLUENCE GLIDE LENGTH ON ROLLERSKIS**
B Cabaniss, I Burgess, E Livingood, and J Becker
- 13) **AN EXPLAINABLE AUTOMATED DEEP LEARNING FRAMEWORK FOR BIOMECHANICAL TIME-SERIES ANALYSIS AND USER EDUCATION**
M Mohasel and CA Pew

Podium Session V

Saturday, May 23rd, 2:25 – 3:40 pm

Moderators: Scott Monfort, Andy Hunt

1) EFFECT OF VOLITIONAL HEAD TURNS ON DYNAMIC STABILITY DURING WALKING TURNS

JA Aderonmu and C Curtze

2) THE RELATIONSHIP BETWEEN BREATHING BIOMECHANICS AND BODY POSITION IN INFANTS

H Olvera, C Wilson, J Carroll, B Whitaker, C Fitzpatrick, and E Mannen

3) MOTHER-INFANT MOVEMENT AND INTERACTION DURING BEDSHARING

Y Benavidez, L Beasley, M McCartney, C Wilson, KP Quinlan, G Lowell, and E Mannen

4) DEVELOPMENT OF A COMPUTATIONAL MATTRESS MODEL FOR MOTHER-INFANT BEDSHARING

D Lee, O Wortmann, M McCartney, C Wilson, C Fitzpatrick, KP Quinlan, G Lowell, and E Mannen

5) DOES PREFRONTAL CORTEX ACTIVATION PREDICT DECISION-MAKING PERFORMANCE ON A REACTIVE JUMP LANDING TASK?

F Aflatounian, A Lynch, J Becker, K Hutchison, CA Pew, and S Monfort