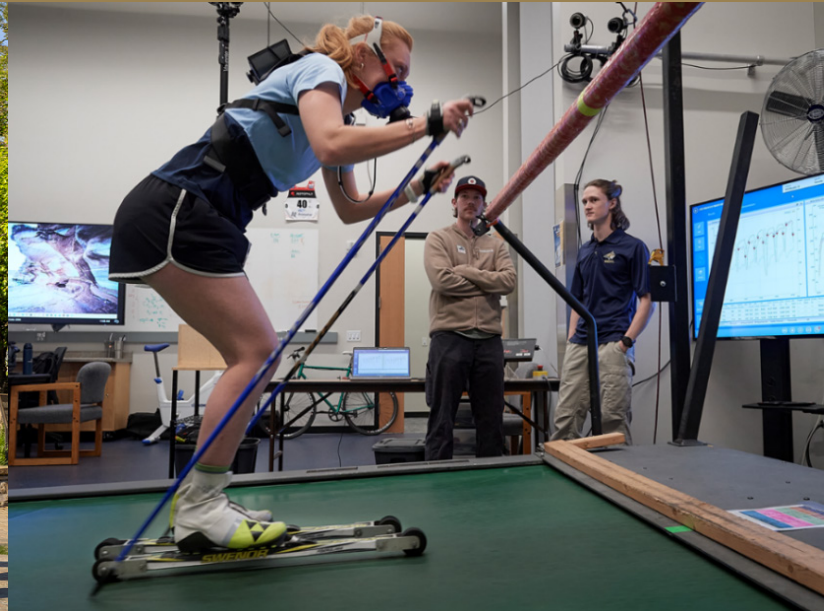




MONTANA
STATE UNIVERSITY

Neuromuscular
Biomechanics Laboratory



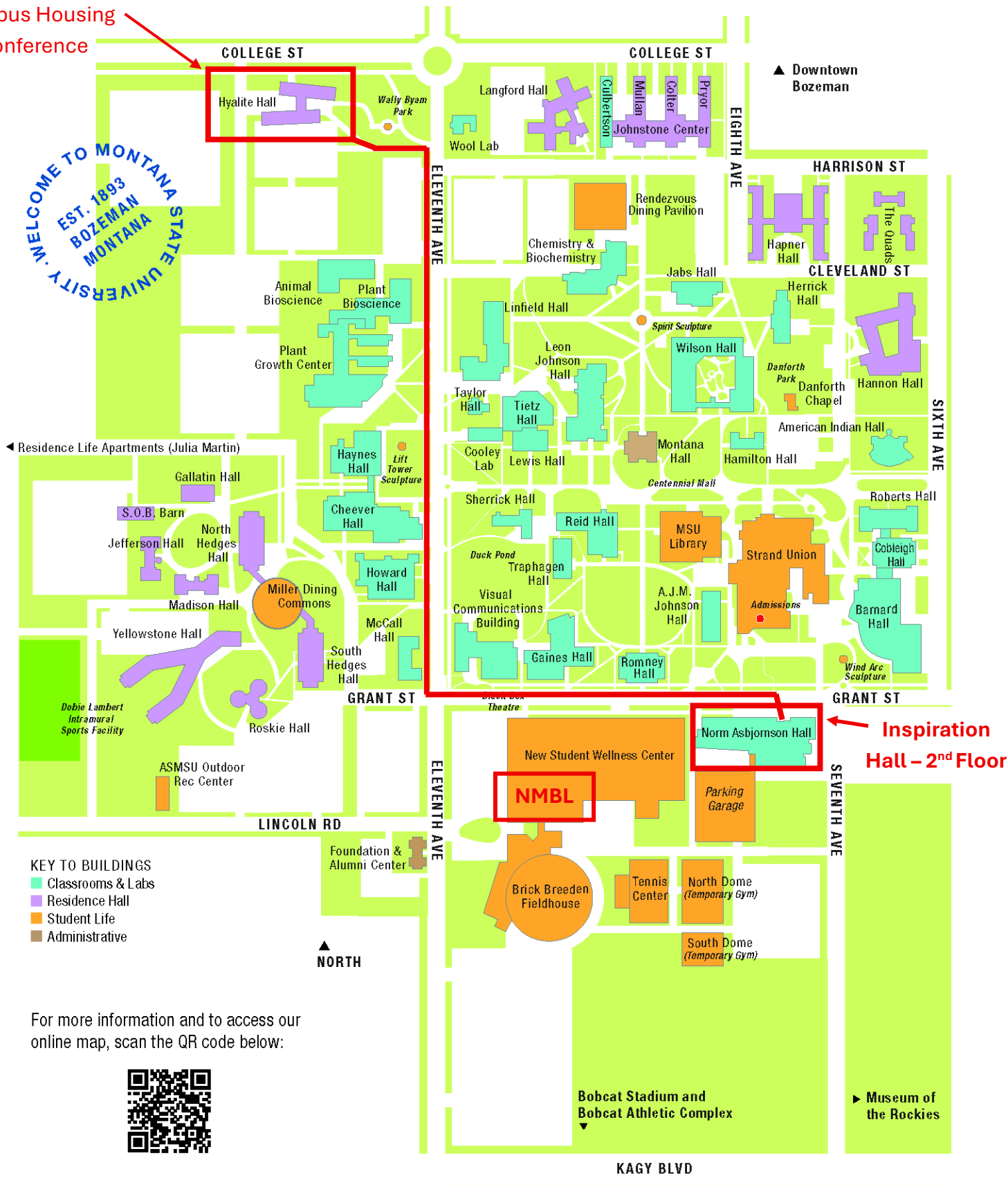
NWBS26

Northwest Biomechanics Symposium

Bozeman, MT, May 22-23, 2026

Montana State University

Hyalite Hall – On Campus Housing for conference



- KEY TO BUILDINGS**
- Classrooms & Labs
 - Residence Hall
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Program At-A-Glance

Friday, May 22nd

Time	Event	Location
9 am – 10 am	Group Hike	College “M” Trailhead
11 am – 12 pm	Registration	
12:00 pm – 12:10 pm	Opening Remarks	Inspiration Hall – Norm Asbjornson Hall
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	
6:30 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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College of Education, Health and Human
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and Kinesiology

Undergraduate Scholars Program

Gold Level



Silver Level



Bronze Level



Podium Session I

Friday, May 22nd, 12:15 – 1:30 PM

Moderators: TBD

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: TBD

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: TBD

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: TBD

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

M Koskela 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) MULTIVARIATE ANALYSIS PREDICTING SKI SPEED IN ELITE
BIATHLETES**

I Burgess, E Livingood, B Cabaniss, 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: TBD

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

JA Aderonmu and C Curtze

2) 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

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

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

4) MOTHER-INFANT MOVEMENT AND INTERACTION DURING BEDSHARING

Y Benavidez, L Beasley, M McCartney, C Wilson, 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