The dataset was queried for all cases under product code 1275: "Scuba diving (activity, apparel or equipment)" between January 1, 2012 and December 31, 2014. These data then were analyzed to provide a descriptive analysis of the epidemiology of scuba diving-related injuries.

Results.—The NEISS representative dataset produced 122 unique cases that resulted in an estimated total national injury burden over this 3-year period of 4151 cases. The most common injury diagnosis (2188, 52.7%) was coded as "other." Musculoskeletal-related injuries were noted in 1072 (26%) cases, 2439 (58.7%) patients were discharged, and 861 (20.7%) were treated and transferred to another facility. Similar numbers of patients presented to small, medium, and very large facilities.

Conclusions.—Scuba diving injuries present to emergency departments of all sizes, and providers at small- and medium-sized facilities need to be prepared to treat these patients. The injuries identified included many musculoskeletal injuries that commonly occur with moving heavy equipment in a wet environment. Future safety initiatives aimed at the diving community should provide additional focus on the safe movement of equipment and increase awareness of the risks posed by the wet environment.

Exercise in Inversions: A Pilot Study of PM_{2.5} Air Pollution Effects on Pulmonary Function and Aerobic Performance

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Introduction.—Winter thermal inversions occurring in geographical regions confined by mountains can trap air pollutants, leading to the accumulation of small particulate matter (PM_{2.5}). Despite an association between respiratory hospital admissions and elevated PM_{2.5} levels, many people continue to exercise outdoors during inversions.

Objective.—To compare pulmonary function and exercise performance during periods of low and high ambient PM_{2.5} concentrations.

Methods.—Forced vital capacity (FVC) and forced expiratory volume in 1 sec (FEV1) were measured outdoors before and after 2 running time trials of 3200 m. One run was performed with low PM_{2.5} concentration (<12.0 µg/m³), and the other trial was conducted during "yellow" or "orange" air quality alert days (PM_{2.5} ≥ 12.0 µg/m³). Additionally, a 10-cm visual analog scale (VAS) assessment administered postexercise was used to quantify subjective ratings of respiratory discomfort during the run.

Results.—The PM_{2.5} differential between trials was ≥18 µg/m³ for 10 volunteers. Despite feeling significantly more respiratory discomfort during the bad air trial (VAS: 2.9 ± 1.8 vs 4.6 ± 1.8 cm; *P* = .044), the differences in 3200 m run time (834.4 ± 94.4 seconds vs 847.4 ± 104.0 seconds; *P* = .261) and immediate postexercise heart rate (188.4 ± 8.1 beats/min vs 186.0 ± 7.4 beats/min; *P* = .328) were not significant between trials. Furthermore, the difference in postexercise FVC was not significantly different (*P* = 0.846) between the low PM_{2.5} (4.86 ± 1.00 L) and high PM_{2.5} (4.84 ± 0.95 L) conditions. Similarly, the difference in postexercise FEV1 was not significant (*P* = .750) between trials (4.22 ± 0.89 L vs 4.23 ± 0.85 L).

Conclusions.—Neither run time nor pulmonary function were adversely affected by high ambient PM_{2.5}. These parameters might not be sensitive to the negative health consequences of acute air pollution exposure.

Funding: Seed Program to Advance Research Collaborations (SPARC) grant from Utah State University.

Accuracy of Acute Kidney Injury Measurements in Multistage Ultramarathon Runners

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Introduction.—Acute kidney injury (AKI) is common among endurance runners. Current practice to diagnose AKI when baseline serum values are unavailable uses an age-based estimation of glomerular filtration rate (GFR) and the Modification of Diet in Renal Disease (MDRD) equation for back-calculation of

baseline creatinine (Cr). However, the accuracy of this practice in a cohort of healthy runners is unknown.

Objective.—To evaluate the accuracy of the age-based GFR and MDRD equation in ultramarathoners.

Methods.—A multisite prospective analysis from participants in the 155-mile (250-km) Racing the Planet multistage ultramarathons in the Sahara, Gobi, and Atacama Deserts. Baseline creatinine (Cr) measurements were taken prior to race start and compared with estimated Cr using age-based GFR and MDRD.

Results.—Forty-eight study participants (27% women, age 39.3 ± 10.3 years) were analyzed with all racers combined as a single cohort. Age-based estimated baseline GFR was 95.9 ± 5.8, and the corresponding Cr was 0.88 ± 0.1 by MDRD. Measured Cr was 0.99 (± 0.2) at race start, with a corresponding baseline GFR calculated via the MDRD equation of 86.1 (± 14.6) and a candidate healthy population equation of 107.1 ± 9.3. Age-based GFR with back-calculation of Cr by MDRD underestimates measured Cr by 9% (*P* < .001), while back-calculation of Cr by a candidate healthy population overestimates measured Cr by 27% (*P* < .001). Correlation between estimated baseline GFR and MDRD-based GFR was low (*r* = .1). Correlation between estimated baseline GFR and the healthy population equation GFR was higher (*r* = .43).

Conclusions.—Analysis of the accepted age-based GFR and MDRD equations resulted in an underestimation of baseline Cr, leading to an overestimation of subsequent AKI. Additional studies are needed to create a more accurate estimation for baseline renal function, and this method should consider using the healthy population equation for a more accurate estimation of disease.

Blood Pressure and High Altitude: An Observational Cohort Study of Hypertensive and Nonhypertensive Himalayan Trekkers in Nepal

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Background.—Hypertension is the most common cardiovascular disease among those recreating at high altitude. Previous studies with smaller, more homogenous participant pools have demonstrated increases, decreases, and no change in blood pressure (BP). We sought to characterize how BP changes with altitude on both a population-wide and individual level in normotensive (NTN) and hypertensive (HTN) trekkers in Nepal.

Methods.—Trekkers in the Solukhumbu Valley of Nepal, aged 18 years and older, were recruited at 2860 m. They reported demographic information, medical history, and medications. Resting BP was recorded at 2860 m, 3400 m, and 4300 m on ascent and descent. Responses were compared between NTN and HTN subjects and across altitudes.

Results.—We enrolled 604 NTN and 60 self-reported HTN trekkers. At 2860 m, mean systolic BPs (SBP) in NTN and HTN trekkers were elevated relative to self-reported home measurements (*n* = 303, mean difference = 9 mm Hg [95% CI 5-13], *P* < .05). Mean SBP did not differ between altitudes on ascent or descent