2474  Board #2  May 29 9:30 AM - 11:30 AM

The Influence Of Match Congestion, Load And Wellness On Injury Risk In Collegiate Women's Soccer
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(No relationships reported)

The impact of match congestion, training load (TL), perceived stress, fatigue and soreness on the odds of injury remains unclear.

PURPOSE: To examine the influence of: 1) days rest between matches on injury rate (IR) and odds of injury and; 2) TL on injury, perceived stress, fatigue and soreness.

METHODS: A prospective multi-site study tracked daily exposures, TL (distance and duration), injury and perceptual data from six Division I NCAA women’s soccer teams in one season. Overall and non-contact (NC) IRs expressed per 1000 athlete exposures (AEs), and odds ratios (OR) were determined by days before and after matches. Associations between injury and changes in both TL and perception were analyzed using a multilevel logistic regression.

RESULTS: 139 players experienced 94 injuries in 137 matches and 107 injuries in 363 practices. Overall match and practice IRs (per 1000AEs [95%CI]) were 39.0 [31.1, 46.9] and 17.1 [13.9, 20.3], respectively. While insignificant (p > 0.21), match IRs were highest between 2 days matches (IR= 50.9 [26.7, 75.1]). Players were at increased odds of being injured in a match with 1 to 5 days since the last match vs. 6+ days (OR [95%CI] = 1.79 [1.02, 3.17]), Practice IRs were highest in the preseason (IR = 28.8 [17.0, 40.5]), Players were at increased odds of sustaining a NC overuse injury with 1-5 days between matches vs. 6+ days (OR=7.85 [1.06, 57.94]; p<0.04). Similarly, 1-3 days’ rest had 2.24 (1.03, 4.88) times higher rates on NC overuse IR than 4+ days’ rest (p<0.05). Acute NC IR was increased with 1 to 3 days rest vs. 4+ days rest (OR= 3.01 [1.11, 8.14]; p<0.03). Players were at increased odds (p < 0.001) of feeling fatigue (>5) (OR= 4.71 [1.82, 12.17]) and soreness (>5) (OR= 7.68 [2.26, 22.10]) on match day with 2 days vs. 7+ days since the last match. For each additional 3000m covered on a day, odds of overall injury, soreness and fatigue increased (41%, 32% and 31% respectively).

CONCLUSION: Days between matches and acute TL increases on a given day had a negative impact on odds of injury and perception. The odds of getting injured in a match were greater with 1 to 5 days vs. 6+ days between matches. These data may be used to inform and guide the NCAA in determining optimal scheduling and recovery.

2475  Board #3  May 29 9:30 AM - 11:30 AM

Biomarkers Differ Between And Within Starters And Non-Starters Throughout A Collegiate Soccer Season
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PURPOSE: To observe differences in blood biomarkers (oxygen (O2) transport, immune, cardiovascular (CV) health and hematology) between starters (S) and non-starters (NS) over a full NCAA Division 1 collegiate men’s soccer season.

METHODS: Biomarkers (n = 30) related to O2 transport (n = 9), immune function (n = 12), and CV and lipid profiles (n = 9) were collected at the start of pre-season (PS), in-season at weeks (W) 1, 4, 8, and 12 in soccer players (n = 20, mean ± SD; age = 21 ± 1, height = 180 ± 6 cm, body mass = 78.19 ± 6.3 kg, body fat = 12.0 ± 1.6%). Within-season significant differences were found between PS and W1 for NS (HCT, HGB, RBC, Total Chol, LDL, Non-HDL cholesterol, Non-HDL, HDL cholesterol, [LDL], Chol:HDL ratio, non-HDL-cholesterol, Direct LDL, HDL, Apolipoprotein B [ApoB]), S demonstrated significant increases in RBC (W1) and Chol:HDL (W8), while NS demonstrated significant increases in HCT and HGB (W4), Chol:HDL (W4, W12). Within-group significant differences were found between PS and W1 for NS (HCT, HGB, RBC, Total Chol, LDL, Non-HDL, ApoB) and for S (Chol:HDL, non-HDL, LDL, HDL, HCT, HGB, RBC, LDL, Non-HDL, Direct LDL, Apo B were different from W1 to W4, while only Apo B was different in S. From PS to W12, Total Chol, LDL, and non-HDL were significantly different for NS while HCT, HGB, Chol:HDL, and non-HDL were different in S.

CONCLUSIONS: Our findings indicate that there are differences between and within S and NS for many biomarkers related to O2 transport, immune, CV health and hematology throughout a collegiate men’s soccer season. Thus, future analyses should account for playing status as a covariate. From a clinical perspective, while all biomarkers were within normal reference ranges, sports medicine personnel should account for playing status and individual differences when tracking or diagnosing athletes who demonstrate signs of clinical pathologies associated with these biomarkers.

2476  Board #4  May 29 9:30 AM - 11:30 AM

Variability Of Heart Rates During Small Sided Games In Female College Soccer Players
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(No relationships reported)

Soccer is one of the most popular sports in the world that include small sided games (SSGs) as a match specific type of training. Much is known about the physiological demands of offical match-play (OM), however less is known about which practice elements most closely mimic OM situations.

PURPOSE: To assess differences in HR and soccer performance during SSGs in female college soccer players in comparison to a full competitive match.

METHODS: Twenty female collegiate soccer players (mean ± SD; age = 20 ± 1yrs, height = 169 ± 6cm, weight = 64 ± 6kg) were recruited to participate in this study. A commercially available team monitoring system was used to measure HR and determine time spent in various zones based on %HRmax. Player touches (contacting the ball) were based on video analysis of each session. Field size (120m x 75m) for the SSGs were kept constant, but the intensity of the games were influenced by the number of players involved (6 vs 6, 7 vs 7, 8 vs 8, 9 vs 9 and 11 vs 11).

RESULTS: A one-way repeated measures ANOVA showed there was a significant main effect of average HR on SSGs, F (4, 64) = 11.248; p < 0.01. The average %HRmax responses increased in concert with the increased number of players in SSGs (6 vs 6 = 73 ± 6%, 7 vs 7 = 75 ± 10%, 8 vs 8 = 81 ± 7%, 9 vs 9 = 83 ± 5%, and 11 vs 11 = 83 ± 6%). A one-way repeated measures ANOVA showed there was a statistically significant main effect of group size on the number of touches, F (4, 64) = 12.67, p < 0.001. The number of touches were inversely related to the number of players (11 vs 11 = 46 ± 16, 9 vs 9 = 61 ± 15, 8 vs 8 = 66 ± 22, 7 vs 7 = 78 ± 22, and 6 vs 6 = 86 ± 28. A two-way Mixed Model ANOVA showed there was no significant main effect of position (DEF, MID, STK) on time spent in heart rate zones, F (2, 72) = 1.38, p > 0.05.

CONCLUSION: Changes in SSGs game format affect the players Using SSGs can allow coaches to more closely alter physiological and technical demands differently. The greater touches with fewer players may enhance technical ability. However, fewer players in SSGs are also associated with a lower %HRmax. The 9 vs 9 SSGs formats provide players with the opportunity to spend sufficient proportion of time spent in high intensity HR zones that are specific to OM.