RESULTS: There was no significant difference (*p* > .05) between the true health status and classified by ITHRAS , according to the chi-square tests (see Table 1 for details. The area under ROC curve (AUC) of the system for hypertension, hyperglycemia and hyperlipidemia were 0.947, 0.933, 0.808 (AUC>0.7), respectively. The results indicate that ITHRAS has high predictive validity in terms of the hypertension and hyperglycemia.

Table 1. Statistical Summary of Predictions by ITHRAS

	Hypertension	Hyperglycemia	Hyperlipidemia
True Health Status (%)	38.272	32.099	49.383
Prediction by ITHRAS (%)	40.741	35.802	45.679
Chi-square test (p-value)	0.774	0.629	0.581
ROC (AUC)	0.947	0.933	0.808

CONCLUSION: The predictive validity of ITHRAS in preliminary screening of hypertension and hyperglycemia was confirmed. But the accuracy of hyperlipidemia detection also needs to be improved. Due to its non-invasive, short detection time, and non-radiation characteristics, ITHRAS should be applicable and welcomed in large-scale hypertension and hyperglycemia status screening.

2730 Board #13 June 1 2:00 PM - 3:30 PM

Determining Consistency And Agreement Of Scores Across Two Measurements Of The Visual System: Test-retest Reliability

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(No relevant relationships reported)

Some authors have suggested concussion symptoms may be due to subtle visual problems because they are similar to those that occur with difficulty focusing the eyes. Although binocular vision tests (BVTs) are frequently used to evaluate visual symptoms, their reliability has not been evaluated. The 10 BVTs under investigation measure: 3D vision (gross stereoscopic acuity (GSA)), saccades, anatomic deviation (AD) at 30cm and 3m, and the eye's ability to move/focus in-sync [convergence motor punctum proximum (CMPP), binocular fusion with convergence (BFC) and divergence (BFD) at 30cm and 3m, convergence fusional proximum (CFP)].

PURPOSE: To determine the one-week test-retest reliability of 10 BVTs in healthy participants.

METHODS: One clinician examined each participant at their earliest convenience (T1), and one week after their first visit (T2). We assessed test-retest reliability using intraclass correlation coefficient (ICC) and limits of agreement (LoA). We judged an ICC of ≤0.5 as poor, 0.51-0.74 as moderate, 0.75-0.89 as good, and ≥0.90 as excellent reliability. We present 95% LoA for the % difference i.e. the difference in scores (T1-T2) divided by the average of the scores (T1+T2)/2 times 100.

RESULTS: We tested 20 participants (1 lost at T2, excluded from analysis). There were 10 males and 10 females with a mean age of 25.5 (SD = 4.0) years. Our ICC results suggest good reliability for AD 3m (0.88), and moderate reliability for GSA (0.62), AD 30cm (0.69), CMPP (0.54), BFC (0.54) and BFD (0.66) at 30cm, and CFP (0.64). There was poor reliability for saccade (0.34), and BFC (0.49) and BFD (0.43) at 3m. LoA was best for saccade (±34%) and worst for AD 30 cm (±121%), and ranged from ±58% to ±70% for 7/8 other tests. For AD 3m, LoA (±200%) did not provide an accurate summary as it assumes a Normal distribution of values. In fact, 18/20 pairs of measurements were identical, one paired scored 0 and 1, the other scored 0 and 2.

CONCLUSIONS: Our results demonstrate moderate to good test-retest reliability for 7 out of 10 BVTs, and poor reliability for saccades, and BFC and BFD at 3m. LoA results suggest the effect of concussion must have a moderate to large effect on the scores of most of the tests if they are to be clinically helpful.

2731 Board #14 June 1 2:00 PM - 3:30 PM

Hit Or Miss: Kinematic Predictors Of In-game Performance In Collegiate Pitching

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(No relevant relationships reported)

Baseball coaches, scouts, and statisticians argue over the variables that lead to a successful season. Among pitchers, earned run average (ERA), strikeouts per inning (SPI), and fielding-independent pitching (FIP) are useful metrics to evaluate the quality of a pitcher. Kinematic predictors of these measurements can provide strength coaches and athletic trainers with valuable information for exercise prescription.

PURPOSE: To assess kinematic predictors of success in collegiate pitchers via SpartaTrac measurements.

METHODS: We collected data on 30 Division 1 baseball pitchers. Independent variables were height, weight, year in school, Sparta force plate data (Load, Explode, and Drive), vertical jump, and pitch speed. SpartaTrac data were recorded as the best of six trials and were collected at multiple times throughout a season. Dependent variables were winning percentage, ERA, SPI, and FIP; each of these was calculated as a season statistic. Multiple linear regressions tested the SpartaTrac outputs on dependent performance variables, holding significant confounders constant.

RESULTS: In our cohort of pitchers, winning percentage was 41.9% ± 26.2%, ERA was 6.5 ± 5.1, FIP was 6.0 ± 3.5, and SPI was 0.8 ± 0.5. Holding confounding variables constant, predictors of winning percentage were Load (β=0.004; p=0.047), Explode (β=-0.011; p<0.001), and Drive (β=-0.016; p<0.001); the overall model was significant (R2=0.516; p<0.001). Predictors of ERA were Load (β=-0.138; p=0.008) and Explode (β=0.213; p<0.001); the overall model was significant (R2=0.442; p<0.001). Predictors of SPI were Load (β=-0.095; p=0.013), Explode (β=0.267; p<0.001), and Drive (β=0.161; p=0.001); the overall model was significant (R2=0.501; p<0.001). Predictors of SPI were Load (β=0.012; p=0.039) and Explode (β=-0.034; p<0.001); the overall model was significant (R^2=0.313; p<0.001).

CONCLUSIONS: SpartaTrac data correlate with on-field performance of collegiate pitchers, although the effects are not always encouraging. Out of the four evaluated performance metrics, Load and Explode each improved two and worsened two. Drive improved one, worsened one, and was irrelevant in two. Before coaches, scouts, and trainers can predict how Sparta data affect pitching performance, more analyses must be done on larger pools of pitchers.

2732 Board #15 June 1 2:00 PM - 3:30 PM

Gender Differences In The Association Of Grip Power With Other Physical Strength Among Japanese

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Coming super-aging society, grip power has been regarded as a vital sign among older adults, since it can be evaluated with ease and safety and is associated with a lot of health-related consequences.

PURPOSE: The purpose of the study is to evaluate the association between grip power and more time-consuming assessments of physical strength, especially focusing on the gender differences.