

# アジリティの測定・評価とトレーニング

広瀬統一  
早稲田大学スポーツ科学学術院

## Outline

- アジリティの定義
- アジリティ&方向転換能力の測定
- 方向転換能力の評価
- アジリティ&方向転換能力向上トレーニング

## 広義のアジリティ



## 狭義のアジリティ

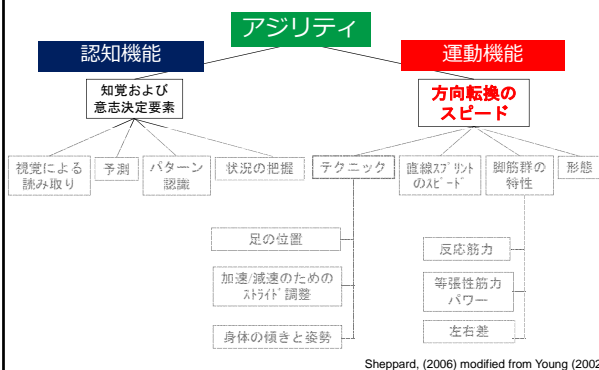
- 急激に**方向転換**する能力 (Bloomfield et al., 1994)
- 急激に正確に**方向転換**する能力 (Barrow & McGee, 1971)
- 急激な動作や四肢の**方向変換**と同様に全身の**方向転換**も含む動作の遂行能力 (Baechle, 1994)

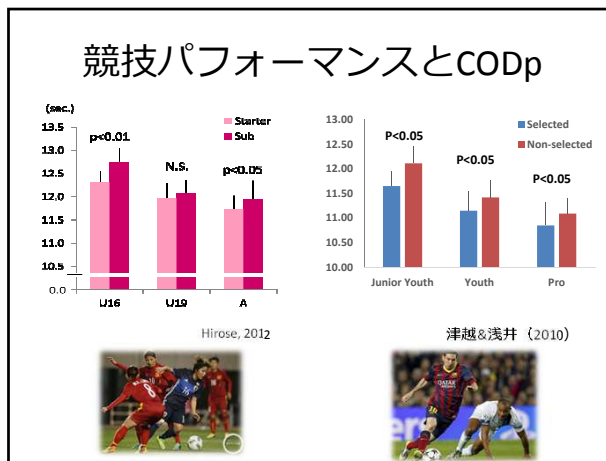
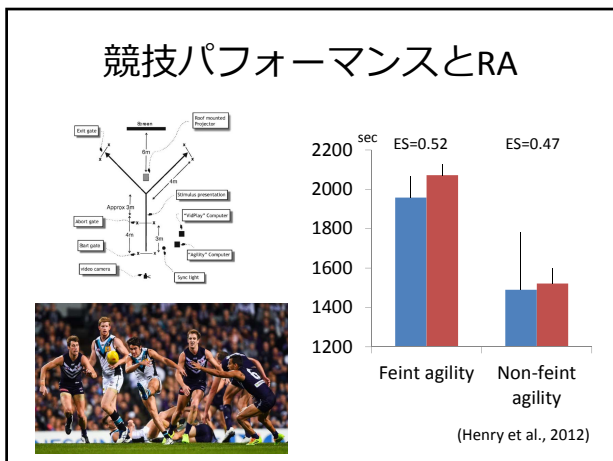
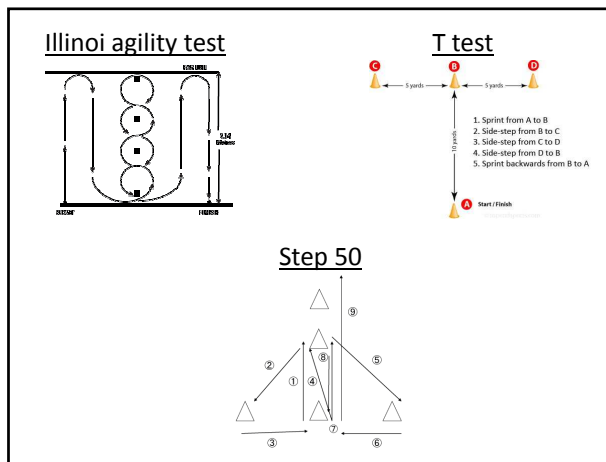
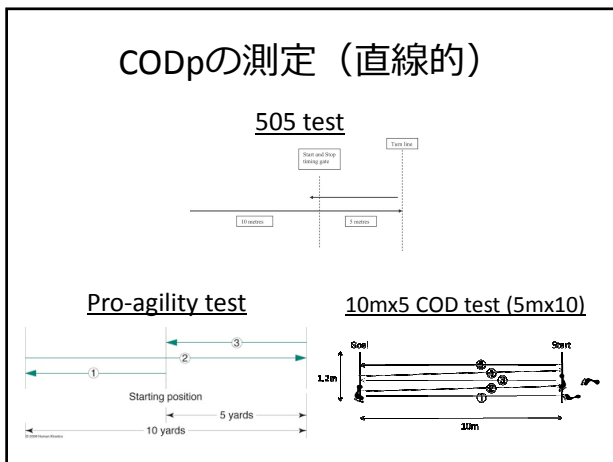
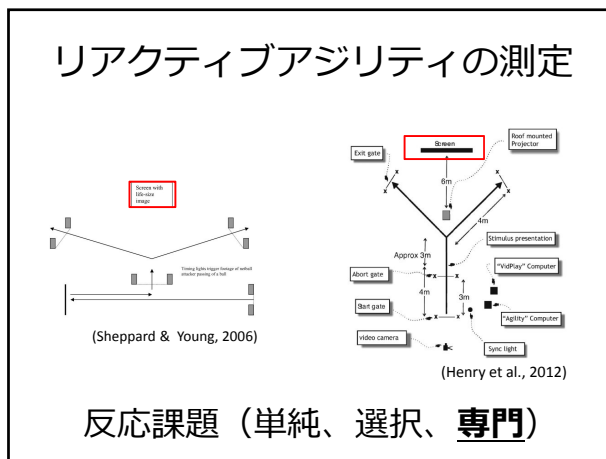
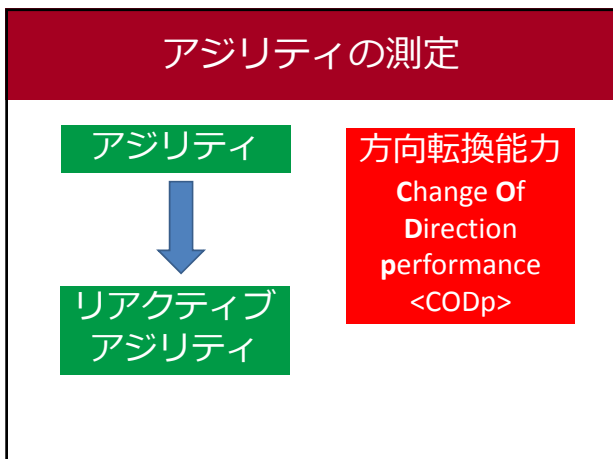


- 外界の物理的刺激に合わせて、**合目的に適切**で迅速な減速、停止、方向転換、加速を**実行する能力**



## アジリティの構成要素



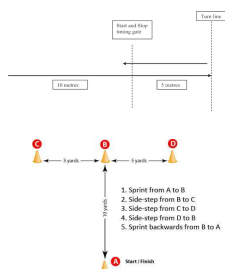


### 測定項目に関わる変数と項目選択

- 距離
- 動作



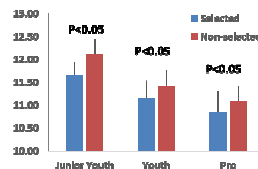
- 競技特性  
(バイオメカニクスの分析)



### 比較可能性

論文データの有無

データプールの有無



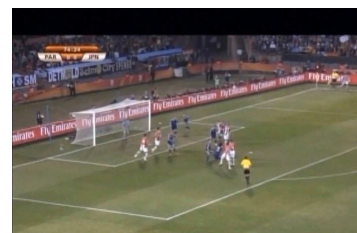
### 測定種目の選択

1. バイオメカニクスの競技特性 (距離・動作)
2. 比較可能性 (データプールの活用)
3. 他の運動能力との関係

継続することが重要

### 評価 | 定量・定性 |

- 位相
  - 減速
  - 停止
  - 方向転換
  - 再加速



### 各位相の観察例

- ロコモーター & パッセンジャーの関係

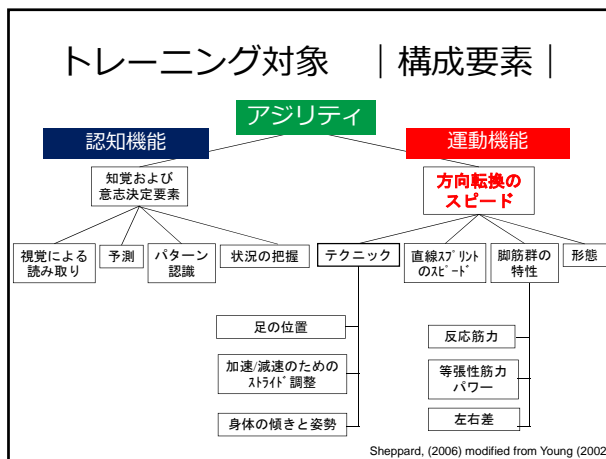


### アジリティ・CODpの評価

1. 定量的評価 <時間>
2. 定性的評価
  - 各期の動作観察 <目のつけどころ>
  - (不良) 動作を産み出す要因検討

## アジリティ向上のトレーニング

- CODp向上
- アジリティ向上



## スプリントトレーニング

○

Young et al., 2001

×

Markovic et al., 2007  
Shalfai et al., 2013



## ストレングストレーニング

×

Fry et al., 1991  
Cronin et al., 2003  
Tricoli et al., 2005  
Hoffman et al., 2004  
Hoffman et al., 2005

○

Malisoux et al., 2006  
Miller et al., 2006




## テクニックトレーニング

○



○



**競技動作トレーニング**

- バレーボール (Gabbett et al., 2006)
- サッカー (Polman et al., 2004, Cressey et al., 2007)

**CODに特化したトレーニング**

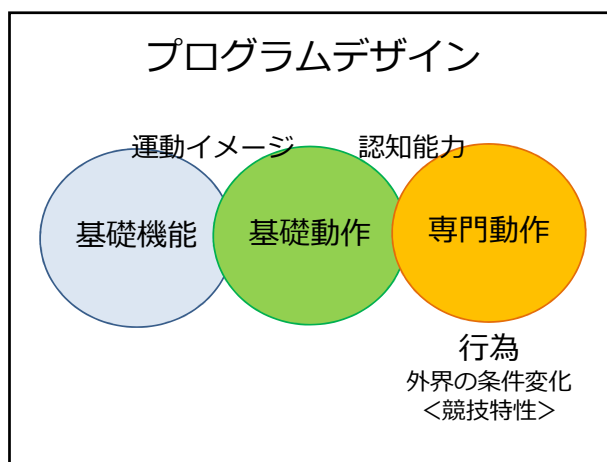
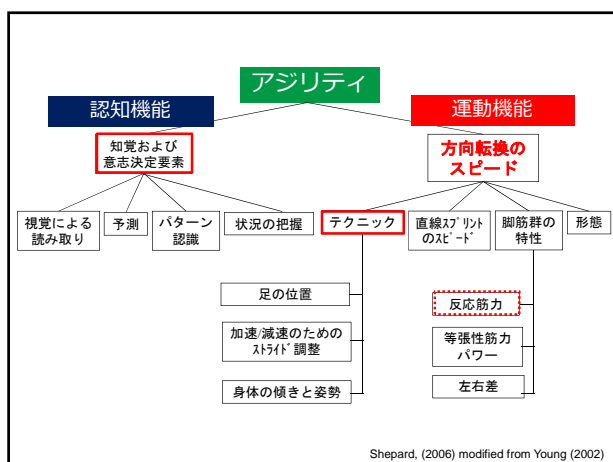
- Gabbett et al., 2006-a, b
- Dean et al., 1998
- Christou et al., 2006
- Milanovic et al., 2013

## フットワーク



基礎的フットワーク





## アジリティ・CODpトレーニング

1. 特異性
2. テクニックの複合
3. 基礎機能・基礎動作・専門動作
4. 環境との適合性（認知機能）

## Take home message

1. 認知 + 機能
2. 競技動作特性・比較可能性
3. 定量・定性評価と要因分析
4. トレーナビリティの特異性

### 参考文献

- Baechle TR. (1994). Essentials of strength and conditioning, Human Kinetics.
- Barrow MH & McGee R. (1971). A practical approach to measurement in physical education, Lea & Febiger.
- Bloomfield J et al. (1994). Applied anatomy and biomechanics in sport, Blackwell Scientific.
- Christou M et al. (2006). Effects of resistance training on the physical capacities of adolescent soccer players. J Strength Cond Res. 20(4): 783-791.
- Cressey EM et al. (2007). The effects of ten weeks of lower-body unstable surface training on markers of athletic performance. J Strength Cond Res. 21(2): 561-567.
- Cronin J et al. (2003). The effects of bungee weight training on muscle function and functional performance. J Sports Sci. 21(1): 59-71.
- Dean W et al. (1998). Efficacy of 4-week supervised training program in improving components of athletic performance. J Strength Cond Res. 17(1): 15-18.
- Fry A et al. (1991). The effects of an off-season strength and conditioning program on starters and non-starters in women's intercollegiate volleyball. J Strength and Cond Res. 5(4): 174-181, 1991.
- Gabbett TJ et al. (2006). Performance changes following a field conditioning program in junior and senior rugby league players. J Strength Cond Res. 20(1): 215-221.
- Henry G et al. (2012). Decision making accuracy in reactive agility: Quantifying the cost of poor decisions. J Strength Cond Res. 22: (epub).
- Hoffman JR et al. (2004). Comparison of Olympic vs traditional power lifting training programs in football players. J Strength Cond Res. 18(1): 129-135.

- Hoffman JR et al. (2005). Comparison of loaded and unloaded jump squat training on strength/power performance in college football players. J Strength Cond Res. 19(4): 810-815. Malisoux L et al. (2006). Stretch-shortening cycle exercises: an effective training paradigm to enhance power output of human single muscle fibers. J Appl Physiol. 100(3): 771-779.
- Markovic G et al. (2007). Poor relationship between strength and power qualities and agility performance. J Sports Med Phys Fitness. 47.
- Milanovic M et al. (2013). Effects of 12 week SAQ training programme on agility with and without the ball among youth soccer players. J Sports Sci Med. 12: 97-103.
- Miller M et al. (2006). The effects of a 6-week plyometric training program on agility. J Sports Sci Med. 5: 459-465.
- Polman R et al. (2004). Effective conditioning of female soccer players. J Sports Sci. 22(2):191-203, 2004.
- Shalfai SA et al. (2013). The Effect of Combined Resisted Agility and Repeated Sprint Training Vs. Strength Training on Female Elite Soccer Players. J Strength Cond Res. 25.
- Sheppard JM & Young WB. (2006). Agility literature review: classifications, training and testing. J Sports Sci., 24(9): 919-932.
- Spiteri T et al. (2013). Effect of strength on plant foot kinetics and kinematics during a change of direction task. Eur J Sport Sci. 13(6):646-52.
- Tricoli VA et al. (2005). Short-term effects on lower-body functional power development: weightlifting vs vertical jump training programs. J Strength Cond Res. 19(2): 433-437.
- 津越 & 浅井. (2010). リーグサッカークラブにおける上位カテゴリーへの選手選抜に関する横断的研究—体力・運動能力を対象として—. 体育学研究. 35: 565-576.
- Young WB et al. (2001). Specificity of sprint and agility training methods. J Strength Cond Res. 15(3): 315-319.
- Young WB et al. (2002). Is muscle power related to running speed with change of direction? J Sports Med Phys Fitness. 42(3): 282-288.