Should we be correcting flaws in uninjured runners or should we wait until an injury presents so we can be more targeted?

Platforms
An Investigation of Relationships between Physical Characteristics of Recreational Runners and Lower Extremity Injuries (Steven Jackson)

Effect of training on knee torsional stiffness and its relationship to tibial compressive and anterior shear forces in recreational female runners (Bhushan Thakkar)

Reliability of Lower Extremity 2D Video Running Gait Analysis (Katherine Krummen)

Clinical Prediction of Patellofemoral Joint Contact Force during Running (John Willson)

Case Study
Runner with Patellofemoral Pain

Point (Mitchell Rauh, PT, PhD, MPH, FACSM)
1) The Epidemiological Risk Factor Model: Its role in anatomical/biomechanical or neuromuscular factors and their risk associations with running-related injuries.
   a. The evidence on the impact of a running-related injury occurrence
      i. Injury rates are high in most running populations
      ii. Subsequent injury rates becoming increasingly clear in some running populations
   b. Modifiable risk factors for running-relate injuries: a growing evidence
      i. Intrinsic: Anatomical/biomechanical, BMI, Gender
      ii. Extrinsic: Training error (mileage, step/stride rate), shoewear, orthotic and heel pad use
   c. Help the chicken avoid getting hit while crossing the street: Injury prevention is KEY to minimizing running-related injury!
      i. The need for pre-screening and baseline testing prior to running injury occurrence
      ii. The need to focus on risk factors that are modifiable, particularly training errors
      iii. Reducing modifiable risk factors will likely vary by running population
2) Areas recommended for future study to improve clinical and research efforts to minimize flaws in uninjured runners to reduce running-related injuries.

References for Point:

**Counterpoint (Bryan Heiderscheit, PT, PhD)**

1) Do we know what neuromuscular or biomechanical factors might cause running-related injuries?
   a) Many studies have demonstrated an association
      i) Pronation and injury
      b) Minimal prospective evidence
         i) Hip adduction and patellofemoral pain and iliotibial band syndrome
         ii) Loading rate and bone stress injuries
             (1) But contributions to loading rate are not well understood
      c) No clinical trials showing reduced injury rates
2) Are suspected injury-inducing mechanics generalizable across age, gender and running speed?
3) How do you know if you are successful?
   a) Typical lack of follow-up
   b) The assumption of success
4) Among injured runners, change in symptoms provides gauge of success
   a) Growing number of publications, albeit most are case series
   b) Limited data regarding risk of re-injury
5) Start with avoiding training errors and addressing physical impairments.
   a) Change in weekly mileage
   b) Muscle weakness
   c) Postural control
6) Despite the lack of evidence, changing running mechanics of non-injured runners should be considered in an exploratory way
   a) Avoid doing so generically or extensively
   b) Apply to specific individuals with chronic injuries
   c) Identify high risk groups (i.e., high school girl cross country runners; novice runners)
References for Counter Point